Appendices to the Economic Analysis for the Stage 2 Disinfectants and Disinfection Byproducts Rule: Appendices A-M

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Appendix A
Surface Water Compliance Forecasts

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The Surface Water Analytical Tool (SWAT) is the primary tool used by EPA to predict treatment technology changes in surface water systems to achieve compliance with the Stage 2 Disinfection and Disinfectants Byproducts Rule (DBPR). Treatment technology changes are the basis for calculating national cost estimates in this Economic Analysis (EA). SWAT is also one of the primary tools used to predict changes in national chlorination disinfection byproduct (DBP) occurrence levels as a result of the treatment technology changes. Changes in DBP occurrence levels are used to quantify benefits (specifically, reduced bladder cancer) of the Stage 2 DBPR.

The purpose of this appendix is to review the major components in SWAT; summarize its operations; itemize the uncertainties in SWAT and discuss their potential impact on cost and benefits estimates; present an alternative compliance forecast methodology for comparison to SWAT; and present detailed compliance forecast results for all sizes of surface water systems. It is organized as follows:

Part I: SWAT Operations

A.1 SWAT: An Introduction

One of the major tools developed in conjunction with the Microbial-Disinfectants/Disinfection Byproducts Federal Advisory Committees Act (M-DBP FACA) process is the SWAT. SWAT is a decision support computational model designed to predict treatment technology choices and resulting changes in water quality for different rule alternatives and input conditions based on the Information Collection Rule (ICR) data. SWAT model outputs are used to generate compliance forecasts and DBP exposure estimates. The Environmental Protection Agency (EPA) used SWAT outputs to estimate costs and benefits of the Stage 2 Disinfectants and Disinfection Byproducts Rule (DBPR) regulatory alternatives.

A.1.1 Overview

This section presents an overview of how SWAT predicts DBPs and treatment technology selections for a given rule alternative[1]. The steps of a SWAT model run that predict DBPs and treatment technology selections for regulatory alternatives include the following (also shown in Exhibit A.1).

- DBP occurrence estimates are a function of total organic carbon (TOC), Ultraviolet-254 Absorbance (UVA), bromide, pH, temperature, residence time, and primary and secondary disinfectants. These data, from each valid month used in the SWAT analysis, are input from Auxiliary Database 8 (AUX8) into the Water Treatment Plant (WTP) Model.

- The WTP Model calculates trihalomethanes (THMs), haloacetic acids (HAAs), bromate, and chlorite concentrations with empirical equations at three different residence times—one representing finished water, one representing distribution system average, and one representing distribution system maximum.

- Based on an input compliance scheme (usually involving Maximum Contaminant Levels [MCLs] and a compliance aggregation method, such as running annual average), the Decision Tree Program assesses whether the plant meets the compliance criteria.

- If the plant meets the criteria, the WTP Model results are stored and no further change is made to the treatment process of the plant.

- If the plant fails to meet the criteria, the Decision Tree Program selects the next least cost treatment technology feasible for that plant (see Exhibits A.5 and A.6).

- The WTP Model is then run with the same influent water characteristics, but with the new treatment technology added to the plant record.

- The resulting DBP predictions are then compared with the compliance scheme.

- The process is repeated until either compliance is achieved or the end of the treatment technology tree is reached.

For details on SWAT components or operation beyond the descriptions in this appendix, refer to *Surface Water Analytical Tool (SWAT) Version 1.1—Program Descriptions and Assumptions* (USEPA 2000a).

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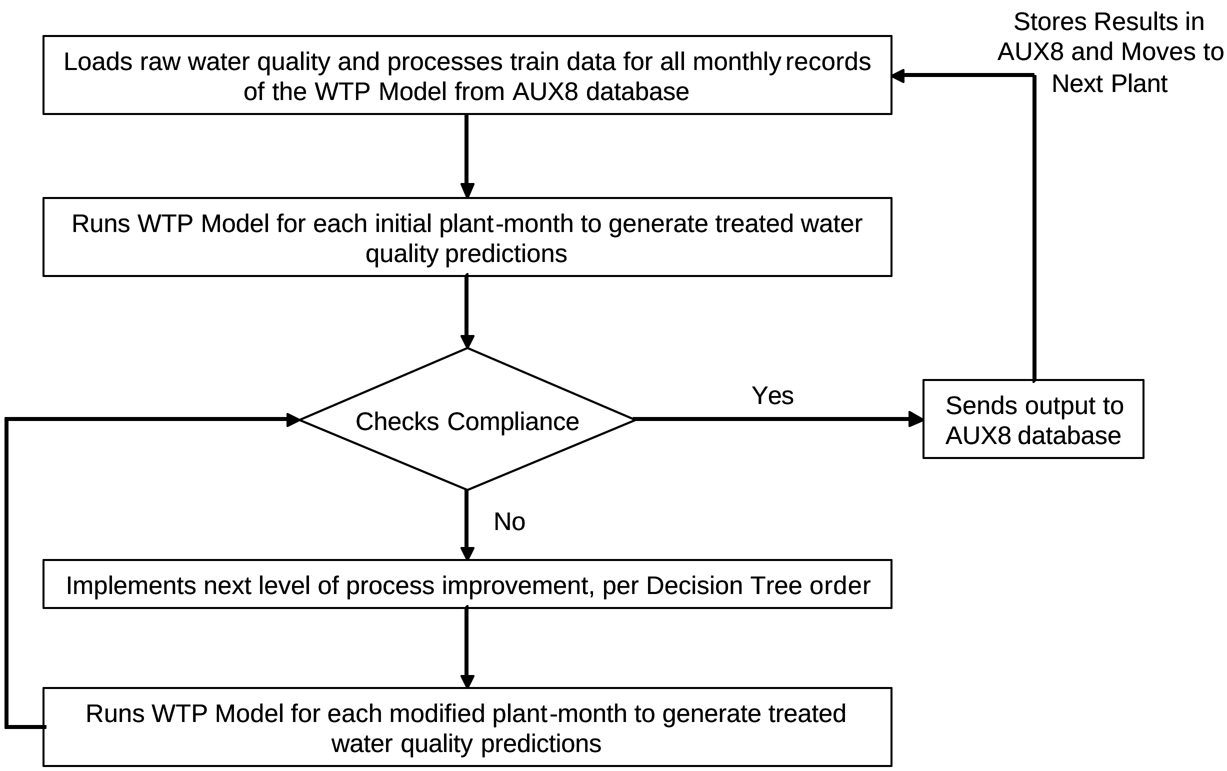
[1]The SWAT program can also be run in a mode to evaluate all possible treatment technology choices for each plant and the resulting DBP concentrations (called "Monster" SWAT runs). This section, however, focuses on regulatory compliance analyses

Exhibit A.1 Diagram of SWAT Process



A.2 Model Configuration

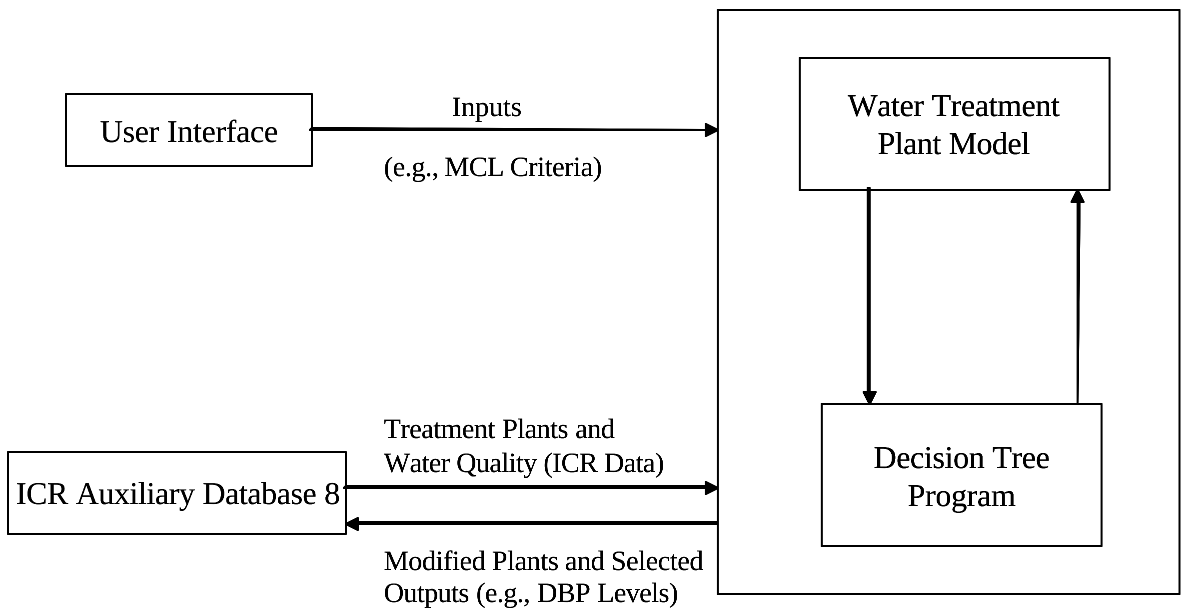
This section provides an overview of SWAT's configuration. Exhibit A.2 shows the four main components and how they interact. These components can be grouped into two categories:

- The input/output components, i.e., the user interface and the AUX8 database

- The computational/analytical components, i.e., the Decision Tree Program, and the WTP Model

Sections A.2.1 through A.2.4 describe these components in more detail.

Exhibit A.2 SWAT Components



A.2.1 User Interface

A Microsoft Windows™ interface enables the user to specify the disinfection and DBP regulatory criteria, as well as numerous other assumptions for a SWAT run (e.g., use of disinfection benchmarking, use of ultraviolet light [UV]). It also allows the user to run the WTP Model, which predicts DBP occurrence, and the Decision Tree Program, which selects treatment technologies to meet specified compliance options. The SWAT Version 1.1 program description document (USEPA 2000a) shows all input screens for the SWAT user interface. Section A.4 describes the user inputs and SWAT assumptions for the Stage 2 DBPR model runs.

A.2.2 Auxiliary Database 8

AUX8 is a Microsoft Access™ database that holds inputs and outputs for SWAT analyses. The database contains only the data from AUX 1 (the primary ICR database) that was need to run the SWAT model. Only the last 12 months of the 18-month ICR collection period were used in SWAT in order to avoid seasonal bias.[2] Ground water plants generally did not have as much information as surface water plants and thus were not modeled in SWAT. The surface water plants with at least one month of all required SWAT input data in AUX1 were screened into the AUX8 database. SWAT inputs from AUX8 are grouped into five categories—source water quality, treatment plant characteristics, unit processes, chemical additions, and distribution system characteristics—and are summarized below.

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[2] All of the 12-month series (months 1 to 12, 2 to 13, etc.) were examined during the M-DBP FACA process and determined to be similar.

(1) Source Water Quality

- pH
- Temperature (average and annual minimum)
- TOC
- UVA[3]
- Bromide
- Alkalinity
- Hardness (total and calcium)
- Ammonia
- Turbidity

(2) Treatment Plant Characteristics

- Flow (average and design)
- Sequence of unit processes and parameters influencing their performance such as volumes, flow, detention times, baffling characteristics and other process specific parameters.

(3) Unit Processes

- Conventional processes such as rapid mix, flocculation, sedimentation, and rapid sand filtration
- Granular activated carbon
- Microfiltration
- Nanofiltration
- Ozonation

(4) Chemical Additions

- Coagulation/Softening related chemicals: alum, carbon dioxide, sodium hydroxide, ferric chloride, lime, soda ash, and sulfuric acid.
- Oxidation/Disinfection related chemicals: chlorine (gas), sodium hypochlorite, chloramines, chlorine dioxide, ozone, ammonia, ammonium sulfate, potassium permanganate, and sulfur dioxide.

(5) Distribution System Characteristics

- Average and maximum distribution system residence times

In some cases, plants reported changes in their unit processes or chemical addition inputs during the ICR period. For example, some plants installed ozone during the ICR collection period. Also, many plants change disinfectant type from chlorine to chloramines during the year. The initial treatment technology level determination and disinfectant type for a plant was always based on the treatment technology or disinfectant that was reported most often.

Unlike user inputs described in Section A.2.1, ICR data in AUX8 is not intended to be modified by the user or varied from run to run. Each run creates a series of additional records in the AUX8 database. Each run is saved in a separate version of the AUX8 database. The databases are then compiled by a summary program.

[3] UV-254 absorbance measures the extent of absorbance of UV light (having a wavelength of 254 nanometers) by the natural organic matter (NOM) present/remaining in untreated/treated waters. It is sometimes referred to as UV_{254}, and it's units are cm^{-1}. In conjunction with TOC, it yields important insights into the characteristics of the NOM.

To increase the number of plant-months that could be processed by SWAT, some missing raw water quality data were estimated. For example, missing monthly values for influent pH, hardness, alkalinity, and ammonia were estimated based on the average of values that were reported in AUX1 for the other months. Missing monthly raw water temperature data were estimated based on reported temperature data from other points in the plant or distribution system for the same month. TOC and UVA were determined to be too critical to the calculations to be estimated if neither value was provided for a given month. If either TOC or UVA data existed for a plant month, the missing value was estimated using the ratio of UVA to TOC for the rest of the plant-months.

Of the 350 surface water plants in the ICR, 273, or approximately 78 percent, had at least one month with all required data for SWAT analyses. There is a potential bias resulting from the exclusion of ICR plants from the analysis. The M-DBP Technical Expert Working Group (TWG) determined, however, that the 273 plants evaluated in SWAT adequately capture treatment configuration and water quality conditions of all ICR surface water plants.

Plants only needed to report one valid month of data (i.e., one month with all required parameters) to be used in SWAT, so many of the 273 plants used do not have complete records for all months. Exhibit A. shows the extent to which there are complete plant-month records in SWAT. Note that over 70 percent of plants have at least 10 months of data, and more than 90 percent have at least eight months of data.

Exhibit A.3 Extent of Plant-Month Data in SWAT

No. of Months	No. of ICR Plants With Corresponding Months of Data in AUX8	Percent of Plants with at Least That Many Months of Data in Aux8
1	3	100%
2	3	99%
3	1	98%
4	3	97%
5	5	96%
6	2	95%
7	8	94%
8	15	91%
9	38	85%
10	35	71%
11	65	59%
12	95	35%
TOTAL	273	

Source: SWAT Run Summaries (USEPA 2001b).

Outputs from the computational components in SWAT (the WTP model and Decision Tree Program) are also stored in AUX8 and consist of the following for each plant:

- Treatment technology level at compliance

- Modified process train at compliance (e.g., modified chemical doses)

- Water quality at compliance for finished water, average distribution system residence time, maximum distribution system residence time locations (see Section A.3 for a complete description of these locations in SWAT):

  Disinfection Byproduct:
  - Chloroform ($CHCl_3$)
  - Bromodichloromethane (BDCM)
  - Dibromochloromethane (DBCM)
  - Bromoform ($CHBr_3$)
  - Total trihalomethanes (TTHM)
  - Monochloracetic acid (MCAA)
  - Dichloroacetic acid (DCAA)
  - Trichloroacetic acid (TCAA)
  - Monobromoacetic acid (MBAA)
  - Dibromoacetic acid (DBAA)
  - Bromochloroacetic acid (BCAA)
  - Haloacetic Acid (HAA5) (sum of MCAA, DCAA, TCAA, MBAA, and DBAA)
  - HAA6 (sum of HAA5 and BCAA)
  - HAA9 (sum of HAA6 and BDCAA, CDBAA, and TBAA)
    where: BDCAA = Bromodichloroacetic acid
    CDBAA = Chlorodibromoacetic acid
    TBAA = Tribromoacetic acid

  Other Water Quality Parameters
  - Bromate
  - Chlorite
  - Temperature
  - pH
  - Alkalinity
  - TOC
  - UV254
  - Bromide
  - Calcium
  - Magnesium
  - Ammonia
  - Disinfectant Residuals
  - Pathogen Inactivation

SWAT outputs are discussed further in the next two sections.

A.2.3 Water Treatment Plant Model

The WTP Model predicts the formation of DBPs given source water quality conditions and water treatment plant configuration. It consists of several empirical equations that predict DBP precursor and disinfection behavior, the impact of water treatment plant processes on water quality, and concentrations of DBPs in the distribution system. The original version of the WTP Model was developed in 1992 (*Water Treatment Plant Simulation Program Version 1.21 User's Manual*, Malcolm Pirnie Inc., June 1992). In 2000, the WTP Model was thoroughly revised to incorporate new research in the areas of DBP precursor removal and DBP formation during chlorination, ozonation, and chlorine dioxide addition. The extensions and modifications to the original model have been documented in Solarik et al. (2000).

The purpose of this section is to describe how DBP precursors and other related parameters were modeled through a treatment plant and to present the final equations used by the WTP Model to predict DBP concentrations. DBP precursors need to be model as accurately as possible as the impact the amount of DBP formation. Since chlorination DBP's are formed by the interaction of chlorine with organic and inorganic matter, TOC, a measure of the organic content of water, is a key factor in predicting chlorination DBPs.

The last subsection includes a description of how the final DBP equations are used for different treatment plant scenarios. Section A.5 builds on this section by explaining how the DBP equations were calibrated using ICR data.

A.2.3.1 Predicting Changes in pH

The WTP Model predicts pH changes as a result of chemical addition during coagulation and softening using thermodynamic equilibrium assumptions in a closed system (with respect to carbon dioxide equilibrium). This may not be an entirely accurate assumption since a water treatment plant is neither a perfectly closed system because it is open to the atmosphere, nor a perfectly open system because of the depths of the basins. The WTP Model equations that predict pH changes due to softening do not account for the kinetics of processes such as calcium carbonate precipitation or carbon dioxide dissolution. Consequently, predictions are not always completely accurate. In general, the WTP Model is believed to slightly over-predict the depression of pH due to coagulant addition (Solarik et al. 2000).

Coagulation pH is an input parameter for the algorithms that calculate settled water TOC and UVA. The over-prediction of the depression in pH could result in the propagation of error in the settled water quality. However, based on observed data from several water treatment plants, these errors are not large (see section A.5, Model Calibration).

A.2.3.2 Predicting TOC Removal

In the earlier (1992) version of the Model, TOC removal by coagulation was predicted using an empirically-derived equation based on the raw water TOC, coagulant dose, and the coagulation pH. In the current version of the Model, TOC removal is predicted using a semi-empirical sorption model published by Edwards (1997). Though the semi-empirical sorption model is applicable specifically for dissolved organic carbon (DOC) removal, it has been shown to predict TOC removal nearly as well (Edwards 1997). The major differences in the 1992 model equations and the current semi-empirical sorption model are:

- The current model divides the TOC into fractions that are sorbable and non-sorbable by the coagulant, and attributes TOC removal to the sorbable fraction alone.

- In addition to TOC, coagulant dose, and the coagulation pH, the current model uses certain calculated model coefficients and the Specific UVA (SUVA – the ratio of UVA to the DOC concentration) of the raw water as inputs.

A.2.3.3 Predicting UVA Reduction

In the 1992 version of the WTP Model, the precision of the equations used to predict UVA removal was limited by the small data sets used in their derivation. The new equations are based on data analysis performed on the more extensive American Water Works Association (AWWA)/Water Industry Technical Action Fund (WITAF) database (Tseng et al. 1996), thereby improving their precision.

An analysis of predictive errors for the UVA removal equations was performed using raw water data from the AWWA/WITAF database as inputs to the equations and comparing the WTP Model results to those from the database. The analysis concluded that the equations tend to over-predict UVA removal. Further, the errors in settled water UVA predictions are greater for softening than for coagulation. However, it must be noted that the data set used for verification of UVA removal by softening (i.e., from the AWWA/WITAF database) is very limited.

A.2.3.4 Predicting Chlorine Decay

In the current version of the WTP model, chlorine decay is predicted using a single equation based on bench scale data and work published by Koechling et al. (1998). The general form of the equation is:

$$C_t = [\alpha_1 \times \ln(C_0/C_t)] - [k_2 \times SUVA_0 \times t] + C_0$$

where:

C_t = chlorine residual concentration at any reaction time t
C_0 = initial chlorine dose
α_1 = a kinetic rate parameter related to the initial dissolved organic carbon (i.e., DOC_0) and the initial UVA (i.e., UVA_0), for a given chlorine-to-TOC ratio.
$k_2 = -[a \times (UVA_0^{\,b})]$, where a and b are fitted parameters that depend on the treatment and the chlorine dose
$SUVA_0$ = Initial Specific UVA = (UVA_0/TOC_0), where TOC_0 = initial TOC
t = reaction time

The derivation of α_1 was originally performed at a chlorine-to-TOC ratio of 2:

$$\alpha_{1@2} = 4.98 * UVA_0 - 1.91 * DOC$$

A correction factor was developed for α_1, making it applicable for other chlorine-to-TOC ratios (Solarik et al. 2000):

$$\alpha_1 / \alpha_{1@2} = 0.503\ (CL_2/TOC)$$

A.2.3.5 WTP Model Equations for DBP Formation

During the development of the WTP simulation model in 1992, only a limited number of research reports were available to derive predictive equations for THM formation during chlorination. As a result, the 1992 version used an empirical THM formation equation that was based on chlorination experiments of raw (i.e., no coagulation or filtration) waters only. The equation was originally used in the model irrespective of chlorine application locations throughout the water treatment plant. Chlorination conditions on which this original THM predictive equation was based included conditions that are experienced in water plants as well as some more severe chlorination conditions that are beyond normal practice at water plants.

At the time of developing the revised WTP simulation model in 2000, predictive equations for THM were available from the literature that represented more realistic chlorination conditions at various stages of treatment. Consequently, different predictive equations were used for predicting THM formation in raw water and in waters after various levels of treatment. This section discusses the different sets of equations used by the WTP Model to predict DBP formation. It includes two sets of equations used to model DBP formation as a result of (1) raw water chlorination (i.e., water not subjected to any treatment other than chlorination), and (2) chlorination of treated water (i.e., water subjected to full-scale treatment process(es) besides chlorination).

DBP Formation as a Result of Chlorination of Raw Water

"Raw water" model equations were empirically derived from studies documenting the chlorination of untreated/raw waters under laboratory conditions.

$$TTHM_{raw} = 0.0412(TOC_{raw})^{1.098}(Cl_2)^{0.152}(Br_{raw})^{0.068}(T)^{0.609}(pH_{raw})^{1.601}(t)^{0.263}$$

$$HAA5_{raw} = 30.0(TOC_{raw})^{0.997}(Cl_2)^{0.278}(Br_{raw})^{-0.138}(T)^{0.341}(pH_{raw})^{-0.799}(t)^{0.1.69}$$

where:

$TTHM_{raw}$ = raw water TTHM (micrograms per liter (µg/L))
$HAA5_{raw}$ = raw water HAA5 (µg/L)
TOC_{raw} = raw water TOC (milligrams per liter (mg/L)): $1.2 \leq TOC_{raw} \leq 10.6$)
Cl_2 = applied chlorine dose (mg/L): $1.51 \leq Cl_2 \leq 33.55$
Br_{raw} = raw water bromide concentration (µg/L): $7 \leq Br_{raw} \leq 600$
T = temperature (degrees centigrade): $15 \leq T \leq 25$
pH_{raw} = raw water pH: $6.5 \leq pH \leq 8.5$
t = reaction time (hour): $2 \leq t \leq 168$

DBP Formation as a Result of Chlorination of Treated Water

"Treated water" equations were based on work performed by Amy et al. (1998) using coagulated waters. The major difference between these equations and those applicable to chlorinated raw waters is that the TOC×UVA term (and not TOC) accounts for the impact of treatment on NOM removal and NOM reactivity.

$$TTHM = 23.9(TOC \times UVA)^{0.403}(Cl_2)^{0.225}(Br)^{0.141}(1.027)^{(T-20)}(1.156)^{(pH-7.5)}(t)^{0.264}$$

$$HAA5 = 41.6(TOC \times UVA)^{0.328}(Cl_2)^{0.585}(Br)^{-0.12}(1.021)^{(T-20)}(0.932)^{(pH-7.5)}(t)^{0.150}$$

where:

TTHM = treated water TTHM (µg/L): $13 \leq TTHM \leq 690$
HAA5 = treated water HAA5 (µg/L): $12 \leq HAA6 \leq 643$
TOC = treated water TOC (mg/L): $1.00 \leq TOC \leq 7.77$
UVA = treated water UVA (cm^{-1}): $0.016 \leq UVA \leq 0.215$
Cl_2 = applied chlorine dose (mg/L): $1.11 \leq Cl_2 \leq 24.75$
Br = treated water bromide concentration (µg/L): $23 \leq Br \leq 308$
T = temperature (degrees centigrade): $15 \leq T \leq 25$ [4]
pH = treated water pH: $6.5 \leq pH \leq 8.5$ [3]
t = reaction time (hour): $2 \leq t \leq 168$

The treated water TTHM and HAA5 equations were verified by plotting modeled results against observed values from 47 coagulated waters and 4 softened waters and analyzing the residuals (i.e., the predicted value minus the observed value) and average errors. In general, results indicated that the WTP Model slightly under-predicted the formation of TTHMs and slightly over-predicted the formation of HAA5s for coagulated waters. For TTHMs, ninety percent of the residuals were within ±24 µg/L of the measured values. For HAA5s, ninety percent of the residuals were within ±18 µg/L of the measured values. Due to the limited number of data points, the results from the analysis of the softened waters were not as conclusive as those from the coagulated waters.

A.2.3.6 Using the DBP Formation Equations for Different Chlorinating Scenarios

DBP formation is modeled as the cumulative formation through the treatment plant. This section describes how the two sets of equations presented above can be applied to different treatment plant chlorination scenarios. The following scenarios are discussed:

- Pre-chlorination only (i.e., chlorine added just prior to coagulation)

- Post-chlorination only (i.e., a single point of chlorination just prior to filtration, after the combined treatment of coagulation, flocculation, and sedimentation)

- Pre- and Post-chlorination (i.e., two points of chlorination – just prior to coagulation and just prior to filtration)

Exhibit A.4 (presented at the end of this subsection) shows where the chlorine is assumed to be applied within the treatment plant for the pre- and post-chlorination scenarios and summarizes how DBP formation is modeled. Note that separate equations for DBP formation in distribution systems were not developed—the distribution system is considered as an extension of the treatment plant, and formation is assumed to follow the same kinetics and rates.

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[4]Sufficient pH and temperature-dependent data were not available to model their effect on DBP formation for treated waters. Therefore, pH and temperature factors from the raw water equations were applied to treated water conditions. These factors are valid in the temperature range of 15-25°C and a pH range of 6.5-8.5.

Pre-Chlorination Only

The raw water model equations were originally used to predict DBP formation for plants that pre-chlorinated only. However, research by Summers et al. (1998) indicates that pre-chlorination just before or after rapid mixing results in less DBP formation than chlorination of raw water as shown in the original studies. To better predict DBP formation post-coagulation/flocculation, an empirical *pre-chlorination factor* was developed to account for the decrease in DBP formation that occurs as a result of adding chlorine just prior to the rapid mixers relative to the DBP formation that occurs as a result of adding chlorine to the raw water:

Decrease in TTHM Formation = 85.3 % of raw water model results

Decrease in HAA5 Formation = 79.4 % of raw water model results

As shown by Exhibit A.4, the raw water equations, adjusted using the pre-chlorination factors, are used to model DBP formation through the sedimentation process (prior to the filters). The treated water model is used to predict DBP formation through the filtration process and into the distribution system, using settled water quality (including settled water chlorine residual) as input parameters.

Post-Chlorination Only

For post-chlorination (prior to filtration), the treated water model was applied, with the settled water quality and chlorine residual after sedimentation being the inputs to the model equations.

Pre- and Post-Chlorination

As shown in Exhibit A.4, the raw water equations, adjusted using the pre-chlorination factors, are used to model DBP formation from the raw water through the sedimentation process (prior to the filters). The treated water model is used to predict DBP formation starting after sedimentation. The treated water model is adjusted because pre-chlorination will result in lowering the UVA of the settled water due to the oxidation of the UVA by the chlorine. The settled UVA after prechlorination (i.e., $UVA_{Pre\text{-}Cl2}$) was estimated from the settled UVA without prechlorination (i.e., $UVA_{No\ Cl2}$) using the following equation:

$$UVA_{Pre\text{-}Cl2} = 0.7437\ (UVA_{No\ Cl2}) + 0.0042$$

where the UVA concentrations are expressed in cm^{-1}.

Exhibit A.4 Application of DBP Formation Equations for Three Chlorinating Scenarios

1) PRE-CHLORINATION ONLY

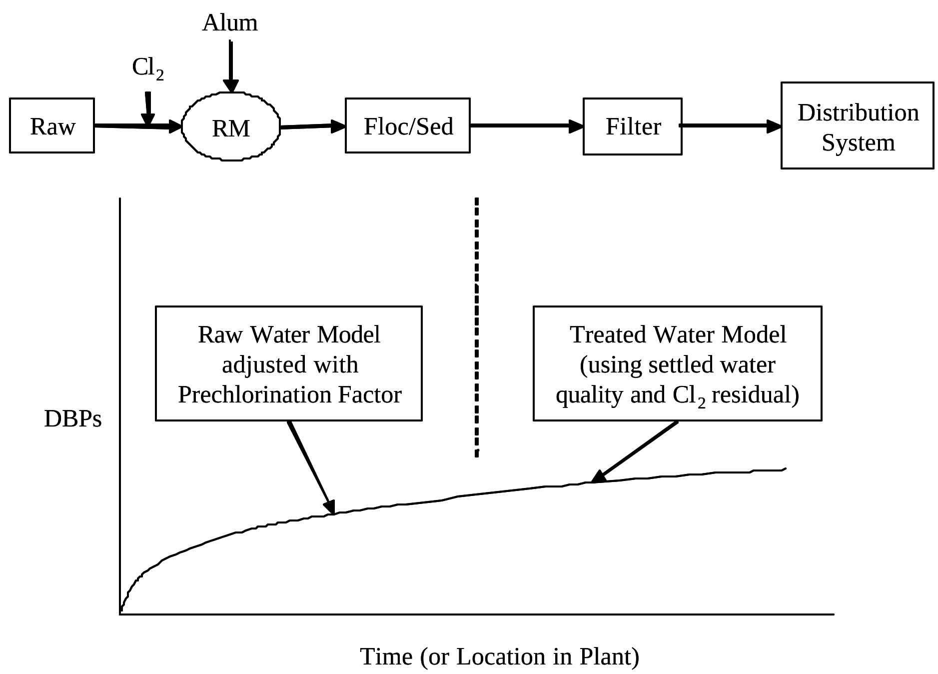
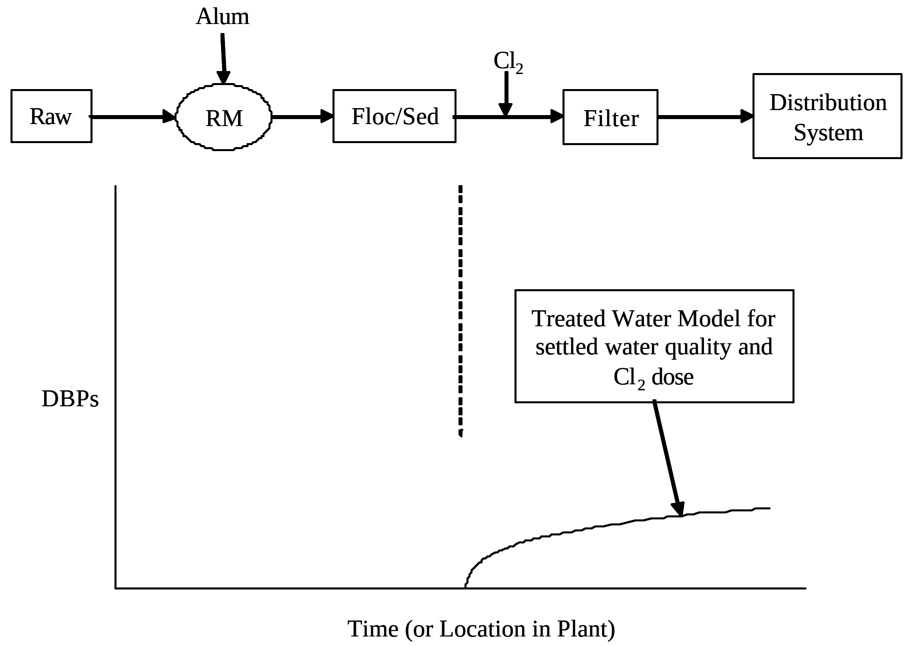
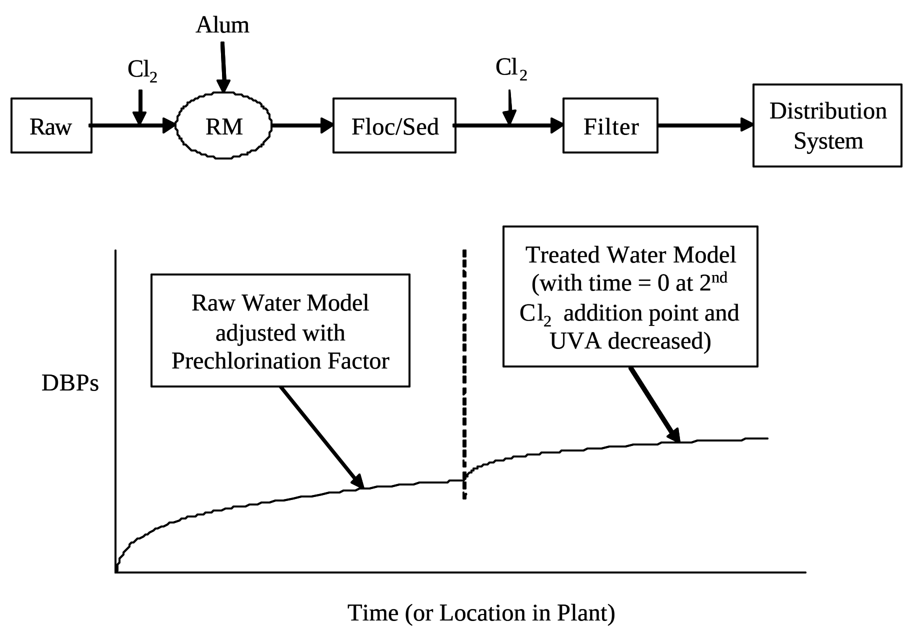


Exhibit A.4 Application of DBP Formation Equations for Three Chlorinating Scenarios (Continued)

2) POST-CHLORINATION ONLY



3) PRE- AND POST-CHLORINATION



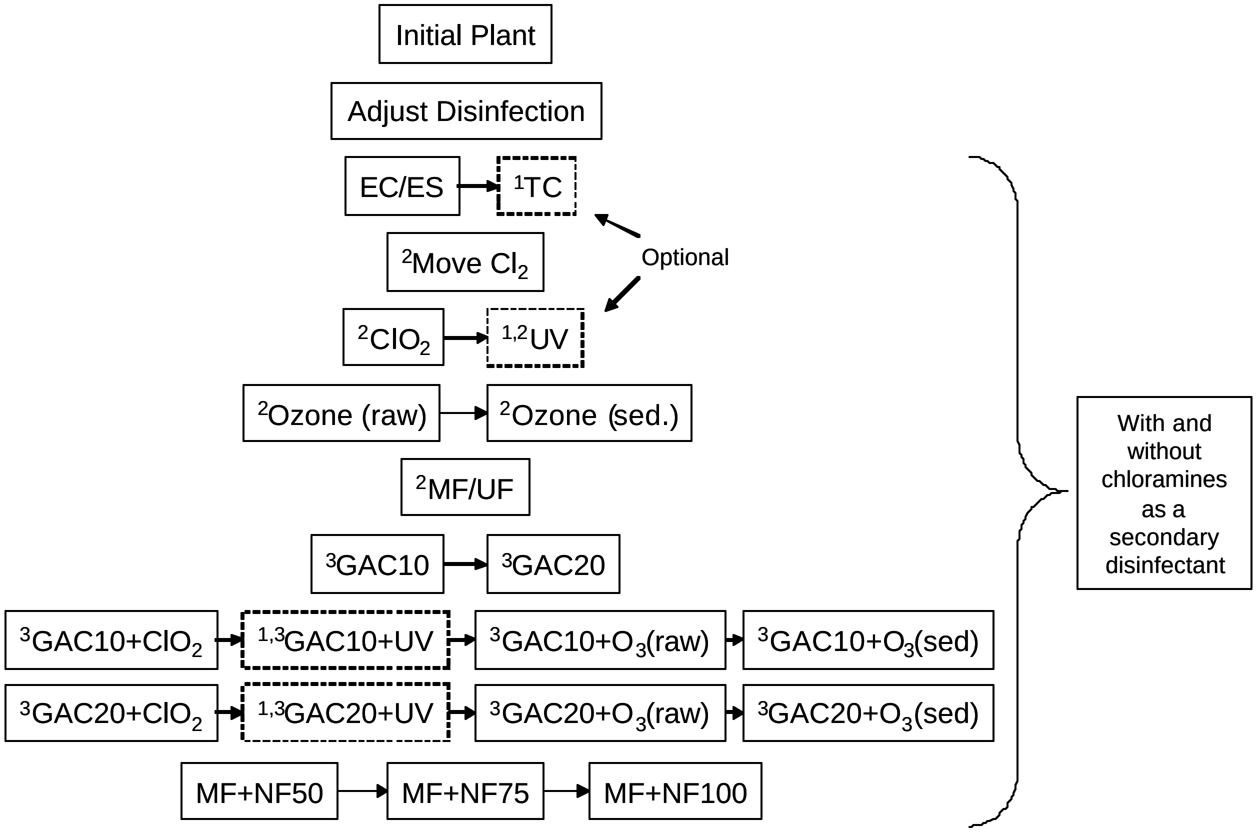
A.2.4 Decision Tree Program

This part of SWAT determines how a treatment plant is modified to comply with defined regulatory alternatives. First, the program determines if an individual plant can be modified using the least expensive (and typically least effective) treatment technology to comply with the regulatory alternative. If not, the program moves to the next least-cost treatment technology. This process continues until the plant achieves compliance. The treatment technology selection algorithm can therefore be described as a "least cost" based approach. The program receives inputs from the database (AUX8), uses the WTP Model to estimate treated water quality before and after predicted treatment technology changes, and sends the results back to the database.

The steps involved with using the Decision Tree Program are presented in Exhibits A.5 and A.6 in flow chart and table format. The starting point is at the top of the tree, and the process improvement order is from the top row to the bottom row and from left to right in any row.

For each treatment technology starting with Enhanced Coagulation/Enhanced Softening (EC/ES) there is an additional option of chloramine secondary disinfection with that treatment technology. For example, if the tree starts at EC/ES treatment technology and that treatment technology does not yield compliance, then the next option is EC/ES with chloramines. One important aspect of the decision tree is how it accounts for existing disinfection credit. To implement an advanced disinfectant in a process train, SWAT credits the train with the levels of inactivation specified by the user (see section A.3 for user inputs) and adjusts the existing primary disinfectant to achieve the necessary CT credit. Any other chlorine additions contributing to CT are decreased, if necessary.

Exhibit A.5 SWAT Decision Tree
(Compliance Selection Sequence)



[1]Optional steps that the user determines whether to include in the tree. For Stage 1 and Stage 2 runs, turbo coagulation was an available treatment technology. UV was "turned off" for Stage 1 but "turned on" for Stage 2 runs. See Section A.3, User Inputs for Stage 2 DBPR Model Runs, for more information.
[2]With EC/ES.
[3]Not applicable for plants that initially soften via precipitation.

Notes: Order is top to bottom, and left to right. The granular activated carbon (GAC)10/20 + O_3(raw/sed) treatment technology can be implemented with or without pH adjustment. Chloramines can be used at any point in the decision tree (including initial plant).

Exhibit A.6 Abbreviations Used and Description of Decision Tree Steps

Abbreviation	Description	Abbreviation	Description
Initial Plant	Unmodified Plant	GAC10 + ClO_2	GAC10 with Chlorine Dioxide
Adjust Disinfection	Adjust Disinfection	GAC10 + UV	GAC10 with UV Disinfection
EC/ES	Enhanced Coagulation/ Enhanced Softening	GAC10 + O_3(raw)	GAC10 with Ozonation of raw water
TC	Turbo Coagulation	GAC10 + O_3(sed.)	GAC10 with Ozonation of settled water
Move Cl_2	Move Chlorination Point	GAC20 + ClO_2	GAC20 with Chlorine Dioxide
ClO_2	Chlorine Dioxide	GAC20 + UV	GAC20 with UV Disinfection
UV	UV Disinfection	GAC20 + O_3(raw)	GAC20 with Ozonation of raw water
Ozone (raw)	Ozonation (raw water)	GAC20 + O_3(sed.)	GAC20 with Ozonation of settled water
Ozone (sed.)	Ozonation (settled water)	MF + NF50	MF/UF with 50% of flow treated by Nanofiltration
MF/UF	Microfiltration/Ultrafiltration	MF + NF75	MF/UF with 75% of flow treated by Nanofiltration
GAC10	GAC (10-min. EBCT)	MF + NF100	MF/UF with 100% of flow treated by Nanofiltration
GAC20	GAC (20-min. EBCT)		

The least cost decision approach, as used in SWAT, has two inherent limitations that contribute to uncertainty in national cost and benefit estimates:

- The decision tree does not include operational or design modifications of the distribution system that could reduce DBPs and allow the plant to achieve compliance without a treatment technology change.

- The model cannot take into account site specific factors (e.g., taste and odor) that could cause a system to choose a more expensive treatment technology than the SWAT least cost algorithms say is necessary.

Uncertainties are discussed further in Section A.6.

A.2.5 Improvement in Decision Tree for Stage 2 versus Stage 1

In the Stage 1 DBPR Regulatory Impact Analysis (RIA) (USEPA 1998a), EPA estimated treatment technologies in place at treatment plants prior to the Stage 1 DBPR, as well as treatment technology changes that systems would make to comply with the Stage 1 DBPR. This estimate of treatment technologies in place for the pre-Stage 1 baseline is not the same as the pre-Stage 1 baseline derived in this EA. The two estimates differ because new information and treatment technologies, such as UV disinfection, have become available since the promulgation of the Stage 1 DBPR. For the Stage 2 DBPR analyses, new tools and processes were used to forecast the costs of complying with the Stage 1 DBPR. These tools and processes, summarized in Chapter 7, included:

- SWAT

- ICR Ground Water Delphi process

- Expert opinion process for small systems (both surface and ground water)

These tools and processes provided a larger and more detailed set of treatment technology choices than those used in the Stage 1 DBPR RIA. Consequently, the estimate of treatment technologies in place for both the pre-Stage 1 and post-Stage 1 baselines, while different from those in the Stage 1 DBPR RIA, are based on a more complete set of compliance options and a more rigorous analysis. Exhibit A.7 compares the treatment technology choices used in the Stage 1 DBPR RIA to those used in the Stage 2 DBPR EA.

The detailed treatment technology choices evaluated for the Stage 2 DBPR EA were aggregated into more general categories for the purposes of estimating national costs. The final 12 major treatment technology categories evaluated in this EA are summarized in Exhibit A.8. They are generally ordered according to cost, with the most expensive at the bottom of the exhibit. With each treatment technology, systems are expected to use either free chlorine or combined chlorine (chloramines) as the residual disinfectant. Conversion from free chlorine to chloramine residual disinfection is a relatively inexpensive way for systems to reduce DBP levels.

The first four treatment technologies (in italic font in Exhibit A.8) represent operational changes to existing treatment configurations. Although these changes may result in small increases in chemical usage or minor capital improvements, EPA assumes their costs to be negligible when compared to the costs of the advanced treatment technologies (e.g., UV, ozone, granulated activated carbon, microfiltration/ultra-filtration) shown in Exhibit A.8 (refer to *Technologies and Costs for Control of Microbial Contaminants and Disinfection Byproducts* [USEPA 2003o] for comparison). Also, most systems that are able to use these treatment technologies are predicted to do so to meet the Stage 1 DBPR. For these reasons, the predicted costs for the Stage 2 DBPR do not include costs for operational changes. (Section A.6 and Chapter 7 further explain that this uncertainty may lead to an underestimate in national costs.)

Because UV is an emerging treatment technology, it was not considered an option for most systems for the Stage 1 DBPR. For the Stage 2 DBPR, UV is an advanced disinfection option for all surface water systems and small ground water systems. Adjustments to the compliance forecast to account for use of UV are discussed in Chapter 5 and Appendices A and B.

As indicated in Exhibit A.8, fewer treatment technologies are listed for ground water plants than for surface water plants. As summarized in Appendix B, section B.2.2, the ICR Ground Water Delphi Group concluded that large ground water systems would choose primarily from four treatment technologies: conversion to chloramines, ozone, granular activated carbon - 20-minute contact time (GAC20), or nanofiltration; small ground water systems would also consider UV. The selection of treatment technologies as a function of source water types and small systems' constraints are summarized in Chapter 5 and discussed in detail in the compliance forecasts for surface and ground water plants, as described in Appendices A and B, respectively.

Exhibit A.7 Treatment Technologies Considered for the Stage 1 DBPR in the Stage 1 DBPR RIA and their Stage 2 DBPR EA Equivalent

Stage 1 DBPR RIA Treatment Technologies	Stage 2 DBPR EA Treatment Technologies
Chlorine/Chloramine	Adjust Primary Disinfection Move Points of Disinfection with Chloramines
Enhanced Coagulation	Enhanced Coagulation with Chlorine Turbo Coagulation with Chlorine
Enhanced Coagulation with Chloramines	Enhanced Coagulation with Chloramines Turbo Coagulation with Chloramines
Chlorine Dioxide	Chlorine Dioxide with Chlorine Chlorine Dioxide with Chloramines
Ozone with Chloramines	Ozone with Chlorine Ozone with Chloramines
GAC10	GAC10 with Chlorine GAC10 with Chloramines GAC10 + Chlorine Dioxide with Chlorine GAC10 + Chlorine Dioxide with Chloramines GAC10 + UV (Small Systems)
GAC20	GAC20 with Chlorine GAC20 with Chloramines GAC20 + Chlorine Dioxide with Chlorine (Large and Medium Systems) GAC20 + Chlorine Dioxide with Chloramines (Large and Medium Systems) GAC20 + Ozone with Chlorine (Small Systems) GAC20 + Ozone with Chloramines (Small Systems) GAC20 + UV (Small Systems)
Membranes	Microfiltration/Ultrafiltration with Chlorine Microfiltration/Ultrafiltration with Chloramines Integrated Membranes with Chlorine (Surface Water Systems) Integrated Membranes with Chloramines (Surface Water Systems) Nanofiltration with Chlorine (Ground Water Systems) Nanofiltration with Chloramines (Ground Water Systems)

Source: Stage 1 DBPR RIA (USEPA 1998a) for Stage 1 treatment technologies; Federal Advisory Committees Act (FACA) deliberations for Stage 2 treatment technologies (USEPA 2000n).

Exhibit A.8 Aggregated Treatment Technology Categories for Stage 1 DBPR Used for the Stage 2 DBPR EA

Treatment Technology Category	Explanation of Technology for Surface Water Plants	Explanation of Technology for Ground Water Plants
Adjust Primary Disinfectant Dose	*Reduce primary disinfectant dose (usually chlorine)*	*NA*
Enhanced Coagulation/Enhanced Softening	*Increased TOC removal through increased coagulant addition to meet Stage 1 DBPR requirements*	*NA*
Turbo Coagulation	*Increased TOC removal through increased coagulant addition, but higher than that required by enhanced coagulation*	*NA*
Moving Point of Disinfection	*Move point of disinfection downstream to minimize formation of DBPs*	*NA*
Chlorine Dioxide	Chlorine dioxide instead of chlorine for primary disinfection	NA
Ozone	Ozone instead of chlorine for primary disinfection, applied to raw or settled water	Ozone instead of chlorine for primary disinfection, applied to raw or settled water
MF/UF	Microfiltration or ultrafiltration as the particle removal process	NA
GAC10	Granular activated carbon with a 10-minute Empty Bed Contact Time (EBCT)	NA
GAC10 + Advanced Disinfectants	GAC10 + chlorine dioxide (large and medium systems) GAC10 + UV (small systems)	NA
GAC20	Granular activated carbon with a 20-minute EBCT	Granular activated carbon with a 20-minute EBCT
GAC20 + Advanced Disinfectants	GAC20 + UV or ozone	NA
Membranes	Integrated membranes as the particle removal process (MF/UF and nanofiltration)	Nanofiltration alone as the particle removal process

Notes: NA = Not applicable plant type. Italic font indicates that treatment technology was not considered in estimating costs of rule alternatives.

Source: Technology and Cost Document (USEPA 2003o); applicability to ground water systems discussed in Chapter 5 and Appendix B of this EA.

A.3 User Inputs for SWAT Model Runs

This section summarizes the inputs and settings (as entered into the SWAT user interface) used for the Stage 2 DBPR regulatory alternatives. SWAT was also used to support the development of the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). The inputs presented here, however, are specific the Stage 2 DBPR development process. Those specific to the LT2ESWTR are described in the *Economic Analysis for the LT2ESWTR* (USEPA 2003c). A complete listing of the user inputs for each SWAT Run used in the Stage 2 DBPR can be found in the Access databases that contain the results for each run. The compliance scheme, and compliance aggregation method, are also inputs to the SWAT Model and are described in Section A.4.

Average and Maximum Residence Times

SWAT computes DBP concentrations at theoretical locations representing average and maximum residence times in the distribution system. The inputs for the average residence time location (DS Average) and the maximum residence time location (DS Maximum) are based on ICR data from four distribution system residence times reported by the system as follows.

- Distribution System Equivalent (DSE)—a sample point in the distribution system that has a residence time equivalent to a laboratory sample.

- Average 1 and Average 2 (AVG1 and AVG2)—two locations having average residence times in the distribution system, as designated by the system.

- Distribution System Maximum (MAX)—the location having the longest residence time in the distribution system, as designated by the system.

The input for the DS Average is the average of those four residence times. The input for DS Maximum is the highest residence time reported for those four locations.

Flowrate Conditions Used

Three flowrate conditions are available for SWAT execution: 1) flow at time of ICR sampling; 2) average monthly flow for a given ICR period; and 3) plant design flow. All calculations of DBP concentrations were completed using the average monthly flow. All new unit processes "built" by SWAT were sized using the design flow condition.

Inclusion of Biofiltration

All Stage 2 DBPR regulatory evaluations included biofiltration processes for ozone treatment technologies. This assumed that the filters downstream of ozonation would achieve enhanced DBP precursor removal.

Surface Water Treatment Rule Disinfection Requirements

For all regulatory alternatives, the plants must meet, at a minimum, the Surface Water Treatment Rule (SWTR) *Giardia* and virus log removal requirements of 3 and 4 logs, respectively. The "Initial Plant Run" did not have this requirement since it represents pre-Stage 1 or existing conditions. Therefore, all systems are not assumed to be compliant with the SWTR. In other words, if SWAT predicted a plant to achieve lower *Giardia* or virus log removals, the plant was not modified for this run.

Log Removal Credits for Pathogens

Log removal credits for pathogens were based on (1) the recommended credits contained in the *Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources* (USEPA 1990), and (2) as recommended by the Microbial Treatment subcommittee of the TWG (Exhibit A.9). *Cryptosporidium* inactivation/removal requirements were not included (they are considered under the LT2ESWTR). If the removal credits used in SWAT are overstated (i.e., the credits are greater than the treatment provides), then the estimates provided would under-specify treatment selection and consequently under-predict national compliance costs and benefits. Likewise, if the removal credits used in SWAT are understated, then the treatment technology selection could be over-specified and both the national compliance costs and benefits over-predicted.

Exhibit A.9 Log Removal Credits Used as Default Values in SWAT

Unit Process	Log Removal Credits (logs)	
	Giardia	**Virus**
Microfiltration/Ultrafiltration	3.0	2.0
Nanofiltration	3.0	2.0
Sedimentation	0.5	1.0
Filtration	2.0	1.0

Source: *Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources* (USEPA 1990)

Use of Disinfection Benchmarking

Disinfection benchmarking is the lowest monthly average of microbial inactivation during the disinfection profile period. Benchmarking is used to ensure a plant does not compromise microbial protection when changing treatment technologies. If “Benchmarking OFF” is selected, then SWAT selects disinfectant doses to meet the most stringent of the log removal and/or inactivation requirements set for the regulatory option. If “Benchmarking ON” is selected, SWAT determines the minimum monthly level of log removal plus inactivation for each plant under existing conditions and sets these as the log removal plus inactivation requirements for that plant for all process modifications. If the benchmark is less stringent than the disinfection requirements set for that SWAT run, SWAT will default to the most stringent requirements.

All Stage 2 DBPR regulatory evaluations, as well as the Stage 1 baseline evaluation, were conducted with “Benchmarking ON.” Maximum benchmark levels for *Giardia* and viruses were set at 8.0 and 9.0 logs, respectively. *Cryptosporidium* disinfection was not benchmarked because most systems currently don’t achieve any *Cryptosporidium* inactivation. Using the “Benchmarking ON” option most likely causes an overall higher treatment technology selection estimate. Some systems may use a high dose of oxidant for other reasons (e.g., taste and odor control); the high level of disinfection is a secondary benefit. In the SWAT model, if a plant currently has a high oxidant dose and its DBP estimates are above the user-defined MCLs, then the next treatment technology in the decision tree is selected and the same high level of inactivation corresponding to the annual high oxidant dose must be maintained. (However, in implementation of the DBPR the State may allow lower disinfection for improved DBP control, as long as the level of disinfection is higher than the existing standards.)

Chloramine Conversion Rate

SWAT can evaluate three settings to represent whether treatment plants that initially use free chlorine for secondary or residual disinfection will convert to chloramines.

- All free chlorine plants can convert

- No free chlorine plants can convert

- A specified percentage of free chlorine plants can convert, and are assigned randomly through a Monte Carlo probability function

For regulatory evaluation, 77 percent of free chlorine plants were randomly allowed to convert to chloramines. This was set as the maximum possible conversion rate expected for all free chlorine plants in the United States. This percentage rate was recommended by the TWG during the M-DBP FACA. This maximum national chloramine usage level is intended to incorporate site-specific circumstances and other local factors that would preclude chloramine usage at some plants for reasons other than technical suitability. The maximum chloramine conversion rate was approached only when more stringent regulatory alternatives (i.e., 40/30 Running Annual Average (RAA)) were evaluated.

Use of UV

Adding UV disinfection to a treatment process is an optional step in the SWAT decision tree. Because UV is an emerging treatment technology for drinking water treatment it was not considered a viable option for Stage 1 compliance. However, EPA believes the treatment technology and necessary regulations will be available for systems to use UV to achieve compliance with the Stage 2 DBPR. Therefore, the UV option was “turned off” for the Stage 1 DBPR run and “turned on” for the Stage 2 DBPR runs. (Part III of this Appendix for further discussion on the inclusion of UV for the Stage 2 runs.)

Clearwell Baffling Improvement Rate

For regulatory evaluation, 90 percent of plants were assumed able to make improvements to clearwell baffling. The TWG assumed that a 0.70 value for the clearwell baffling factor (the ratio of the time required for 10 percent of a system’s flow to pass through the clearwell to the theoretical detention time in the clearwell) was a reasonable upper limit for improvements to hydraulic retention through such basins. An analysis of the ICR data on clearwell baffling factors showed that 10 percent of ICR plants had baffling factors at or above 0.70. Therefore, the remaining 90 percent of the plants could improve their clearwell hydraulic regime to attain such a baffling factor. While SWAT allowed 90 percent of the plants to increase the hydraulic retention time performance of clearwells, it did not require plants to do so in evaluating regulatory alternatives. The clearwell baffling factor was considered only when increased disinfection performance was necessary and could be achieved by such measures.

Nanofiltration Performance for Precursors

Nanofiltration performance for precursors was assigned based on ICR Treatment Studies data, representing the median performance of nanofilters for precursor control. The performance and operating parameters were assigned as follows.

- TOC removal = 92 percent
- UVA removal = 87 percent
- Bromide removal = 78 percent
- Molecular weight cutoff = 200 daltons
- Water recovery = 85 percent

GAC10 and GAC20 Regeneration Frequency

When the decision tree program chooses GAC10 or GAC20 as the next feasible treatment technology to achieve compliance, it adopts the following sequence of reactivation frequencies to check for compliance: An initial evaluation with a reactivation frequency of 360 days, followed by reactivation frequencies of 300, 240, 180, 120, and 90 days in that order, until the plant is in compliance. The TWG verified that the cost hierarchy of the compliance decision tree was maintained under this sequence.

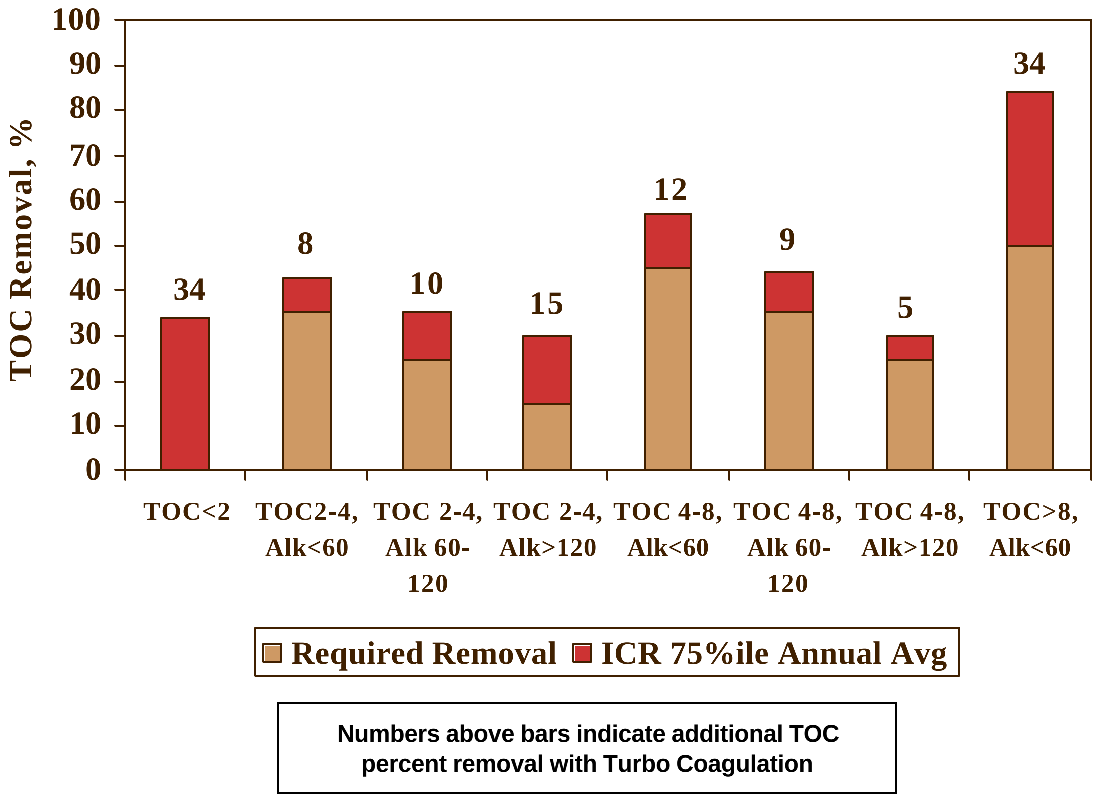
Turbo Coagulation

Turbo coagulation achieves increased TOC removal using coagulant doses higher than those required by enhanced coagulation. A (4x3) matrix of raw water TOC and alkalinity defines the percent TOC removal in SWAT. The default turbo coagulation setting used in SWAT represents the 75^{th} percentile ICR values for a given raw water TOC-alkalinity category (i.e., 25 percent of ICR water treatment plants in a given raw water TOC-alkalinity category achieved TOC removal greater than or equal to the specified level). Exhibit A.10 shows the additional TOC removal achieved with turbo coagulation at these settings.

To determine if turbo coagulation was a viable treatment alternative, the ICR data were analyzed to see if additional TOC removal was possible. For surface water plants with conventional treatment (non-softening plants), the TOC removal was found for each month where available data existed. Each plant was characterized within the Stage 1 DBPR enhanced coagulation matrix for TOC removal, based on the annual average source water alkalinity and TOC. The distribution of annual average TOC removal for ICR plants was determined for each alkalinity and TOC category in the matrix. The median performance of the plants within each of the categories was found to be very close to the TOC removal requirements in the Stage 1 DBPR. Therefore, the ability of such plants to achieve even more TOC reduction by further enhancing their treatment performance was considered a viable treatment alternative.

SWAT did not require any plants to meet the TOC removal performance criteria contained in the turbo coagulation step, but allowed conventional plants to further optimize TOC removal as a means of meeting DBP requirements. The inclusion of the turbo coagulation treatment step contributes to more realistic national compliance costs by reducing the number of plants requiring more advanced, but possibly unnecessary, treatment technologies to meet DBP standards.

Exhibit A.10 Additional Increase in TOC Removal for the Turbo Coagulation Treatment Step



A.4 Model Operation

This section explains how compliance is determined, and lists several uncertainties associated with SWAT's compliance determination methodology.

A.4.1 Compliance Determination

Each plant's compliance was determined in one of three ways:

- RAA is the calculated average of all distribution system samples. For SWAT, the RAA was calculated by averaging the SWAT-predicted monthly concentrations at the DS Average location, as described in Section A.3, over the 1-year period.

- Locational Running Annual Average (LRAA) is the average of four quarters of data from each distribution system location. For SWAT, the LRAA was calculated by averaging the

SWAT-predicted monthly concentration at the DS Maximum location, as described in Section A.3, over the 1-year period.

- Single high is the highest concentration of the four distribution system samples collected. For SWAT, the single high value was determined by selecting the maximum of the SWAT-predicted monthly concentrations at the distribution system maximum location.

In addition, SWAT determines compliance for bromate and chlorite. The bromate MCL was determined using an annual average of predicted bromate at the finished water sample point. The chlorite MCL was determined as a single high concentration of chlorite predicted in the finished water.

The M-DBP TWG recommended that a mean 20 percent operational safety margin be used for DBP MCLs (TTHM, HAA5, bromate, and chlorite) when evaluating all regulatory alternatives. This safety margin is consistent with practices in prior DBP regulatory development efforts and is intended to represent the level at which systems typically take some action to ensure consistent compliance with a new drinking water standard. In addition to representing industry practices, the safety margin also is intended to account for year-to-year fluctuations in DBP data (ICR data are limited to one year and might not represent the highest DBP concentrations that occur in a system). There is uncertainty, however, in the concentration below the MCL value at which systems are confident operating (in other words, the safety margin may be more or less in some specific cases). A 25 percent operation safety margin run was also conducted for the Preferred Regulatory Alternative to estimate the impacts of the IDSE. See Chapter 5 for more information.

A.5 Description of WTP Model Calibration Process and Results

The WTP Model was calibrated using observed data to improve its ability to predict the central tendency of the ICR data and to better general national level predictions. The methodology and results of the calibration process can be found in Chapter 8 of the report, *Information Collection Request Data Analysis* (McGuire et al. 2002). It is important to summarize results of the calibration in this economic analysis, however, to help characterize the uncertainties in SWAT (see Section A.6). The remainder of this section summarizes the WTP Model calibration process and presents the results.

A.5.1 Calibration Methodology

Water Quality Parameters that were calibrated: The calibration process focused on the following parameters:

- pH adjustment (in softening and non-softening plants)
- TOC removal (in softening and non-softening plants)
- Free chlorine decay
- Chloramine decay
- THM and HAA formation with free chlorine (in treatment plant and distribution systems)

- THM and HAA formation with chloramines

The Model algorithms were calibrated starting with pH and ending with DBPs since the algorithms in some of the processes in the above list use the results of algorithms for processes preceding them.

Note that calibration was not performed for DBP formation for plants using chlorine dioxide or ozone due to the lack of sufficient data sets. This introduces uncertainty in compliance forecasts for systems using these treatment technologies (see Section A.6 for a summary of uncertainties associated with the SWAT).

Data Set Used for Calibration: Although the ICR database contains data from 350 large surface water treatment plants across the US, only a subset of those records were used for calibrating the WTP Model. The following rules were applied to this subset of ICR plants, which further reduced the number of plants/plant-month records used for the calibration analysis:

1) To avoid seasonal bias, the calibration analysis used the last 12 months of ICR data (i.e., from January to December 1998), instead of all 18 months.

2) Plants using unit processes such as air stripping or process configurations such as mid-stream blending were excluded, since the WTP Model was unable to handle those.

3) Plant-month records with missing water quality or treatment train parameters were excluded from the analysis.

4) Plant-months with predicted finished water alkalinities less than zero were excluded from further consideration (see step 1 of the calibration approach discussed below). A finished water alkalinity of less than zero indicated erroneous chemical dosages (most likely errors with the units). Hence, these plant-months were excluded.

Calibration Approach: The calibration approach is summarized by the following steps:

1) Generate uncalibrated model predictions, which are stored in AUX8 along with the observed data. Plant-months with predicted finished water alkalinity less than zero were eliminated from further consideration.

2) Calculate absolute residuals, i.e., the absolute value of the difference between observed and predicted data for a particular parameter.

3) Exclude observed and predicted data pairs having the highest 10 percent of absolute residuals for the parameter being calibrated from further consideration. This was done to ensure that the extreme outliers in the ICR data didn't skew the calibration of the WTP Model.

4) Generate scatter plots of predicted versus observed data for a given parameter to identify if calibration adjustments were required. To determine whether a calibration factor was required, a line of best fit forced through the origin was applied to the scatter plot. If the slope of that line was within 5 percent of unity, no calibration factor was applied. If the above was not true, one of the following two calibration adjustments was applied:

(a) Slope-based adjustment: This was applied when the best-fit line not forced through the origin had an intercept close to zero. Calibration was then performed using the best-fit line forced through the origin. If the slope of this line was beyond 5 percent of unity, a multiplicative calibration factor equal to the inverse of this slope was applied to the appropriate WTP algorithm.

(b) Slope and intercept-based adjustment: This was applied when a clear linear relationship existed between the observed and predicted values and the best-fit line not forced through the origin did not have an intercept close to zero. In such cases, there was a clear trend of under-prediction at one end and over-prediction at the other end. The slope and intercept of the best-fit line were then used to calibrate the appropriate WTP algorithm.

Model Performance Evaluation: After the Model was calibrated, its performance was evaluated as follows:

1) The WTP Model was re-run to generate a set of calibrated predictions.

2) Observed and predicted (new) data were queried from AUX8 for the same plant subsets, and scatter plots were constructed. The square of the correlation coefficient (i.e., r^2) was calculated for the scatter plots to assess the predictive performance of the Model. An r^2 value of close to unity indicates a strong correlation between the observed and predicted data, and thus a better predictive performance of the Model.

3) Cumulative distributions of all data observed (without the exclusion of any data pairs as described in step 5 above) were compared to cumulative distributions of predicted data to assess the ability of the Model to predict full-scale treatment performance on a national level.

4) Paired data were analyzed to investigate the Model's correlation with site-specific ICR observations. This was achieved by calculating residuals (i.e., SWAT predicted minus ICR observed value) for paired data for each water quality parameter.

A.5.2 Calibration Results

A summary of the calibration results for all the parameters is presented in Exhibit A.11. The exhibit summarizes:

- The calibration adjustment factor for each parameter (refer to step 5 of "Calibration Approach")

- The r^2 value of the scatter plots after calibration (refer to step 2 of "Model Performance Evaluation")

- The 5^{th}, 50^{th}, and 95^{th} percentile of the actual residuals for each parameter after calibration (refer to step 4 of "Model Performance Evaluation").

Box plots showing distributions of observed and predicted data after calibration (refer to step 3 of "Model Performance Evaluation") are not presented here but are included in chapter 8 of the ICR data analysis book (McGuire et al. 2002).

A.5.3 Discussion of the Calibration Results for each Parameter

pH

Softening plants: An adjustment in the slope and the intercept was required in this case (i.e., $pH_{cal} = (pH_{orig} - 1.86) \div 0.71$). After calibration, the r^2 of the scatter plot increased from 0.33 to 0.37. The slope of the best-fit line, forced through the origin, was within 5 percent of unity. This indicated that the observed and predicted data pairs were more symmetrically distributed around the line with a slope of unity, after calibration.

Non-softening plants: No calibration was required since the slope of the best-fit line, forced through the origin, was very close to unity (i.e., 0.98). The r^2 of the scatter plot was substantially higher than that of the softening plants (i.e., 0.69), indicating a strong correlation between the data pairs.

TOC

Softening plants: A slope adjustment was required in this case (i.e.,$TOC_{cal} = TOC_{orig} \div 0.87$). After the calibration, the r^2 of the scatter plot was 0.58, thus indicating a fairly strong correlation between the data pairs.

Non-softening plants: No calibration was required since the slope of the best-fit line, forced through the origin, for the uncorrected predicted data, was very close to unity. The r^2 of the scatter plot was the highest among all the parameters investigated (i.e., 0.84), indicating a very strong correlation between the data pairs.

A comparison of the distributions of the observed and predicted (after calibration) data (including data from both softening and non-softening plants) indicated that:

- Predicted values at the 75th percentile or below exceeded observed values by only 0.1-0.2 mg/L.

- The Model predictions were generally slightly higher than the observed values.

Free Chlorine

No calibration was required since the slope of the best-fit line, forced through the origin, for the uncorrected predicted data, was within 5 percent of unity. The r^2 of the scatter plot was 0.49, indicating a reasonable correlation between the data pairs.

Exhibit A.11 Summary of Calibration Results

Parameter	Sampling Locations Included in Analysis	Treatment Conditions	Calibration Adjustment	Result with Calibration	Cumulative Distribution of Residuals (Calibrated Results)		
					5^{th} %ile	50^{th} %ile	95^{th} %ile
pH	Any in-plant site but mainly settled, filtered, and finished water	Softening	$pH_{cal} = (pH_{orig} - 1.86) \div 0.71$	Slope = 0.97, r^2 = 0.37	-1.8	-0.2	1.6
		Non softening	None	Slope = 0.98, r^2 = 0.69	Not reported		
TOC	Any in-plant site but mainly settled, filtered, and finished water	Softening	$TOC_{cal} = TOC_{orig} \div 0.87$	Slope = 0.95, r^2 = 0.58	-1.0	0.2	1.2
		Non softening	None	Slope = 1.05, r^2 = 0.84	Not reported		
Free Chlorine	Any in-plant site but mainly settled, filtered, and finished water	Plants using free chlorine as primary disinfectant	None	Slope = 0.95, r^2 = 0.49	-1.4	0.0	1.8
Chloramine	Any in-plant site but mainly settled, filtered, and finished water	Plants using chloramines within the plant	None	Slope = 0.87, r^2 = 0.21	-2.9	0.1	3.0
TTHM: Finished	Finished water	Free chlorine only in plant and distribution system	$TTHM_{cal} = TTHM_{orig} \div 0.77$	Slope = 0.96, r^2 = 0.50	Not reported		
TTHM: DS_AVG	Location in distribution system corresponding to average res. time	Free chlorine only in plant and distribution system	$TTHM_{cal} = TTHM_{orig} \div 0.77$	Slope = 1.04, r^2 = 0.52	-43	1.7	69
TTHM: DS_AVG	Location in distribution system corresponding to average res. time	Chloramine in distribution system	$TTHM_{Clm} = 0.3 \times TTHM_{cal, free\ Cl}$	Slope = 0.99, r^2 = 0.27	Not reported		
HAA5: Finished	Finished water	Free chlorine only in plant and distribution system	None	Slope = 0.98, r^2 = 0.47	Not reported		
HAA5: DS_AVG	Location in distribution system corresponding to average res. time	Free chlorine only in plant and distribution system	None	Slope = 1.00, r^2 = 0.37	-30	1.7	55

Parameter	Sampling Locations Included in Analysis	Treatment Conditions	Calibration Adjustment	Result with Calibration	Cumulative Distribution of Residuals (Calibrated Results)		
					5^{th} %ile	50^{th} %ile	95^{th} %ile
HAA5: DS_AVG	Location in distribution system corresponding to average res. time	Chloramine in distribution system	$HAA5_{Clm} = 0.35 \times HAA5_{cal,\ free\ Cl}$	Slope = 1.02, $r^2 = 0.27$	Not reported		

Notes: "cal" = calibrated predicted value of a parameter; "orig" = uncalibrated predicted value of a parameter; $TTHM_{Clm}$ = calibrated value of predicted TTHM concentration with chloramines; $HAA5_{Clm}$ = calibrated value of predicted HAA5 concentration with chloramines; $TTHM_{cal,\ free\ Cl}$ = calibrated value of predicted TTHM with free chlorine; $HAA5_{cal,\ free\ Cl}$ = calibrated value of predicted HAA5 with free chlorine

Source: McGuire et al. 2002, Chapter 8

Chloramine

No calibration adjustment was made in this case even though the slope of the best-fit line forced through the origin (for the uncorrected predicted data) was not within 5 percent of unity. The reasons for this are:

- The predicted and observed data were weakly correlated to start with (since $r^2 = 0.21$). Consequently, multiple attempts at calibration failed to produce a desirable improvement.

- The combined effects of the errors in reported dosages of chlorine and ammonia (required for chloramine formation) compounded the errors in the predicted chloramine residual.

- Chloramine residual is not a critical parameter and is rarely used to achieve disinfection credit.

Paired data analysis indicated that a substantial spread in the distribution of the residuals (see Exhibit A.11), although an evaluation of the observed and predicted distributions indicated that the median values matched reasonably.

TTHM

For plants using chlorine in the distribution system, modeled TTHM formation was calibrated using observed ICR data from the finished water location and calculated distribution system average (or RAA). For plants using chloramines, the DBP formation is estimated as a percent of the predicted TTHM in plants using free chlorine. Results from the calibration of TTHM formation under different disinfection scenarios is summarized below:

- TTHM formation at the finished water location when disinfecting with chlorine in the treatment plant and the distribution system: A slope adjustment was required in this case (i.e.,$TTHM_{cal} = TTHM_{orig} \div 0.77$). After the calibration, the r^2 of the scatter plot was 0.50, indicating a reasonable correlation between the data pairs.

- TTHM formation at the DS Average location when disinfecting with chlorine in the treatment plant and the distribution system: The slope adjustment factor of 0.77 (from the TTHM in finished water case described above) was applied to the data set for the DS_AVG location (i.e.,$TTHM_{cal} = TTHM_{orig} \div 0.77$). After the calibration adjustment, the r^2 and the slope of the scatter plot were found to be 0.52 and 1.04 respectively, indicating a reasonable correlation between the data pairs.

- TTHM formation at the DS Average location when disinfecting with chloramine in the distribution system: The calibration analysis for the chloramine condition indicated that TTHM formation with chloramine = 0.30 × TTHM formation with free chlorine.

HAA5

Like TTHM, HAA5 was calibrated based on finished water and RAA results for chlorine plants, and RAA results for chloramine plants. Results from the calibration of HAA5 formation under the following disinfection scenarios is summarized below:

- Chlorine in treatment plant and distribution system (finished water location): The r^2 of the scatter plot for the uncorrected predicted data was marginally lower than that in the case of TTHMs (i.e., 0.47). However, no calibration was required since the slope of the best-fit line forced through the origin (for the uncorrected predicted data), was within 2 percent of unity.

- Chlorine in treatment plant and distribution system (DS_AVG location): The r^2 of the scatter plot for the uncorrected predicted data was marginally lower than that in the case of TTHMs (i.e., 0.37). However, no calibration was required since the slope of the best-fit line, forced through the origin, for the uncorrected predicted data was nearly unity.

- Chloramine in distribution system (DS_AVG location): The calibration analysis for the chloramine condition indicated that HAA5 formation with chloramine = 0.35 × HAA5 formation with free chlorine.

The middle 50 percent of the observed and predicted distributions of both TTHM and HAA5 show a very good match. However, the predicted values beyond the 90th percentile are significantly higher than those of the observed values (approximately 25-30 µg/L higher). There is a progressive increase in disparity at the tails of the two distributions as one moves from pH, to TOC, to chlorine residual, and finally to TTHM or HAA5. Since the parameters at the beginning of this list serve as inputs to the algorithms for TTHM and HAA5 formation, the predictive errors propagate from the pH algorithm to the DBP algorithms. Thus the probability of generating outlier predictions increases accordingly. This coupled with the fact that there are large uncertainties in the distribution system residence time estimates, results in the DBP predictions exhibiting the greatest spread in residuals of all the parameters.

Part II: Evaluation of SWAT Predictions

A.6 Uncertainties in SWAT Compliance Forecasts

EPA has identified 12 areas of uncertainty in SWAT compliance prediction, as listed in Exhibit A.12, that can be grouped into four main categories:

- Uncertainty in ICR observed data, upon which the SWAT model is based

- Uncertainty in predictive equations for DBP formation

- Uncertainty in the SWAT compliance determination

- Uncertainty in SWAT treatment technology selection

There may be others, but EPA believes this list captures the ones that have the largest impact on costs and benefits.

Exhibit A.12 includes information on the potential effect of each source of uncertainty on the cost and benefit estimates. Note that the direction of the potential bias resulting from each uncertainty source (i.e., whether it results in an over- or under-estimate) is the same for both costs and benefits in every case. The direction of the impact of the uncertainty is unknown for a majority of the cases.

Exhibit A.12 Summary of Uncertainties and Their Impact On Costs and Benefits

		Effect on Benefit Estimate			Effect on Cost Estimates		
	Uncertainty	Under-estimate	Over-estimate	Unknown Impact	Under-estimate	Over-estimate	Unknown Impact
Uncertainty in ICR Observed Data as SWAT Inputs							
1	There are possible reporting errors during the ICR and the ICR data may not be representative.			X			X
2	The residence times reported for the four ICR distribution system locations may not represent the actual residence times.			X			X
3	A single quarterly DBP sample may not represent average water quality conditions in that quarter. Distribution system samples were not required to be evenly spaced.			X			X
4	Water quality records were not available for all months in the ICR database. These were “filled in” in Aux 8.			X			X
Uncertainty in Predictive Equations for DBP Formation							
5	Generic treatment process configurations were used to represent real ICR plants.			X			X
6	Empirical model equations are based on bench-scale tests and may not represent site-specific plant conditions.			X			X
7	WTP algorithms for predicting DBP occurrence for ClO_2 and Ozone plants were not calibrated using ICR observed data.			X			X
Uncertainty in the SWAT Compliance Determination							
8	The IDSE may impact the maximum residence times and predicted DBP values.	X			X		
9	Compliance determinations are based on plant-level rather than system-level analyses for RAA compliance determinations.	X			X		
10	Some plants that switch from surface water to ground water during certain times of the year can affect RAA and LRAA calculations.		X			X	
Uncertainty in SWAT Treatment Technology Selection							

11	The maximum chloramine conversion rate was set at 77 percent based on best professional judgement. Actual limitations on chloramine use could be lower or higher.			X			X
12	Benchmarking was turned “on” for all Stage 1 and Stage 2 runs, meaning that plants had to maintain their initial level of inactivation when switching disinfectants.		X			X	

A discussion of each of the 15 areas of uncertainty is given in Section A.6.1. Validation of SWAT treatment technology selections as performed during the M-DBP FACA is described in Section A.6.2

EPA has developed an approach to account explicitly for two key areas of uncertainty in the surface water compliance forecast: the potential impacts of the IDSE (# 8), and uncertainty in predictive equations for DBP formation (#’s 5 through 7). Chapter 5 provides details on how these uncertainties are addressed quantitatively in the final compliance forecast estimates.

A.6.1 Discussion of Individual Areas of Uncertainty

Uncertainty in ICR Observed Data as SWAT Inputs

1. Possible reporting errors during the ICR

The are several sources of uncertainty in the DBP data collected under the ICR. The American Water Works Association Research Foundation (AWWARF) has compiled a description of the ICR data collection challenges and ultimate quality of the data in a publication, *Information Collection Rule Data Analysis* (the AWWARF ICR Report) (McGuire et al. 2002). Data quality controls were developed by a group of industry experts and strictly enforced; thus, EPA believes that the data quality in the ICR database is very high.

One key area of uncertainty that is addressed in the AWWARF ICR Report relates to the representativeness of all data collected during the ICR. Weather and rainfall during the ICR sampling period were compared to historical data to make this assessment (see Chapter 3, section 3.8 for additional data on weather and rainfall patterns). On a nationwide basis, 1998 was hotter and wetter than normal, although several mid-Atlantic states experienced severe droughts during the summer.

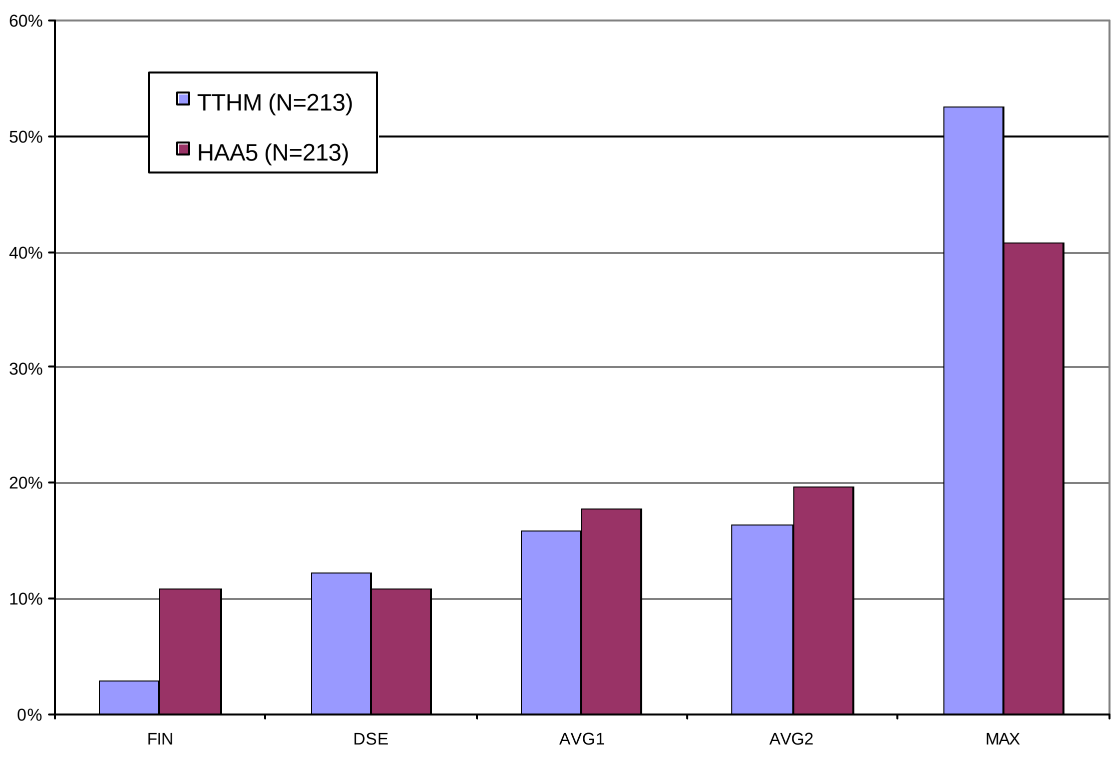
It is unknown how year-to-year variability in source water quality will affect estimated DBP occurrence. The year of data collection (1998) could represent a worst-case, best-case, or typical year depending on water-quality trends for a given plant. It is likely that some plants may experience higher DBP occurrence in future years than what is represented in the ICR database.

2. Uncertainty in the residence time reported at the four ICR distribution system locations

The accuracy of residence time estimates for ICR distribution system sample locations depends on operator experience with the system and the extent to which distribution system modeling or tracer studies have been conducted. Moreover, residence time fluctuates at any given location in the distribution system, and the ICR sample may not represent the typical or average residence time at that location. Because modeled DBP formation (particularly TTHM formation) is highly dependent on the residence time, uncertainty in residence time inputs would result in inaccurate estimates of DBP concentration by the WTP Model.

There is also reason to suspect that the uncertainty in the maximum residence time input in SWAT is greater than the uncertainty in the average residence time input in SWAT. As explained in Section A.3, the average residence time in the SWAT model is based on the mean of the four distribution system residence times reported in the ICR (for the DSE, AVE1, AVE2, and MAX locations). The maximum residence time is the largest residence time reported (usually at the MAX location). The MAX residence times reported in the ICR have already been shown in the Occurrence Document (USEPA 2003h) not to be predictive of the highest DBP levels. Therefore, they may not, in fact, represent the maximum residence time in the distribution system. Exhibit A.13 shows that only 53 percent of ICR plants have the highest TTHM LRAA concentration occurring at the maximum residence time monitoring site. The highest HAA5 LRAA occurred at the maximum residence time monitoring site in only 41 percent of the plants.

Exhibit A.13 Percentage of Highest TTHM or HAA5 Value Occurring at a Given Location



Source: ICR data analysis. Detailed source information provided with Exhibit 4.7 in the Stage 2 DBPR Occurrence Document (USEPA 2003h).

3. *Uncertainty that a single quarterly sample represents average water quality conditions in that quarter*

ICR quarterly samples were not necessarily collected at evenly spaced intervals. (A minimum of two months was required between quarterly samples; however, samples were not required to be taken approximately 90 days apart, as required in the Stage 2 DBPR.) Thus, a single sample may not be representative of that quarter, especially if the seasonal influence is strong.

4. *Water quality records were "filled in" in Aux 1 for missing months*

Missing records in the ICR resulted in fewer plant-months being estimated by SWAT. In order to increase the number of data points available as input to SWAT, missing values were estimated based on the average of values for the other months. Influent pH, hardness, alkalinity, and ammonia levels were among the parameters that were "filled in" (see Section A.2.2 for more information on how plants were screened and how some missing data were "filled in" in AUX8).

<u>Uncertainty in Predictive Equations for DBP Formation</u>

5. *Generic treatment process configurations were used to represent real ICR plants*

The WTP Model uses generic treatment process configurations to represent real ICR plants. For example, it represents a conventional treatment process train using a specific configuration of the pertinent unit processes. However, ICR plants employing conventional treatment could have a slightly different configuration from the generic conventional treatment plant used by the WTP Model.

6. *Empirical model equations may not represent site specific plant conditions*

The WTP Model uses empirical equations (based mainly on bench-scale tests) to predict DBP concentrations. However, it does not take into account site-specific factors such as non-uniform flow within a plant, actions of microbes, etc. As a result, the predicted finished water DBP concentration is likely to be different from the ICR observed data.

7. *WTP algorithms for predicting DBP occurrence for ClO_2 and Ozone plants were not calibrated using ICR observed data.*

There were not enough data on plants using chlorine dioxide or ozone disinfection in the ICR to conduct an appropriate calibration of the SWAT model for these parameters. The model may be inaccurately predicting the formation of DBPs in plants using these treatment technologies. If the model over-predicts the DBP reduction in these types of plants, the treatment technology selection may be biased in favor of selecting these plants. If the model under-predicts the DBP reduction in these plants, the treatment technology selection would be biased in favor of higher-performing treatment technologies, such as UV for chlorine dioxide plants, or GAC and membrane treatment technologies for both chorine dioxide and ozone plants. However, the direction of this bias is not known.

Note that EPA explicitly accounts for uncertainty in SWAT predictive equations (uncertainties 5 through 7) by using an alternative approach to estimate the percent of plants changing treatment technology. The alternative approach is presented in Chapter 5. The ways in which the results from the alternative approach are incorporated into the Stage 2 benefit and cost models are discussed in Chapters 6 and 7 respectively.

Uncertainty in the SWAT Compliance Determination

8. Effects of the Initial Distribution System Evaluation on the compliance forecast

The purpose of the IDSE is to identify compliance monitoring sites that are representative of high TTHM and HAA5 concentrations in the distribution system. The IDSE may result in systems finding sites with higher residence times and, thus, higher TTHM and HAA5 concentrations than predicted by SWAT. The IDSE could ultimately result in more systems making treatment technology changes than estimated by SWAT. A discussion of how EPA accounts for the uncertainty in the impacts of the IDSE is provided in Chapter 5.

The likelihood of finding a site with higher TTHM and HAA5 concentrations depends on many system-specific factors. First, the overall variability of DBP levels affects whether systems will find higher DBP levels at a new site. This variability is influenced by the source water type (surface water versus ground water) and the type of disinfectant used in the distribution system. Analysis of the ICR data has shown that systems employing chloramines as the distribution system disinfectant have more stable DBPs that chloramine systems.

Second, the configuration of the distribution system will affect the likelihood of find a new site with higher DBP levels. Distribution systems that are non-linear, which including looping and circuitous routes to establish new connections instead of extension of the nearest line, make finding the highest site difficult. In addition, systems with multiple storage facilities and booster disinfection pumping stations may find site with higher residence times during the IDSE. This is more likely to be an issue with large system than with small systems.

Finally, the technical resources employed during the ICR and Stage 1 selection of monitoring sites may help to eliminate the likelihood of finding a higher site. Any system that has extensive information of residual data, DBP data, employs hydraulic models, or has employed tracer studies should have a better idea of their maximum residence time sites.

9. Compliance determinations are based on plant-level rather than system-level analysis (Stage 1 only).

Stage 1 requires utilities to sample from a certain number of distribution system monitoring locations for each plant in their distribution system. The required number of monitoring locations varies by source water type and system size (e.g., 4 monitoring locations are required for large surface water systems). Although monitoring requirements are specified on a per-plant basis, compliance with Stage 1 MCLs is based on system-wide TTHM and HAA5 monitoring results. Because not all plants in a given system were available for SWAT modeling, SWAT-predicted DBP results for each plant are evaluated separately to determine regulatory compliance.

In systems having multiple plants, high DBP results from one plant could be averaged with low DBP results from other plants to produce a system-level RAA that is below the MCL, even if the one plant would exceed the MCL if evaluated alone. For example, say that plant A is a surface water plant with a TTHM RAA of 85 μg/L. Plants B and C are ground water plants with much lower TTHM

RAA's of 40 and 45 μg/L respectively. Assuming that each plant had an equal number of DBP monitoring sites and samples, the system-wide RAA would be (85+40+45) /3 = 56.6 μg/L. Since SWAT evaluates compliance for each plant separately, SWAT could potentially predict that a plant needed to change treatment technology when in fact, it is part of a system that is in compliance.

A potential overestimate of the percentage of plants changing treatment technology affects the compliance predictions for the Stage 1 Baseline and Alternative 3 (40/30 RAA). The Unadjusted Preferred Alternative, Alternative 1 (80/60 LRAA with Bromate of 10 ug/L), and Alternative 2 (80/60 single highest) are not affected because compliance with the MCLs is based on sample results from each location individually. If this phenomenon causes the Stage 1 predictions to be overestimated but not the Stage 2 predictions, there could be an underestimation of the incremental costs and benefits of Stage 2.

10. The Effect of Switching From Surface Water to Ground Water on Compliance Determination

Some ICR plants reportedly switch from surface to ground water sources during different times of the year. DBP results for the ground water use periods were not included in SWAT. Switching from a surface to a ground water source would most likely decrease TTHM and HAA5 formation and would impact RAA and LRAA compliance calculations. Not accounting for ground water use periods could result in an over-prediction in the compliance forecast predicted by SWAT.

<u>Uncertainty in SWAT Treatment Technology Selection</u>

11. Setting the Maximum Chloramine Conversion Rate at 77 Percent

The rate of 77 percent was assumed to be the maximum percentage of systems in the United States that would be able to convert to chloramines. This rate was set by the TWG in order to accommodate plants that may not be able to use chloramines due to site-specific circumstances or local factors other than technical suitability. This rate may be too high or too low, and represents an unknown impact on the SWAT estimates.

12. Benchmarking was used for all Stage 1 and Stage 2 Runs

Plants were assumed to maintain their initial level of pathogen inactivation when switching disinfectants. The disinfectant level may be set high for reasons other than disinfection, such as taste and odor control. Forcing plants to maintain their disinfectant levels could lead to selection of higher-performing treatment technologies in order to avoid DBP non-compliance. It is possible that the State would allow a system to lower its disinfectant levels to avoid higher DBPs, provided that the disinfectant level still meets existing standards.

A.6.2 Validation of SWAT Treatment Technology Selection Results

To validate the reasonableness of the SWAT treatment technology selection methodology, including the decision tree, the TWG compared two independent analyses of treatment technology forecasts to SWAT's pre-Stage 2 (post-Stage 1) DBPR predictions.[5] The two independent analyses are referred to as the "Delphi Poll" and the "Utility Poll" and are described below. A discussion of results follows.

ICR Surface Water Expert Poll (Delphi Poll)

The TWG conducted an expert, or "Delphi," poll to obtain Stage 1 DBPR impact estimates, based on technical expertise. Experts were provided with detailed water quality and treatment process characteristics from the AUX1 database for all ICR plants that appeared not to meet the MCLs for the Stage 1 DBPR (based on the ICR data, assuming a 20 percent safety margin for compliance). The experts then reviewed each plant to determine the most likely treatment technology choice to meet the Stage 1 DBPR. They were also asked to choose the least-cost treatment technology option. If an expert had knowledge about a specific plant that would lead him or her to choose a treatment technology other than the least-cost, the expert was asked to identify that treatment technology and the reasons for the choice. The results were collected from the experts, summarized, and presented to the M-DBP FACA (USEPA 2000n, TWG Presentation to FACA Committee, March 29, 2000).

ICR Surface Water Industry Poll (Utility Poll)

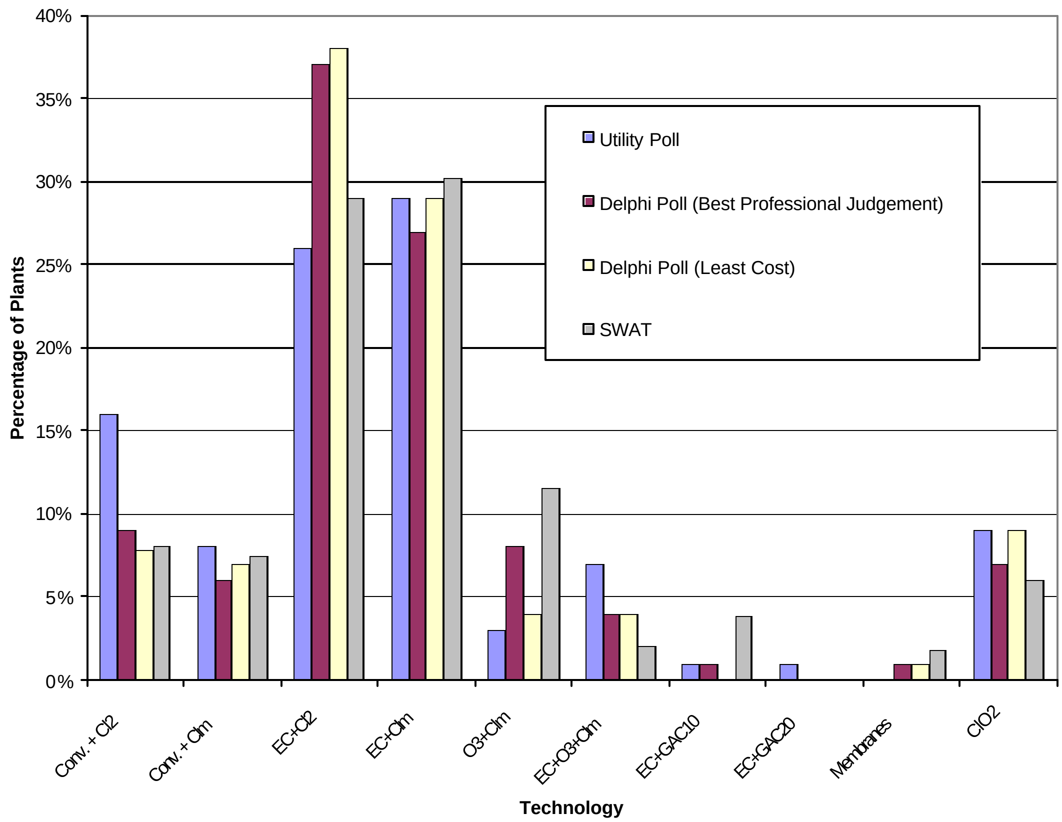
The industry poll was developed by the AWWA and served a similar role as the expert poll. It compared SWAT results to the Stage 1 DBPR impacts anticipated by industry representatives. In this process, AWWA asked ICR systems to identify the treatment technology they were planning to implement in response to the Stage 1 DBPR. The summarized results were presented to the M-DBP FACA and compared with the other predictions (USEPA 2000n).

Results

Exhibit A.14 compares the treatment technology selection forecasts predicted by SWAT, the Delphi poll (both expected and least-cost results), and the utility poll. In general, the distributions of Post-Stage 1 treatment technologies-in-place predicted by the polls and by SWAT are in good agreement with each other. Relative to the two polls, SWAT does not significantly over-predict or under-predict the expected prevalence of any treatment technology following the implementation of the Stage 1 rule. Based on these comparisons, the M-DBP FACA determined that SWAT was sufficiently reliable to serve as the basis for Stage 2 treatment technology selection forecasts and relied upon SWAT outputs to compare and evaluate regulatory options during its deliberations.

[5]Although validation of Post-Stage 2 results would have been preferable, the validation was done for post-Stage 1 because, at this time of this analysis, there were many potential Stage 2 DBPR regulatory alternatives still being evaluated. Performing the independent analyses for several compliance alternatives was considered by the TWG to be too time intensive.

Exhibit A.14 Comparison of Predicted Post-Stage 1 Treatment Technologies-in-Place



Part III: Compliance Forecasts

To estimate total benefits and costs of the rule, accurate forecasting of the compliance of surface water systems with the Stage 2 DBPR is critical. The compliance forecasts for large surface water systems were derived from ICR data using SWAT. Comprehensive data on operational parameters and water quality, similar to those gathered for large systems under the ICR, were not available for medium and small systems. Because the quality of the source water and the operational capabilities of medium and small systems were anticipated to differ from those of large systems, a detailed evaluation was performed to accurately estimate impacts of the Stage 2 DBPR on medium and small systems. A Non-ICR Subgroup of the TWG for the Microbial-Disinfection Byproducts Advisory Committee (the Subgroup) was charged with understanding the nature of medium and small systems and developing methodologies for further analysis. Detailed descriptions of the methodologies used in developing compliance forecasts for each system size category are provided in the latter sections of this appendix.

A.7 SWAT-based Compliance Forecasts for Large Surface Water Systems

Converting SWAT Results to the "Screening" Database

The compliance forecasts for large surface water systems were derived primarily using SWAT. Plant-level results from SWAT were converted to a "screening" database using a SAS program developed during the M-DBP FACA deliberations. The SAS screening program compiled individual plant results and makes adjustments based on knowledge of specific system practices. It also removed plants making minor treatment technology changes (enhanced coagulation, enhanced softening, moving point of chlorination, adjusting chlorine dose) because these are all implemented during Stage 1, so there is no change from Stage 1 to Stage 2.

The SWAT screening database provides three primary outputs: DBP Exposures, Treatment Technology Selection Forecasts, and Ending Treatment Technologies. DBP Exposures provides the predicted values of TTHM, HAA5, chlorite, and bromate for each rule option being examined. Treatment Technology Selection describes the distribution of treatment technologies only for those plants predicted to change to chloramine or an advanced treatment technology. Ending Treatment Technologies predicts the percentages of all plants using each type of treatment technology after the rule option is implemented. (The Treatment Technology Selection cannot be used for this purpose as some plants not making treatment technology changes already use advanced treatment technologies.) Only the Treatment Technology Selection results are presented below. Ending Treatment Technology results are presented in Appendix C and DBP Exposures are presented in Chapter 5.

Adjustments for the Stage 1 Baseline

SWAT cannot take compliance with the Stage 1 DBPR into account when predicting compliance forecasts for Stage 2. Hence, treatment technology shifts from Stage 1 to Stage 2 are estimated by subtracting the treatment technology shift between pre-Stage 1 and Stage 1 from the treatment technology shift between pre-Stage 1 and Stage 2. Different treatment technologies, however, were assumed to be available to meet the regulatory requirements of the Stage 1 and Stage 2 DBPRs. UV was not a proven disinfectant for *Cryptosporidium*, *Giardia*, or viruses at the time of the ICR or when plants were expected to make treatment decisions to meet Stage 1 DBPR requirements. EPA now considers UV a viable alternative disinfectant to chlorine to meet Stage 2 DBPR regulatory alternatives.

Because UV is considered an available treatment technology for the Stage 2 DBPR, some plants are predicted to use UV instead of more expensive treatment technologies such as ozone, microfiltration/ultrafiltration (MF/UF), or GAC. If the compliance forecasts for the Stage 1 and Stage 2 DBPRs were used independently, more expensive treatment technologies installed to meet Stage 1 would effectively be removed from the plant to install less expensive treatment technologies under Stage 2. This is not realistic. In reality, systems that added treatment technology for Stage 1 may not need to add another treatment technology for Stage 2.

To account for the effect of UV, a less expensive treatment technology, becoming available after Stage 1 came into effect, EPA used the following approach to adjust the Stage 2 compliance forecast:

- Model Stage 1 without UV. Model the Stage 2 regulatory alternatives with and without UV as an available treatment technology.

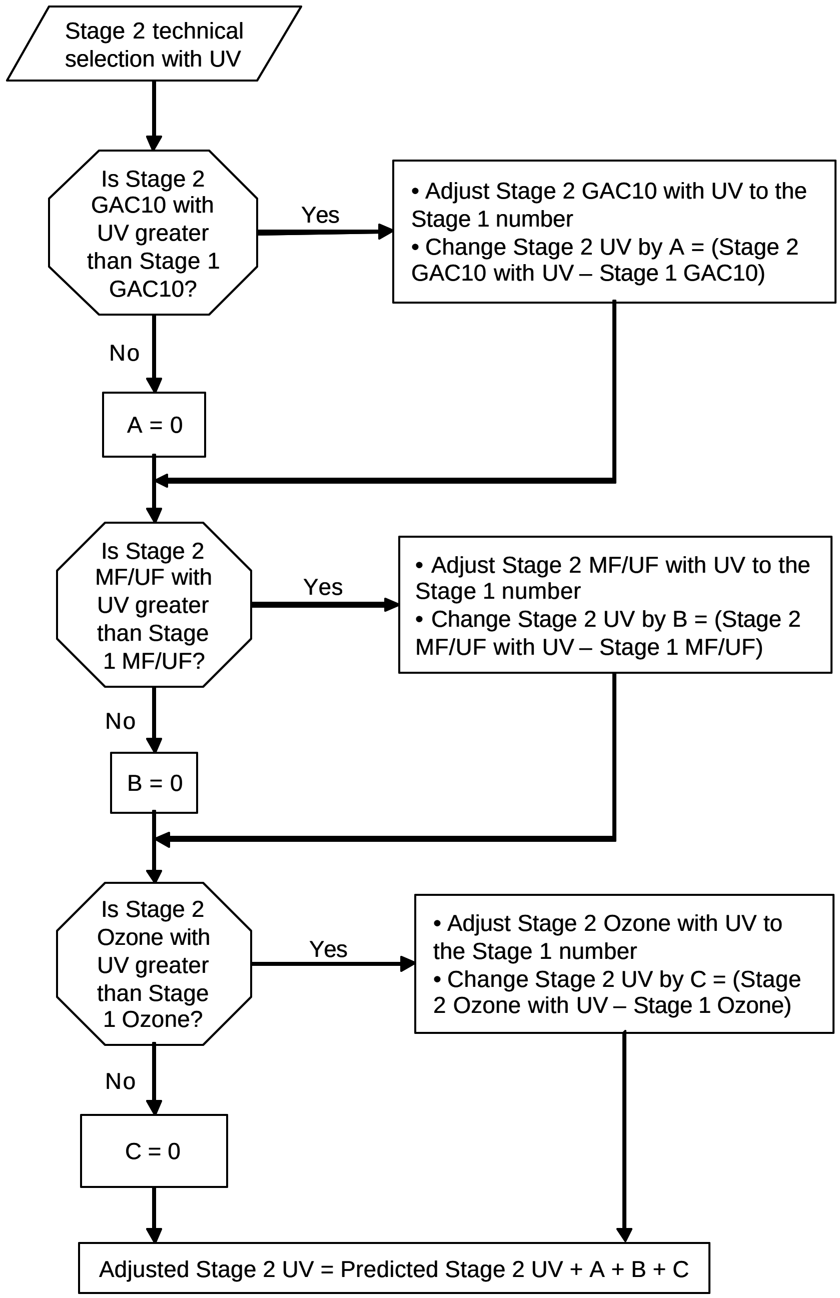
- Use the Stage 1 DBPR estimates of ozone, MF/UF, and GAC10 usage if they are higher than the Stage 2 results with UV, since systems are predicted to use these treatment technologies for Stage 1 and will not remove them to install UV.

- Decrease the percentage of plants using UV accordingly.

- To obtain the percentage of plants adding chloramine, use the percentage from the Stage 2 run without UV as an available treatment technology. This percentage decreases when UV is an available treatment technology. Since the percentage of plants changing to UV to comply with Stage 2 has been reduce, the estimate from the Stage 2 DBPR without the UV option is taken for the adjusted option.

These steps are displayed in Exhibit A.15a, and an example calculation for the Unadjusted Preferred Alternative is presented in Exhibit A.15b. Final adjusted compliance forecasts for large surface water systems are presented in Exhibit A.16.

Exhibit A.15a Adjustments to Stage 2 Treatment Technology Selection Forecasts for the Stage 1 Baseline



Note: A = Adjustment to Stage 2/UV percentage for GAC10.
B = Adjustment to Stage 2/UV percentage for MF/UF.
C = Adjustment to Stage 2/UV percentage for Ozone.

Exhibit A.15b Illustration of the Adjustment Steps to Stage 2 Compliance Forecasts for the Stage 1 Baseline

Step 1: GAC10 Adjustment

	Switch to CLM	Switch to CLM Only	Chlorine Dioxide	UV	Ozone	MF/UF	GAC10	GAC10 + Advanced Disinfectant	GAC20	GAC20 + Advanced Disinfectant	Membranes
Stage 1 DBPR	A1	B1	C1	D1	E1	F1	G1	H1	I1	J1	K1
Option w/o UV	A2	B2	C2	D2	E2	F2	G2	H2	I2	J2	K2
Option w/ UV	A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
Step 1 Subtotal	A4 = A3	B4 = B3	C4 = C3	D4 = If G1>G3 Then D3-(G1-G3) Else D3	E4 = E3	F4 = F3	G4 = If G1>G3 Then G1 Else G3	H4 = H3	I4 = I3	J4 = J3	K4 = K3

Step 2: MF/UF Adjustment

	Switch to CLM	Switch to CLM Only	Chlorine Dioxide	UV	Ozone	MF/UF	GAC10	GAC10 + Advanced Disinfectant	GAC20	GAC20 + Advanced Disinfectant	Membranes
Stage 1 DBPR	A1	B1	C1	D1	E1	F1	G1	H1	I1	J1	K1
Option w/o UV	A2	B2	C2	D2	E2	F2	G2	H2	I2	J2	K2
Option w/ UV	A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
Step 2 Subtotal	A4	B4	C4	D5 = If F1>F3 Then D4-(F1-F3) Else D4	E4	F5 = If F1>F3 Then F1 Else F4	G4	H4	I4	J4	K4

Step 3: Ozone Adjustment

	Switch to CLM	Switch to CLM Only	Chlorine Dioxide	UV	Ozone	MF/UF	GAC10	GAC10 + Advanced Disinfectant	GAC20	GAC20 + Advanced Disinfectant	Membranes
Stage 1 DBPR	A1	B1	C1	D1	E1	F1	G1	H1	I1	J1	K1
Option w/o UV	A2	B2	C2	D2	E2	F2	G2	H2	I2	J2	K2
Option w/ UV	A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
Step 3 Subtotal	A4	B4	C4	D6 = If E1>E3 Then D5-(E1-E3) Else D5	E5 = If E1>E3 Then E1 Else E4	F5	G4	H4	I4	J4	K4

Step 4: CLM Adjustment

	Switch to CLM	Switch to CLM Only	Chlorine Dioxide	UV	Ozone	MF/UF	GAC10	GAC10 + Advanced Disinfectant	GAC20	GAC20 + Advanced Disinfectant	Membranes
Stage 1 DBPR	A1	B1	C1	D1	E1	F1	G1	H1	I1	J1	K1
Option w/o UV	A2	B2	C2	D2	E2	F2	G2	H2	I2	J2	K2
Option w/ UV	A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
Step 3 Subtotal	A5 = If A2>A3 Then A2 Else A3	B4	C4	D6	E5	F5	G4	H4	I4	J4	K4

Exhibit A.16 Final Adjusted Compliance Forecasts for Surface Water Systems Serving > 10,000 (Percent of Systems Changing Treatment Technologies from the Pre-Stage 1 Baseline to Stage 2)

Stage 2 Preferred Alternative, 20 Percent Safety Margin: 80 µg/L TTHM as LRAA, 60 µg/L HAA5 as LRAA, Bromate 10 µg/L

	Switch to CLM	Switch to CLM only	Chlorine Dioxide	UV	Ozone	MF/UF	GAC10	GAC10 + Advanced Disinfectant	GAC20	GAC20 + Advanced Disinfectant	Membranes
Stage 1 DBPR	13.92%	78.39%	5.13%	0.00%	10.99%	1.83%	1.83%	1.10%	0.37%	0.00%	0.37%
Stage 2 Option w/o UV	19.05%	76.19%	5.49%	0.00%	11.72%	1.83%	1.83%	1.83%	0.73%	0.00%	0.37%
Stage 2 Option w/UV	18.68%	76.19%	5.49%	7.33%	6.23%	0.37%	1.47%	1.83%	0.73%	0.00%	0.37%
Stage 2 Option adjusted	19.05%	76.19%	5.49%	0.75%	10.99%	1.83%	1.83%	1.83%	0.73%	0.00%	0.37%

Stage 2 Preferred Alternative, 25 Percent Safety Margin: 80 µg/L TTHM as LRAA, 60 µg/L HAA5 as LRAA, Bromate 10 µg/L

	Switch to CLM	Switch to CLM only	Chlorine Dioxide	UV	Ozone	MF/UF	GAC10	GAC10 + Advanced Disinfectant	GAC20	GAC20 + Advanced Disinfectant	Membranes
Stage 1 DBPR	13.92%	78.39%	5.13%	0.00%	10.99%	1.83%	1.83%	1.10%	0.37%	0.00%	0.37%
Stage 2 Option w/o UV	22.34%	72.53%	4.76%	15.02%	2.56%	1.83%	2.56%	0.37%	0.37%	0.00%	0.00%
Stage 2 Option w/UV	21.25%	72.53%	4.76%	8.79%	8.06%	0.73%	1.83%	2.56%	0.37%	0.00%	0.37%
Stage 2 Option adjusted	22.34%	72.53%	5.13%	4.40%	10.99%	1.83%	1.83%	2.56%	0.37%	0.00%	0.37%

Stage 2 Rule Alternative 1: 80 µg/L TTHM as LRAA, 60 µg/L HAA5 as LRAA, Bromate 5 µg/L

	Switch to CLM	Switch to CLM only	Chlorine Dioxide	UV	Ozone	MF/UF	GAC10	GAC10 + Advanced Disinfectant	GAC20	GAC20 + Advanced Disinfectant	Membranes
Stage 1 DBPR	13.92%	78.39%	5.13%	0.00%	10.99%	1.83%	1.83%	1.10%	0.37%	0.00%	0.37%
Stage 2 Option w/o UV	19.05%	75.82%	5.49%	0.00%	10.99%	2.20%	1.83%	1.47%	0.73%	0.00%	1.47%
Stage 2 Option w/UV	18.68%	75.82%	5.49%	6.96%	6.23%	0.37%	1.47%	1.47%	0.73%	0.00%	1.47%
Stage 2 Option adjusted	19.05%	75.82%	5.49%	0.37%	10.99%	1.83%	1.83%	1.47%	0.73%	0.00%	1.47%

Stage 2 Rule Alternative 2: 80 µg/L TTHM as Single Highest, 60 µg/L HAA5 as Single Highest, Bromate 10 µg/L

	Switch to CLM	Switch to CLM only	Chlorine Dioxide	UV	Ozone	MF/UF	GAC10	GAC10 + Advanced Disinfectant	GAC20	GAC20 + Advanced Disinfectant	Membranes
Stage 1 DBPR	13.92%	78.39%	5.13%	0.00%	10.99%	1.83%	1.83%	1.10%	0.37%	0.00%	0.37%
Stage 2 Option w/o UV	28.94%	54.58%	10.62%	0.00%	12.45%	2.56%	10.62%	6.59%	1.10%	0.37%	1.10%
Stage 2 Option w/UV	29.30%	54.58%	10.62%	5.49%	8.79%	1.47%	10.26%	6.23%	1.10%	0.37%	1.10%
Stage 2 Option adjusted	28.94%	54.58%	10.62%	2.93%	10.99%	1.83%	10.26%	6.23%	1.10%	0.37%	1.10%

Stage 2 Rule Alternative 3: 40 µg/L TTHM as RAA, 30 µg/L HAA5 as RAA, Bromate 10 µg/L

	Switch to CLM	Switch to CLM only	Chlorine Dioxide	UV	Ozone	MF/UF	GAC10	GAC10 + Advanced Disinfectant	GAC20	GAC20 + Advanced Disinfectant	Membranes
Stage 1 DBPR	13.92%	78.39%	5.13%	0.00%	10.99%	1.83%	1.83%	1.10%	0.37%	0.00%	0.37%
Stage 2 Option w/o UV	29.67%	42.12%	13.19%	0.00%	12.45%	4.03%	17.58%	7.69%	1.47%	0.37%	1.10%
Stage 2 Option w/UV	30.77%	42.12%	13.19%	7.33%	6.96%	2.93%	17.22%	7.33%	1.47%	0.37%	1.10%
Stage 2 Option adjusted	29.67%	42.12%	13.19%	3.30%	10.99%	2.93%	17.22%	7.33%	1.47%	0.37%	1.10%

A.8 SWAT based Compliance Forecasts for Medium Surface Water Systems

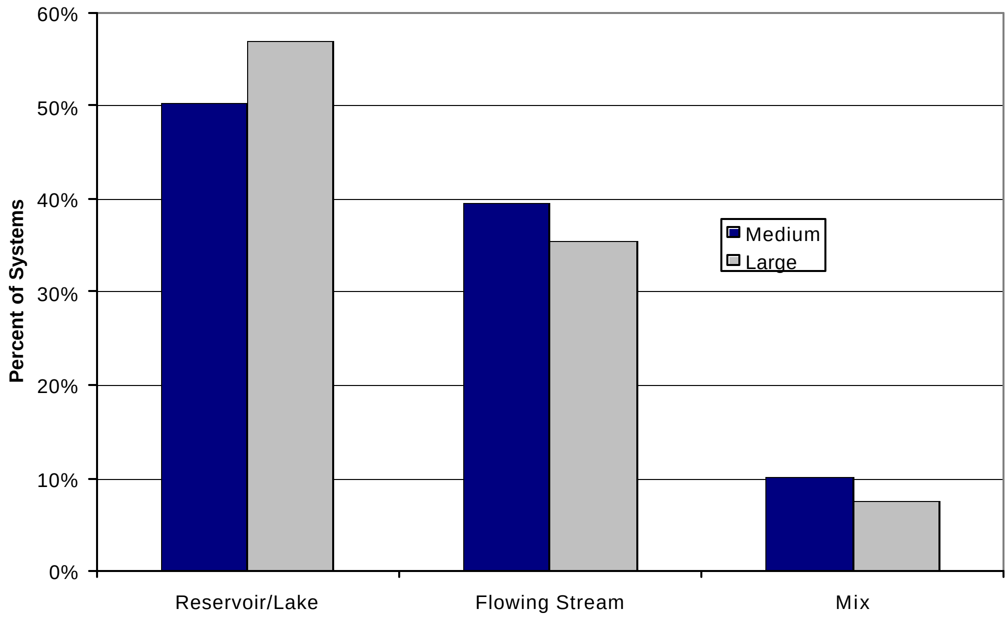
After a detailed review of available data, the TWG Small/Medium Systems Subgroup concluded that the influent water quality, treatment characterization, and DBP occurrence for medium surface water plants are similar to large surface water plants. This section describes and examines the data that support this conclusion.

The Water Utility Database (WATER:\STATS [AWWA 2000]), developed by AWWA, was used in this analysis. Its data were collected during a 1996 survey of approximately 900 primarily medium and large systems. This database includes information on influent water quality, treatment, and the occurrence of DBPs in finished water for all system sizes.

Exhibit A.17 compares source water types for medium and large surface water systems. Further information is provided in the Stage 2 DBPR Occurrence Document (USEPA 2003h). Given the similarities in the distribution of large and medium systems using each type of surface water, the Subgroup expected to find only minor differences in source water quality. Exhibits A.18 through A.20, which compare source water TOC, turbidity, and alkalinity, respectively, confirm this hypothesis.

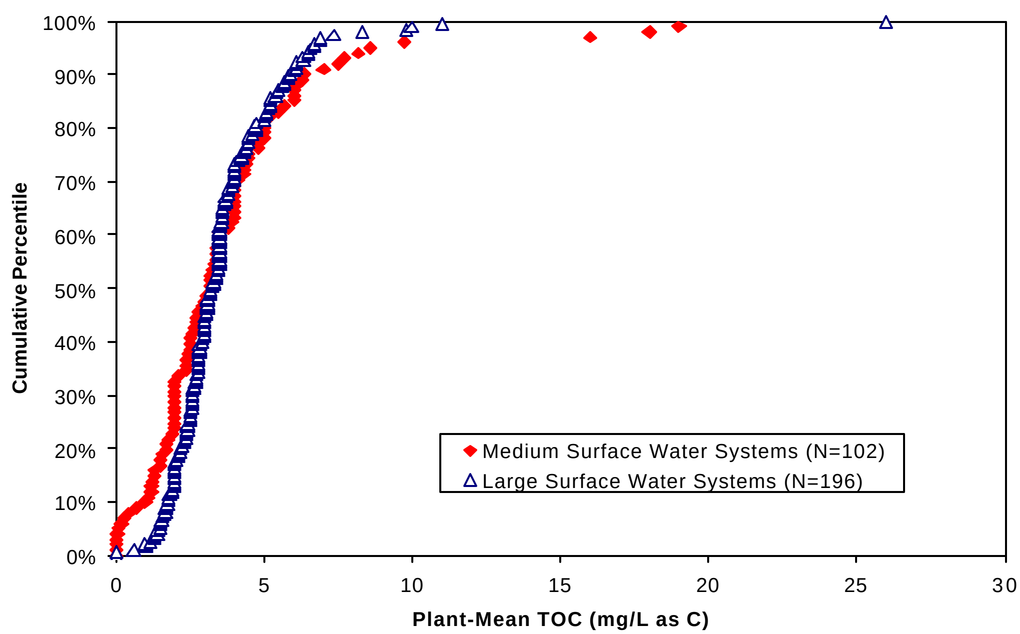
Exhibit A.21 shows that the disinfectant usage of medium and large systems is similar. Exhibits A.22 and A.23 show that the distribution of TTHM values was similar between large and medium systems for measurements at finished water and distribution system sampling points.

Exhibit A.17 Percentages of Medium and Large Surface Water Systems Using Different Source Water Types



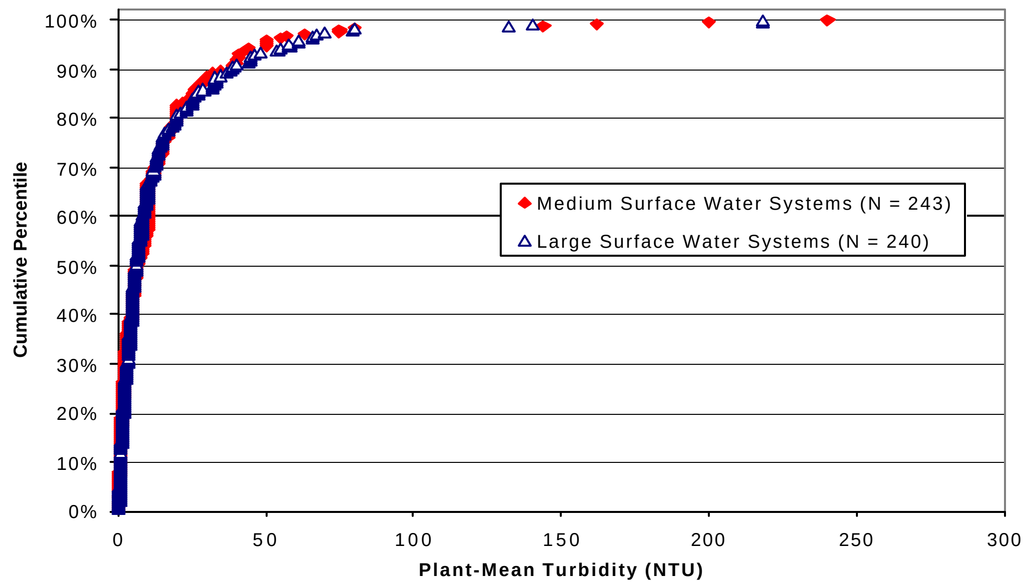
Source: WATER:\STATS (AWWA 2000).

Exhibit A.18 Comparison of Source Water TOC for Medium and Large Surface Water Systems



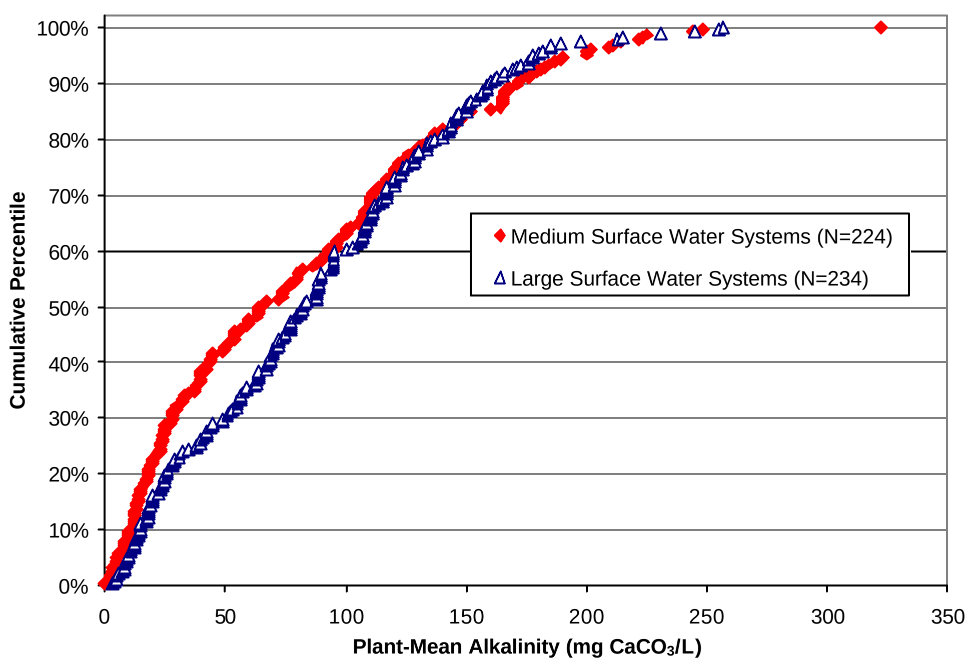
Source: WATER:\STATS (AWWA 2000).

Exhibit A.19 Comparison of Source Water Turbidity For Medium and Large Surface Water Systems



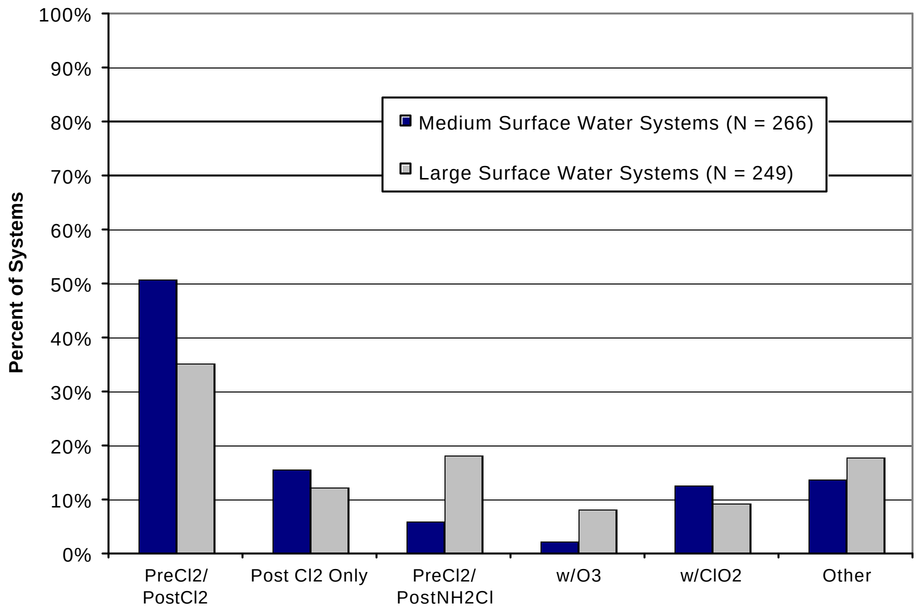
Source: WATER:\STATS (AWWA 2000).

Exhibit A.20 Comparison of Source Water Alkalinity for Medium and Large Surface Water Systems



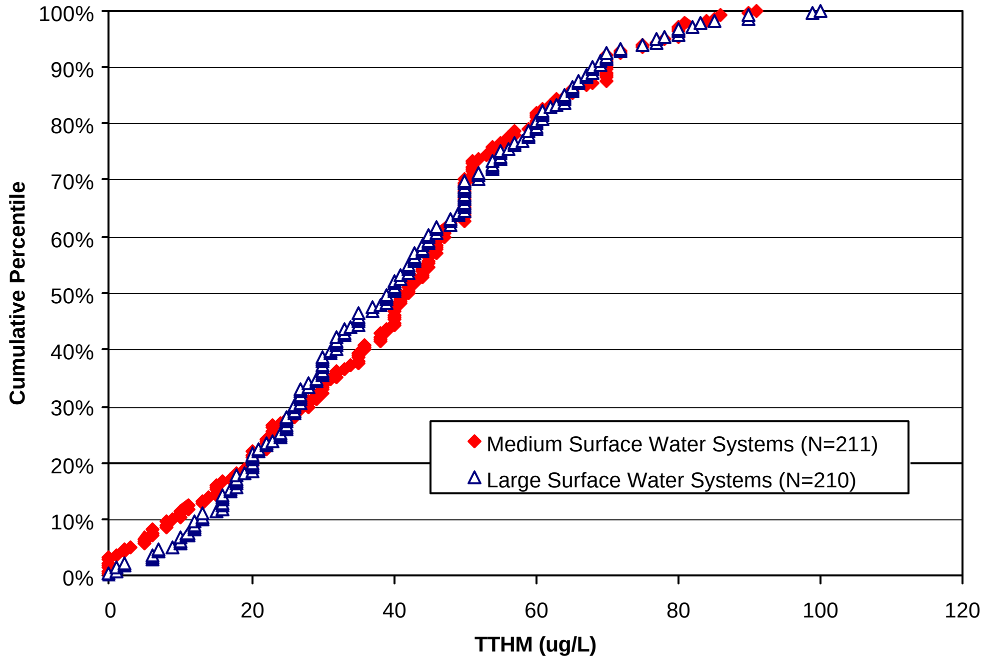
Source: WATER:\STATS (AWWA 2000).

Exhibit A.21 Comparison of Disinfectant Type for Medium and Large Surface Water Systems Using Conventional Filtration



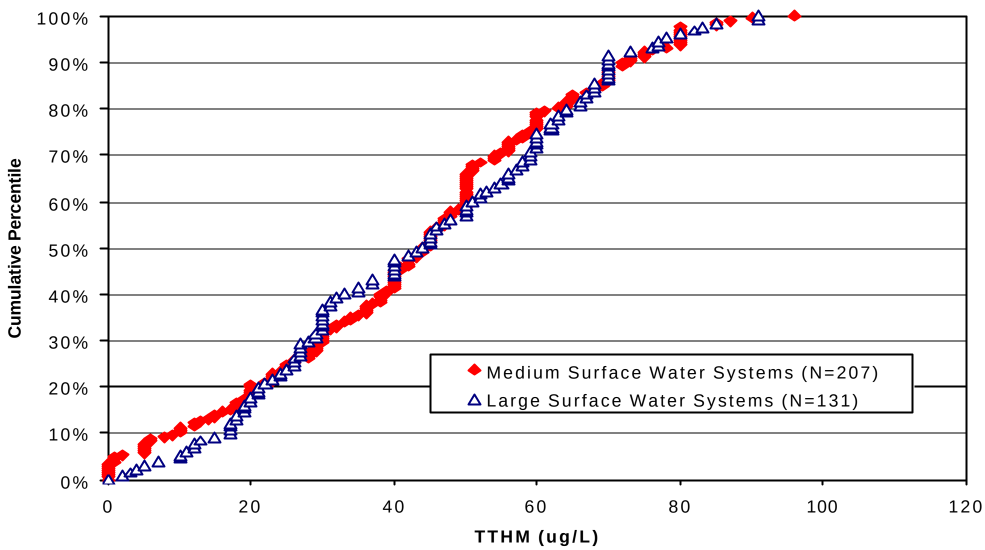
Source: WATER:\STATS (AWWA 2000).

Exhibit A.22 Comparison of Finished Water Annual Average TTHM for Medium and Large Surface Water Systems



Source: WATER:\STATS (AWWA 2000).

Exhibit A.23 Comparison of Distribution System Annual Average TTHM for Medium and Large Surface Water Systems



Source: WATER:\STATS (AWWA 2000).

Because of the similarities between large and medium surface water systems, the Subgroup assumed that ICR data on DBP occurrence and the results of the SWAT analysis were also applicable to medium surface water systems. Thus, the Subgroup assumed that medium surface water systems treatment technology selection was identical to the large surface water system treatment technology selection for pre-Stage 1, Stage 1, and the Stage 2 alternatives.

For this proportional allocation to be valid, some similarity must exist between the nationwide geographical distribution of ICR surface water systems and that of medium surface water systems. The Subgroup compared the distribution of ICR surface water systems by State to the distribution of medium surface water systems by State, using the Baseline Handbook (USEPA 2001c). This effort established that there is no significant difference in overall geographic distribution (as shown in Exhibit A.24), although there is some variation in the distribution of systems in different size categories.

To ensure that the distribution assumptions did not mask differences that may affect DBP formation, additional analyses were performed. In particular, the distribution of systems with high levels of DBP precursors (TOC in Florida, bromide in Texas; based on State data and ICR data analysis) within certain States was examined. No significant difference was found between the percentages of medium and large systems having high precursor levels. The Subgroup concluded that SWAT predictions of occurrence for large systems could be directly applied to the universe of medium surface water plants.

Exhibit A.24 Distribution of Large and Medium Surface Water Plants by EPA Region

EPA Region	Percent of Large Systems	Percent of Medium Systems
1	5.83%	9.00%
2	12.55	6.35
3	11.22	12.60
4	16.60	25.20
5	13.46	14.22
6	11.67	12.51
7	5.38	4.14
8	4.93	6.06
9	14.80	7.48
10	3.60	3.22
Total	100%	100%

Note: Detail may not add due to independent rounding.

Source: Baseline Handbook (USEPA 2001c).

A.9 SWAT based Compliance Forecasts for Small Surface Water Systems

Small surface water systems differ in many ways from medium and large surface water systems. Small systems are exempt from the 1979 Total Trihalomethane Rule, which set the TTHM MCL at 100 μg/L. Source water quality is somewhat better in small systems than in larger systems, as demonstrated by the ICR Supplemental and National Rural Water Association (NRWA) Survey data, discussed below, and the Stage 2 DBPR Occurrence and Exposure Assessment (USEPA 2003h). Unit cost estimates for new treatment technologies are higher in small systems than larger systems, which may drive small systems to take different treatment approaches. In addition, some treatment technologies predicted for use in large and medium systems may not be feasible in small systems.

Due to these considerations, the Technical Workgroup used an expert review process to extract the predicted compliance forecast for large systems to small system subgroups. The method, or the Delphi Poll process, consisted of a group of experts who provided their best professional judgement to identify likely treatment technologies for affected plants. The expert opinions were consolidated for a best estimate of the treatment technology selection response of compliance affected systems. This provided a compliance forecast for a given regulatory option.

The participating experts included members of the NRWA (a federation of 45 State rural water associations, representing over 19,000 water and wastewater utilities), EPA staff, and consulting engineers with many years of experience in small surface water systems. The review process for small surface water systems integrated technical analyses of source water characteristics and experts' predictions of anticipated treatment technologies changes and DBP formation. The experts' responses were then aggregated for further analysis.

A.9.1 Data Sources and Uncertainties

Because the small surface water system compliance forecast is extracted from SWAT model runs, many of the uncertainties in the SWAT model as discussed in Section A.6 apply to the small surface water system compliance forecast. One of the key areas of uncertainty, uncertainty in SWAT predictive equations, is quantified for small surface water systems as it is for large surface water systems. The derivation of alternative compliance forecasts to quantify uncertainty in SWAT predictive equations are presented in Chapter 5.

The ICR Supplemental Survey is a survey meant to compliment the ICR data set. It is a survey of raw source water quality and DBP concentrations from 40 random plants each from the small, medium, and large size categories. This is a small data set when compared to the nearly 4,000 small surface water system. The same is true of the NRWA data set, which consists of 117 randomly surveyed small plants nationwide to determined treatment process, source water quality, and DBP concentrations. Thus, adjustments to the large compliance forecast based on these data sets are uncertain.

The compliance forecasts of small systems are not adjusted to account for the IDSE. Small systems typically have distribution systems that are less complex than those of large surface water systems. As a result, they are more likely to already know the maximum residence time location in their distribution system.

A.9.2 Decisions from the Delphi Poll Process

For the expert review process, small surface water systems were subdivided into three size categories: systems serving fewer than 100 people, systems serving 100 to 999 people, and systems serving between 1,000 and 9,999 people. The Subgroup expected systems in each category to make different treatment choices.

The following sections detail the results of the Subgroup's deliberation of specific treatment technologies. The flowchart describing the analytical process is shown in Exhibit A.25.

Systems Serving 1,000 to 9,999 People

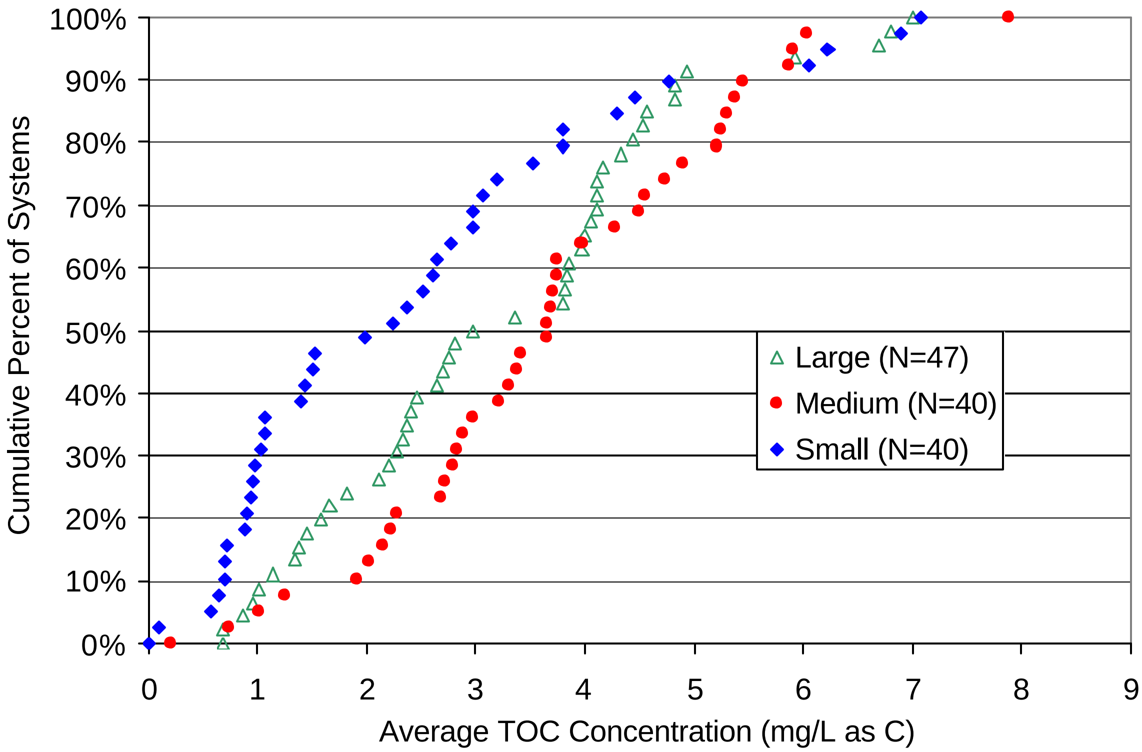
A review of ICR Supplemental Survey and NRWA Survey data indicated that source water quality at small systems was better than that at large systems. NRWA Survey results showed slightly higher TOC concentrations; however, NRWA results may be biased, as discussed in Section A.9.1. Based on Supplemental Survey data shown in Exhibit A.25, the Subgroup predicted that a smaller proportion of small systems would change to advanced treatment technologies as a result of the Stage 1 and Stage 2 DBPRs than the proportion of large systems predicted by SWAT.

The Subgroup adjusted the percentage of small systems using conventional or nonconventional treatment (i.e., not switching to advanced treatment) in the following manner:

- If the percentage of large systems employing conventional and nonconventional treatment technologies, as predicted by SWAT, exceeded or equaled 65 percent, then the corresponding percentage for small systems were to be adjusted upward to 75 percent.

- If the percentage of systems employing conventional and nonconventional treatment technologies was predicted to be less than 65 percent, then the corresponding percentage for small systems were to be adjusted by adding 10 percent to the SWAT output.

Exhibit A.25 Average TOC Levels in Surface Water Systems



1 Source: 12 months from the ICR Supplemental Survey Data (USEPA 2000b).

SWAT predicted that the percentage of large systems using conventional or nonconventional treatment would exceed 65 percent, so the percentage for small systems was increased to 75. The Subgroup correspondingly removed systems from other treatment categories, including chlorine dioxide, UV, and ozone. The Subgroup assumed that the conventional treatment category included some systems modifying treatment by increasing coagulant dose, installing a pre-sedimentation basin, or moving the point of chlorination. While these activities pose a smaller cost impact to large systems than implementing an advanced treatment technology does, some of these modifications (e.g., installing a pre-sedimentation basin) could constitute a substantial burden for a few small systems. However, the Subgroup was of the opinion that on a national scale the effects would not be significant, and hence did not account for it.

The Subgroup then imposed additional constraints that further affected the Stage 1 and 2 DBPR analyses and increased the number of systems predicted to change to advanced treatment technologies.

Because SWAT predictions are based on large systems, they do not account for small systems that were known to be using microfiltration or ultrafiltration before the Stage 1 DBPR was implemented (no large systems were using these treatment technologies during the ICR period). According to the NRWA Survey, microfiltration and ultrafiltration were used by 3.6 percent of small systems before the Stage 1 DBPR went into effect. As a result, the experts added 3.6 percent to the percentage of small systems predicted to be using microfiltration and ultrafiltration after the Stage 1 and Stage 2 DBPRs. These extra systems were subtracted from the systems predicted to use chlorine dioxide, ozone, and UV, as predicted by SWAT.

The SWAT model includes four options for systems using GAC:

- GAC10 (10-minute empty bed contact time)

- GAC10 plus advanced disinfectants

- GAC20 (20-minute empty bed contact time)

- GAC20 plus advanced disinfectants

Costs for GAC systems include frequent replacement or regeneration of the carbon media. The Subgroup believed that surface water systems serving more than 1,000 people would choose to replace rather than regenerate their GAC media. Because unit costs for GAC20 with replacement are lower than unit costs for GAC10 with regeneration of the media (for small systems), the Subgroup assumed that the systems using GAC10 or GAC10 plus advanced oxidants, based on the large system prediction, would instead use GAC20 or GAC20 plus advanced disinfectants, respectively.

Systems Serving 100 to 999 People

For systems serving 100 to 999 people, the starting point for treatment technology selection was the treatment technology distribution predicted for systems serving 1,000 to 9,999 people. These predictions were further modified to account for the difficulties systems of this size might have with disinfectants such as ozone, chlorine dioxide, and chloramines. Predictions for systems using GAC20 were adjusted as well.

In general, the Subgroup established that many small systems would probably not use chlorine dioxide, because it is difficult to handle and must be generated on site. The application of chlorine dioxide also requires daily testing for chlorite, a regulated DBP. The effort or expertise required for this testing may be beyond the capability of many small systems. Therefore, the Subgroup constrained chlorine dioxide use in the 100-999 size category to half that of the 1,000 to 9,999 category, allocating the rest to UV, ozone, and MF/UF in proportion to the existing numbers for these treatment technologies.

The preceding constraints on the treatment technologies available to small systems necessitated predicting the treatment technology to which each small system will switch. The only difference between the SWAT Decision Tree and the one used for small surface water systems is that GAC10 is not an option for the small surface water systems. The Subgroup also assumed that systems predicted to modify their primary treatment would continue to use the same residual disinfectant.

The Subgroup next adjusted the compliance forecast to account for a small portion of smaller systems that may not be able to apply GAC20 treatment technologies. The Subgroup subtracted 10 percent from the percentage of systems predicted to use GAC20. The systems removed from GAC20 were then added to NF (microfiltration followed by nanofiltration), the next available treatment technology on the decision tree.

Chloramine use may be difficult for some small systems, especially if an operator is not always present. Chloramine use was adjusted in a two-step process. First, the percentage of systems predicted to use chloramine as a residual disinfectant was reduced to 90 percent of the value predicted for systems serving 1,000 to 9,999 people. These systems instead were predicted to use chlorine as a residual disinfectant. Second, the Subgroup predicted that systems using chlorine would switch to different primary treatment technologies. This reallocation was necessary because chlorine contributes more to DBP formation than chloramine does, thereby forcing systems to use a higher cost treatment technology in order to meet the DBP standards of the Stage 2 DBPR.

Systems Serving Fewer than 100 People

For systems serving 100 or fewer people, the starting point for treatment technology selection was the treatment technology distribution predicted for systems serving 100 to 999 people. These predictions were modified to account for the additional difficulties systems of this size might have with disinfectants such as ozone, chlorine dioxide, and chloramine. Predictions for systems using GAC20 were adjusted as well.

The Subgroup assumed that no systems in this size category would use chlorine dioxide or ozone. Consequently, the Subgroup allocated to conventional treatment two-thirds of the systems that were predicted to use chlorine dioxide and ozone. The remaining one-third of chlorine dioxide systems were allocated to UV, MF/UF, GAC20, GAC20 with UV, and NF, and the remaining one-third of ozone systems were allocated to MF/UF, GAC20, GAC20 with UV, and NF, all in proportion to existing numbers for these treatment technologies.

As with systems serving 100 to 999 people, the percentage of systems predicted to use GAC20 was decreased by 10. The systems removed from GAC20 were then added to NF, the next available treatment technology on the decision tree.

The Subgroup adjusted chloramine usage using the same process as it did for systems serving 100 to 999 people, except that the percentage of systems predicted to use chloramine as a residual disinfectant was reduced to 75 percent, rather than 90 percent.

The most significant effect of the chloramine constraint was that systems using less expensive treatment technologies were predicted to move toward more expensive treatment technologies. This effectively neutralizes the cost savings small systems might have achieved through better source water quality. A review of the compliance forecasts shows that when the Stage 1 DBPR predictions for both large and small surface water systems are compared, there is no significant difference in the percentage of systems using advanced treatment technologies to comply with the Stage 1 DBPR. Small systems have better source water quality than large systems do, but this is outweighed by the fact that they must install more expensive treatment technologies to comply with DBP regulations and by the fact that large systems are already complying with the 1979 TTHM Rule.

Adjustments for the Stage 1 DBPR

To account for the effect of less expensive treatment technologies becoming available to meet the Stage 2 DBPR requirements for small surface water systems, the following adjustments were made to the Stage 2 ending treatment technology predictions made by the Delphi subgroup:

- Start with SWAT/Delphi subgroup treatment technology selection predictions for the Stage 1 DBPR and Stage 2 DBPR options (with and without UV) for the small surface water systems.

- Check the Stage 2 small surface water predictions for NF (i.e., the most expensive treatment technology). Use the Stage 1 DBPR estimates for NF usage if they are higher than the Stage 2 NF usage estimates. This is because systems predicted to use NF for Stage 1 will not remove it to shift to a lower-performing treatment technology, even if the actual Stage 2 predictions specify the latter.

- Repeat the above step with the next most expensive treatment technology (i.e., GAC20 & UV or advanced oxidants (AO)). Continue this procedure for each succeeding treatment technology, moving all the way down to chlorine dioxide.

These steps are outlined in Exhibit A.26 (see “Adjusting for Stage 1 Baseline"), and an example of the adjustments made for each size category is presented in Exhibit A.27.

In addition to the treatment technology abbreviations commonly used in this EA, the following acronyms are used in Exhibit A.26:

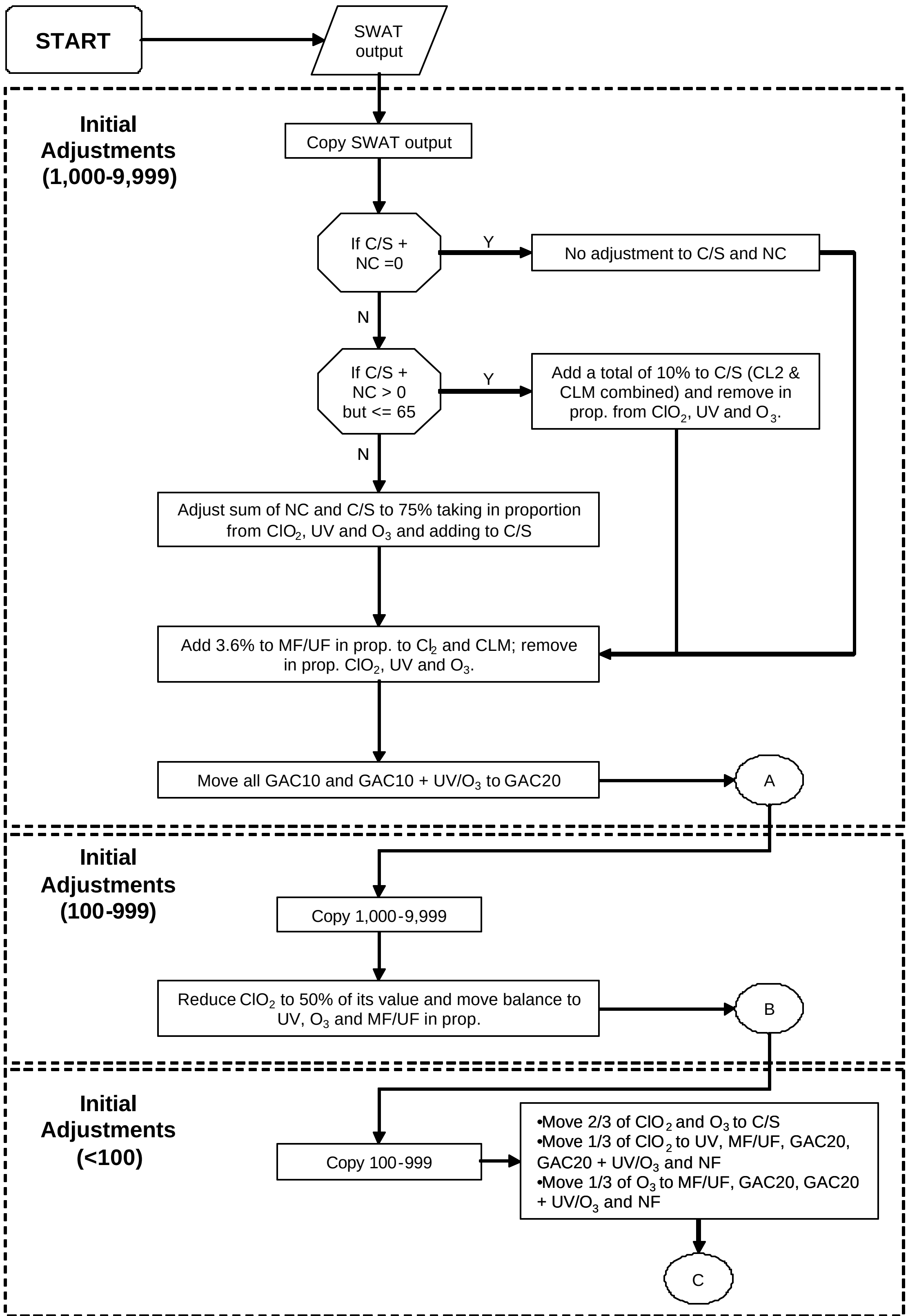
- C/S - Conventional filtration with softening

- NC - Nonconventional filtration

A.9.3 Results

Exhibits A.28a, A.28b, and A.28c summarize the treatment technology selection results for small surface water systems, for all Stage 2 DBPR regulatory alternatives and sensitivity options.

Exhibit A.26 Small Surface Water Forecast Flowchart



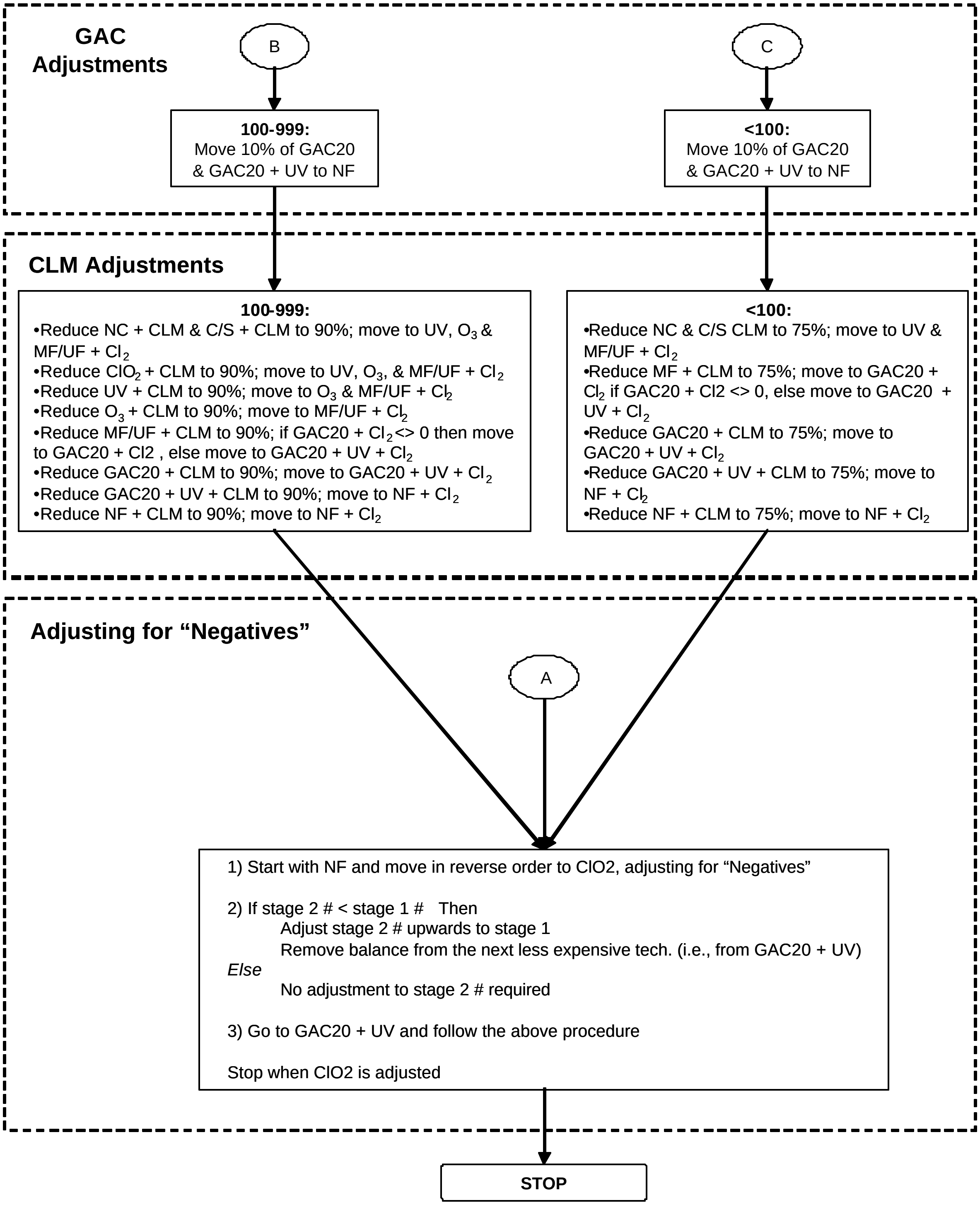

GAC Adjustments
B
C
100-999: Move 10% of GAC20 & GAC20 + UV to NF
<100: Move 10% of GAC20 & GAC20 + UV to NF
CLM Adjustments
100-999:
•Reduce NC + CLM & C/S + CLM to 90%; move to UV, O_3 & MF/UF + Cl_2
•Reduce ClO_2 + CLM to 90%; move to UV, O_3, & MF/UF + Cl_2
•Reduce UV + CLM to 90%; move to O_3 & MF/UF + Cl_2
•Reduce O_3 + CLM to 90%; move to MF/UF + Cl_2
•Reduce MF/UF + CLM to 90%; if GAC20 + Cl_2 <> 0 then move to GAC20 + Cl2 , else move to GAC20 + UV + Cl_2
•Reduce GAC20 + CLM to 90%; move to GAC20 + UV + Cl_2
•Reduce GAC20 + UV + CLM to 90%; move to NF + Cl_2
•Reduce NF + CLM to 90%; move to NF + Cl_2
<100:
•Reduce NC & C/S CLM to 75%; move to UV & MF/UF + Cl_2
•Reduce MF + CLM to 75%; move to GAC20 + Cl_2 if GAC20 + Cl2 <> 0, else move to GAC20 + UV + Cl_2
•Reduce GAC20 + CLM to 75%; move to GAC20 + UV + Cl_2
•Reduce GAC20 + UV + CLM to 75%; move to NF + Cl_2
•Reduce NF + CLM to 75%; move to NF + Cl_2
Adjusting for "Negatives"
A
1) Start with NF and move in reverse order to ClO2, adjusting for "Negatives"
2) If stage 2 # < stage 1 # Then
Adjust stage 2 # upwards to stage 1
Remove balance from the next less expensive tech. (i.e., from GAC20 + UV)
Else
No adjustment to stage 2 # required
3) Go to GAC20 + UV and follow the above procedure
Stop when ClO2 is adjusted
STOP

Exhibit A.27 Small Surface Water Adjustments Example

Initial Adjustments

SWAT for ICR Systems

	CL2	CLM
Nonconventional	A1	B1
Conventional/Softening	A2	B2
ClO_2	A3	B3
UV	A4	B4
Ozone	A5	B5
MF/UF	A6	B6
GAC10	A7	B7
GAC10 & UV	A8	B8
GAC20	A9	B9
GAC20 & UV	A10	B10
Membranes (NF)	A11	B11

Serving 1,000 - 9,999

CL2	CLM
C1 = A1	D1 = B1
C2 = If A1+A2+B1+B2=0 Then A2 Else If A1+A2+B1+B2 AND A1+A2+B1+B2<0.65 Then A2+(A2/(A2+B2))*0.1 Else If A1+A2+B1+B2>0.65 AND A1+A2+B1+B2<0.75 Then A2+(0.75-(A1+A2+B1+B2))*(A2/(A2+B2))) Else A2	D2 = If A1+A2+B1+B2=0 Then B2 Else If A1+A2+B1+B2 AND A1+A2+B1+B2<0.65 Then B2+(B2/(A2+B2))*0.1Else If A1+A2+B1+B2>0.65 AND A1+A2+B1+B2<0.75 Then B2+(0.75-(A1+A2+B1+B2))*(B2/(A2+B2))) Else B2
C3 = (A3-((C2-A3)*(A3/(A3+A4+A5)))-(0.036*(A6/(A6+B6))*(A3/(A3+A4+A5))))	D3 = (B3-((D2-B3)*(B3/(B3+B4+B5)))-(0.036*(B6/(A6+B6))*(B3/(B3+B4+B5))))
C4 = (A4-((C2-A4)*(A4/(A3+A4+A5)))-(0.036*(A6/(A6+B6))*(A4/(A3+A4+A5))))	D4 = (B4-((D2-B4)*(B4/(B3+B4+B5)))-(0.036*(B6/(A6+B6))*(B4/(B3+B4+B5))))
C5 = (A5-((C2-A5)*(A5/(A3+A4+A5)))-(0.036*(A6/(A6+B6))*(A5/(A3+A4+A5))))	D5 = (B5-((D2-B5)*(B5/(B3+B4+B5)))-(0.036*(B6/(A6+B6))*(B5/(B3+B4+B5))))
C6 = A6+0.036*(A6/(A6+B6))	D6 = B6+0.036*(B6/(A6+B6))
C7 = 0	D7 = 0
C8 = 0	D8 = 0
C9 = A9+A7	D9 = B8+B7
C10 = A10+A8	D10 = B10+B8
C11 = A11	D11 = B11

Serving 100 - 999

	CL2	CLM
Nonconventional	E1 = C1	F1 = D1
Conventional/Softening	E2 = C2	F2 = D2
ClO_2	E3 = 50%*C3	F3 = 50%*D3
UV	E4 = C4+(0.5*C3)* (C4/(C4+C5+C6))	F4 = D4+(0.5*D3)* (D4/(D4+D5+D6))
Ozone	E5 = C5+(0.5*C3)* (C5/(C4+C5+C6))	F5 = D5+(0.5*D3)* (D5/(D4+D5+D6))
MF/UF	E6 = C6+(0.5*C3)* (C6/(C4+C5+C6))	F6 = D6+(0.5*D3)* (D6/(D4+D5+D6))
GAC10	E7 = C7	F7 = D7
GAC10 & UV	E8 = C8	F8 = D8
GAC20	E9 = C9	F9 = D9
GAC20 & UV	E10 = C10	F10 = D10
Membranes (NF)	E11 = C11	F11 = D11

Serving <100

CL2	CLM
G1 = E1	H1 = F1
G2 = E2+0.67*(E3+E5)	H2 = F2+0.67*(F3+F5)
G3 = 0	H3 = 0
G4 = E4+0.33*E3*(E4/(E4+E6+E9+E10+E11))	H4 = F4+0.33*F3*(F4/(F4+F6+F9+F10+F11))
G5 = 0	H5 = 0
G6 = E6+0.33*E5*(E6/(E6+E9+E10+E11))+ 0.33*E3*(E6/(E4+E6+E9+E10+E11))	H6 = F6+0.33*F5*(F6/(F6+F9+F10+F11))+ 0.33*F3*(F6/(F4+F6+F9+F10+F11))
G7 = 0	H7 = 0
G8 = 0	H8 = 0
G9 = E9+0.33*E5*(E9/(E6+E9+E10+E11))+ 0.33*E3*(E9/(E4+E6+E9+E10+E11))	H9 = F9+0.33*F5*(F9/(F6+F9+F10+F11))+ 0.33*F3*(F9/(F4+F6+F9+F10+F11))
G10 = E10+0.33*E5*(E10/(E6+E9+E10+E11))+ 0.33*E3*(E10/(E4+E6+E9+E10+E11))	H10 = F10+0.33*F5*(F10/(F6+F9+F10+F11))+ 0.33*F3*(F10/(F4+F6+F9+F10+F11))
G11 = E11+0.33*E5*(E11/(E6+E9+E10+E11))+ 0.33*E3*(E11/(E4+E6+E9+E10+E11))	H11 = F11+0.33*F5*(F11/(F6+F9+F10+F11))+ 0.33*F3*(F11/(F4+F6+F9+F10+F11))

Exhibit A.27 Small Surface Water Adjustments Example (Continued)

GAC20 Adjustments

	Serving 100 - 999		Serving <100	
	CL2	**CLM**	**CL2**	**CLM**
Nonconventional	E1	F1	G1	H1
Conventional/Softening	E2	F2	G2	H2
ClO_2	E3	F3	G3	H3
UV	E4	F4	G4	H4
Ozone	E5	F5	G5	H5
MF/UF	E6	F6	G6	H6
GAC10	E7	F7	G7	H7
GAC10 & UV	E8	F8	G8	H8
GAC20	I9 = 90%*E9	J9 = 90%*F9	K9 = 90%*G9	L9 = 90%*H9
GAC20 & UV	I10 = 90%*E10	J10 = 90%*F10	K10 = 90%*G10	L10 = 90%*H10
Membranes (NF)	I11 = E11+10%*(E9+E10)	J11 = F11 + 10%*(F9+F10)	K11 = G11+10%*(G9+G10)	L11 = H11+10%*(H9+H10)

CLM Adjustments

	Serving 100 - 999		Serving <100	
	CL2	**CLM**	**CL2**	**CLM**
Nonconventional	E1	N1 = 90%*F1	G1	P1 = 75%*H1
Conventional/Softening	E2	N2 = 90%*F2	G2	P2 = 75%*H2
ClO_2	E3	N3 = 90%*F3	G3	H3
UV	M4 = E4+10%*(F1+F2)*(E4/(E4+E5+E6))+ 10%*F3*(E4/(E4+E5+E6))	N4 = 90%*F4	O4 = G4+25%*(H1+H2)*(G4/(G4+G6))	P4 = 75%*H4
Ozone	M5 = E5+10%*(F1+F2)*(E5/(E4+E5+E6))+ 10%*F3*(E5/(E4+E5+E6))+ 10%*F4*(E5/(E5+E6))	N5 = 90%*F5	G5	H5
MF/UF	M6 = E6+10%*(F1+F2)*(E6/SUM(E4+E5+E6))+ 10%*F3*(E6/(E4+E5+E6))+ 10%*F4*(E6/(E5+E6))+ 10%*F5	N6 = 90%*F6	O6 = G6+25%*(H1+H2)*(G6/(G4+G6))+25%*H4	P6 = 75%*H6
GAC10	E7	F7	G7	H7
GAC10 & UV	E8	F8	G8	H8
GAC20	M9 = If I9=0 Then 0 Else I9+10%*F6	N9 = 90%*J9	O9 = If K9=0 Then 0 Else K9+25%*H6	P9 = 75%*H9
GAC20 & UV	M10 = IF I9=0 Then I10+10%*J9+ 10%*F6 Else I10+10%*J9	N10 = 90%*J10	O10 = If K9=0 Then K10+25%*H6+25%*L9 Else K10+25%*L9	P10 = 75%*H10
Membranes (NF)	M11 = I11+10%*(J10+J11)	N11 = 90%*J11	O11 = K11+25%*(L10+L11)	P11 = 75%*H11

Exhibit A.27 Small Surface Water Adjustments Example (Continued)

Adjusting for "Negatives"

Check if NF is below Stage 1

	Stage 1 Baseline		Stage 2 Alternative		Stage 2 Alternative, after Adjustment	
	CL2	**CLM**	**CL2**	**CLM**	**CL2**	**CLM**
Nonconventional	A1	B1	C1	D1	C1	D1
Conventional/Softening	A2	B2	C2	D2	C2	D2
ClO$_2$	A3	B3	C3	D3	C3	D3
UV	A4	B4	C4	D4	C4	D4
Ozone	A5	B5	C5	D5	C5	D5
MF/UF	A6	B6	C6	D6	C6	D6
GAC10	A7	B7	C7	D7	C7	D7
GAC10 & UV	A8	B8	C8	D8	C8	D8
GAC20	A9	B9	C9	D9	C9	D9
GAC20 & UV	A10	B10	C10	D10	E10 = If C11<A11 Then C10-ABS(A11-C11) Else C10	F10 = If D11<B11 Then D10-ABS(B11-D11) Else D10
Membranes (NF)	A11	B11	C11	D11	E11 = If C11<A11 Then A11 Else C11	F11 = If D11<B11 Then B11 Else D11

Check if GAC20 & UV is below Stage 1

	Stage 1 Baseline		Stage 2 Alternative		Stage 2 Alternative, after Adjustment	
	CL2	**CLM**	**CL2**	**CLM**	**CL2**	**CLM**
Nonconventional	A1	B1	C1	D1	C1	D1
Conventional/Softening	A2	B2	C2	D2	C2	D2
ClO$_2$	A3	B3	C3	D3	C3	D3
UV	A4	B4	C4	D4	C4	D4
Ozone	A5	B5	C5	D5	C5	D5
MF/UF	A6	B6	C6	D6	C6	D6
GAC10	A7	B7	C7	D7	C7	D7
GAC10 & UV	A8	B8	C8	D8	C8	D8
GAC20	A9	B9	C9	D9	G9 = If E10<A10 Then C9-ABS(A10-E10) Else C9	H9 = If F10<B10 Then D9-ABS(B10-F10) Else D9
GAC20 & UV	A10	B10	E10	F10	G10 = If E10<A10 Then A10 Else E10	H10 = If F10<B10 Then B10 Else F10
Membranes (NF)	A11	B11	E11	F11	E11	F11

Check if GAC20 is below Stage 1

	Stage 1 Baseline		Stage 2 Alternative		Stage 2 Alternative, after Adjustment	
	CL2	**CLM**	**CL2**	**CLM**	**CL2**	**CLM**
Nonconventional	A1	B1	C1	D1	C1	D1
Conventional/Softening	A2	B2	C2	D2	C2	D2
ClO$_2$	A3	B3	C3	D3	C3	D3
UV	A4	B4	C4	D4	C4	D4
Ozone	A5	B5	C5	D5	C5	D5
MF/UF	A6	B6	C6	D6	I6 = If G9<A9 Then C6-ABS(A9-G9) Else C6	J6 = If H9<B9 Then D6-ABS(B9-H9) Else D6
GAC10	A7	B7	C7	D7	C7	D7
GAC10 & UV	A8	B8	C8	D8	C8	D8
GAC20	A9	B9	C9	D9	I9 = If G9<A9 Then A9 Else G9	J9 = If H9<B9 Then B9 Else H9
GAC20 & UV	A10	B10	E10	F10	G10	H10
Membranes (NF)	A11	B11	E11	F11	E11	F11

Exhibit A.27 Small Surface Water Adjustments Example (Continued)

Check if MF/UF is below Stage 1

	Stage 1 Baseline		Stage 2 Alternative		Stage 2 Alternative, after Adjustment	
	CL2	CLM	CL2	CLM	CL2	CLM
Nonconventional	A1	B1	C1	D1	C1	D1
Conventional/Softening	A2	B2	C2	D2	C2	D2
ClO_2	A3	B3	C3	D3	C3	D3
UV	A4	B4	C4	D4	C4	D4
Ozone	A5	B5	C5	D5	K5 = If I6<A6 Then C5-ABS(A6-I6) Else C5	L5 = If J6<B6 Then D5-ABS(B6-J6) Else D5
MF/UF	A6	B6	C6	D6	K6 = If I6<A6 Then A6 Else I6	L6 = If J6<B6 Then B6 Else J6
GAC10	A7	B7	C7	D7	C7	D7
GAC10 & UV	A8	B8	C8	D8	C8	D8
GAC20	A9	B9	C9	D9	I9	J9
GAC20 & UV	A10	B10	E10	F10	G10	H10
Membranes (NF)	A11	B11	E11	F11	E11	F11

Check if Ozone is below Stage 1

	Stage 1 Baseline		Stage 2 Alternative		Stage 2 Alternative, after Adjustment	
	CL2	CLM	CL2	CLM	CL2	CLM
Nonconventional	A1	B1	C1	D1	C1	D1
Conventional/Softening	A2	B2	C2	D2	C2	D2
ClO_2	A3	B3	C3	D3	C3	D3
UV	A4	B4	C4	D4	M4 = If K5<A5 Then C4-ABS(A5-K5) Else C4	N4 = If L5<B5 Then B4-ABS(B5-L5) Else D4
Ozone	A5	B5	C5	D5	M5 = If K5<A5 Then A5 Else K5	N5 = If L5<B5 Then B5 Else L5
MF/UF	A6	B6	C6	D6	K6	L6
GAC10	A7	B7	C7	D7	C7	D7
GAC10 & UV	A8	B8	C8	D8	C8	D8
GAC20	A9	B9	C9	D9	I9	J9
GAC20 & UV	A10	B10	C10	D10	G10	H10
Membranes (NF)	A11	B11	C11	D11	E11	F11

Check if UV is below Stage 1

	Stage 1 Baseline		Stage 2 Alternative		Stage 2 Alternative, after Adjustment	
	CL2	CLM	CL2	CLM	CL2	CLM
Nonconventional	A1	B1	C1	D1	C1	D1
Conventional/Softening	A2	B2	C2	D2	C2	D2
ClO_2	A3	B3	C3	D3	O3 = If M4<A4 Then C3-ABS(A4-M4) Else C3	P3 = If N4<B4 Then D3-ABS(B4-N4) Else D4
UV	A4	B4	C4	D4	O4 = If M4<A4 Then A4 Else M4	P4 = If N4<B4 Then B4 Else N4
Ozone	A5	B5	C5	D5	M5	N5
MF/UF	A6	B6	C6	D6	K6	L6
GAC10	A7	B7	C7	D7	C7	D7
GAC10 & UV	A8	B8	C8	D8	C8	D8
GAC20	A9	B9	C9	D9	I9	J9
GAC20 & UV	A10	B10	C10	D10	G10	H10
Membranes (NF)	A11	B11	C11	D11	E11	F11

Exhibit A.27 Small Surface Water Adjustments Example (Continued)

Check if ClO2 is below Stage 1

	Stage 1 Baseline		Stage 2 Alternative		Stage 2 Alternative, after Adjustment	
	CL2	**CLM**	**CL2**	**CLM**	**CL2**	**CLM**
Nonconventional	A1	B1	C1	D1	Q1 = If O3<A3 Then C1-ABS(A3-O3)*(C1/(C1+C2)) Else C1	R1 = If P3<B3 Then D1-ABS(B3-P3)*(D1/(D1+D2)) Else D1
Conventional/Softening	A2	B2	C2	D2	Q2 = If O3<A3 Then C2-ABS(A3-O3)*(C2/(C1+C2)) Else C2	R2 = If P3<B3 Then D2-ABS(B3-P3)*(D2/(D1+D2)) Else D2
ClO_2	A3	B3	C3	D3	Q3 = If O3<A3 Then A3 Else O3	R3 = If P3<B3 Then B3 Else P3
UV	A4	B4	C4	D4	O4	P4
Ozone	A5	B5	C5	D5	M5	N5
MF/UF	A6	B6	C6	D6	K6	L6
GAC10	A7	B7	C7	D7	C7	D7
GAC10 & UV	A8	B8	C8	D8	C8	D8
GAC20	A9	B9	C9	D9	I9	J9
GAC20 & UV	A10	B10	C10	D10	G10	H10
Membranes (NF)	A11	B11	C11	D11	E11	F11

Exhibit A.28a Small Surface Water Treatment Technology Selection Results (Serving Populations <100)

	Description of Rule Option			Cl_2											
Rule Option	Compliance Calculation	Bromate MCL	UV Considered?	Converting to CLM	Non Conventional	Conventional/ Softening	ClO_2	UV	Ozone	MF UF	GAC10	GAC10 & UV	GAC20	GAC20 & UV	Membranes
Stage 1 Baseline	80/60 RAA	10	No	39.56%	9.98%	65.21%	0.00%	0.00%	0.00%	18.03%	0.00%	0.00%	3.25%	0.00%	3.52%
Stage 2 Preferred, 20% SM	80/60 LRAA	10	Yes	42.58%	9.80%	60.76%	0.00%	3.98%	0.00%	18.03%	0.00%	0.00%	3.25%	0.66%	3.52%
Alternative 1	80/60 LRAA	5	Yes	42.58%	9.80%	60.50%	0.00%	3.32%	0.00%	18.03%	0.00%	0.00%	3.25%	1.41%	3.69%
Alternative 2	80/60 SH	10	Yes	50.55%	6.48%	47.68%	0.00%	2.44%	0.00%	21.25%	0.00%	0.00%	11.39%	6.38%	4.37%
Alternative 3	40/30 RAA	10	Yes	51.10%	4.17%	39.39%	0.00%	3.49%	0.00%	21.93%	0.00%	0.00%	17.87%	7.77%	5.38%

Exhibit A.28b Small Surface Water Treatment Technology Selection Results (Serving Populations 100-999)

	Description of Rule Option			Cl_2											
Rule Option	Compliance Calculation	Bromate MCL	UV Considered?	Converting to CLM	Non Conventional	Conventional/ Softening	ClO_2	UV	Ozone	MF UF	GAC10	GAC10 & UV	GAC20	GAC20 & UV	Membranes
Stage 1 Baseline	80/60 RAA	10	No	47.47%	10.59%	64.03%	1.83%	0.00%	9.65%	10.11%	0.00%	0.00%	2.01%	0.92%	0.86%
Stage 2 Preferred, 20% SM	80/60 LRAA	10	Yes	51.10%	10.51%	61.71%	2.10%	1.40%	9.65%	10.11%	0.00%	0.00%	2.01%	1.62%	0.89%
Alternative 1	80/60 LRAA	5	Yes	51.10%	10.50%	61.33%	2.10%	1.05%	9.65%	10.11%	0.00%	0.00%	2.01%	1.35%	1.90%
Alternative 2	80/60 SH	10	Yes	60.66%	7.24%	47.23%	1.83%	0.00%	9.65%	14.40%	0.00%	0.00%	10.43%	6.00%	3.22%
Alternative 3	40/30 RAA	10	Yes	61.32%	4.73%	39.75%	2.35%	0.00%	9.65%	15.33%	0.00%	0.00%	16.93%	7.02%	4.23%

Exhibit A.28c Small Surface Water Treatment Technology Selection Results (Serving Populations 1,000-9,999)

	Description of Rule Option			Cl_2											
Rule Option	Compliance Calculation	Bromate MCL	UV Considered?	Converting to CLM	Non Conventional	Conventional/ Softening	ClO_2	UV	Ozone	MF UF	GAC10	GAC10 & UV	GAC20	GAC20 & UV	Membranes
Stage 1 Baseline	80/60 RAA	10	No	52.75%	10.99%	67.40%	4.03%	0.00%	8.49%	5.43%	0.00%	0.00%	2.20%	1.10%	0.37%
Stage 2 Preferred, 20% SM	80/60 LRAA	10	Yes	56.78%	10.93%	64.90%	4.63%	1.23%	8.49%	5.43%	0.00%	0.00%	2.20%	1.83%	0.37%
Alternative 1	80/60 LRAA	5	Yes	56.78%	10.93%	64.53%	4.63%	0.87%	8.49%	5.43%	0.00%	0.00%	2.20%	1.47%	1.47%
Alternative 2	80/60 SH	10	Yes	67.40%	7.98%	50.96%	4.12%	0.00%	8.49%	9.41%	0.00%	0.00%	11.36%	6.59%	1.10%
Alternative 3	40/30 RAA	10	Yes	68.13%	5.14%	43.05%	5.79%	0.00%	8.49%	10.06%	0.00%	0.00%	18.68%	7.69%	1.10%

Appendix B
Ground Water Plant Compliance Forecasts

Appendix B
Ground Water Plant Compliance Forecasts

B.1 Introduction

This appendix documents the derivation of the compliance forecasts for ground water plants. These forecasts are used in the Economic Analysis (EA) for the Stage 2 Disinfectants and Disinfection Byproducts Rule (DBPR). The forecast for large ground water plants was generated using the Information Collection Rule (ICR) Ground Water Delphi process, which convened a group of ground water system experts. Medium plants were evaluated in a similar manner as large plants. Forecasts for small plants were developed under the small ground water system expert review process. The following sections provide the methodology for developing compliance forecasts for all ground water plants.

B.2 Compliance Forecast for Large and Medium Ground Water Plants

Unlike the compliance forecast for surface water plants generated by the Surface Water Analytical Tool (SWAT), the forecast for ground water plants in large and medium systems (those serving over 10,000 people) was developed in two steps described below (and summarized in Exhibit B.1).

- Estimate the percentage of plants not in compliance: First, the ICR Ground Water Delphi Group used ICR data to evaluate each plant for compliance under various regulatory alternatives. However, most of the large plants predicted to be out of compliance were located in Florida. Florida systems make up a significantly larger proportion of ICR data than actual ground water system. Therefore, the Environmental Protection Agency (EPA) applied a “Florida/Non-Florida” stratification when extrapolating the results of the Delphi Group to the universe of ground water systems.

- Apply treatment technology selection forecasts to the plants not in compliance: The Delphi Group predicted treatment technology selection for each non-compliant large ground water plant. These plant-level analyses were aggregated into national-level compliance treatment technology forecasts, which were then applied to the percent of medium and large systems not in compliance.

Section B.2.1 explains the rationale for using ICR Delphi results for medium ground water systems.

At the time of the Delphi process, EPA was still evaluating a large number of regulatory alternatives and had not been advised by the Federal Advisory Committees Act (FACA) on the Preferred Regulatory Alternative. Therefore, the Delphi group analyzed four “bounding” alternatives to address the variety in the MCL levels (80 micrograms per liter (μg/L) for total trihalomethanes (TTHM), 60 μg/L for haloacetic acids (HAA5), and 40 μg/L for TTHM, 30 μg/L for HAA5), and measurement methods (running annual average (RAA), single highest (SH) values, and locational running annual average (LRAA)) being considered. The original bounding alternatives considered by the Delphi group were:

- 80/60 μg/LRAA (The Stage 1 DBPR)

- 80/60 μg/L SH (Alternative 2)

- 40/30 μg/L RAA (Alternative 3)

- 40/30 μg/L SH (Bounding Alternative 4, not considered in this EA)

Two additional regulatory alternatives were identified after the original Delphi group analysis was completed:

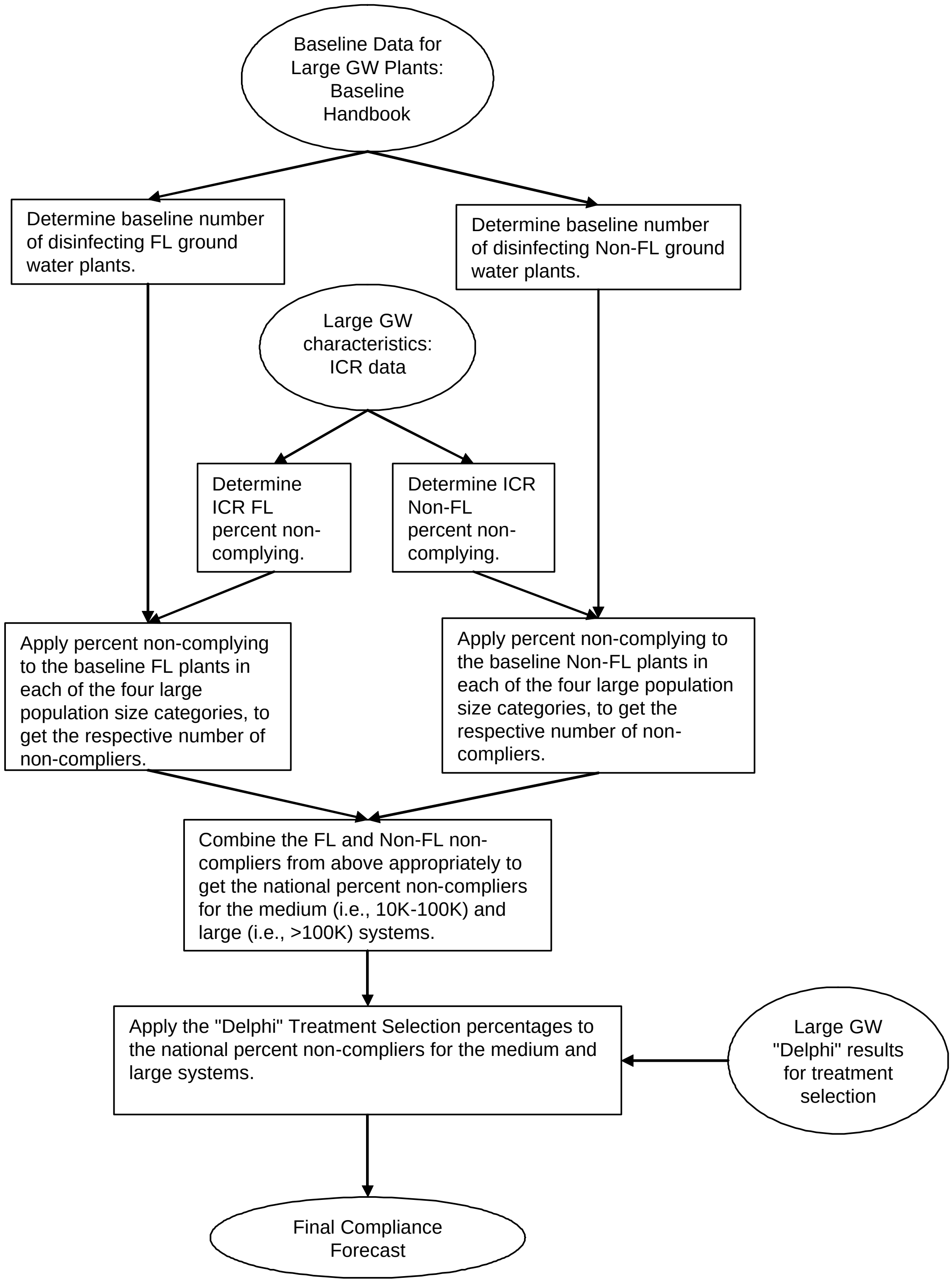
- 80/60 μg/L LRAA (The Preferred Alternative)

- 80/60 μg/L LRAA with reduced Bromate maximum contaminant level (MCL) of 5 μg/L (Alternative 1)

Unlike the large surface water systems, no sensitivity analysis was performed to quantify the potential effects of the Initial Distribution System Evaluation (IDSE) on the Preferred Alternative. Ground water sources have more stable water quality than surface water systems. As a result, ground water systems will more likely operate their treatment with a much lower safety margin than 20 percent. Therefore, the ground water system compliance forecasts are conservative enough to estimate the potential effects of the IDSE.

Sections B.2.2 and B.2.3 provide the detailed process for estimating the percent of plants not in compliance for each of the 4 alternatives described above and predicting the treatment technologies they may select to meet compliance.

Exhibit B.1 Compliance Forecast for Medium and Large Ground Water Plants

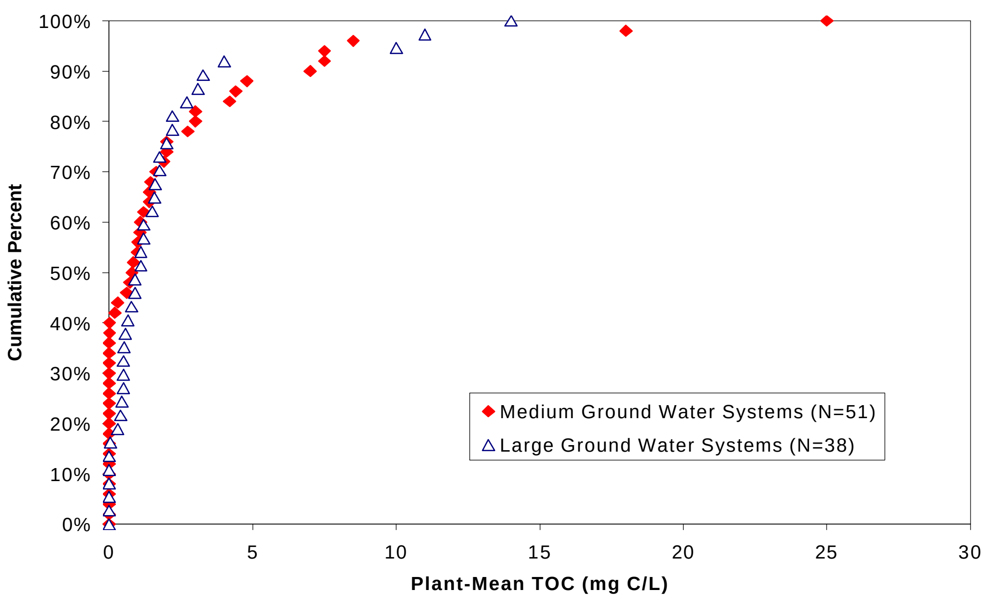


B.2.1 Rationale for Using ICR Delphi Results for Medium Ground Water Systems

To determine if results from the ICR Ground Water Delphi Group could be used for medium ground water systems, EPA compared data on disinfection byproducts (DBPs) and DBP precursors from large ground water systems to data from medium ground water systems. The most relevant information for assessing precursor and byproduct occurrence and treatment technology distribution in medium ground water systems is that provided in the WATER:\STATS database (AWWA 2000). Exhibits B.2 to B.4 provide comparisons of average influent total organic carbon (TOC) levels, treatment technology used, and average TTHM levels for medium and large ground water systems in the WATER:\STATS data set. Based on this data, the treatment technology configurations and well fields of large and medium ground water systems are believed to be similar. Therefore, the percent of plants not in compliance (stratified by Florida/Non-Florida) and compliance treatment technology selections projected for the large ground water plants were used for the medium ground water plants.

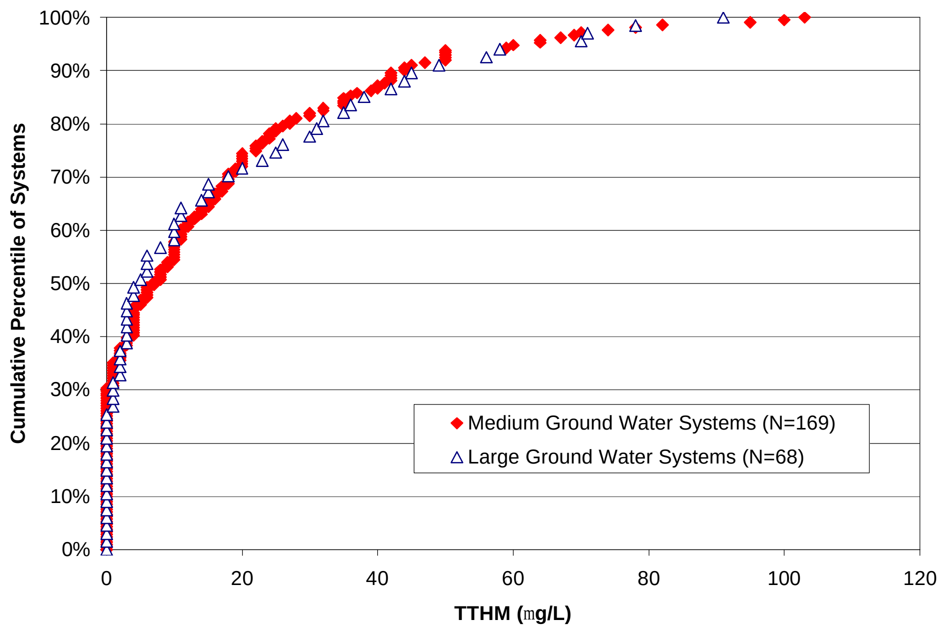
For more details on medium ground water systems, refer to Chapter 3 of *Stage 2 Occurrence Assessment for Disinfectants and Disinfection Byproducts* (USEPA 2003l).

Exhibit B.2 Annual Average Raw Water TOC for Medium and Large Ground Water Systems



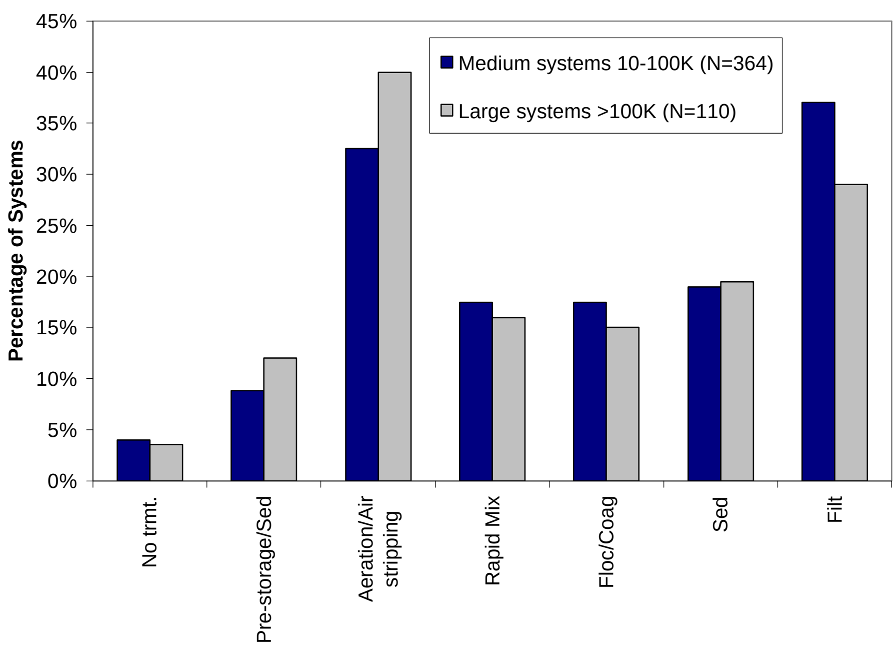
Source: WATER:\STATS (AWWA 2000).

Exhibit B.3 Treatment Technology Summary for Medium and Large Ground Water Systems (Chlorinating and Non-Chlorinating)



Source: WATER:\STATS (AWWA 2000).

Exhibit B.4 Annual Average Finished Water TTHM for Medium and Large Ground Water Systems



Source: WATER:\STATS (AWWA 2000).

B.2.2 Uncertainties in Compliance Forecasts for Medium and Large Ground Water Systems

There are uncertainties in the ground water compliance forecast. Only 130 ICR ground water plants were used for the Ground Water Delphi process. This only 2 percent of the roughly 8,400 medium and large disinfection ground water systems to which these estimates directly apply. In addition, the Ground Water Delphi is based on expert opinion, and is not as reproducible as the SWAT predictions used for the surface water compliance forecast. It is unknown as to whether expert opinion is more or less accurate than a model, although independent Delphi Polls for the surface water systems found agreement between the two methods.

B.2.3 Estimating the Percentage of Systems Not in Compliance

Total Percent Plants not in Compliance from ICR Data

ICR data (USEPA 2000h) were evaluated to estimate the number of plants that would currently exceed MCL requirements of the Stage 1 DBPR and each of the Stage 2 DBPR regulatory alternatives.[1] Plants were initially classified as not in compliance if ICR data showed that they exceeded the MCLs, taking into account a 20 percent safety margin for all alternatives. For example, the Preferred Alternative for the Stage 2 DBPR is 80 µg/L measured as an LRAA for TTHM and 60 µg/L measured as an LRAA for HAA5. Compliance, therefore, is evaluated at 64 µg/L for TTHM and 48 µg/L for HAA5, both measured as LRAAs.

Next, EPA checked to see if water from ground water plants was being blended with water from surface water plants in the distribution system. This may have resulted in higher TTHM and HAA5 concentrations than would normally be associated with an individual ground water plant. If plants with blended water were included in the compliance forecast assessment, the percent of ground water plants not in compliance may be overstated. Therefore, ground water plants that had a surface water plant with the same public water system ID number were considered in compliance for all regulatory alternatives (i.e., compliance would most likely be achieved by modifying the surface water plant rather than the ground water plant).

For regulatory alternatives based on LRAA and RAA calculations, EPA further reviewed ICR data to evaluate the variance in individual distribution system measurements. Influent water quality does not typically fluctuate in ground water systems as much as it does in surface water systems. Distribution system TTHM and HAA5 concentrations may not vary much, and, thus, some ground water systems may not need a safety margin as large a 20 percent. EPA evaluated the SH value of each system predicted to be out of compliance. If the SH value was below the true regulatory limit (without the safety margin), EPA assumed that it was unlikely that the ground water plant would add a treatment technology to comply with the rule. These plants were considered in compliance for all regulatory alternatives. Exhibit

[1] A total of 130 large ground water plants were evaluated using the last 12 months of ICR data. Based on data in the ICR applicability database, there is a higher total number of ground water plants in large systems than contained in the ICR (see Chapter 4 for the baseline number of large plants used in this analysis). These plants were not included in the ICR as they were medium or small plants (serving fewer than 100,000 people). The EA accounted for this discrepancy by using the total plant estimate from the ICR applicability database to adjust the flow per plant for large ground water systems.

B.5 shows an example of two plants (ICR plants 281 and 287) that were initially considered not in compliance (based on 20 percent safety margin), but were changed to in compliance based on their SH values.

Exhibit B.5 Evaluation of RAA, LRAA and SH (µg/L)

ICR	RAA		LRAA		SH	
WTPID	TTHM	HAA5	TTHM	HAA5	TTHM	HAA5
281	58.0	10.6	64.6	11.7	**75.4**	**16.0**
287	59.8	39.2	66.3	42.9	**75.7**	**46.5**

Source: ICR Aux 1 (USEPA 2000h), 12 months of data.

Florida/Non-Florida Stratification

EPA evaluated the regional characteristics of those plants exceeding MCLs for each alternative. Large ground water plants in Florida comprise the majority of large ground water plants predicted to be out of compliance with all regulatory scenarios. However, the national proportion of ground water systems in Florida is lower than in the ICR data. This is because Florida requires their ground water systems to disinfect their water due to the high influent TOC concentrations (see Chapter 3 for a discussion of regional impacts). To avoid inappropriately extrapolating national estimates of non-compliance from the heavily Florida-weighted ICR results, EPA evaluated Florida and Non-Florida plants separately and then aggregated the results together to produce national estimates. Below is a step-by-step explanation of how the percent of plants not in compliance was calculated using the Florida/Non-Florida stratification.

Step 1: *Determine the baseline number of Florida and Non-Florida ground water plants*

Exhibit B.6 shows the number of plants by size category, presented separately for Florida and Non-Florida plants. The total number of Florida ground water systems was derived from SDWIS (USEPA 2003t). EPA assumes that all Florida ground water systems disinfect (USEPA 1996a). Also, surface water systems in Florida that derive the majority of their flow from ground water were moved to the Florida primarily ground water source category (see Chapter 3 for an explanation of how EPA altered system inventories so that they are classified by primary water source). Numbers of systems were converted to numbers of plants using plant per system ratios presented in Chapter 3, with the exception of the systems serving 100,000 to 1 million people. The ICR Applicability database was used to determine the relative plants per system ratio for Florida/Non-Florida systems. The analysis showed that Florida systems had a lower plant per system ratio than Non-Florida systems. The national plant per system number was weighted to incorporate this difference.

Step 2 : Estimate the percent of plants not in compliance in Florida

The percent of plants not in compliance in Florida was based on an evaluation of ICR ground water plant data for non-surface water influenced plants (as previously noted, ground water distribution systems were determined to be potentially under the influence of surface water if systems included a surface water plant). The percent not in compliance is applied to the baseline of both large and medium plants.

Step 3: *Estimate the percent of plants not in compliance outside of Florida*

The percent of non-Florida plants not in compliance was based on an evaluation of ICR ground water plant data for non-surface water influenced plants. The same methodology was used, as described in Step 2, to obtain the percent plants not in compliance for Non-Florida plants. This percentage was applied to both medium and large plants.

Step 4: Estimate the total national percent of plants not in compliance

For each medium and large size category, the total number of plants not in compliance was estimated by multiplying the percentages in Steps 2 and 3 by the baseline numbers from Exhibit B.6 of Florida and non-Florida plants, respectively. The Florida and non-Florida plants not in compliance were then summed and divided by the total number of plants (Florida plus non-Florida). By using this method, EPA was able to estimate a more accurate national percentage of plants out of compliance with the Stage 2 DBPR.

Exhibits B.7 through B.11 present a summary of the Florida/non-Florida stratification described above for the Stage 1 DBPR, Stage 2 DBPR Preferred Alternative for 20 percent safety margin, Alternatives 2 and 3, and the Bounding Alternative 4, respectively. Results are presented for both large and medium ground water systems. Regulatory Alternative 1 (80/60 µg/L LRAA with reduced Bromate MCL of 5 µg/L) is not presented separately; the results for that case are equivalent to the Preferred Alternative (Exhibit B.8), because the Delphi Group assumed that no ground water plants would use ozone with an MCL of 5 ppb.

Exhibit B.6a Baseline Number of Florida and Non-Florida Plants, CWSs

System Size (Population Served)	Florida						Non-Florida		
	Number of Disinfecting GW Systems	Number of SW/GWUDI Systems	Percent SW/GWUDI that are Primarily Ground Water	Number of Disinfecting Systems, Primarily GW	Plants Per System	Number of Plants	Number of Disinfecting Systems, Primarily GW	Plants Per System	Number of Plants
	A	B	C	D = A+B*C	E	F = D*E	G	H	I = G*H
<100	416	2	3.70%	416	1.0	424	5,881	1.0	5,999
100-499	650	2	9.60%	650	1.3	858	10,897	1.3	14,384
500-999	184	2	0.00%	184	1.5	276	3,878	1.5	5,817
1,000-3,299	258	7	5.90%	258	1.6	413	4,484	1.6	7,174
3,300-9,999	135	6	12.00%	136	2.1	280	2,306	2.1	4,750
10,000-49,999	147	8	10.00%	148	4.0	591	1,198	4.0	4,791
50,000-99,999	39	1	8.90%	39	4.9	192	107	4.9	525
100,000-999,999	21	8	14.00%	22	4.6	101	79	10.4	817
≥1,000,000	1	0	0.00%	1	9.1	9	2	9.1	18
Total	1,851	36		1,854	1.7	3,145	28,831	1.5	44,275

Exhibit B.6b Baseline Number of Florida and Non-Florida Plants, NTNCWSs

System Size (Population Served)	Florida						Non-Florida		
	Number of Disinfecting GW Systems	Number of SW/GWUDI Systems	Percent SW/GWUDI that are Primarily Ground Water	Number of Disinfecting Systems, Primarily GW	Plants Per System	Number of Plants	Number of Disinfecting Systems, Primarily GW	Plants Per System	Number of Plants
	A	B	C	D = A+B*C	E	F = D*E	G	H	I = G*H
<100	626	0	0.00%	626	1.0	626	1,867	1.0	1,867
100-499	298	0	0.00%	298	1.0	298	1,831	1.0	1,831
500-999	81	1	0.00%	81	1.0	81	508	1.0	508
1,000-3,299	32	0	0.00%	32	1.0	32	215	1.0	215
3,300-9,999	5	0	0.00%	5	1.0	5	16	1.0	16
10,000-49,999	2	0	0.00%	2	1.0	2	1	1.0	1
50,000-99,999	0	0	0.00%	0	1.0	0	0	1.0	0
100,000-999,999	0	0	0.00%	0	1.0	0	0	1.0	0
≥1,000,000	0	0	0.00%	0	1.0	0	0	1.0	0
Total	1,044	1		1,044	1.0	1,044	4,439	1.0	4,439

Note: Detail may not add due to independent rounding.

Sources:

(A & B) SDWIS 4th quarter freeze (2003).

(C) Florida surface water systems are moved to the Florida GW system category if > 50% of their flow comes from GW. The percentages from Exhibit 3.4, Column F were used to approximate percentages for Florida.

(E & H) Plants per system for Florida were assumed to be equal to plants per system found in Exhibit 3.4, Column L, except for systems serving ≥100,000. For large systems, ICR data was evaluated to determine if the number of GW plants/system was lower in Florida because they have so many large ground water plants. The relationship of plants/system from ICR data was maintained for the national analysis (in other words, the ratio of plants per system of Florida systems to non-Florida systems was used to adjust the entry point estimates.

(G) The number of disinfecting, primarily GW systems is from the Exhibit 3.4, minus the number of disinfecting ground water systems in Florida from Column A.

Exhibit B.7 Percentage of Plants Not In Compliance with the Stage 1 DBPR (80/60 RAA)

Stage 1 80 µg/L TTHM RAA, 60 µg/L HAA5 RAA, 10 µg/L Bromate RAA				
Florida				
System Size (Population Served)	Number of Plants	Number of ICR Plants Not Complying with Stage 1	Percent of Florida Plants Not Complying with Stage 1	
	A	**B**	**C = B/33**	
10,000-49,999	591	8	24%	
50,000-99,999	192	8	24%	
100,000-999,999	101	8	24%	
>=1,000,000	9	8	24%	
Non-Florida				
System Size (Population Served)	Number of Plants	Number of ICR Plants Not Complying with Stage 1	Percent of Non-Florida Plants Not Complying with Stage 1	
	D	**E**	**F = E/97**	
10,000-49,999	4904	0	0%	
50,000-99,999	578	0	0%	
100,000-999,999	832	0	0%	
>=1,000,000	18	0	0%	
National				
System Size (Population Served)	Number of All Plants	Number of ICR Plants Not Complying with Stage 1	Percent of All Plants Not Complying with Stage 1	**Total Percentage Not Complying**
	G=A+D	**H = B+E**	**I=((A*C)+(D*F))/G**	**J =SumProduct(G*I)/Sum(G)**
10,000-49,999	5,495	8	3%	**3.0%**
50,000-99,999	770	8	6%	
100,000-999,999	933	8	3%	**2.8%**
>=1,000,000	27	8	8%	

Note: Totals may not add due to independent rounding.

Sources: A & D from Exhibit B.6.

B, C, E, & F are based on evaluation of ICR data for ground water plants without surface water influence. Note that a total of 33 ICR Florida plants and 97 ICR non-Florida plants were evaluated.

Exhibit B.8 Percentage of Plants Not In Compliance with the Preferred Alternative, 20 Percent Safety Margin (80/60 LRAA)

Stage 2, Preferred Option 80 µg/L TTHM LRAA, 60 µg/L HAA5 LRAA, 10 µg/L Bromate RAA				
Florida				
System Size (Population Served)	Number of Plants	Number of ICR Plants Not Complying with Stage 2	Percent of Florida Plants Not Complying with Stage 2	
	A	**B**	**C = B/33**	
10,000-49,999	591	11	33%	
50,000-99,999	192	11	33%	
100,000-999,999	101	11	33%	
>=1,000,000	9	11	33%	
Non-Florida				
System Size (Population Served)	Number of Plants	Number of ICR Plants Not Complying with Stage 2	Percent of Non-Florida Plants Not Complying with Stage 2	
	D	**E**	**F = E/97**	
10,000-49,999	4904	1	1%	
50,000-99,999	578	1	1%	
100,000-999,999	832	1	1%	
>=1,000,000	18	1	1%	
National				
System Size (Population Served)	Number of All Plants	Number of ICR Plants Not Complying with Stage 2	Percent of All Plants Not Complying with Stage 2	**Total Percentage Not Complying**
	G=A+D	**H = B+E**	**I=((A*C)+(D*F))/G**	**J =SumProduct(G*I)/Sum(G)**
10,000-49,999	5,495	12	5%	**5.1%**
50,000-99,999	770	12	9%	
100,000-999,999	933	12	5%	**4.7%**
>=1,000,000	27	12	12%	

Note: Totals may not add due to independent rounding.

Sources: A & D from Exhibit B.6.

B, C, E, & F are based on evaluation of ICR data for ground water plants without surface water influence. Note that a total of 33 ICR Florida plants and 97 ICR non-Florida plants were evaluated.

Exhibit B.9 Percentage of Plants Not In Compliance with Regulatory Alternative 2 (80/60 SH)

Stage 2, Alternative 2 80 µg/L TTHM SH, 60 µg/L HAA5 SH, 10 µg/L Bromate RAA				
Florida				
System Size (Population Served)	Number of Plants	Number of ICR Plants Not Complying with Stage 2	Percent of Florida Plants Not Complying with Stage 2	
	A	**B**	**C = B/33**	
10,000-49,999	591	19	58%	
50,000-99,999	192	19	58%	
100,000-999,999	101	19	58%	
>=1,000,000	9	19	58%	
Non-Florida				
System Size (Population Served)	Number of Plants	Number of ICR Plants Not Complying with Stage 2	Percent of Non-Florida Plants Not Complying with Stage 2	
	D	**E**	**F = E/97**	
10,000-49,999	4904	3	3%	
50,000-99,999	578	3	3%	
100,000-999,999	832	3	3%	
>=1,000,000	18	3	3%	
National				
System Size (Population Served)	Number of All Plants	Number of ICR Plants Not Complying with Stage 2	Percent of All Plants Not Complying with Stage 2	**Total Percentage Not Complying**
	G=A+D	**H = B+E**	**I=((A*C)+(D*F))/G**	**J =SumProduct(G*I)/Sum(G)**
10,000-49,999	5,495	22	9%	**9.9%**
50,000-99,999	770	22	17%	
100,000-999,999	933	22	9%	**9.3%**
>=1,000,000	27	22	21%	

Note: Totals may not add due to independent rounding.
Sources: A & D from Exhibit B.6.
B, C, E, & F are based on evaluation of ICR data for ground water plants without surface water influence. Note that a total of 33 ICR Florida plants and 97 ICR non-Florida plants were evaluated.

Exhibit B.10 Percentage of Plants Not In Compliance with Regulatory Alternative 3 (40/30 RAA)

Stage 2, Alternative 3
40 µg/L TTHM RAA, 30 µg/L HAA5 RAA,
10 µg/L Bromate RAA

Florida

System Size (Population Served)	Number of Plants	Number of ICR Plants Not Complying with Stage 2	Percent of Florida Plants Not Complying with Stage 2
	A	**B**	**C = B/33**
10,000-49,999	591	18	55%
50,000-99,999	192	18	55%
100,000-999,999	101	18	55%
>=1,000,000	9	18	55%

Non-Florida

System Size (Population Served)	Number of Plants	Number of ICR Plants Not Complying with Stage 2	Percent of Non-Florida Plants Not Complying with Stage 2
	D	**E**	**F = E/97**
10,000-49,999	4904	1	1%
50,000-99,999	578	1	1%
100,000-999,999	832	1	1%
>=1,000,000	18	1	1%

National

System Size (Population Served)	Number of All Plants	Number of ICR Plants Not Complying with Stage 2	Percent of All Plants Not Complying with Stage 2	**Total Percentage Not Complying**
	G=A+D	**H = B+E**	**I=((A*C)+(D*F))/G**	**J =SumProduct(G*I)/Sum(G)**
10,000-49,999	5,495	19	7%	**7.7%**
50,000-99,999	770	19	14%	
100,000-999,999	933	19	7%	**7.2%**
>=1,000,000	27	19	19%	

Note: Totals may not add due to independent rounding.
Sources: A & D from Exhibit B.6.
B, C, E, & F are based on evaluation of ICR data for ground water plants without surface water influence. Note that a total of 33 ICR Florida plants and 97 ICR non-Florida plants were evaluated.

Exhibit B.11 Percentage of Plants Not In Compliance with Bounding Alternative 4 (40/30 SH)

Stage 2, Alternative 4 40 µg/L TTHM SH, 30 µg/L HAA5 SH, 10 µg/L Bromate RAA				
Florida				
System Size (Population Served)	Number of Plants	Number of ICR Plants Not Complying with Stage 2	Percent of Florida Plants Not Complying with Stage 2	
	A	**B**	**C = B/33**	
10,000-49,999	591	27	82%	
50,000-99,999	192	27	82%	
100,000-999,999	101	27	82%	
>=1,000,000	9	27	82%	
Non-Florida				
System Size (Population Served)	Number of Plants	Number of ICR Plants Not Complying with Stage 2	Percent of Non-Florida Plants Not Complying with Stage 2	
	D	**E**	**F = E/97**	
10,000-49,999	4904	8	8%	
50,000-99,999	578	8	8%	
100,000-999,999	832	8	8%	
>=1,000,000	18	8	8%	
National				
System Size (Population Served)	Number of All Plants	Number of ICR Plants Not Complying with Stage 2	Percent of All Plants Not Complying with Stage 2	**Total Percentage Not Complying**
	G=A+D	**H = B+E**	**I=((A*C)+(D*F))/G**	**J =SumProduct(G*I)/Sum(G)**
10,000-49,999	5,495	35	16%	**17.4%**
50,000-99,999	770	35	27%	
100,000-999,999	933	35	16%	**16.7%**
>=1,000,000	27	35	33%	

Note: Totals may not add due to independent rounding.

Sources: A & D from Exhibit B.6.

B, C, E, & F are based on evaluation of ICR data for ground water plants without surface water influence. Note that a total of 33 ICR Florida plants and 97 ICR non-Florida plants were evaluated.

B.2.4 Treatment Technology Selection

Original "Bounding" Alternatives

The Delphi Group used a multi-step process to develop the compliance forecasts for those large ground water plants out of compliance with the four original regulatory alternatives.

First, the Delphi participants were given ICR data (such as plant type, residual disinfectant, and water quality) for ground water plants unable to meet the MCLs of each alternative. Second, Delphi participants selected a treatment technology from a list of 16 treatment technologies and a residual disinfectant (chlorine or chloramines) for each plant and rated their confidence in their treatment technology selections. Judging by the response provided, it appears that each participant focused on different information to select the treatment technology required by each plant. Some participants gave greater importance to water quality aspects, while others emphasized design issues. There were four general approaches that appear to have guided the participants selections:

- Assess the use of chloramines–If the use of chloramines is not feasible, then look for another treatment technology that better addresses ground water-specific needs, such as multiple small entry points. Evaluate whether these entry points would be best served by treatment technologies such as nanofiltration (NF) and Granular Activated Carbon (GAC) rather than an advanced oxidant (ozone).

- Always maintain a consistent residual in the distribution system–If other plants in the system use chlorine as a residual, the plant cannot select chloramines as its treatment technology. In addition, chloramines cannot be selected when TOC is above a certain level.

- Microfiltration/ultrafiltration (MF/UF) cannot be selected as a treatment technology because ground water plants are not subject to the high removal or inactivation requirements of surface water plants. Other treatment technologies are selected as needed.

- Assess how far the plant is from compliance with the MCLs. Determine whether the plant already uses chloramines. If chloramines are not used, and up to a 20 to 30 percent reduction of DBPs results in compliance, select chloramines as the final treatment technology. If chloramines cannot be used based on specific water quality conditions, eliminate treatment technologies that are not feasible and select the least expensive treatment technology that meets the compliance criteria.

Third, the completed treatment technology selection results from each participant were aggregated. Quality control and quality assurance steps were performed to ensure a consistent and usable data entry format. For example, notes provided by each participant were checked against the treatment technologies they selected to ensure they were consistent. In many cases, multiple treatment technologies were selected by a participant for one plant. In these circumstances, most expensive treatment technology was chosen as a conservative estimate. A Microsoft Access™ database was used to consolidate the participants' responses. Finally, the results were weighted, with higher confidence responses receiving an additional weighting of 25 percent.

The Delphi process concluded that ground water systems that could not comply with the levels specified in the Regulatory Alternative would choose primarily from four advanced treatment technologies:

- Conventional treatment (with chloramines)
- Advanced disinfectants (ozone)
- GAC with an empty bed contact time of 20 minutes (GAC20)
- NF

The use of chloramines with each treatment technology also was calculated for these four advanced treatment technologies. Exhibit B.12 presents the proportion of treatment technologies predicted by the Delphi Group to be selected for the four bounding alternatives. The Delphi results from the bounding alternatives were also used to develop treatment technology selections for the additional regulatory alternatives (discussed later in this appendix).

Additional Regulatory Alternatives

Following the initial Delphi process, the Microbial-Disinfectants and Disinfection Byproducts Advisory Committee (M-DBP Advisory Committee) asked the Delphi group to consider regulatory alternatives in addition to the original “bounding” alternatives. These new alternatives considered a bromate MCL, as well as TTHM and HAA5 MCLs. Two of these new alternatives were considered in this EA (the Preferred Regulatory Alternative and Alternative 1).

Because these alternatives were identified late in the process, the Delphi group decided not to repeat the full evaluation to develop new treatment technology selections (a time-consuming process), but instead evaluated the new alternatives using the treatment technology selections for the original four alternatives. A straight interpolation between the 80/60 RAA (the Stage 1 DBPR) and the 40/30 RAA (Regulatory Alternative 3) was originally used to estimate the treatment technology selection for the 80/60 LRAA alternative. However, EPA later estimated that because water quality in ground water plants does not generally fluctuate as much as it does in surface water plants and they monitor at only one point for Stage 1, treatment technologies identified for the 80/60 RAA would most likely be appropriate for maintaining an 80/60 LRAA. Therefore, the treatment technology selection for the subset of plants not in compliance with the 80/60 RAA was maintained for the 80/60 LRAA alternative. A straight interpolation between the 80/60 RAA and the 40/30 RAA regulatory alternatives was used to estimate the treatment technology selection for all other alternatives (i.e., those complying with 80/60 RAA but not 80/60 LRAA).

Final Results

The percentage of plants not in compliance (Exhibits B.7 through B.11) is multiplied by the proportion of plants predicted to select various treatment technologies. This gives the final treatment technology selection results for each regulatory alternative and sensitivity analyses (Bounding Alternative

4 is not included). Exhibit B.13a presents results for large ground water plants, and B.13b presents results for medium ground water plants.

For Regulatory Alternative 1, the compliance forecast was adjusted so that the compliance forecast delta from Stage 1 to Stage 2 did not show any systems removing treatment technologies (negative forecasts). This is consistent with the methodology used for surface water system compliance forecasts.

Exhibit B.12 Proportion of Treatment Technologies Selected by Non-compliant Large Ground Water Plants as Predicted by the Delphi Group

Scenario	Converting to CLM only	Advanced Disinfectants	Advanced Disinfectants + CLM	GAC20	GAC20 + CLM	NF	NF + CLM	Total
	A	B	C	D	E	F	G	H = SUM(A:G)
Bounding Alternative 1: RAA 80/60 (Stage 1)	59.3%	2.5%	24.8%	0.0%	1.3%	4.0%	8.2%	100.00%
Bounding Alternative 2: RAA 40/30 (Regulatory Alternative 3)	69.5%	2.6%	7.9%	0.0%	8.5%	0.9%	10.6%	100.00%
Bounding Alternative 3: SH 80/60 (Regulatory Alternative 2)	77.5%	2.1%	7.4%	0.0%	4.5%	0.7%	7.8%	100.00%
Bounding Alternative 4: SH 40/30	63.5%	4.1%	9.5%	1.0%	8.5%	1.9%	11.6%	100.00%
2. Extrapolation for Preferred Alternative and Regulatory Alternative 1								
Alternative 5: LRAA 80/60 (Preferred Regulatory Alternative)	62.7%	2.5%	19.2%	0.0%	3.7%	3.0%	9.0%	100.0%
Alternative 6: LRAA 80/60, reduced Bromate MCL of 5 ug/L (Regulatory Alternative 1)	62.7%	0.0%	0.0%	1.0%	11.5%	4.5%	20.3%	100.0%

Notes: Totals may not add due to rounding.
The original Delphi Group Results were adjusted slightly form the original numbers reported during the Technical Working Group (TWG), to make the total equal to 100 percent.

Sources: ICR Ground Water Delphi Group Results

Exhibit B.13a Final Treatment Technology Selection Results for Large Ground Water Plants
Stage 2 Regulatory Alternatives

Regulatory Alternative	Converting to CLM Only	Advanced Disinfectants	Advanced Disinfectants + CLM	GAC20	GAC20 + CLM	NF	NF + CLM	Total Percent Non-Complying
Stage 1 DBPR 80 µg/L TTHM RAA 60 µg/L HAA5 RAA	1.68%	0.07%	0.70%	0.00%	0.04%	0.11%	0.23%	2.83%
Unadjusted Stage 2 Preferred Alternative, 20% Safety Margin 80 µg/L TTHM LRAA 60 µg/L HAA5 LRAA	3.01%	0.12%	0.92%	0.00%	0.18%	0.14%	0.43%	4.80%
Alternative 1 80 µg/L TTHM LRAA 60 µg/L HAA5 LRAA 5 µg/L Bromate MCL	2.24%	0.07%	0.70%	0.05%	0.55%	0.22%	0.97%	4.80%
Alternative 2 80 µg/L TTHM SH 60 µg/L HAA5 SH	7.27%	0.20%	0.70%	0.00%	0.43%	0.11%	0.74%	9.45%
Alternative 3 40 µg/L TTHM RAA 30 µg/L HAA5 RAA	4.88%	0.19%	0.70%	0.00%	0.62%	0.11%	0.77%	7.28%

Sources: Percentage of plant not in compliance derived from Exhibits B.7 through B.12. Percentage of plants adding each treatment technology was calculated by multiplying the percentage of plants not in compliance by the proportion selecting each treatment technology (Exhibit B.13).

Notes: [1] Totals may not add due to rounding.
[2] The treatment technology selection for Regulatory Alternative 1 was adjusted to ensure that the compliance forecast delta (compliance forecast for Alternative 1 minus the compliance forecast for the Stage 1 DBPR) did not have any negative predictions.
[3] The Preferred Alternative row in Exhibit B.13 is used for both Preferred Alternative safety margin rows in this exhibit.

Exhibit B.13b Final Treatment Technology Selection Results for Medium Ground Water Plants Stage 2 Regulatory Alternatives

Regulatory Alternative	Converting to CLM Only	Advanced Disinfectants	Advanced Disinfectants + CLM	GAC20	GAC20 + CLM	NF	NF + CLM	Total Percent Non-Complying
Stage 1 DBPR 80 µg/L TTHM RAA 60 µg/L HAA5 RAA	1.84%	0.08%	0.77%	0.00%	0.04%	0.13%	0.26%	3.11%
Unadjusted Stage 2 Preferred Alternative, 20% Safety Margin 80 µg/L TTHM LRAA 60 µg/L HAA5 LRAA	3.24%	0.13%	0.99%	0.00%	0.19%	0.16%	0.47%	5.18%
Alternative 1 80 µg/L TTHM LRAA 60 µg/L HAA5 LRAA 5 µg/L Bromate MCL	2.40%	0.08%	0.77%	0.05%	0.60%	0.23%	1.05%	5.18%
Alternative 2 80 µg/L TTHM SH 60 µg/L HAA5 SH	7.73%	0.21%	0.77%	0.00%	0.45%	0.13%	0.79%	10.09%
Alternative 3 40 µg/L TTHM RAA 30 µg/L HAA5 RAA	5.29%	0.21%	0.77%	0.00%	0.67%	0.13%	0.84%	7.90%

Sources: Percentage of plant not in compliance derived from Exhibits B.7 through B.12. Percentage of plants adding each treatment technology was calculated by multiplying the percentage of plants not in compliance by the proportion selecting each treatment technology (Exhibit B.13).

Notes: [1] Totals may not add due to rounding.
[2] The treatment technology selection for Regulatory Alternative 1 was adjusted to ensure that the compliance forecast delta (compliance forecast for Alternative 1 minus the compliance forecast for the Stage 1 DBPR) did not have any negative predictions.
[3] The Preferred Alternative row in Exhibit B.13 is used for both Preferred Alternative safety margin rows in this exhibit.

B.3 Compliance Forecast for Small Ground Water Plants

Because of differences in water quality, location, and economies of scale, the compliance treatment technologies predicted for large and medium plants do not represent those that small plants would select (see *Stage 2 Occurrence Assessment for Disinfectants and Disinfection Byproducts* (USEPA 2003l) for a comparison of large and small systems). Instead, EPA and experts on small water systems estimated compliance forecasts by beginning with the compliance forecasts for large plants and making adjustments based on expert knowledge and data evaluation. A discussion of the adjustments made to the large ground water system forecasts to produce the forecasts for small systems is presented in this section.

To further recognize differences in treatment technology use, treatment technology capability, and water quality among the small systems, the small ground water system group prepared compliance forecasts separately for the following size categories:

- Systems serving between 1,000 and 9,999 people

- Systems serving between 100 and 999 people

- Systems serving fewer than 100 people

Exhibit B.14 summarizes the derivation of the small ground water compliance forecast via a flowchart, consisting of two steps:

- Estimation of percent of plants not in compliance

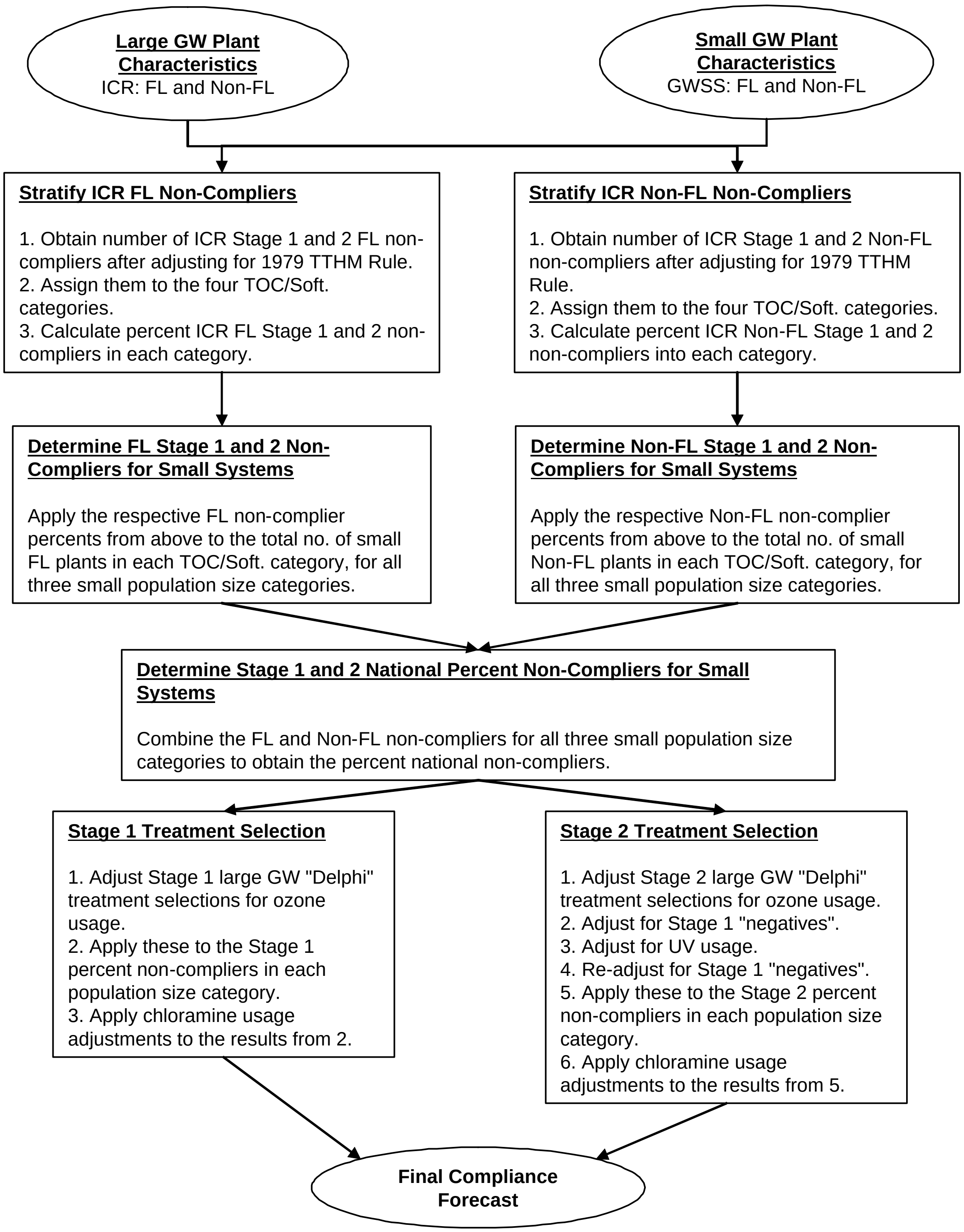
- Treatment technology forecasts for plants not in compliance

B.3.1 Estimation of Percent of Plants Not In Compliance

Exhibits B.7 through B.11 show the percent of large ground water systems that were judged to be not in compliance for each rule alternative, based on the evaluation of ICR data. Several adjustments were made to these estimates to make them applicable to small ground water plants.

Florida and Non-Florida stratification: One of the most significant influences on the regulatory alternatives considered was plant location. Florida systems (which have higher TOC levels than those of other States) account for a substantial fraction of all large ground water systems, whereas the proportion of all small ground water systems located in Florida is much smaller. Without adjusting for this, the national forecast of small ground water system non-compliance would be overstated. The large and small ground water systems were analyzed separately to the mitigate potential biases of the large system compliance and treatment technology forecasts.

Exhibit B.14 Compliance Forecast for Small Ground Water Plants



The 1979 TTHM Rule Adjustment: The percentage of small ground water plants not in compliance is expected to be greater than the percentage of large plants not in compliance because small plants have not had to meet the 1979 TTHM standards. As a proxy for estimating the additional number of small plants that would currently exceed regulatory targets, EPA assumed that large plants using chloramines and meeting regulatory targets probably would *not* have met the targets without chloramines. The percentage of these large plants (based on ICR data) not meeting the targets (adjusted to remove those plants with surface water influence) was used to obtain a more accurate estimate of the number of small systems not meeting the targets.

TOC/Softening Adjustment: The compliance forecast was further adjusted by taking into the account the differences in source water TOC levels and softening use in small plants compared to large plants.

Exhibit B.15 illustrates the procedure for obtaining the percent of plants not in compliance in small ground water universe using the ICR data for large ground water systems as a starting point. The descriptions of steps 1 through 3 in Exhibit B.15 are presented below.

Step 1

- Obtain the number of ICR not in compliance with Stages 1 and 2 from Exhibits B.7 through B.11.
- Determine the number of ICR plants that are in compliance with Stage 1 and 2, but that use chloramines (conducted separately for Florida and Non-Florida systems).

Step 2

- Classify all ICR GW plants in one of the four TOC/Softening categories conducted separately for Florida and Non-Florida systems).
- Classify all ICR GW Stage 1 and Stage 2 not in compliance in one of the four TOC/Softening categories (conducted separately for Florida and Non-Florida systems).
- Calculate the percentage of ICR GW plants in each category that are not in compliance with Stage 1 and Stage 2.

Step 3

- For each of the three population size categories, obtain the total number of ground water plants from Exhibit 3.2, Column AB.
- Stratify the plants in the four TOC/Softening categories using data from the Ground Water Supply Survey (GWSS) (USEPA 1983), with a Florida/Non-Florida stratification.
- Apply the ICR percent of plants not in compliance from Step 2 to the Exhibit 3.2/GWSS numbers above to estimate the number of plants not in compliance in the small ground water universe.
- For all three population size categories, aggregate the total number of plants not in compliance (i.e., Florida + Non-Florida) for each of the four TOC/Softening categories, from above.
- Calculate the percent national of plants not in compliance.

Exhibit B.15 also shows the breakout of plants not in compliance for all three population categories combined. The difference between the national percentage of plants not in compliance with Stage 2 and plants not in compliance with Stage 1 (i.e., “delta”) is approximately 2.88 percent (i.e., 7.36 percent for Stage 2 minus 4.47 percent for Stage 1).

Exhibit B.15 Steps for Estimating National Percentage of Plants Not in Compliance for Small Ground Water Systems

Step 1: Obtain the number of large GW Plants Not in Compliance and chloramine compliers

	Stage 1 Plants Not in Compliance (Number of Plants)		Unadjusted Stage 2 Preferred Option Plants Not in Compliance (Number of Plants)	
	Florida	Non-Florida	Florida	Non-Florida
ICR Plants Not in Compliance	8	0	11	1
ICR Chloramine compliers	9	2	9	2
Total Plants Not in Compliance	17	2	20	3

Source: ICR Plants Not in Compliance from Exhibits B.7 and B.8; ICR chloramine compliers derived from the ICR database.

Step 2: Stratify large plants by TOC level and softening/non-softening. Obtain % non-complying for large ICR GW systems, for each plant category.

	Number of ICR GW Plants		Number of Plants Not in Compliance				Percent Non-complying			
			Stage 1 Plants Not in Compliance		Unadjusted Stage 2 Preferred Option Plants Not in Compliance		Stage 1 Plants Not in Compliance		Unadjusted Stage 2 Preferred Option Plants Not in Compliance	
Plant Characteristics	Florida	Non-Florida	Florida	Non-Florida	Florida	Non-Florida	Florida	Non-Florida	Florida	Non-Florida
	A	B	C	D	E	F	G = C/A	H = D/B	I = E/A	J = F/B
Soft w/ TOC = 1 mg/L	1	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Soft w/ TOC > 1 mg/L	13	4	12	1	12	1	92.3%	25.0%	92.3%	25.0%
Non-Soft w/ TOC = 1 mg/L	4	78	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Non-Soft w/ TOC > 1 mg/L	15	15	5	1	8	2	33.3%	6.7%	53.3%	13.3%
Total	33	97	17	2	20	3	51.5%	2.1%	60.6%	3.1%
Total (Florida + Non-Florida)	130		19		23		14.6%		17.7%	

Source: Stratification into Plant Characteristic categories was based on ICR data. For TOC, the average influent TOC concentration for the last 12 months of ICR data was used.

Step 3: Calculate the number and percent of Plants Not in Compliance for the three small system size categories.

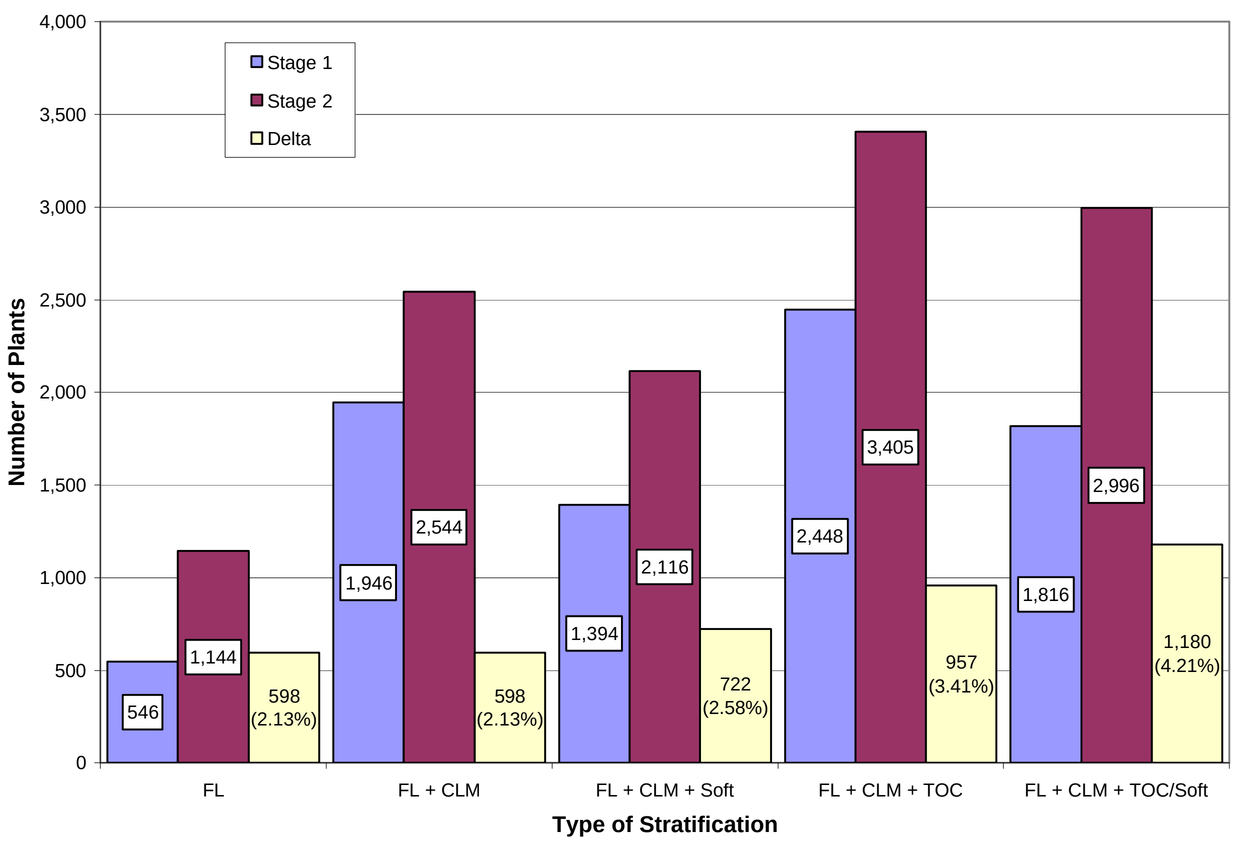
	Non-complier Analysis with Florida/Non-Florida Breakout					
	Number of GW Plants		Stage 1 Plants Not in Compliance		Unadjusted Stage 2 Preferred Option Plants Not in Compliance	
Plant Characteristics	Florida	Non-Florida	Florida	Non-Florida	Florida	Non-Florida
	K	L	M = G*K	N = H*L	O = I*K	P = J*L
Systems Serving <100 People						
Soft w/ TOC = 1 mg/L	0	0	0	0	0	0
Soft w/ TOC > 1 mg/L	18	231	17	58	17	58
Non-Soft w/ TOC = 1 mg/L	166	4,065	0	0	0	0
Non-Soft w/ TOC > 1 mg/L	232	1,585	77	106	124	211
Total	416	5,881	94	163	140	269
Total (Florida + Non-Florida)	6,297		257 (4.08%)		409 (6.5%)	
Systems Serving 100 - 999 People						
Soft w/ TOC = 1 mg/L	0	0	0	0	0	0
Soft w/ TOC > 1 mg/L	33	594	31	149	31	149
Non-Soft w/ TOC = 1 mg/L	321	8,202	0	0	0	0
Non-Soft w/ TOC > 1 mg/L	480	5,979	160	399	256	797
Total	834	14,775	191	547	287	946
Total (Florida + Non-Florida)	15,609		738 (4.73%)		1,232 (7.9%)	
Systems Serving 1,000 - 9,999 People						
Soft w/ TOC = 1 mg/L	0	0	0	0	0	0
Soft w/ TOC > 1 mg/L	16	278	15	70	15	70
Non-Soft w/ TOC = 1 mg/L	163	4,262	0	0	0	0
Non-Soft w/ TOC > 1 mg/L	215	2,249	72	150	115	300
Total	394	6,790	87	220	129	369
Total (Florida + Non-Florida)	7,184		306 (4.26%)		499 (6.95%)	
Grand Total (Florida + Non-Florida)	29,090		1,301 (4.47%)		2,141 (7.36%)	

Source: Total number of ground water plants from Exhibit 3.4, column Q. The breakout of those into the four TOC/softening categories is based on the breakout of the GWSS 1983 data.

Exhibit B.16 illustrates the individual effect of the three adjustments on the estimate of the number of small ground water plants not in compliance. The first column, "FL," displays the change from Stage 1 to Stage 2 if no adjustments were made from large to small ground water systems. This results in a difference of 2.13 percent. The second column, "FL + CLM," displays the results of adding the large ICR GW systems that are in compliance but use chloramine (CLM). This is a surrogate for the fact that large GW systems were subject to the 1979 TTHM rule but small ground waters are not subject to the 1979 TTHM Rule. Note the change from Stage 1 to Stage 2 is the same, only the total number of plants affected has changed.

The third column, "FL + CLM + Soft," displays the results if systems are stratified based on whether they use softening at their plants. The change from Stage 1 to Stage 2 for this step is 2.58 percent as opposed to 2.13 percent. The fourth column, "FL + CLM + TOC," displays the results if systems are stratified based on whether their TOC is greater than 1 milligrams per liter (mg/L). The difference is now 3.41 percent, almost a full percentage point higher than the softening. Finally, the fifth column, "FL + CLM + TOC/Soft," shows the results if one combines the stratification of softening with TOC. The difference increases again to 4.21 percent. The stratification of small ground water plants results in more plants changing treatment technology, representing the unique situation with regard to EPA regulations and the differences in Florida systems between small and large ground water systems.

Exhibit B.16 Effect of the Adjustment Steps on the Change from Stage 1 to Stage 2



B.3.2 Uncertainties in Compliance Forecasts for Small Ground Water Systems

The biggest source of uncertainty for the compliance forecasts for small ground water systems exists in the extrapolation from the large ground water compliance forecasts. As mentioned previously, the compliance forecasts for medium and large systems is based on a relatively small subset of total plants. The extrapolation does attempt to factor in difference in geography by adjusting for the percentage of systems in Florida.

B.3.3 Treatment Technology Forecasts for Systems Not in Compliance

The treatment technology forecasts for small ground water systems were generated by adjusting the large ground water compliance forecast. As with small surface water systems, chloramine and ozone were assumed to be less feasible treatment technologies for small ground water systems than for large systems. The assumed use of these disinfectants was adjusted for each small system size category. The steps for generating the Stage 1 and Stage 2 forecasts are summarized below.

<u>Adjustments for the Stage 1 treatment technology forecasts:</u>

Step 1: Start with the Stage 1 (i.e., 80/60 RAA, Bromate 10) compliance forecast for large ground water systems from Exhibit B.12.

Step 2: For the two smaller population size categories, adjust the percentage of ozone selected as follows:

- 100-999: 50 percent reduction in ozone use; the remaining 50 percent is allocated to GAC.

- <100: 100 percent reduction in ozone use; the 100 percent is allocated to GAC.

Step 3: Multiply the results from Step 2 by the percent of plants not in compliance for each population category of small ground water systems.

Step 4: Obtain the treatment technology selection showing the CLM use breakout for each treatment technology, for each population category, as follows:

- 1,000-9,999:
    1. Start with results from Step 3.
    2. Converting to chloramine: No change from Step 3.
    3. Ozone: 75 percent of the original ozone shifts to ozone+CLM, 25 percent remains in ozone.
    4. GAC: All original GAC shifts to GAC+CLM.
    5. Membranes: 90 percent of the original membranes shifts to membranes+CLM, 10 percent remains in membranes.

- 100-999:
    1. Start with results from Step 3.
    2. Converting to chloramine: No change from Step 3.
    3. Ozone: 75 percent of the original ozone shifts to ozone+CLM, 25 percent remains in ozone.

4. GAC: All original GAC shifts to GAC+CLM.
5. Membranes: 90 percent of the original membranes shifts to membranes+CLM, 10 percent remains in membranes.
6. Final chloramine adjustment: 10 percent of GAC+CLM shifts to membranes.

- <100:
  1. Start with results from Step 3.
  2. Converting to chloramine: No change from Step 3.
  3. Ozone: Not selected.
  4. GAC: All original GAC shifts to GAC+CLM.
  5. Membranes: 90 percent of the original membranes shifts to membranes+CLM, 10 percent remains in membranes.
  6. Final chloramine adjustment: 25 percent of GAC+CLM shifts to membranes.

<u>Adjustments for the Stage 2 treatment technology forecasts:</u>

Step 1: Start with the Stage 2 (i.e., 80/60 LRAA, Bromate 10) compliance forecast for large ground water systems from Exhibit B.12.

Step 2: For the two smaller population size categories, adjust the percentage of ozone selected as follows:

- 100-999: 50 percent reduction in ozone use; the remaining 50 percent is allocated to GAC.

- <100: 100 percent reduction in ozone use; the 100 percent is allocated to GAC.

Step 3: Adjust the numbers from Step 2 for “negatives”: This ensures that the overall percentages of systems using advanced treatment technologies do not fall below those forecasted for the Stage 1 DBPR.

Step 4: Adjust the numbers from Step 3 for Ultraviolet disinfection (UV): UV is available as a treatment technology option for all Stage 2 DBPR alternatives. Small systems are assumed to be able to achieve 4-logs of virus inactivation by installing 2, 2-log UV reactors in series. Even with the 2 reactor series, UV is less expensive than other advanced treatment technologies. For the Stage 2 DBPR alternatives, EPA assumed that 60 percent of the advanced treatment technology selections of ozone, GAC, and membranes would instead be UV. UV was not included as a viable treatment technology for the Stage 1 DBPR, so EPA assumed that all of the systems adding advanced treatment technology for the Stage 1 DBPR would stay with that treatment technology for the Stage 2 DBPR, while additional systems adding treatment technology for the Stage 2 DBPR can use UV. As a result, EPA apportioned a fraction (i.e., 60 percent) of the systems moving to advanced treatment technologies, to UV.

Step 5: Re-adjust the numbers from Step 4 for “negatives”: This ensures that the overall percentages of systems using advanced treatment technologies do not fall below those forecasted for the Stage 1 DBPR.

Step 6: Multiply the results from Step 2 by the percent of plants not in compliance for each population category of small ground water systems.

Step 7: Chloramine adjustments: Obtain the treatment technology selection showing the chloramine use breakout for each treatment technology, for each population category, as follows:

- 1,001-10,000:
    1. Start with the results from Step 6.
    2. Converting to chloramine: No change from Step 6.
    3. UV: All shift to UV+CLM.
    4. Ozone: 75 percent of the original ozone shifts to ozone+CLM, 25 percent remains in ozone.
    5. GAC: All original GAC shifts to GAC+CLM.
    6. Membranes: 90 percent of the original membranes shifts to membranes+CLM, 10 percent remains in membranes.

- 101-1,000:
    1. Start with the results from Step 6.
    2. Converting to chloramine: No change from Step 6.
    3. UV: 90 percent of the original UV shifts to UV+CLM, 0% remains in UV.
    4. Ozone: 75 percent of the original ozone shifts to ozone+CLM, 25 percent remains in ozone.
    5. GAC: All original GAC shifts to GAC+CLM, 10% of original UV shifts to GAC.
    6. Membranes: 90 percent of the original membranes shifts to membranes+CLM, 10 percent remains in membranes.
    7. Final chloramine adjustment: 10 percent of GAC+CLM shifts to membranes.

- ≤ 100:
    1. Start with the results from Step 6.
    2. Converting to chloramine: No change from Step 6.
    3. UV: 75 percent of the original UV shifts to UV+CLM, 0% remains in UV.
    4. Ozone: Not selected.
    5. GAC: All original GAC shifts to GAC+CLM, 25% of original UV shifts to GAC.
    6. Membranes: 90 percent of the original membranes shifts to membranes+CLM, 10 percent remains in membranes.
    7. Final chloramine adjustment: 25 percent of GAC+CLM shifts to membranes.

B.3.3 Results

Exhibits B.17 and B.18 illustrate the adjustments discussed in section B.3.2. for the Stage 1 (i.e., 80/60 RAA, Bromate 10) and the Unadjusted Stage 2 DBPR Preferred Alternative (i.e., 80/60 LRAA, Bromate 10) respectively. In addition to conducting the above analysis for the Stage 2 DBPR Preferred Alternative, similar analyses were performed for all regulatory alternatives considered during the development of the Stage 2 DBPR. Results are summarized in Chapter 5 and Appendix C for all regulatory alternatives. Exhibit B.19 summarizes the treatment technology selection results for small ground water systems, for all Stage 2 DBPR regulatory alternatives and sensitivity options.

Exhibit B.17 Stage 1 (80/60 RAA, Bromate 10) Treatment Technology Selection Forecasts

Adjustments	% Disinfecting non-compliers	Converting to CLM only	CONV	Ozone	Ozone+ CLM	GAC	GAC+ CLM	MEM	MEM+ CLM	Comments
1,001-10,000 category										
1. Large GW treatment selection for noncompliers (Delphi)	4.26%		59.30%	27.30%		1.30%		12.30%		From large GW delphi.
2. Treatment selection for noncompliers after applying ozone adjustments to 1	4.26%		59.30%	27.30%		1.30%		12.30%		No adjustments to ozone usage in this category.
3. Treatment selection from 2 applied to the percent noncompliers	4.26%	2.53%		1.16%		0.06%		0.52%		All plants predicted to be CONV have to switch to CLM to be compliant. Example calculation (Ozone): 27.30% of 4.26% = 1.16%.
4. **Final** treatment selection showing chloramine use breakout within each technology	4.26%	**2.53%**		**0.29%**	**0.87%**	**0.00%**	**0.06%**	**0.05%**	**0.47%**	(1) Start with results from 3. (2) Convert to CLM: No change. (3) Ozone: 75% to Ozone+CLM, 25% to Ozone. (4) GAC: All go to GAC+CLM. (5) MEM: 90% to MEM+CLM, 10% remains in MEM.
101-1,000 category										
1. Large GW treatment selection for noncompliers (Delphi)	4.73%		59.30%	27.30%		1.30%		12.30%		From large GW delphi.
2. Treatment selection for noncompliers after applying ozone adjustments to 1	4.73%		59.30%	13.65%		14.95%		12.30%		50% reduction in ozone, balance goes to GAC.
3. Treatment selection from 2 applied to the percent noncompliers	4.73%	2.80%		0.65%		0.71%		0.58%		All plants predicted to be CONV have to switch to CLM to be compliant. Example calculation (Ozone): 13.65% of 4.73% = 0.65%.
4. **Final** treatment selection showing chloramine use breakout within each technology	4.73%	**2.80%**		**0.16%**	**0.48%**	**0.00%**	**0.64%**	**0.13%**	**0.52%**	(1) Start with results from 3. (2) Convert to CLM: No change. (2) Ozone: 75% to Ozone+CLM, 25% to Ozone. (3) GAC: All go to GAC+CLM. (4) MEM: 90% to MEM+CLM, 10% remain in MEM. (5) Final CLM adjustment: 10% of GAC+CLM to MEM.
<= 100 category										
1. Large GW treatment selection for noncompliers (Delphi)	4.08%		59.30%	27.30%		1.30%		12.30%		From large GW delphi.
2. Treatment selection for noncompliers after applying ozone adjustments to 1	4.08%		59.30%	0.00%		28.60%		12.30%		100% reduction in ozone, balance goes to GAC.
3. Treatment selection from 2 applied to the percent noncompliers	4.08%	2.42%		0.00%		1.17%		0.50%		All plants predicted to be CONV have to switch to CLM to be compliant. Example calculation (GAC): 28.60% of 4.08% = 1.17%.
4. **Final** treatment selection showing chloramine use breakout within each technology	4.08%	**2.42%**		**0.00%**	**0.00%**	**0.00%**	**0.88%**	**0.34%**	**0.45%**	(1) Start with results from 3. (2) Convert to CLM: No change. (3) Ozone: 0%. (4) GAC: All go to GAC+CLM. (5) MEM: 90% to MEM+CLM, 10% remain in MEM. (6) Final CLM adjustment: 25% of GAC+CLM to MEM.

Exhibit B.18 Unadjusted Stage 2 Preferred Option (80/60 LRAA, Bromate 10) Treatment Technology Selection Forecast

Adjustments	% Disinfecting non-compliers	Converting to CLM only	CONV	UV	UV+ CLM	Ozone	Ozone+CLM	GAC	GAC+CLM	MEM	MEM+CLM	Comments
<= 100 category												
1. Large GW treatment selection for noncompliers (Delphi)	6.50%		62.70%			0.00%		25.40%		12.00%		From large GW delphi.
2. Treatment selection for noncompliers after applying ozone adjustments to 1	6.50%		62.70%			0.00%		25.40%		12.00%		100% reduction in ozone, balance goes to GAC.
3. Treatment selection after adjusting 2 for "negatives"	6.50%		62.70%			0.00%		25.40%		12.00%		To ensure that treatment selection for a technology is not below the Stage 1 selection.
4. Treatment selection after UV adjustments to 3	6.50%		62.70%	22.44%		0.00%		10.16%		4.80%		Assumes that 60% of (Ozone+GAC+MEM) switch to UV, the balance 40% is distrbuted among Ozone, GAC, and MEM in their existing proportions.
5. Treatment selection after adjusting 4 for "negatives"	6.50%		51.96%	22.44%		0.00%		17.97%		7.73%		To ensure that treatment selection for a technology is not below the Stage 1 selection.
6. Treatment selection from 5 applied to noncompliers	6.50%	3.38%		1.46%		0.00%		1.17%		0.50%		All plants predicted to be CONV have to switch to CLM to be compliant. Example calculation (GAC): 17.97% of 6.50% = 1.17%.
7. **Final** treatment selection showing chloramine use breakout within each technology	6.50%	**3.02%**		**0.00%**	**1.25%**	**0.00%**	**0.00%**	**0.42%**	**0.88%**	**0.36%**	**0.58%**	(1) Start with results from 6. (2) Convert to CLM: No change. (3) UV: 75% of original UV to UV+CLM, 0% to UV. (4) Ozone: 0%. (5) GAC: All original GAC to GAC+CLM, balance 25% of original UV to GAC. (6) MEM: 90% to MEM+CLM, 10% remains in MEM. (7) Final CLM adjustment: 25% of GAC+CLM to MEM.

Exhibit B.18 Unadjusted Stage 2 Preferred Option (80/60 LRAA, Bromate 10) Treatment Technology Selection Forecast (Continued)

Adjustments	% Disinfecting non-compliers	Converting to CLM only	CONV	UV	UV+ CLM	Ozone	Ozone+ CLM	GAC	GAC+ CLM	MEM	MEM+ CLM	Comments
1,001-10,000 category												
1. Large GW treatment selection for noncompliers (Delphi)	6.95%		62.70%			21.70%		3.70%		12.00%		From large GW delphi.
2. Treatment selection for noncompliers after applying ozone adjustments to 1	6.95%		62.70%			21.70%		3.70%		12.00%		No adjustments to ozone usage in this category.
3. Treatment selection after adjusting 2 for "negatives"	6.95%		62.70%			21.70%		3.70%		12.00%		To ensure that treatment selection for a technology is not below the Stage 1 selection.
4. Treatment selection after UV adjustments to 3	6.95%		62.70%	22.44%		8.68%		1.48%		4.80%		Assumes that 60% of (Ozone+GAC+MEM) switch to UV, the balance 40% is distrbuted among Ozone, GAC, and MEM in their existing proportions.
5. Treatment selection after adjusting 4 for "negatives"	6.95%		51.89%	22.44%		16.75%		1.48%		7.54%		To ensure that treatment selection for a technology is not below the Stage 1 selection.
6. Treatment selection from 5 applied to noncompliers	6.95%	3.60%		1.56%		1.16%		0.10%		0.52%		All plants predicted to be CONV have to switch to CLM to be compliant. Example calculation (UV): 22.44% of 6.95% = 1.56%.
7. **Final** treatment selection showing chloramine use breakout within each technology	6.95%	**2.49%**		**0.00%**	**2.26%**	**0.29%**	**0.87%**	**0.00%**	**0.35%**	**0.07%**	**0.62%**	(1) Start with results from 6. (2) Convert to CLM: No change. (3) UV: All go to UV+CLM. (4) Ozone: 75% of original to Ozone+CLM, 25% to Ozone. (5) GAC: All go to GAC+CLM. (6) MEM: 90% to MEM+CLM, 10% remains in MEM.
101-1,000 category												
1. Large GW treatment selection for noncompliers (Delphi)	7.90%		62.70%			10.85%		14.55%		12.00%		From large GW delphi.
2. Treatment selection for noncompliers after applying ozone adjustments to 1	7.90%		62.70%			5.43%		19.98%		12.00%		50% reduction in ozone, balance goes to GAC.
3. Treatment selection after adjusting 2 for "negatives"	7.90%		62.70%			5.43%		19.98%		12.00%		To ensure that treatment selection for a technology is not below the Stage 1 selection.
4. Treatment selection after UV adjustments to 3	7.90%		62.70%	22.44%		2.17%		7.99%		4.80%		Assumes that 60% of (Ozone+GAC+MEM) switch to UV, the balance 40% is distrbuted among Ozone, GAC, and MEM in their existing proportions.
5. Treatment selection after adjusting 4 for "negatives"	7.90%		53.17%	22.44%		8.17%		8.95%		7.36%		To ensure that treatment selection for a technology is not below the Stage 1 selection.
6. Treatment selection from 5 applied to noncompliers	7.90%	4.20%		1.77%		0.65%		0.71%		0.58%		All plants predicted to be CONV have to switch to CLM to be compliant. Example calculation (Ozone): 8.17% of 7.90% = 0.65%.
7. **Final** treatment selection showing chloramine use breakout within each technology	7.90%	**3.61%**		**0.00%**	**1.94%**	**0.16%**	**0.48%**	**0.22%**	**0.64%**	**0.15%**	**0.70%**	(1) Start with results from 6. (2) Convert to CLM: No change. (3) UV: 90% of original UV to UV+CLM, 0% to UV. (4) Ozone: 75% of original to Ozone+CLM, 25% to Ozone. (5) GAC: All original GAC go to GAC+CLM, balance 10% of original UV to GAC. (6) MEM: 90% to MEM+CLM, 10% remains in MEM. (7) Final CLM adjustment:10% of GAC+CLM to MEM.

Exhibit B.19 Small Ground Water Treatment Technology Selection Results Summary

Regulatory Option	Converting to CLM only	UV	UV + CLM	Ozone	Ozone + CLM	GAC20	GAC20 + CLM	NF	NF + CLM	Total % Changing Tech.
1,001-10,000 category										
Stage 1 Baseline, 80/60 RAA, BRO3 = 10, UV = OFF	2.53%	0.00%	0.00%	0.29%	0.87%	0.00%	0.06%	0.05%	0.47%	4.27%
Unadjusted Preferred Alternative, 20% Safety Margin, 80/60 LRAA, BRO3 = 10, UV = ON	3.60%	0.00%	1.56%	0.29%	0.87%	0.00%	0.10%	0.05%	0.47%	6.95%
Stage 2 Alternative 1, 80/60 LRAA, BRO3 = 5, UV = ON	2.49%	0.00%	2.26%	0.29%	0.87%	0.00%	0.35%	0.07%	0.62%	6.95%
Stage 2 Alternative 2, 80/60 SH, BRO3 = 10, UV = ON	5.99%	0.00%	1.42%	0.29%	0.87%	0.00%	0.17%	0.05%	0.47%	9.26%
Stage 2 Alternative 3, 40/30 RAA, BRO3 = 10, UV = ON	4.00%	0.00%	1.60%	0.29%	0.87%	0.00%	0.26%	0.05%	0.47%	7.54%
101-1,000 category										
Stage 1 Baseline, 80/60 RAA, BRO3 = 10, UV = OFF	2.80%	0.00%	0.00%	0.16%	0.48%	0.00%	0.64%	0.13%	0.52%	4.74%
Unadjusted Preferred Alternative, 20% Safety Margin, 80/60 LRAA, BRO3 = 10, UV = ON	4.20%	0.00%	1.59%	0.16%	0.48%	0.18%	0.64%	0.13%	0.52%	7.90%
Stage 2 Alternative 1, 80/60 LRAA, BRO3 = 5, UV = ON	3.61%	0.00%	1.94%	0.16%	0.48%	0.22%	0.64%	0.15%	0.70%	7.90%
Stage 2 Alternative 2, 80/60 SH, BRO3 = 10, UV = ON	6.67%	0.00%	1.31%	0.16%	0.48%	0.15%	0.64%	0.13%	0.52%	10.06%
Stage 2 Alternative 3, 40/30 RAA, BRO3 = 10, UV = ON	4.90%	0.00%	1.51%	0.16%	0.48%	0.17%	0.64%	0.13%	0.52%	8.51%
<= 100 category										
Stage 1 Baseline, 80/60 RAA, BRO3 = 10, UV = OFF	2.42%	0.00%	0.00%	0.00%	0.00%	0.00%	0.88%	0.34%	0.45%	4.09%
Unadjusted Preferred Alternative, 20% Safety Margin, 80/60 LRAA, BRO3 = 10, UV = ON	3.38%	0.00%	1.09%	0.00%	0.00%	0.36%	0.88%	0.34%	0.45%	6.50%
Stage 2 Alternative 1, 80/60 LRAA, BRO3 = 5, UV = ON	3.02%	0.00%	1.25%	0.00%	0.00%	0.42%	0.88%	0.36%	0.58%	6.50%
Stage 2 Alternative 2, 80/60 SH, BRO3 = 10, UV = ON	6.23%	0.00%	0.92%	0.00%	0.00%	0.31%	0.88%	0.34%	0.45%	9.13%
Stage 2 Alternative 3, 40/30 RAA, BRO3 = 10, UV = ON	4.24%	0.00%	0.99%	0.00%	0.00%	0.33%	0.88%	0.34%	0.45%	7.23%

Appendix C
Supplemental Compliance Forecasts

Appendix C
Supplemental Compliance Forecasts

This appendix presents the Stage 1 and Stage 2 Disinfectants and Disinfection Byproducts Rule (DBPR) compliance forecast results for both surface water and ground water systems. There are three basic types of compliance forecasts presented:

- **Treatment Technology Selection**—The treatment technology selection tables represent the number and percent of systems that have to add a treatment technology to comply with the rule. These results include only the number of systems that exceed rule maximum contaminant levels (MCLs) and must add treatment technology to comply with the rule. Those plants that are already using a treatment technology prior to the rule and do not have to add an additional treatment technology to comply are not included in this table. The treatment technology selection numbers are based on the pre-Stage 1 treatment technology baseline.

- **Treatment Technology Selection Deltas**—The treatment technology selection delta tables represent the incremental number of plants that must add a treatment technology to meet Stage 2 DBPR regulatory alternatives after predicted changes to meet the Stage 1 DBPR. These tables are calculated by subtracting the Stage 1 DBPR treatment technology selection tables from the Stage 2 DBPR treatment technology selection tables. These tables are used for costing.

- **Treatment Technologies in Place**—The treatment technologies in place tables show the number and percent of systems that are using a treatment technology, once systems are in compliance with the rule. This includes the systems predicted to add a treatment technology to comply with the rule, and those systems that were already using the treatment technology before rule promulgation.

This Appendix presents the treatment technology selection tables for the Stage 1 DBPR and the Stage 2 DBPR, and the treatment technology selection, treatment technology selection deltas, and treatment technologies in place tables for the other regulatory alternatives and the sensitivity analyses. Compliance forecasts are organized as follows (see next page).

Note: Some compliance forecasts are presented in the main body of the Economic Analysis (i.e., Exhibits 3.13a through 3.14b, 7.14a through 7.19b), and are thus not repeated in this Appendix.

Rule Option	Compliance Forecast Type	Source	System Type	Exhibit Number	Page Number
Pre-Stage 1	Treatment Technologies in Place	Surface Water	CWS	Chapter 3, Exhibit 3.13a	
			NTNCWS	Chapter 3, Exhibit 3.13b	
		Ground Water	CWS	Chapter 3, Exhibit 3.14a	
			NTNCWS	Chapter 3, Exhibit 3.14b	
Pre-Stage 2 (Post-Stage 1)	Selection	Surface Water	CWS	Exhibit C.1a	C-3
			NTNCWS	Exhibit C.1b	C-4
		Ground Water	CWS	Exhibit C.2a	C-5
			NTNCWS	Exhibit C.2b	C-6
	Treatment Technologies in Place	Surface Water	CWS	Chapter 7, Exhibit 7.14a	7-41
			NTNCWS	Chapter 7, Exhibit 7.14b	7-41
		Ground Water	CWS	Chapter 7, Exhibit 7.17a	7-46
			NTNCWS	Chapter 7, Exhibit 7.17b	7-46
Stage 2 Preferred Alternative	Delta	Surface Water	CWS	Chapter 7, Exhibit 7.15a & 7.15b	7-42
			NTNCWS	Chapter 7, Exhibit 7.15c & 7.15d	7-43
		Ground Water	CWS	Chapter 7, Exhibit 7.18a & 7.18b	7-47
			NTNCWS	Chapter 7, Exhibit 7.18c & 7.18d	7-48
	Treatment Technologies in Place	Surface Water	CWS	Chapter 7, Exhibit 7.16a & 7.16b	7-44
			NTNCWS	Chapter 7, Exhibit 7.16c & 7.16d	7-45
		Ground Water	CWS	Chapter 7, Exhibit 7.19a & 7.19b	7-49
			NTNCWS	Chapter 7, Exhibit 7.19c & 7.19d	7-50
Stage 2 Alternative 1	Delta	Surface Water	CWS	Exhibits C.3a & C.3b	C-7
			NTNCWS	Exhibits C.3c & C.3d	C-8
		Ground Water	CWS	Exhibits C.4a & C.4b	C-9
			NTNCWS	Exhibits C.4c & C.4d	C-10
	Treatment Technologies in Place	Surface Water	CWS	Exhibits C.5a & C.5b	C-11
			NTNCWS	Exhibits C.5c & C.5d	C-12
		Ground Water	CWS	Exhibits C.6a & C.6b	C-13
			NTNCWS	Exhibits C.6c & C.6d	C-14
Stage 2 Alternative 2	Delta	Surface Water	CWS	Exhibits C.7a & C.7b	C-15
			NTNCWS	Exhibits C.7c & C.7d	C-16
		Ground Water	CWS	Exhibits C.8a & C.8b	C-17
			NTNCWS	Exhibits C.8c & C.8d	C-18
	Treatment Technologies in Place	Surface Water	CWS	Exhibits C.9a & C.9b	C-19
			NTNCWS	Exhibits C.9c & C.9d	C-20
		Ground Water	CWS	Exhibits C.10a & C.10b	C-21
			NTNCWS	Exhibits C.10c & C.10d	C-22
Stage 2 Alternative 3	Delta	Surface Water	CWS	Exhibits C.11a & C.11b	C-23
			NTNCWS	Exhibits C.11c & C.11d	C-24
		Ground Water	CWS	Exhibits C.12a & C.12b	C-25
			NTNCWS	Exhibits C.12c & C.12d	C-26
	Treatment Technologies in Place	Surface Water	CWS	Exhibits C.13a & C.13b	C-27
			NTNCWS	Exhibits C.13c & C.13d	C-28
		Ground Water	CWS	Exhibits C.14a & C.14b	C-29
			NTNCWS	Exhibits C.14c & C.14d	C-30
Stage 2 Preferred Alternative, 20% Safety Margin	Delta	Surface Water	CWS	Exhibits C.15a & C.15b	C-31
			NTNCWS	Exhibits C.15c & C.15d	C-32
		Ground Water	CWS	Exhibits C.16a & C.16b	C-33
			NTNCWS	Exhibits C.16c & C.16d	C-34
	Treatment Technologies in Place	Surface Water	CWS	Exhibits C.17a & C.17b	C-35
			NTNCWS	Exhibits C.17c & C.17d	C-36
		Ground Water	CWS	Exhibits C.18a & C.18b	C-37
			NTNCWS	Exhibits C.18c & C.18d	C-38
Stage 2 Preferred Alternative, 25% Safety Margin	Delta	Surface Water	CWS	Exhibits C.19a & C.19b	C-39
			NTNCWS	Exhibits C.19c & C.19d	C-40
		Ground Water	CWS	Exhibits C.20a & C.20b	C-41
			NTNCWS	Exhibits C.20c & C.20d	C-42
	Treatment Technologies in Place	Surface Water	CWS	Exhibits C.21a & C.21b	C-43
			NTNCWS	Exhibits C.21c & C.21d	C-44
		Ground Water	CWS	Exhibits C.22a & C.22b	C-45
			NTNCWS	Exhibits C.22c & C.22d	C-46

Exhibit C.1a

Stage 1 DBPR Treatment Technology Selection for CWS Surface Water Plants (Percent and Number of Plants by Residual Disinfection Type)

System Size (Population Served)	Conventional Plants Adding CLM only		Adding Advanced Treatment Treatment Technologies															
			Chlorine Dioxide				UV				Ozone				MF/UF			
			CL2		CLM		CL2		CLM		CL2		CLM		CL2		CLM	
	A		B				C				D				E			
<100	29.7%	107													10.9%	39	7.1%	26
100-499	35.4%	272	1.0%	7	0.9%	7					5.1%	39	4.6%	35	5.3%	41	4.8%	37
500-999		171		5		4						24		22		26		23
1,000-3,299	41.3%	467	1.9%	22	2.1%	24					4.0%	45	4.5%	51	2.6%	29	2.9%	32
3,300-9,999		520		24		27						50		56		32		36
10,000-49,999	10.9%	141	4.4%	57	0.7%	9					9.5%	122	1.5%	20	1.6%	20	0.3%	3
50,000-99,999		63		26		4						55		9		9		1
100,000-999,999	10.9%	67	4.4%	27	0.7%	4					9.5%	58	1.5%	9	1.6%	10	0.3%	2
>=1,000,000		8		3		1						7		1		1		0
Total Plants	27.7%	1,816	2.6%	170	1.2%	80					6.1%	401	3.1%	203	3.2%	207	2.5%	161

System Size (Population Served)	GAC10				GAC10 + Advanced Disinfectants				GAC20				GAC20 + Advanced Disinfectants				Membranes				Total Converting to CLM		Total Adding Treatment Technology	
	CL2		CLM		CL2		CLM		CL2		CLM		CL2		CLM		CL2		CLM					
	F				G				H				I				J				K		L = SUM(A:J)	
<100									2.0%	7	1.3%	5	0.0%	0	0.0%	0	2.1%	8	1.4%	5	39.6%	142	54.6%	196
100-499									1.1%	8	1.0%	7	0.5%	4	0.4%	3	0.5%	3	0.4%	3	47.5%	364	60.8%	466
500-999										5		5		2		2		2		2		229		294
1,000-3,299									1.0%	12	1.2%	13	0.5%	6	0.6%	7	0.2%	2	0.2%	2	52.7%	596	63.0%	711
3,300-9,999										13		15		7		7		2		2		664		792
10,000-49,999	1.6%	20	0.3%	3	0.9%	12	0.2%	2	0.3%	4	0.1%	1	0.0%	0	0.0%	0	0.3%	4	0.1%	1	13.9%	180	32.5%	420
50,000-99,999		9		1		5		1		2		0		0		0		2		0		81		188
100,000-999,999	1.6%	10	0.3%	2	0.9%	6	0.2%	1	0.3%	2	0.1%	0	0.0%	0	0.0%	0	0.3%	2	0.1%	0	13.9%	85	32.5%	199
>=1,000,000		1		0		1		0		0		0		0		0		0		0		10		24
Total Plants	0.6%	40	0.1%	7	0.4%	24	0.1%	4	0.8%	53	0.7%	46	0.3%	18	0.3%	19	0.4%	25	0.2%	16	35.9%	2,350	50.2%	3,290

Note: Detail may not add to totals due to independent rounding

Source: Percent of plants from Appendix A, A.19a for systems serving <100 people, A.19b for systems serving 100 to 999 people, A.19c for systems serving 1,000 to 9,999 people, and Exhibit A.7c for systems serving 10,000 or more people.

Exhibit C.1b

Stage 1 DBPR Treatment Technology Selection for NTNCWS Surface Water Plants (Percent and Number of Plants by Residual Disinfection Type)

System Size (Population Served)	Conventional Plants Adding CLM only	Adding Advanced Treatment Treatment Technologies																		Total Converting to CLM	Total Adding Treatment Technology
		Chlorine Dioxide		UV		Ozone		MF/UF		GAC10		GAC10 + Advanced Disinfectants		GAC20		GAC20 + Advanced Disinfectants		Membranes			
		CL2	CLM	CL2	CLM	CL2	CLM	CL2	CLM	CL2	CLM	CL2	CLM	CL2	CLM	CL2	CLM	CL2	CLM		
	A	B		C		D		E		F		G		H		I		J		K	L = SUM(A:J)
<100	29.7% 67							10.9% 25	7.1% 16					2.0% 4	1.3% 3	0.0% 0	0.0% 0	2.1% 5	1.4% 3	39.6% 89	54.6% 123
100-499	35.4% 111	1.0% 3	0.9% 3			5.1% 16	4.6% 14	5.3% 17	4.8% 15					1.1% 3	1.0% 3	0.5% 2	0.4% 1	0.5% 1	0.4% 1	47.5% 148	60.8% 190
500-999	38	1	1			5	5	6	5					1	1	1	0	0	0	50	64
1,000-3,299	41.3% 38	1.9% 2	2.1% 2			4.0% 4	4.5% 4	2.6% 2	2.9% 3					1.0% 1	1.2% 1	0.5% 0	0.6% 1	0.2% 0	0.2% 0	52.7% 49	63.0% 58
3,300-9,999	10	0	1			1	1	1	1					0	0	0	0	0	0	13	16
10,000-49,999	10.9% 1	4.4% 0	0.7% 0			9.5% 0	1.5% 0	1.6% 0	0.3% 0	1.6% 0	0.3% 0	0.9% 0	0.2% 0	0.3% 0	0.1% 0	0.0% 0	0.0% 0	0.3% 0	0.1% 0	13.9% 1	32.5% 2
50,000-99,999	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	10.9% 0	4.4% 0	0.7% 0			9.5% 0	1.5% 0	1.6% 0	0.3% 0	1.6% 0	0.3% 0	0.9% 0	0.2% 0	0.3% 0	0.1% 0	0.0% 0	0.0% 0	0.3% 0	0.1% 0	13.9% 0	32.5% 0
>=1,000,000	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	34.5% 264	0.8% 7	0.8% 6			3.4% 26	3.2% 24	6.5% 50	5.2% 40	0.0% 0	0.0% 0	0.0% 0	0.0% 0	1.3% 10	1.1% 8	0.3% 3	0.3% 3	0.9% 7	0.7% 5	45.7% 350	59.1% 453

Note: Detail may not add to totals due to independent rounding

Source: Percent of plants from Appendix A, A.19a for systems serving <100 people, A.19b for systems serving 100 to 999 people, A.19c for systems serving 1,000 to 9,999 people, and Exhibit A.7c for systems serving 10,000 or more people.

Exhibit C.2a

R Treatment Technology Selection for CWS Groundwater Plants (Percent and Number of Plants, by Residual Disinfectant Type)

System Size (Population Served)	CLM Only		UV CL2		UV CLM		Ozone CL2		Ozone CLM		GAC20 CL2		GAC20 CLM		Membranes CL2		Membranes CLM		Total Converting to CLM		Total Adding Treatment Technology
	A		B		C		D		E		F		G		H		I		J = A+C+E+G+I		K = SUM(A:I)
<100	2.4%	156	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.9%	56	0.3%	22	0.5%	29	3.7%	241	4.1%
100-499	2.8%	427	0.0%	0	0.0%	0	0.2%	25	0.5%	74	0.0%	0	0.6%	97	0.1%	20	0.5%	80	4.4%	678	4.7%
500-999		171		0		0		10		29		0		39		8		32		271	
1,000-3,299	2.5%	192	0.0%	0	0.0%	0	0.3%	22	0.9%	66	0.0%	0	0.1%	4	0.1%	4	0.5%	36	3.9%	298	4.3%
3,300-9,999		127		0		0		15		44		0		3		3		24		197	
10,000-49,999	1.8%	99					0.1%	4	0.8%	42	0.0%	0	0.0%	2	0.1%	7	0.3%	14	2.9%	157	3.1%
50,000-99,999		13						1		6		0		0		1		2		21	
100,000-999,999	1.7%	15					0.1%	1	0.7%	6	0.0%	0	0.0%	0	0.1%	1	0.2%	2	2.6%	24	2.8%
>=1,000,000		0						0		0		0		0		0		0		1	
Total Plants	2.5%	1,201	0.0%	0	0.0%	0	0.2%	76	0.6%	267	0.0%	0	0.4%	202	0.1%	65	0.5%	218	4.0%	1,887	4.3%

Note: Detail may not add to totals due to independent rounding

Source: Percent of plants from Appendix B, Exhibit B.34a for systems serving <100 people, B.34b for systems serving 100 to 999 people, B.34c for systems serving 1,000 to 9,999 people, Exhibit B.11b for systems serving 10,000 to 99,999 people, and B.11a for systems serving 100,000 or more people.

Exhibit C.2b

Treatment Technology Selection for NTNCWS Groundwater Plants (Percent and Number of Plants, by Residual Disinfectant Type

System Size (Population Served)	CLM Only		UV CL2		UV CLM		Ozone CL2		Ozone CLM		GAC20 CL2		GAC20 CLM		Membranes CL2		Membranes CLM		Total Converting to CLM		Total Adding Treatment Technology
	A		B		C		D		E		F		G		H		I		J = A+C+E+G+I		K = SUM(A:I)
<100	2.4%	60	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.9%	22	0.3%	9	0.5%	11	3.7%	93	4.1%
100-499	2.8%	60	0.0%	0	0.0%	0	0.2%	3	0.5%	10	0.0%	0	0.6%	14	0.1%	3	0.5%	11	4.4%	95	4.7%
500-999		17		0		0		1		3		0		4		1		3		26	
1,000-3,299	2.5%	6	0.0%	0	0.0%	0	0.3%	1	0.9%	2	0.0%	0	0.1%	0	0.1%	0	0.5%	1	3.9%	10	4.3%
3,300-9,999		1		0		0		0		0		0		0		0		0		1	
10,000-49,999	1.8%	0					0.1%	0	0.8%	0	0.0%	0	0.0%	0	0.1%	0	0.3%	0	2.9%	0	3.1%
50,000-99,999		0						0		0		0		0		0		0		0	
100,000-999,999	1.7%	0					0.1%	0	0.7%	0	0.0%	0	0.0%	0	0.1%	0	0.2%	0	2.6%	0	2.8%
>=1,000,000		0						0		0		0		0		0		0		0	
Total Plants	2.6%	143	0.0%	0	0.0%	0	0.1%	5	0.3%	16	0.0%	0	0.7%	39	0.2%	12	0.5%	27	4.1%	225	4.4%

Note: Detail may not add to totals due to independent rounding

Source: Percent of plants from Appendix B, Exhibit B.34a for systems serving <100 people, B.34b for systems serving 100 to 999 people, B.34c for systems serving 1,000 to 9,999 people, Exhibit B.11b for systems serving 10,000 to 99,999 people, and B.11a for systems serving 100,000 or more people.

Exhibit C.3a
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Alternative 1

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A			B			C			D			E			F			G			H			I			J			K	
<100	1.6%	0.8%	2.4%							3.6%	1.9%	5.3%	2.7%	1.4%	3.9%							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
100-499	3.9%	2.1%	5.7%	0.1%	0.1%	0.2%	0.4%	0.2%	0.6%	1.0%	0.5%	1.4%	1.0%	0.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
500-999	3.9%	2.1%	5.7%	0.1%	0.1%	0.2%	0.4%	0.2%	0.6%	1.0%	0.5%	1.4%	1.0%	0.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
1,000-3,299	4.0%	2.2%	5.9%	0.2%	0.1%	0.3%	0.9%	0.5%	1.4%	0.7%	0.4%	1.0%	0.9%	0.5%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
3,300-9,999	4.0%	2.2%	5.9%	0.2%	0.1%	0.3%	0.9%	0.5%	1.4%	0.7%	0.4%	1.0%	0.9%	0.5%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
10,000-49,999	8.1%	4.3%	11.9%	0.1%	0.0%	0.1%	0.6%	0.3%	0.9%	0.6%	0.3%	0.8%	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50,000-99,999	8.1%	4.3%	11.9%	0.1%	0.0%	0.1%	0.6%	0.3%	0.9%	0.6%	0.3%	0.8%	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	8.1%	4.3%	11.9%	0.1%	0.0%	0.1%	0.6%	0.3%	0.9%	0.6%	0.3%	0.8%	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
>=1,000,000	8.1%	4.3%	11.9%	0.1%	0.0%	0.1%	0.6%	0.3%	0.9%	0.6%	0.3%	0.8%	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	5.5%	2.9%	8.0%	0.1%	0.1%	0.2%	0.7%	0.4%	1.0%	0.9%	0.5%	1.3%	0.7%	0.4%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		L			M			N			O			P			Q			R			S			T=A+C+E+G+I+K+M+O +Q+S				L = SUM(A:S)			
<100							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.8%	2.2%	1.1%	0.6%	1.7%	0.0%	0.0%	0.0%	0.3%	0.2%	0.5%	5.7%	3.0%	8.4%	10.8%	5.7%	16.0%			
100-499							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.2%	0.5%	0.5%	0.3%	0.7%	0.9%	0.5%	1.3%	1.1%	0.6%	1.6%	6.8%	3.7%	10.1%	9.2%	4.9%	13.5%			
500-999							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.2%	0.5%	0.5%	0.3%	0.7%	0.9%	0.5%	1.3%	1.1%	0.6%	1.6%	6.8%	3.7%	10.1%	9.2%	4.9%	13.5%	9.5%	5.1%	14.0%
1,000-3,299							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.3%	0.5%	0.3%	0.7%	0.9%	0.5%	1.3%	1.2%	0.6%	1.8%	7.6%	4.1%	11.2%	9.6%	5.1%	14.1%			
3,300-9,999							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.3%	0.5%	0.3%	0.7%	0.9%	0.5%	1.3%	1.2%	0.6%	1.8%	7.6%	4.1%	11.2%	9.6%	5.1%	14.1%			
10,000-49,999	0.5%	0.2%	0.7%	0.2%	0.1%	0.3%	0.5%	0.3%	0.8%	0.2%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.9%	2.4%	0.4%	0.2%	0.6%	9.7%	5.2%	14.2%	12.9%	6.9%	19.0%			
50,000-99,999	0.5%	0.2%	0.7%	0.2%	0.1%	0.3%	0.5%	0.3%	0.8%	0.2%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.9%	2.4%	0.4%	0.2%	0.6%	9.7%	5.2%	14.2%	12.9%	6.9%	19.0%	12.9%	6.9%	19.0%
100,000-999,999	0.5%	0.2%	0.7%	0.2%	0.1%	0.3%	0.5%	0.3%	0.8%	0.2%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.9%	2.4%	0.4%	0.2%	0.6%	9.7%	5.2%	14.2%	12.9%	6.9%	19.0%			
>=1,000,000	0.5%	0.2%	0.7%	0.2%	0.1%	0.3%	0.5%	0.3%	0.8%	0.2%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.9%	2.4%	0.4%	0.2%	0.6%	9.7%	5.2%	14.2%	12.9%	6.9%	19.0%			
Total %	0.2%	0.1%	0.3%	0.1%	0.0%	0.1%	0.2%	0.1%	0.3%	0.1%	0.0%	0.1%	0.2%	0.1%	0.3%	0.3%	0.2%	0.5%	1.1%	0.6%	1.7%	0.8%	0.4%	1.2%	8.2%	4.4%	12.0%	10.9%	5.8%	16.0%	10.9%	5.8%	16.0%

Note: Detail may not add to totals due to independent rounding
Source: Technology Selection for the Alternative 1 minus the Stage 1 Technology Selection from Appendix C, Exhibit C.1a.

Exhibit C.3b
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Alternative 1

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A					B						C						D						E						F		
<100	6	3	9							13	7	19	10	5	14							0	0	0	0	0	0						
100-499	30	16	44	1	1	1	3	2	4	7	4	11	8	4	11	0	0	0	0	0	0	0	0	0	0	0	0						
500-999	19	10	28	1	0	1	2	1	3	5	2	7	5	3	7	0	0	0	0	0	0	0	0	0	0	0	0						
1,000-3,299	46	24	67	2	1	3	11	6	16	8	4	12	10	6	15	0	0	0	0	0	0	0	0	0	0	0	0						
3,300-9,999	51	27	75	2	1	3	12	6	18	9	5	13	12	6	17	0	0	0	0	0	0	0	0	0	0	0	0						
10,000-49,999	104	56	153	1	0	1	8	4	12	7	4	11	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	47	25	69	0	0	1	4	2	5	3	2	5	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	49	26	72	0	0	1	4	2	6	3	2	5	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	6	3	9	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	358	191	526	8	4	11	44	23	64	56	30	83	48	26	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
			G					H						I						J					T=A+C+E+G+I+K+M+O +Q+S				L = SUM(A:S)				
<100							0	0	0	0	0	0	5	3	8	4	2	6	0	0	0	1	1	2	20	11	30	39	21	57			
100-499							0	0	0	0	0	0	3	1	4	4	2	5	7	4	10	8	4	12	52	28	77	70	38	103			
500-999							0	0	0	0	0	0	2	1	2	2	1	3	4	2	6	5	3	8	33	18	49	44	24	65	382	204	561
1,000-3,299							0	0	0	0	0	0	2	1	4	5	3	8	10	5	14	14	7	20	86	46	126	108	58	159			
3,300-9,999							0	0	0	0	0	0	3	1	4	6	3	9	11	6	16	15	8	22	96	51	141	121	64	177			
10,000-49,999	6	3	9	3	2	5	7	4	10	2	1	3	0	0	0	0	0	0	21	11	31	6	3	8	125	67	184	167	89	245			
50,000-99,999	3	1	4	1	1	2	3	2	4	1	1	1	0	0	0	0	0	0	10	5	14	2	1	4	56	30	82	75	40	110	330	176	485
100,000-999,999	3	1	4	1	1	2	3	2	5	1	1	1	0	0	0	0	0	0	10	5	15	3	1	4	59	32	87	79	42	116			
>=1,000,000	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	7	4	10	10	5	14			
Total Plants	12	6	17	6	3	9	13	7	20	4	2	6	15	8	22	21	11	31	74	40	109	54	29	79	535	286	786	712	380	1,046	712	380	1,046

Note: Detail may not add to totals due to independent rounding
Source: Above table with technologies switching from an advanced technology with Cl2 to the same advanced technology with CLM being moved into the CLM only column

Exhibit C.3c
Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Alternative 1

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A			B			C			D			E			F			G			H			I			J			K	
<100	1.6%	0.8%	2.4%							3.6%	1.9%	5.3%	2.7%	1.4%	3.9%							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
100-499	3.9%	2.1%	5.7%	0.1%	0.1%	0.2%	0.4%	0.2%	0.6%	1.0%	0.5%	1.4%	1.0%	0.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
500-999	3.9%	2.1%	5.7%	0.1%	0.1%	0.2%	0.4%	0.2%	0.6%	1.0%	0.5%	1.4%	1.0%	0.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
1,000-3,299	4.0%	2.2%	5.9%	0.2%	0.1%	0.3%	0.9%	0.5%	1.4%	0.7%	0.4%	1.0%	0.9%	0.5%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
3,300-9,999	4.0%	2.2%	5.9%	0.2%	0.1%	0.3%	0.9%	0.5%	1.4%	0.7%	0.4%	1.0%	0.9%	0.5%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
10,000-49,999	8.1%	4.3%	11.9%	0.1%	0.0%	0.1%	0.6%	0.3%	0.9%	0.6%	0.3%	0.8%	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	8.1%	4.3%	11.9%	0.1%	0.0%	0.1%	0.6%	0.3%	0.9%	0.6%	0.3%	0.8%	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	3.3%	1.7%	4.8%	0.1%	0.1%	0.1%	0.4%	0.2%	0.5%	1.7%	0.9%	2.5%	1.5%	0.8%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		L			M			N			O			P			Q			R			S		T=A+C+E+G+I+K+M+O+Q+S				L = SUM(A:S)				
<100							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.8%	2.2%	1.1%	0.6%	1.7%	0.0%	0.0%	0.0%	0.3%	0.2%	0.5%	5.7%	3.0%	8.4%	10.8%	5.7%	16.0%			
100-499							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.2%	0.5%	0.5%	0.3%	0.7%	0.9%	0.5%	1.3%	1.1%	0.6%	1.6%	6.8%	3.7%	10.1%	9.2%	4.9%	13.5%			
500-999							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.2%	0.5%	0.5%	0.3%	0.7%	0.9%	0.5%	1.3%	1.1%	0.6%	1.6%	6.8%	3.7%	10.1%	9.2%	4.9%	13.5%	9.9%	5.3%	14.6%
1,000-3,299							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.3%	0.5%	0.3%	0.7%	0.9%	0.5%	1.3%	1.2%	0.6%	1.8%	7.6%	4.1%	11.2%	9.6%	5.1%	14.1%			
3,300-9,999							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.3%	0.5%	0.3%	0.7%	0.9%	0.5%	1.3%	1.2%	0.6%	1.8%	7.6%	4.1%	11.2%	9.6%	5.1%	14.1%			
10,000-49,999	0.5%	0.2%	0.7%	0.2%	0.1%	0.3%	0.5%	0.3%	0.8%	0.2%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.9%	2.4%	0.4%	0.2%	0.6%	9.7%	5.2%	14.2%	12.9%	6.9%	19.0%			
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.9%	6.9%	19.0%
100,000-999,999	0.5%	0.2%	0.7%	0.2%	0.1%	0.3%	0.5%	0.3%	0.8%	0.2%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.9%	2.4%	0.4%	0.2%	0.6%	9.7%	5.2%	14.2%	12.9%	6.9%	19.0%			
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.4%	1.0%	0.7%	0.4%	1.0%	0.6%	0.3%	0.9%	0.9%	0.5%	1.3%	6.6%	3.5%	9.8%	9.7%	5.2%	14.3%	9.7%	5.2%	14.3%

Note: Detail may not add to totals due to independent rounding

Source: Technology Selection for the Alternative 1 minus the Stage 1 Technology Selection from Appendix C, Exhibit C.1b.

Exhibit C.3d
Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Alternative 1

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A				B								C					D						E						F		
<100	4	2	5							8	4	12	6	3	9							0	0	0	0	0	0						
100-499	12	7	18	0	0	1	1	1	2	3	2	4	3	2	5	0	0	0	0	0	0	0	0	0	0	0	0						
500-999	4	2	6	0	0	0	0	0	1	1	1	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0						
1,000-3,299	4	2	5	0	0	0	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0						
3,300-9,999	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
10,000-49,999	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	25	13	37	1	0	1	3	1	4	13	7	19	11	6	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
			G					H								I					J				T=A+C+E+G+I+K+M+O+Q+S				L = SUM(A:S)				
<100							0	0	0	0	0	0	3	2	5	3	1	4	0	0	0	1	0	1	13	7	19	24	13	36			
100-499							0	0	0	0	0	0	1	1	2	1	1	2	3	1	4	3	2	5	21	11	31	29	15	42			
500-999							0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	2	7	4	11	10	5	14	74	39	109
1,000-3,299							0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	2	7	4	10	9	5	13			
3,300-9,999							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	2	1	4			
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1			
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total Plants	0	0	0	0	0	0	0	0	0	0	0	0	5	3	7	5	3	8	5	3	7	7	4	10	51	27	75	75	40	110	75	40	110

Note: Detail may not add to totals due to independent rounding

Source: Above table with technologies switching from an advanced technology with Cl2 to the same advanced technology with CLM being moved into the CLM only column

Exhibit C.4a
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Alternative 1

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	0.6%	0.0%	1.3%	0.0%	0.0%	0.4%	0.0%	0.0%	0.1%	2.0%	2.4%	
100-499	0.8%	0.0%	1.9%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%	2.9%	3.2%	
500-999	0.8%	0.0%	1.9%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%	2.9%	3.2%	2.9%
1,000-3,299	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	0.3%	0.0%	0.1%	2.7%	2.7%	
3,300-9,999	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	0.3%	0.0%	0.1%	2.7%	2.7%	
10,000-49,999	0.6%			0.0%	0.0%	0.1%	0.6%	0.1%	0.8%	1.9%	2.1%	
50,000-99,999	0.6%			0.0%	0.0%	0.1%	0.6%	0.1%	0.8%	1.9%	2.1%	2.1%
100,000-999,999	0.6%			0.0%	0.0%	0.0%	0.5%	0.1%	0.7%	1.8%	2.0%	
>=1,000,000	0.6%			0.0%	0.0%	0.0%	0.5%	0.1%	0.7%	1.8%	2.0%	
Total %	0.5%	0.0%	1.6%	0.0%	0.0%	0.2%	0.2%	0.0%	0.3%	2.6%	2.8%	2.8%

Note: Detail may not add to totals due to independent rounding

Exhibit C.4b
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Alternative 1

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	39	0	80	0	0	27	0	1	8	127	155	
100-499	123	0	296	0	0	33	0	3	28	447	483	
500-999	49	0	118	0	0	13	0	1	11	179	193	1,173
1,000-3,299	0	0	171	0	0	0	22	1	11	205	206	
3,300-9,999	0	0	114	0	0	0	15	1	7	136	137	
10,000-49,999	30			0	0	3	30	6	43	103	111	
50,000-99,999	4			0	0	0	4	1	6	14	15	145
100,000-999,999	5			0	0	0	5	1	7	17	18	
>=1,000,000	0			0	0	0	0	0	0	0	1	
Total Plants	250	0	780	0	0	77	76	15	121	1,227	1,318	1,318

Note: Detail may not add to totals due to independent rounding

Exhibit C.4c
Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Alternative 1

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	0.6%	0.0%	1.3%	0.0%	0.0%	0.4%	0.0%	0.0%	0.1%	2.0%	2.4%	2.8%
100-499	0.8%	0.0%	1.9%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%	2.9%	3.2%	
500-999	0.8%	0.0%	1.9%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%	2.9%	3.2%	
1,000-3,299	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	0.3%	0.0%	0.1%	2.7%	2.7%	
3,300-9,999	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	0.3%	0.0%	0.1%	2.7%	2.7%	
10,000-49,999	0.6%			0.0%	0.0%	0.1%	0.6%	0.1%	0.8%	1.9%	2.1%	2.1%
50,000-99,999	0.6%			0.0%	0.0%	0.1%	0.6%	0.1%	0.8%	1.9%	2.1%	
100,000-999,999	0.6%			0.0%	0.0%	0.0%	0.5%	0.1%	0.7%	1.8%	2.0%	
>=1,000,000	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Total %	0.7%	0.0%	1.6%	0.0%	0.0%	0.3%	0.0%	0.0%	0.2%	2.5%	2.8%	2.8%

Note: Detail may not add to totals due to independent rounding

Exhibit C.4d
Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Alternative 1

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	15	0	31	0	0	10	0	0	3	49	60	154
100-499	17	0	41	0	0	5	0	0	4	62	67	
500-999	5	0	11	0	0	1	0	0	1	17	19	
1,000-3,299	0	0	6	0	0	0	1	0	0	7	7	
3,300-9,999	0	0	0	0	0	0	0	0	0	1	1	
10,000-49,999	0			0	0	0	0	0	0	0	0	0
50,000-99,999	0			0	0	0	0	0	0	0	0	
100,000-999,999	0			0	0	0	0	0	0	0	0	
>=1,000,000	0			0	0	0	0	0	0	0	0	
Total Plants	37	0	90	0	0	16	1	1	9	136	154	154

Note: Detail may not add to totals due to independent rounding

Exhibit C.5a
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Alternative 1

System Size (Population Served)	No Advanced Treatment Technology CL2[1]			No Advanced Treatment Technology CLM[1]			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F		
<100	31.0%	25.9%	36.1%	31.3%	30.5%	32.2%							3.6%	1.9%	5.3%	2.7%	1.4%	3.9%
100-499	26.4%	22.1%	30.7%	39.3%	37.5%	41.2%	1.1%	1.0%	1.1%	1.3%	1.1%	1.4%	1.0%	0.5%	1.4%	1.0%	0.5%	1.5%
500-999	26.4%	22.1%	30.7%	39.3%	37.5%	41.2%	1.1%	1.0%	1.1%	1.3%	1.1%	1.4%	1.0%	0.5%	1.4%	1.0%	0.5%	1.5%
1,000-3,299	23.9%	19.4%	28.3%	45.4%	43.5%	47.3%	2.1%	2.0%	2.2%	3.1%	2.6%	3.5%	0.7%	0.4%	1.0%	0.9%	0.5%	1.4%
3,300-9,999	23.9%	19.4%	28.3%	45.4%	43.5%	47.3%	2.1%	2.0%	2.2%	3.1%	2.6%	3.5%	0.7%	0.4%	1.0%	0.9%	0.5%	1.4%
10,000-49,999	31.2%	31.2%	31.2%	41.0%	41.0%	41.0%	3.0%	3.0%	3.0%	4.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50,000-99,999	31.2%	31.2%	31.2%	41.0%	41.0%	41.0%	3.0%	3.0%	3.0%	4.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	31.2%	31.2%	31.2%	41.0%	41.0%	41.0%	3.0%	3.0%	3.0%	4.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
>=1,000,000	31.2%	31.2%	31.2%	41.0%	41.0%	41.0%	3.0%	3.0%	3.0%	4.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	27.6%	24.9%	30.3%	41.7%	40.7%	42.8%	2.1%	2.1%	2.2%	2.9%	2.7%	3.1%	0.6%	0.3%	0.9%	0.7%	0.4%	1.0%

System Size (Population Served)	Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	G			H			I			J			K			L		
<100							14.5%	14.5%	14.5%	7.1%	7.1%	7.1%						
100-499	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	8.9%	8.9%	8.9%	4.8%	4.8%	4.8%						
500-999	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	8.9%	8.9%	8.9%	4.8%	4.8%	4.8%						
1,000-3,299	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.2%	6.2%	6.2%	2.9%	2.9%	2.9%						
3,300-9,999	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.2%	6.2%	6.2%	2.9%	2.9%	2.9%						
10,000-49,999	5.5%	5.5%	5.5%	7.3%	7.3%	7.3%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	1.2%	1.2%	1.2%
50,000-99,999	5.5%	5.5%	5.5%	7.3%	7.3%	7.3%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	1.2%	1.2%	1.2%
100,000-999,999	5.5%	5.5%	5.5%	7.3%	7.3%	7.3%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	1.2%	1.2%	1.2%
>=1,000,000	5.5%	5.5%	5.5%	7.3%	7.3%	7.3%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	1.2%	1.2%	1.2%
Total %	4.6%	4.6%	4.6%	5.3%	5.3%	5.3%	5.1%	5.1%	5.1%	2.8%	2.8%	2.8%	0.4%	0.4%	0.4%	0.5%	0.5%	0.5%

System Size (Population Served)	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R		
<100							2.0%	2.0%	2.0%	1.3%	1.3%	1.3%	1.5%	0.8%	2.2%	1.1%	0.6%	1.7%
100-499							1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	0.8%	0.7%	1.0%	0.9%	0.7%	1.1%
500-999							1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	0.8%	0.7%	1.0%	0.9%	0.7%	1.1%
1,000-3,299							1.0%	1.0%	1.0%	1.2%	1.2%	1.2%	0.7%	0.6%	0.8%	1.1%	0.8%	1.3%
3,300-9,999							1.0%	1.0%	1.0%	1.2%	1.2%	1.2%	0.7%	0.6%	0.8%	1.1%	0.8%	1.3%
10,000-49,999	0.6%	0.6%	0.6%	0.8%	0.8%	0.8%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50,000-99,999	0.6%	0.6%	0.6%	0.8%	0.8%	0.8%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	0.6%	0.6%	0.6%	0.8%	0.8%	0.8%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
>=1,000,000	0.6%	0.6%	0.6%	0.8%	0.8%	0.8%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	0.2%	0.2%	0.2%	0.3%	0.3%	0.3%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.5%	0.4%	0.6%	0.6%	0.5%	0.8%

System Size (Population Served)	Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100	2.1%	2.1%	2.1%	1.7%	1.6%	1.8%	54.7%	47.2%	62.2%	45.3%	42.5%	48.0%
100-499	1.4%	0.9%	1.8%	1.5%	1.0%	2.0%	45.7%	40.3%	51.0%	54.3%	51.1%	57.5%
500-999	1.4%	0.9%	1.8%	1.5%	1.0%	2.0%	45.7%	40.3%	51.0%	54.3%	51.1%	57.5%
1,000-3,299	1.0%	0.6%	1.4%	1.4%	0.8%	2.0%	39.6%	34.2%	45.0%	60.4%	56.8%	63.9%
3,300-9,999	1.0%	0.6%	1.4%	1.4%	0.8%	2.0%	39.6%	34.2%	45.0%	60.4%	56.8%	63.9%
10,000-49,999	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	43.2%	43.2%	43.2%	56.8%	56.8%	56.8%
50,000-99,999	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	43.2%	43.2%	43.2%	56.8%	56.8%	56.8%
100,000-999,999	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	43.2%	43.2%	43.2%	56.8%	56.8%	56.8%
>=1,000,000	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	43.2%	43.2%	43.2%	56.8%	56.8%	56.8%
Total %	1.1%	0.8%	1.3%	1.3%	1.0%	1.6%	43.0%	39.6%	46.4%	57.0%	54.9%	59.0%

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Alternative 1. Surface water systems serving 10,000 or more people: Use ending technolo

Exhibit C.5b
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Alternative 1

System Size (Population Served)	No Advanced Treatment Technology CL2[1]			No Advanced Treatment Technology CLM[1]			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F		
<100	111	93	130	113	110	115							13	7	19	10	5	14
100-499	203	170	235	302	288	316	8	8	9	10	8	11	7	4	11	8	4	11
500-999	128	107	148	190	181	199	5	5	6	6	5	7	5	2	7	5	3	7
1,000-3,299	269	219	320	513	491	534	24	23	25	35	30	40	8	4	12	10	6	15
3,300-9,999	300	244	356	571	548	595	26	25	27	39	33	44	9	5	13	12	6	17
10,000-49,999	403	403	403	529	529	529	39	39	39	51	51	51	0	0	0	0	0	0
50,000-99,999	181	181	181	237	237	237	17	17	17	23	23	23	0	0	0	0	0	0
100,000-999,999	190	190	190	250	250	250	18	18	18	24	24	24	0	0	0	0	0	0
>=1,000,000	23	23	23	30	30	30	2	2	2	3	3	3	0	0	0	0	0	0
Total Plants	1,808	1,629	1,986	2,735	2,664	2,806	140	137	143	190	177	203	42	22	62	44	24	65

System Size (Population Served)	Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	G			H			I			J			K			L		
<100							52	52	52	26	26	26						
100-499	39	39	39	35	35	35	68	68	68	37	37	37						
500-999	24	24	24	22	22	22	43	43	43	23	23	23						
1,000-3,299	45	45	45	51	51	51	70	70	70	32	32	32						
3,300-9,999	50	50	50	56	56	56	78	78	78	36	36	36						
10,000-49,999	72	72	72	94	94	94	10	10	10	13	13	13	12	12	12	16	16	16
50,000-99,999	32	32	32	42	42	42	5	5	5	6	6	6	6	6	6	7	7	7
100,000-999,999	34	34	34	44	44	44	5	5	5	6	6	6	6	6	6	8	8	8
>=1,000,000	4	4	4	5	5	5	1	1	1	1	1	1	1	1	1	1	1	1
Total Plants	301	301	301	350	350	350	331	331	331	181	181	181	24	24	24	32	32	32

System Size (Population Served)	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R		
<100							7	7	7	5	5	5	5	3	8	4	2	6
100-499							8	8	8	7	7	7	6	5	7	7	5	9
500-999							5	5	5	5	5	5	4	3	5	4	3	5
1,000-3,299							12	12	12	13	13	13	8	7	9	12	9	14
3,300-9,999							13	13	13	15	15	15	9	8	11	13	10	16
10,000-49,999	8	8	8	11	11	11	4	4	4	5	5	5	0	0	0	0	0	0
50,000-99,999	4	4	4	5	5	5	2	2	2	2	2	2	0	0	0	0	0	0
100,000-999,999	4	4	4	5	5	5	2	2	2	3	3	3	0	0	0	0	0	0
>=1,000,000	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	16	16	16	21	21	21	53	53	53	55	55	55	33	26	40	41	31	51

System Size (Population Served)	Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100	8	8	8	6	6	7	197	170	224	163	153	172
100-499	10	7	14	11	7	15	350	309	391	416	392	441
500-999	7	5	9	7	5	9	221	195	246	262	247	278
1,000-3,299	12	7	16	16	9	22	448	387	509	682	642	722
3,300-9,999	13	8	18	18	11	25	499	431	567	759	715	804
10,000-49,999	10	10	10	13	13	13	558	558	558	733	733	733
50,000-99,999	5	5	5	6	6	6	250	250	250	329	329	329
100,000-999,999	5	5	5	6	6	6	264	264	264	347	347	347
>=1,000,000	1	1	1	1	1	1	32	32	32	42	42	42
Total Plants	70	55	85	84	64	105	2,818	2,595	3,041	3,733	3,599	3,868

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Alternative 1. Surface water systems serving 10,000 or more people: Use ending technolo

Exhibit C.5c
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Alternative 1

System Size (Population Served)	No Advanced Treatment Technology CL2[1] A Mean	5th	95th	No Advanced Treatment Technology CLM[1] B Mean	5th	95th	Chlorine Dioxide CL2 C Mean	5th	95th	Chlorine Dioxide CLM D Mean	5th	95th	UV CL2 E Mean	5th	95th	UV CLM F Mean	5th	95th
<100	31.0%	25.9%	36.1%	31.3%	30.5%	32.2%							3.6%	1.9%	5.3%	2.7%	1.4%	3.9%
100-499	26.4%	22.1%	30.7%	39.3%	37.5%	41.2%	1.1%	1.0%	1.1%	1.3%	1.1%	1.4%	1.0%	0.5%	1.4%	1.0%	0.5%	1.5%
500-999	26.4%	22.1%	30.7%	39.3%	37.5%	41.2%	1.1%	1.0%	1.1%	1.3%	1.1%	1.4%	1.0%	0.5%	1.4%	1.0%	0.5%	1.5%
1,000-3,299	23.9%	19.4%	28.3%	45.4%	43.5%	47.3%	2.1%	2.0%	2.2%	3.1%	2.6%	3.5%	0.7%	0.4%	1.0%	0.9%	0.5%	1.4%
3,300-9,999	23.9%	19.4%	28.3%	45.4%	43.5%	47.3%	2.1%	2.0%	2.2%	3.1%	2.6%	3.5%	0.7%	0.4%	1.0%	0.9%	0.5%	1.4%
10,000-49,999	31.2%	31.2%	31.2%	41.0%	41.0%	41.0%	3.0%	3.0%	3.0%	4.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	31.2%	31.2%	31.2%	41.0%	41.0%	41.0%	3.0%	3.0%	3.0%	4.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	27.4%	22.9%	31.9%	37.9%	36.4%	39.4%	0.9%	0.9%	1.0%	1.2%	1.0%	1.3%	1.7%	0.9%	2.5%	1.5%	0.8%	2.2%

System Size (Population Served)	Ozone CL2 G Mean	5th	95th	Ozone CLM H Mean	5th	95th	MF/UF CL2 I Mean	5th	95th	MF/UF CLM J Mean	5th	95th	GAC 10 CL2 K Mean	5th	95th	GAC 10 CLM L Mean	5th	95th
<100							14.5%	14.5%	14.5%	7.1%	7.1%	7.1%						
100-499	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	8.9%	8.9%	8.9%	4.8%	4.8%	4.8%						
500-999	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	8.9%	8.9%	8.9%	4.8%	4.8%	4.8%						
1,000-3,299	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.2%	6.2%	6.2%	2.9%	2.9%	2.9%						
3,300-9,999	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.2%	6.2%	6.2%	2.9%	2.9%	2.9%						
10,000-49,999	5.5%	5.5%	5.5%	7.3%	7.3%	7.3%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	1.2%	1.2%	1.2%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	5.5%	5.5%	5.5%	7.3%	7.3%	7.3%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	1.2%	1.2%	1.2%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	3.4%	3.4%	3.4%	3.2%	3.2%	3.2%	10.1%	10.1%	10.1%	5.2%	5.2%	5.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

System Size (Population Served)	GAC10 + AD CL2 M Mean	5th	95th	GAC10 + AD CLM N Mean	5th	95th	GAC20 CL2 O Mean	5th	95th	GAC20 CLM P Mean	5th	95th	GAC20 + AD CL2 Q Mean	5th	95th
<100							2.0%	2.0%	2.0%	1.3%	1.3%	1.3%	1.5%	0.8%	2.2%
100-499							1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	0.8%	0.7%	1.0%
500-999							1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	0.8%	0.7%	1.0%
1,000-3,299							1.0%	1.0%	1.0%	1.2%	1.2%	1.2%	0.7%	0.6%	0.8%
3,300-9,999							1.0%	1.0%	1.0%	1.2%	1.2%	1.2%	0.7%	0.6%	0.8%
10,000-49,999	0.6%	0.6%	0.6%	0.8%	0.8%	0.8%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	0.6%	0.6%	0.6%	0.8%	0.8%	0.8%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	1.3%	1.3%	1.1%	1.1%	1.1%	1.0%	0.7%	1.3%

System Size (Population Served)	GAC20 + AD CLM R Mean	5th	95th	Membranes CL2 S Mean	5th	95th	Membranes CLM T Mean	5th	95th	TOTAL CL2 U = A+C+E+G+I+K+M+O+Q+S Mean	5th	95th	TOTAL CLM V = B+D+F+H+J+L+N+P+R+T Mean	5th	95th
<100	1.1%	0.6%	1.7%	2.1%	2.1%	2.1%	1.7%	1.6%	1.8%	54.7%	47.2%	62.2%	45.3%	42.5%	48.0%
100-499	0.9%	0.7%	1.1%	1.4%	0.9%	1.8%	1.5%	1.0%	2.0%	45.7%	40.3%	51.0%	54.3%	51.1%	57.5%
500-999	0.9%	0.7%	1.1%	1.4%	0.9%	1.8%	1.5%	1.0%	2.0%	45.7%	40.3%	51.0%	54.3%	51.1%	57.5%
1,000-3,299	1.1%	0.8%	1.3%	1.0%	0.6%	1.4%	1.4%	0.8%	2.0%	39.6%	34.2%	45.0%	60.4%	56.8%	63.9%
3,300-9,999	1.1%	0.8%	1.3%	1.0%	0.6%	1.4%	1.4%	0.8%	2.0%	39.6%	34.2%	45.0%	60.4%	56.8%	63.9%
10,000-49,999	0.0%	0.0%	0.0%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	43.2%	43.2%	43.2%	56.8%	56.8%	56.8%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	0.0%	0.0%	0.0%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	43.2%	43.2%	43.2%	56.8%	56.8%	56.8%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	1.0%	0.7%	1.3%	1.5%	1.2%	1.8%	1.5%	1.1%	1.9%	47.4%	41.4%	53.4%	52.6%	49.5%	55.7%

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Alternative 1. Surface water systems serving 10,000 or more people: Use ending technolo

Exhibit C.5d
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Alternative 1

System Size (Population Served)	No Advanced Treatment Technology CL2[1] A Mean	5th	95th	No Advanced Treatment Technology CLM[1] B Mean	5th	95th	Chlorine Dioxide CL2 C Mean	5th	95th	Chlorine Dioxide CLM D Mean	5th	95th	UV CL2 E Mean	5th	95th	UV CLM F Mean	5th	95th
<100	70	59	82	71	69	73							8	4	12	6	3	9
100-499	82	69	96	123	117	128	3	3	4	4	3	4	3	2	4	3	2	5
500-999	28	23	33	42	40	44	1	1	1	1	1	2	1	1	2	1	1	2
1,000-3,299	22	18	26	42	40	44	2	2	2	3	2	3	1	0	1	1	0	1
3,300-9,999	6	5	7	11	11	12	1	1	1	1	1	1	0	0	0	0	0	0
10,000-49,999	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	210	176	245	291	279	303	7	7	7	9	8	10	13	7	19	11	6	17

System Size (Population Served)	Ozone CL2 G Mean	5th	95th	Ozone CLM H Mean	5th	95th	MF/UF CL2 I Mean	5th	95th	MF/UF CLM J Mean	5th	95th	GAC 10 CL2 K Mean	5th	95th	GAC 10 CLM L Mean	5th	95th
<100							33	33	33	16	16	16						
100-499	16	16	16	14	14	14	28	28	28	15	15	15						
500-999	5	5	5	5	5	5	9	9	9	5	5	5						
1,000-3,299	4	4	4	4	4	4	6	6	6	3	3	3						
3,300-9,999	1	1	1	1	1	1	2	2	2	1	1	1						
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	26	26	26	25	25	25	77	77	77	40	40	40	0	0	0	0	0	0

System Size (Population Served)	GAC10 + AD CL2 M Mean	5th	95th	GAC10 + AD CLM N Mean	5th	95th	GAC20 CL2 O Mean	5th	95th	GAC20 CLM P Mean	5th	95th	GAC20 + AD CL2 Q Mean	5th	95th
<100							4	4	4	3	3	3	3	2	5
100-499							3	3	3	3	3	3	3	2	3
500-999							1	1	1	1	1	1	1	1	1
1,000-3,299							1	1	1	1	1	1	1	1	1
3,300-9,999							0	0	0	0	0	0	0	0	0
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	0	0	0	0	0	0	10	10	10	8	8	8	8	5	10

System Size (Population Served)	GAC20 + AD CLM R Mean	5th	95th	Membranes CL2 S Mean	5th	95th	Membranes CLM T Mean	5th	95th	TOTAL CL2 U = A+C+E+G+I+K+M+O+Q+S Mean	5th	95th	TOTAL CLM V = B+D+F+H+J+L+N+P+R+T Mean	5th	95th
<100	3	1	4	5	5	5	4	4	4	124	107	141	102	96	108
100-499	3	2	4	4	3	6	5	3	6	143	126	159	169	160	179
500-999	1	1	1	1	1	2	2	1	2	48	43	54	58	54	61
1,000-3,299	1	1	1	1	1	1	1	1	2	36	32	41	56	52	59
3,300-9,999	0	0	0	0	0	0	0	0	0	10	9	11	15	14	16
10,000-49,999	0	0	0	0	0	0	0	0	0	2	2	2	3	3	3
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	8	5	10	12	10	14	12	9	15	364	318	409	403	380	427

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Alternative 1. Surface water systems serving 10,000 or more people: Use ending technolo

Exhibit C.6a
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Alternative 1

System Size (Population Served)	No Advanced Treatment Technology CL2[1]	No Advanced Treatment Technology CLM[1]	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	93.5%	3.0%	0.0%	1.3%	0.0%	0.0%	0.4%	0.9%	0.4%	0.6%	94.3%	5.7%
100-499	92.1%	3.6%	0.0%	1.9%	0.2%	0.5%	0.2%	0.6%	0.1%	0.7%	92.6%	7.4%
500-999	92.1%	3.6%	0.0%	1.9%	0.2%	0.5%	0.2%	0.6%	0.1%	0.7%	92.6%	7.4%
1,000-3,299	93.0%	2.5%	0.0%	2.3%	0.3%	0.9%	0.0%	0.4%	0.1%	0.6%	93.4%	6.6%
3,300-9,999	93.0%	2.5%	0.0%	2.3%	0.3%	0.9%	0.0%	0.4%	0.1%	0.6%	93.4%	6.6%
10,000-49,999	87.1%	7.8%			0.8%	0.8%	0.1%	0.6%	1.8%	1.1%	89.8%	10.2%
50,000-99,999	87.1%	7.8%			0.8%	0.8%	0.1%	0.6%	1.8%	1.1%	89.8%	10.2%
100,000-999,999	87.5%	7.6%			0.8%	0.7%	0.0%	0.6%	1.8%	1.0%	90.1%	9.9%
>=1,000,000	87.5%	7.6%			0.8%	0.7%	0.0%	0.6%	1.8%	1.0%	90.1%	9.9%
Total %	91.8%	3.9%	0.0%	1.6%	0.3%	0.6%	0.2%	0.6%	0.4%	0.7%	92.6%	7.4%

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Alternative 1.

Exhibit C.6b
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Alternative 1

System Size (Population Served)	No Advanced Treatment Technology CL2[1]	No Advanced Treatment Technology CLM[1]	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	6,005	194	0	80	0	0	27	56	23	37	6,055	368
100-499	14,038	550	0	296	25	74	33	97	23	107	14,118	1,124
500-999	5,612	220	0	118	10	29	13	39	9	43	5,644	450
1,000-3,299	7,057	192	0	171	22	66	0	27	5	47	7,084	503
3,300-9,999	4,679	127	0	114	15	44	0	18	3	31	4,697	333
10,000-49,999	4,690	419			46	42	3	32	95	57	4,833	549
50,000-99,999	624	56			6	6	0	4	13	8	643	73
100,000-999,999	803	70			8	6	0	5	16	9	828	90
>=1,000,000	24	2			0	0	0	0	0	0	25	3
Total Plants	43,531	1,830	0	780	131	267	77	278	188	339	43,926	3,493

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Alternative 1.

Exhibit C.6c
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Alternative 1

System Size (Population Served)	No Advanced Treatment Technology CL21	No Advanced Treatment Technology CLM1	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	93.5%	3.0%	0.0%	1.3%	0.0%	0.0%	0.4%	0.9%	0.4%	0.6%	94.3%	5.7%
100-499	92.1%	3.6%	0.0%	1.9%	0.2%	0.5%	0.2%	0.6%	0.1%	0.7%	92.6%	7.4%
500-999	92.1%	3.6%	0.0%	1.9%	0.2%	0.5%	0.2%	0.6%	0.1%	0.7%	92.6%	7.4%
1,000-3,299	93.0%	2.5%	0.0%	2.3%	0.3%	0.9%	0.0%	0.4%	0.1%	0.6%	93.4%	6.6%
3,300-9,999	93.0%	2.5%	0.0%	2.3%	0.3%	0.9%	0.0%	0.4%	0.1%	0.6%	93.4%	6.6%
10,000-49,999	87.1%	7.8%			0.8%	0.8%	0.1%	0.6%	1.8%	1.1%	89.8%	10.2%
50,000-99,999	87.1%	7.8%			0.8%	0.8%	0.1%	0.6%	1.8%	1.1%	89.8%	10.2%
100,000-999,999	87.5%	7.6%			0.8%	0.7%	0.0%	0.6%	1.8%	1.0%	90.1%	9.9%
>=1,000,000	0.0%	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	92.8%	3.3%	0.0%	1.6%	0.1%	0.3%	0.3%	0.7%	0.2%	0.6%	93.4%	6.6%

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Alternative 1.

Exhibit C.6d
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Alternative 1

System Size (Population Served)	No Advanced Treatment Technology CL21	No Advanced Treatment Technology CLM1	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	2,331	75	0	31	0	0	10	22	9	14	2,350	143
100-499	1,961	77	0	41	3	10	5	14	3	15	1,972	157
500-999	543	21	0	11	1	3	1	4	1	4	546	43
1,000-3,299	230	6	0	6	1	2	0	1	0	2	231	16
3,300-9,999	20	1	0	0	0	0	0	0	0	0	20	1
10,000-49,999	3	0			0	0	0	0	0	0	3	0
50,000-99,999	0	0			0	0	0	0	0	0	0	0
100,000-999,999	0	0			0	0	0	0	0	0	0	0
>=1,000,000	0	0			0	0	0	0	0	0	0	0
Total Plants	5,087	181	0	90	5	16	16	40	13	35	5,122	362

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Alternative 1.

Exhibit C.7a
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Alternative 2

System Size	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
(Population Served)				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K		
<100	-2.3%	-2.8%	-1.8%							1.4%	1.2%	1.6%	1.5%	1.2%	1.7%							0.0%	0.0%	0.0%	3.8%	3.2%	4.4%						
100-499	-1.0%	-1.7%	-0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.4%	0.5%	4.6%	3.9%	5.4%						
500-999	-1.0%	-1.7%	-0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.4%	0.5%	4.6%	3.9%	5.4%						
1,000-3,299	0.2%	-0.4%	0.8%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	4.1%	3.5%	4.7%						
3,300-9,999	0.2%	-0.4%	0.8%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	4.1%	3.5%	4.7%						
10,000-49,999	8.0%	6.8%	9.3%	3.7%	3.1%	4.3%	2.8%	2.4%	3.2%	2.5%	2.1%	2.8%	1.0%	0.8%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%	5.7%	7.8%	3.2%	2.7%	3.7%
50,000-99,999	8.0%	6.8%	9.3%	3.7%	3.1%	4.3%	2.8%	2.4%	3.2%	2.5%	2.1%	2.8%	1.0%	0.8%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%	5.7%	7.8%	3.2%	2.7%	3.7%
100,000-999,999	8.0%	6.8%	9.3%	3.7%	3.1%	4.3%	2.8%	2.4%	3.2%	2.5%	2.1%	2.8%	1.0%	0.8%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%	5.7%	7.8%	3.2%	2.7%	3.7%
>=1,000,000	8.0%	6.8%	9.3%	3.7%	3.1%	4.3%	2.8%	2.4%	3.2%	2.5%	2.1%	2.8%	1.0%	0.8%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%	5.7%	7.8%	3.2%	2.7%	3.7%
Total %	2.9%	2.0%	3.8%	1.4%	1.2%	1.7%	1.1%	1.0%	1.3%	1.0%	0.9%	1.2%	0.5%	0.4%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	2.6%	2.2%	3.0%	2.6%	2.2%	3.0%	1.3%	1.1%	1.4%

System Size	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
(Population Served)	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	L			M			N			O			P			Q			R			S			T=A+C+E+G+I+K+M+O+Q+S			L = SUM(A:S)					
<100							4.3%	3.7%	5.0%	5.3%	4.5%	6.1%	3.7%	3.2%	4.3%	3.8%	3.2%	4.4%	0.0%	0.0%	0.0%	1.0%	0.8%	1.1%	13.0%	10.2%	15.8%	22.5%	18.2%	26.8%			
100-499							3.6%	3.1%	4.2%	6.3%	5.4%	7.3%	2.2%	1.9%	2.6%	3.8%	3.2%	4.4%	1.0%	0.8%	1.1%	1.8%	1.5%	2.1%	15.6%	12.4%	18.8%	22.8%	18.5%	27.1%			
500-999							3.6%	3.1%	4.2%	6.3%	5.4%	7.3%	2.2%	1.9%	2.6%	3.8%	3.2%	4.4%	1.0%	0.8%	1.1%	1.8%	1.5%	2.1%	15.6%	12.4%	18.8%	22.8%	18.5%	27.1%	22.9%	18.7%	27.2%
1,000-3,299							3.1%	2.7%	3.6%	7.7%	6.5%	8.8%	1.9%	1.6%	2.2%	4.6%	3.9%	5.3%	0.2%	0.2%	0.3%	0.6%	0.5%	0.7%	17.3%	14.1%	20.5%	23.2%	19.1%	27.3%			
3,300-9,999							3.1%	2.7%	3.6%	7.7%	6.5%	8.8%	1.9%	1.6%	2.2%	4.6%	3.9%	5.3%	0.2%	0.2%	0.3%	0.6%	0.5%	0.7%	17.3%	14.1%	20.5%	23.2%	19.1%	27.3%			
10,000-49,999	4.1%	3.5%	4.7%	1.9%	1.7%	2.2%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	0.3%	0.3%	0.4%	0.1%	0.1%	0.1%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	17.7%	15.1%	20.5%	36.2%	30.7%	41.7%			
50,000-99,999	4.1%	3.5%	4.7%	1.9%	1.7%	2.2%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	0.3%	0.3%	0.4%	0.1%	0.1%	0.1%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	17.7%	15.1%	20.5%	36.2%	30.7%	41.7%	36.2%	30.7%	41.7%
100,000-999,999	4.1%	3.5%	4.7%	1.9%	1.7%	2.2%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	0.3%	0.3%	0.4%	0.1%	0.1%	0.1%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	17.7%	15.1%	20.5%	36.2%	30.7%	41.7%			
>=1,000,000	4.1%	3.5%	4.7%	1.9%	1.7%	2.2%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	0.3%	0.3%	0.4%	0.1%	0.1%	0.1%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	17.7%	15.1%	20.5%	36.2%	30.7%	41.7%			
Total %	1.6%	1.4%	1.8%	0.8%	0.6%	0.9%	2.3%	1.9%	2.6%	4.4%	3.7%	5.1%	1.4%	1.2%	1.7%	2.6%	2.2%	3.0%	0.5%	0.4%	0.6%	0.8%	0.6%	0.9%	16.9%	13.9%	19.9%	28.1%	23.4%	32.9%	28.1%	23.4%	32.9%

Note: Detail may not add to totals due to independent rounding
Source: Technology Selection for the Alternative 2 minus the Stage 1 Technology Selection from Appendix C, Exhibit C.1a.

Exhibit C.7b
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Alternative 2

System Size	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
(Population Served)				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B						C						D						E						F					
<100	-8	-10	-7							5	4	6	5	4	6							0	0	0	14	12	16						
100-499	-8	-13	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	4	36	30	41						
500-999	-5	-8	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	22	19	26						
1,000-3,299	2	-5	9	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	7	6	8	46	39	53						
3,300-9,999	3	-5	10	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	7	6	9	52	44	60						
10,000-49,999	104	88	120	48	41	55	36	31	42	32	27	37	13	11	15	0	0	0	0	0	0	0	0	0	0	0	0	87	74	100	41	35	48
50,000-99,999	47	40	54	21	18	25	16	14	19	14	12	16	6	5	7	0	0	0	0	0	0	0	0	0	0	0	0	39	33	45	19	16	21
100,000-999,999	49	42	57	23	19	26	17	14	20	15	13	17	6	5	7	0	0	0	0	0	0	0	0	0	0	0	0	41	35	47	20	17	23
>=1,000,000	6	5	7	3	2	3	2	2	2	2	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	5	4	6	2	2	3
Total Plants	189	133	246	95	80	109	74	63	85	68	58	78	31	26	36	0	0	0	0	0	0	19	16	22	170	144	196	172	146	199	82	69	94

System Size	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
(Population Served)	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	G						H						I						J						T=A+C+E+G+I+K+M+O+Q+S			L = SUM(A:S)					
<100							16	13	18	19	16	22	13	11	15	14	12	16	0	0	0	3	3	4	47	36	57	81	66	96			
100-499							28	23	32	49	41	56	17	14	20	29	25	33	7	6	9	14	12	16	119	95	144	175	142	208			
500-999							17	15	20	31	26	35	11	9	12	18	15	21	5	4	5	9	7	10	75	60	91	110	89	131	919	752	1,087
1,000-3,299							36	30	41	87	73	100	22	18	25	52	44	59	2	2	3	7	6	8	196	159	232	262	216	309			
3,300-9,999							40	34	46	97	82	111	24	21	28	57	49	66	3	2	3	8	7	9	218	177	258	292	240	344			
10,000-49,999	53	45	61	25	21	29	7	6	8	4	3	5	4	3	5	2	1	2	7	6	8	4	3	5	229	194	264	467	396	539			
50,000-99,999	24	20	27	11	10	13	3	3	4	2	2	2	2	2	2	1	1	1	3	3	4	2	2	2	103	87	119	210	178	242	924	784	1,065
100,000-999,999	25	21	29	12	10	14	3	3	4	2	2	2	2	2	2	1	1	1	3	3	4	2	2	2	108	92	125	221	187	255			
>=1,000,000	3	3	3	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	11	15	27	23	31			
Total Plants	105	89	121	50	42	57	150	127	173	290	246	334	95	81	109	173	147	200	31	27	36	50	42	57	1,108	912	1,305	1,844	1,536	2,153	1,844	1,536	2,153

Note: Detail may not add to totals due to independent rounding
Source: Above table with technologies switching from an advanced technology with Cl2 to the same advanced technology with CLM being moved into the CLM only column

Exhibit C.7c

Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)

Alternative 2

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC10 CL2			GAC10 CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A			B			C			D			E			F			G			H			I			J			K	
<100	-2.3%	-2.8%	-1.8%							1.4%	1.2%	1.6%	1.5%	1.2%	1.7%							0.0%	0.0%	0.0%	3.8%	3.2%	4.4%						
100-499	-1.0%	-1.7%	-0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.4%	0.5%	4.6%	3.9%	5.4%						
500-999	-1.0%	-1.7%	-0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.4%	0.5%	4.6%	3.9%	5.4%						
1,000-3,299	0.2%	-0.4%	0.8%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	4.1%	3.5%	4.7%						
3,300-9,999	0.2%	-0.4%	0.8%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	4.1%	3.5%	4.7%						
10,000-49,999	8.0%	6.8%	9.3%	3.7%	3.1%	4.3%	2.8%	2.4%	3.2%	2.5%	2.1%	2.8%	1.0%	0.8%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%	5.7%	7.8%	3.2%	2.7%	3.7%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	8.0%	6.8%	9.3%	3.7%	3.1%	4.3%	2.8%	2.4%	3.2%	2.5%	2.1%	2.8%	1.0%	0.8%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%	5.7%	7.8%	3.2%	2.7%	3.7%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	-1.2%	-1.8%	-0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.4%	0.5%	0.4%	0.4%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.4%	4.3%	3.6%	4.9%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%

System Size (Population Served)	GAC10 + Advanced Disinfectants CL2			GAC10 + Advanced Disinfectants CLM			GAC20 CL2			GAC20 CLM			GAC20 + Advanced Disinfectants CL2			GAC20 + Advanced Disinfectants CLM			Membranes CL2			Membranes CLM			Total Converting to CLM			Total Adding Treatment Technology					
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		L			M			N			O			P			Q			R			S			T=A+C+E+G+I+K+M+O+Q+S			L = SUM(A:S)					
<100							4.3%	3.7%	5.0%	5.3%	4.5%	6.1%	3.7%	3.2%	4.3%	3.8%	3.2%	4.4%	0.0%	0.0%	0.0%	1.0%	0.8%	1.1%	13.0%	10.2%	15.8%	22.5%	18.2%	26.8%			
100-499							3.6%	3.1%	4.2%	6.3%	5.4%	7.3%	2.2%	1.9%	2.6%	3.8%	3.2%	4.4%	1.0%	0.8%	1.1%	1.8%	1.5%	2.1%	15.6%	12.4%	18.8%	22.8%	18.5%	27.1%			
500-999							3.6%	3.1%	4.2%	6.3%	5.4%	7.3%	2.2%	1.9%	2.6%	3.8%	3.2%	4.4%	1.0%	0.8%	1.1%	1.8%	1.5%	2.1%	15.6%	12.4%	18.8%	22.8%	18.5%	27.1%	22.7%	18.4%	27.0%
1,000-3,299							3.1%	2.7%	3.6%	7.7%	6.5%	8.8%	1.9%	1.6%	2.2%	4.6%	3.9%	5.3%	0.2%	0.2%	0.3%	0.6%	0.5%	0.7%	17.3%	14.1%	20.5%	23.2%	19.1%	27.3%			
3,300-9,999							3.1%	2.7%	3.6%	7.7%	6.5%	8.8%	1.9%	1.6%	2.2%	4.6%	3.9%	5.3%	0.2%	0.2%	0.3%	0.6%	0.5%	0.7%	17.3%	14.1%	20.5%	23.2%	19.1%	27.3%			
10,000-49,999	4.1%	3.5%	4.7%	1.9%	1.7%	2.2%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	0.3%	0.3%	0.4%	0.1%	0.1%	0.1%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	17.7%	15.1%	20.5%	36.2%	30.7%	41.7%			
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	36.2%	30.7%	41.7%
100,000-999,999	4.1%	3.5%	4.7%	1.9%	1.7%	2.2%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	0.3%	0.3%	0.4%	0.1%	0.1%	0.1%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	17.7%	15.1%	20.5%	36.2%	30.7%	41.7%			
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.7%	3.2%	4.3%	6.2%	5.2%	7.1%	2.6%	2.2%	3.0%	3.9%	3.3%	4.5%	0.6%	0.5%	0.7%	1.4%	1.2%	1.6%	15.1%	12.0%	18.2%	22.9%	18.6%	27.2%	22.9%	18.6%	27.2%

Note: Detail may not add to totals due to independent rounding

Source: Technology Selection for the Alternative 2 minus the Stage 1 Technology Selection from Appendix C, Exhibit C.1b.

Exhibit C.7d

Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Surface Water Plants (Number of Plants by Residual Disinfection Type)

Alternative 2

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC10 CL2			GAC10 CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A					B						C						D						E						F		
<100	-5	-6	-4							3	3	4	3	3	4							0	0	0	9	7	10						
100-499	-3	-5	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	14	12	17						
500-999	-1	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	4	6						
1,000-3,299	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4	3	4						
3,300-9,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1						
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	-9	-14	-4	0	0	0	0	0	0	3	3	4	3	3	4	0	0	0	0	0	0	2	2	3	33	28	38	0	0	0	0	0	0

System Size (Population Served)	GAC10 + Advanced Disinfectants CL2			GAC10 + Advanced Disinfectants CLM			GAC20 CL2			GAC20 CLM			GAC20 + Advanced Disinfectants CL2			GAC20 + Advanced Disinfectants CLM			Membranes CL2			Membranes CLM			Total Converting to CLM			Total Adding Treatment Technology					
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
				G					H						I						J				T=A+C+E+G+I+K+M+O+Q+S			L = SUM(A:S)					
<100							10	8	11	12	10	14	8	7	10	9	7	10	0	0	0	2	2	3	29	23	36	51	41	61			
100-499							11	10	13	20	17	23	7	6	8	12	10	14	3	3	3	6	5	7	49	39	59	71	58	85			
500-999							4	3	4	7	6	8	2	2	3	4	3	5	1	1	1	2	2	2	17	13	20	24	20	29	173	141	206
1,000-3,299							3	2	3	7	6	8	2	2	2	4	4	5	0	0	0	1	1	1	16	13	19	21	18	25			
3,300-9,999							1	1	1	2	2	2	0	0	1	1	1	1	0	0	0	0	0	0	4	4	5	6	5	7			
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2			
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	3
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total Plants	0	0	0	0	0	0	29	24	33	47	40	55	20	17	23	30	25	34	4	4	5	11	9	12	116	92	140	175	143	208	175	143	208

Note: Detail may not add to totals due to independent rounding

Source: Above table with technologies switching from an advanced technology with Cl2 to the same advanced technology with CLM being moved into the CLM only column

Exhibit C.8a
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Alternative 2

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	3.8%	0.0%	0.9%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	4.7%	5.0%	
100-499	3.9%	0.0%	1.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	5.2%	5.3%	
500-999	3.9%	0.0%	1.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	5.2%	5.3%	5.2%
1,000-3,299	3.5%	0.0%	1.4%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	5.0%	5.0%	
3,300-9,999	3.5%	0.0%	1.4%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	5.0%	5.0%	
10,000-49,999	5.9%			0.1%	0.0%	0.0%	0.4%	0.0%	0.5%	6.8%	7.0%	
50,000-99,999	5.9%			0.1%	0.0%	0.0%	0.4%	0.0%	0.5%	6.8%	7.0%	6.9%
100,000-999,999	5.6%			0.1%	0.0%	0.0%	0.4%	0.0%	0.5%	6.5%	6.6%	
>=1,000,000	5.6%			0.1%	0.0%	0.0%	0.4%	0.0%	0.5%	6.5%	6.6%	
Total %	4.0%	0.0%	1.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	5.3%	5.4%	5.4%

Note: Detail may not add to totals due to independent rounding

Exhibit C.8b
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Alternative 2

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	245	0	59	0	0	20	0	0	0	304	324	
100-499	589	0	200	0	0	22	0	0	0	790	812	
500-999	236	0	80	0	0	9	0	0	0	316	325	2,090
1,000-3,299	263	0	108	0	0	0	8	0	0	379	379	
3,300-9,999	174	0	71	0	0	0	6	0	0	251	251	
10,000-49,999	317			7	0	0	22	0	29	368	375	
50,000-99,999	42			1	0	0	3	0	4	49	50	488
100,000-999,999	51			1	0	0	4	0	5	60	61	
>=1,000,000	2			0	0	0	0	0	0	2	2	
Total Plants	1,919	0	519	9	0	51	43	0	37	2,518	2,578	2,578

Note: Detail may not add to totals due to independent rounding

Exhibit C.8c
Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Alternative 2

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	3.8%	0.0%	0.9%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	4.7%	5.0%	
100-499	3.9%	0.0%	1.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	5.2%	5.3%	
500-999	3.9%	0.0%	1.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	5.2%	5.3%	5.2%
1,000-3,299	3.5%	0.0%	1.4%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	5.0%	5.0%	
3,300-9,999	3.5%	0.0%	1.4%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	5.0%	5.0%	
10,000-49,999	5.9%			0.1%	0.0%	0.0%	0.4%	0.0%	0.5%	6.8%	7.0%	
50,000-99,999	5.9%			0.1%	0.0%	0.0%	0.4%	0.0%	0.5%	6.8%	7.0%	6.9%
100,000-999,999	5.6%			0.1%	0.0%	0.0%	0.4%	0.0%	0.5%	6.5%	6.6%	
>=1,000,000	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Total %	3.8%	0.0%	1.1%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	5.0%	5.2%	5.2%

Note: Detail may not add to totals due to independent rounding

Exhibit C.8d
Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Alternative 2

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	95	0	23	0	0	8	0	0	0	118	126	
100-499	82	0	28	0	0	3	0	0	0	110	113	
500-999	23	0	8	0	0	1	0	0	0	31	31	284
1,000-3,299	9	0	4	0	0	0	0	0	0	12	12	
3,300-9,999	1	0	0	0	0	0	0	0	0	1	1	
10,000-49,999	0			0	0	0	0	0	0	0	0	
50,000-99,999	0			0	0	0	0	0	0	0	0	0
100,000-999,999	0			0	0	0	0	0	0	0	0	
>=1,000,000	0			0	0	0	0	0	0	0	0	
Total Plants	210	0	63	0	0	12	0	0	0	272	284	284

Note: Detail may not add to totals due to independent rounding

Exhibit C.9a
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Alternative 2

System Size	No Advanced Treatment Technology CL2[1]			No Advanced Treatment Technology CLM[1]			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K			L		
<100	19.3%	15.0%	23.6%	27.4%	26.9%	27.9%							1.4%	1.2%	1.6%	1.5%	1.2%	1.7%							14.5%	14.5%	14.5%	10.9%	10.4%	11.5%						
100-499	12.8%	8.5%	17.1%	34.4%	33.7%	35.1%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	9.3%	9.3%	9.4%	9.4%	8.7%	10.2%						
500-999	12.8%	8.5%	17.1%	34.4%	33.7%	35.1%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	9.3%	9.3%	9.4%	9.4%	8.7%	10.2%						
1,000-3,299	10.2%	6.1%	14.4%	41.6%	40.9%	42.2%	1.9%	1.9%	1.9%	2.2%	2.2%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.8%	6.7%	6.8%	7.0%	6.3%	7.6%						
3,300-9,999	10.2%	6.1%	14.4%	41.6%	40.9%	42.2%	1.9%	1.9%	1.9%	2.2%	2.2%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.8%	6.7%	6.8%	7.0%	6.3%	7.6%						
10,000-49,999	16.7%	16.7%	16.7%	34.6%	34.6%	34.6%	3.9%	3.9%	3.9%	8.1%	8.1%	8.1%	0.8%	0.8%	0.8%	1.7%	1.7%	1.7%	4.2%	4.2%	4.2%	8.6%	8.6%	8.6%	0.6%	0.6%	0.6%	1.2%	1.2%	1.2%	3.3%	3.3%	3.3%	6.9%	6.9%	6.9%
50,000-99,999	16.7%	16.7%	16.7%	34.6%	34.6%	34.6%	3.9%	3.9%	3.9%	8.1%	8.1%	8.1%	0.8%	0.8%	0.8%	1.7%	1.7%	1.7%	4.2%	4.2%	4.2%	8.6%	8.6%	8.6%	0.6%	0.6%	0.6%	1.2%	1.2%	1.2%	3.3%	3.3%	3.3%	6.9%	6.9%	6.9%
100,000-999,999	16.7%	16.7%	16.7%	34.6%	34.6%	34.6%	3.9%	3.9%	3.9%	8.1%	8.1%	8.1%	0.8%	0.8%	0.8%	1.7%	1.7%	1.7%	4.2%	4.2%	4.2%	8.6%	8.6%	8.6%	0.6%	0.6%	0.6%	1.2%	1.2%	1.2%	3.3%	3.3%	3.3%	6.9%	6.9%	6.9%
>=1,000,000	16.7%	16.7%	16.7%	34.6%	34.6%	34.6%	3.9%	3.9%	3.9%	8.1%	8.1%	8.1%	0.8%	0.8%	0.8%	1.7%	1.7%	1.7%	4.2%	4.2%	4.2%	8.6%	8.6%	8.6%	0.6%	0.6%	0.6%	1.2%	1.2%	1.2%	3.3%	3.3%	3.3%	6.9%	6.9%	6.9%
Total %	13.8%	11.2%	16.3%	36.7%	36.3%	37.1%	2.4%	2.4%	2.4%	4.2%	4.1%	4.2%	0.4%	0.4%	0.4%	0.8%	0.7%	0.8%	4.1%	4.1%	4.1%	5.9%	5.9%	5.9%	5.3%	5.2%	5.3%	5.4%	5.0%	5.8%	1.3%	1.3%	1.3%	2.7%	2.7%	2.7%

System Size	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R			S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100							6.3%	5.6%	7.0%	6.6%	5.8%	7.4%	3.7%	3.2%	4.3%	3.8%	3.2%	4.4%	2.2%	2.2%	2.2%	2.4%	2.2%	2.5%	47.5%	41.7%	53.2%	52.5%	49.7%	55.4%
100-499							4.7%	4.1%	5.2%	7.3%	6.3%	8.3%	2.7%	2.4%	3.0%	4.2%	3.6%	4.8%	1.4%	1.3%	1.6%	2.2%	2.0%	2.5%	36.9%	31.5%	42.4%	63.1%	59.8%	66.3%
500-999							4.7%	4.1%	5.2%	7.3%	6.3%	8.3%	2.7%	2.4%	3.0%	4.2%	3.6%	4.8%	1.4%	1.3%	1.6%	2.2%	2.0%	2.5%	36.9%	31.5%	42.4%	63.1%	59.8%	66.3%
1,000-3,299							4.2%	3.7%	4.7%	8.8%	7.7%	10.0%	2.4%	2.2%	2.7%	5.1%	4.5%	5.8%	0.4%	0.4%	0.4%	0.8%	0.7%	0.9%	29.9%	24.9%	34.9%	70.1%	66.8%	73.3%
3,300-9,999							4.2%	3.7%	4.7%	8.8%	7.7%	10.0%	2.4%	2.2%	2.7%	5.1%	4.5%	5.8%	0.4%	0.4%	0.4%	0.8%	0.7%	0.9%	29.9%	24.9%	34.9%	70.1%	66.8%	73.3%
10,000-49,999	2.0%	2.0%	2.0%	4.2%	4.2%	4.2%	0.4%	0.4%	0.4%	0.7%	0.7%	0.7%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	32.6%	32.6%	32.6%	67.4%	67.4%	67.4%
50,000-99,999	2.0%	2.0%	2.0%	4.2%	4.2%	4.2%	0.4%	0.4%	0.4%	0.7%	0.7%	0.7%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	32.6%	32.6%	32.6%	67.4%	67.4%	67.4%
100,000-999,999	2.0%	2.0%	2.0%	4.2%	4.2%	4.2%	0.4%	0.4%	0.4%	0.7%	0.7%	0.7%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	32.6%	32.6%	32.6%	67.4%	67.4%	67.4%
>=1,000,000	2.0%	2.0%	2.0%	4.2%	4.2%	4.2%	0.4%	0.4%	0.4%	0.7%	0.7%	0.7%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	32.6%	32.6%	32.6%	67.4%	67.4%	67.4%
Total %	0.8%	0.8%	0.8%	1.6%	1.6%	1.6%	2.9%	2.6%	3.2%	5.3%	4.6%	5.9%	1.7%	1.5%	1.9%	3.0%	2.6%	3.4%	0.7%	0.7%	0.8%	1.2%	1.2%	1.3%	33.3%	30.1%	36.4%	66.7%	64.8%	68.7%

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Alternative 2. Surface water systems serving 10,000 or more people: Use ending technolo

Exhibit C.9b
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Alternative 2

System Size	No Advanced Treatment Technology CL2[1]			No Advanced Treatment Technology CLM[1]			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K			L		
<100	69	54	85	98	97	100							5	4	6	5	4	6							52	52	52	39	37	41						
100-499	98	65	131	264	258	269	7	7	7	7	7	7	0	0	0	0	0	0	39	39	39	35	35	35	72	71	72	72	67	78						
500-999	62	41	83	166	163	169	5	5	5	4	4	4	0	0	0	0	0	0	24	24	24	22	22	22	45	45	45	46	42	49						
1,000-3,299	116	69	162	469	462	476	22	22	22	25	25	25	0	0	0	0	0	0	45	45	45	51	51	51	76	75	77	79	72	86						
3,300-9,999	129	77	181	523	515	531	24	24	24	28	28	28	0	0	0	0	0	0	50	50	50	56	56	56	85	84	86	88	80	96						
10,000-49,999	216	216	216	446	446	446	51	51	51	105	105	105	11	11	11	22	22	22	54	54	54	112	112	112	8	8	8	16	16	16	43	43	43	89	89	89
50,000-99,999	97	97	97	200	200	200	23	23	23	47	47	47	5	5	5	10	10	10	24	24	24	50	50	50	3	3	3	7	7	7	19	19	19	40	40	40
100,000-999,999	102	102	102	211	211	211	24	24	24	50	50	50	5	5	5	11	11	11	26	26	26	53	53	53	4	4	4	8	8	8	20	20	20	42	42	42
>=1,000,000	12	12	12	25	25	25	3	3	3	6	6	6	1	1	1	1	1	1	3	3	3	6	6	6	0	0	0	1	1	1	2	2	2	5	5	5
Total Plants	901	733	1,069	2,404	2,379	2,429	158	158	158	272	272	273	26	26	27	49	49	50	266	266	266	385	385	385	345	342	348	355	330	381	85	85	85	177	177	177

System Size	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R			S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100							23	20	25	24	21	26	13	11	15	14	12	16	8	8	8	8	8	9	170	150	191	189	179	199
100-499							36	32	40	56	49	63	21	18	23	32	28	37	11	10	12	17	15	19	283	242	325	483	459	508
500-999							22	20	25	35	31	40	13	11	15	20	18	23	7	6	8	11	9	12	178	152	205	304	289	320
1,000-3,299							47	42	53	100	87	113	28	24	31	58	50	66	4	4	5	9	8	11	338	281	395	791	755	828
3,300-9,999							53	47	59	111	96	126	31	27	34	65	56	74	5	5	5	11	9	12	377	314	440	882	841	922
10,000-49,999	26	26	26	54	54	54	5	5	5	10	10	10	2	2	2	3	3	3	6	6	6	13	13	13	421	421	421	871	871	871
50,000-99,999	12	12	12	24	24	24	2	2	2	4	4	4	1	1	1	1	1	1	3	3	3	6	6	6	189	189	189	391	391	391
100,000-999,999	12	12	12	26	26	26	2	2	2	5	5	5	1	1	1	2	2	2	3	3	3	6	6	6	199	199	199	411	411	411
>=1,000,000	1	1	1	3	3	3	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	24	24	24	50	50	50
Total Plants	52	52	52	107	107	107	190	169	211	345	302	388	109	95	122	196	170	222	47	44	50	82	75	88	2,180	1,972	2,388	4,372	4,244	4,499

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Alternative 2. Surface water systems serving 10,000 or more people: Use ending technolo

Exhibit C.9c
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Alternative 2

System Size (Population Served)	No Advanced Treatment Technology CL21			No Advanced Treatment Technology CLM1			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K			L		
<100	19.3%	15.0%	23.6%	27.4%	26.9%	27.9%							1.4%	1.2%	1.6%	1.5%	1.2%	1.7%							14.5%	14.5%	14.5%	10.9%	10.4%	11.5%						
100-499	12.8%	8.5%	17.1%	34.4%	33.7%	35.1%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	9.3%	9.3%	9.4%	9.4%	8.7%	10.2%						
500-999	12.8%	8.5%	17.1%	34.4%	33.7%	35.1%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	9.3%	9.3%	9.4%	9.4%	8.7%	10.2%						
1,000-3,299	10.2%	6.1%	14.4%	41.6%	40.9%	42.2%	1.9%	1.9%	1.9%	2.2%	2.2%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.8%	6.7%	6.8%	7.0%	6.3%	7.6%						
3,300-9,999	10.2%	6.1%	14.4%	41.6%	40.9%	42.2%	1.9%	1.9%	1.9%	2.2%	2.2%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.8%	6.7%	6.8%	7.0%	6.3%	7.6%						
10,000-49,999	16.7%	16.7%	16.7%	34.6%	34.6%	34.6%	3.9%	3.9%	3.9%	8.1%	8.1%	8.1%	0.8%	0.8%	0.8%	1.7%	1.7%	1.7%	4.2%	4.2%	4.2%	8.6%	8.6%	8.6%	0.6%	0.6%	0.6%	1.2%	1.2%	1.2%	3.3%	3.3%	3.3%	6.9%	6.9%	6.9%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	16.7%	16.7%	16.7%	34.6%	34.6%	34.6%	3.9%	3.9%	3.9%	8.1%	8.1%	8.1%	0.8%	0.8%	0.8%	1.7%	1.7%	1.7%	4.2%	4.2%	4.2%	8.6%	8.6%	8.6%	0.6%	0.6%	0.6%	1.2%	1.2%	1.2%	3.3%	3.3%	3.3%	6.9%	6.9%	6.9%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	14.4%	10.1%	18.6%	33.4%	32.8%	34.1%	0.8%	0.8%	0.8%	0.9%	0.9%	0.9%	0.4%	0.4%	0.5%	0.4%	0.4%	0.5%	3.4%	3.4%	3.4%	3.2%	3.2%	3.2%	10.4%	10.3%	10.4%	9.4%	8.8%	10.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%

System Size (Population Served)	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R			S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100							6.3%	5.6%	7.0%	6.6%	5.8%	7.4%	3.7%	3.2%	4.3%	3.8%	3.2%	4.4%	2.2%	2.2%	2.2%	2.4%	2.2%	2.5%	47.5%	41.7%	53.2%	52.5%	49.7%	55.4%
100-499							4.7%	4.1%	5.2%	7.3%	6.3%	8.3%	2.7%	2.4%	3.0%	4.2%	3.6%	4.8%	1.4%	1.3%	1.6%	2.2%	2.0%	2.5%	36.9%	31.5%	42.4%	63.1%	59.8%	66.3%
500-999							4.7%	4.1%	5.2%	7.3%	6.3%	8.3%	2.7%	2.4%	3.0%	4.2%	3.6%	4.8%	1.4%	1.3%	1.6%	2.2%	2.0%	2.5%	36.9%	31.5%	42.4%	63.1%	59.8%	66.3%
1,000-3,299							4.2%	3.7%	4.7%	8.8%	7.7%	10.0%	2.4%	2.2%	2.7%	5.1%	4.5%	5.8%	0.4%	0.4%	0.4%	0.8%	0.7%	0.9%	29.9%	24.9%	34.9%	70.1%	66.8%	73.3%
3,300-9,999							4.2%	3.7%	4.7%	8.8%	7.7%	10.0%	2.4%	2.2%	2.7%	5.1%	4.5%	5.8%	0.4%	0.4%	0.4%	0.8%	0.7%	0.9%	29.9%	24.9%	34.9%	70.1%	66.8%	73.3%
10,000-49,999	2.0%	2.0%	2.0%	4.2%	4.2%	4.2%	0.4%	0.4%	0.4%	0.7%	0.7%	0.7%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	32.6%	32.6%	32.6%	67.4%	67.4%	67.4%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	2.0%	2.0%	2.0%	4.2%	4.2%	4.2%	0.4%	0.4%	0.4%	0.7%	0.7%	0.7%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	32.6%	32.6%	32.6%	67.4%	67.4%	67.4%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	4.5%	5.6%	7.3%	6.3%	8.2%	2.9%	2.6%	3.3%	4.2%	3.6%	4.8%	1.5%	1.4%	1.6%	2.0%	1.8%	2.3%	38.9%	33.5%	44.3%	61.1%	58.0%	64.2%

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Alternative 2. Surface water systems serving 10,000 or more people: Use ending technolo

Exhibit C.9d
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Alternative 2

System Size (Population Served)	No Advanced Treatment Technology CL21			No Advanced Treatment Technology CLM1			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K			L		
<100	44	34	53	62	61	63							3	3	4	3	3	4							33	33	33	25	23	26						
100-499	40	26	53	107	105	110	3	3	3	3	3	3	0	0	0	0	0	0	16	16	16	14	14	14	29	29	29	29	27	32						
500-999	14	9	18	36	36	37	1	1	1	1	1	1	0	0	0	0	0	0	5	5	5	5	5	5	10	10	10	10	9	11						
1,000-3,299	9	6	13	38	38	39	2	2	2	2	2	2	0	0	0	0	0	0	4	4	4	4	4	4	6	6	6	6	6	7						
3,300-9,999	3	2	4	10	10	11	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	2	2	2	2	2	2						
10,000-49,999	1	1	1	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	110	78	143	256	252	261	6	6	6	7	7	7	3	3	4	3	3	4	26	26	26	25	25	25	80	79	80	72	67	77	0	0	0	0	0	0

System Size (Population Served)	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R			S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100							14	13	16	15	13	17	8	7	10	9	7	10	5	5	5	5	5	6	107	94	120	119	112	125
100-499							15	13	16	23	20	26	8	7	9	13	11	15	4	4	5	7	6	8	115	98	132	197	187	207
500-999							5	4	6	8	7	9	3	3	3	4	4	5	2	1	2	2	2	3	39	33	45	67	63	70
1,000-3,299							4	3	4	8	7	9	2	2	3	5	4	5	0	0	0	1	1	1	28	23	32	64	61	67
3,300-9,999							1	1	1	2	2	3	1	1	1	1	1	1	0	0	0	0	0	0	7	6	9	18	17	18
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	3	3	3
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	0	0	0	0	0	0	39	34	43	56	49	63	23	20	26	32	28	37	11	11	12	16	14	17	299	257	340	468	445	492

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Alternative 2. Surface water systems serving 10,000 or more people: Use ending technolo

Exhibit C.10a
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Alternative 2

System Size (Population Served)	No Advanced Treatment Technology CL2[1]	No Advanced Treatment Technology CLM[1]	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	90.9%	6.2%	0.0%	0.9%	0.0%	0.0%	0.3%	0.9%	0.3%	0.5%	91.5%	8.5%
100-499	89.9%	6.7%	0.0%	1.3%	0.2%	0.5%	0.1%	0.6%	0.1%	0.5%	90.4%	9.6%
500-999	89.9%	6.7%	0.0%	1.3%	0.2%	0.5%	0.1%	0.6%	0.1%	0.5%	90.4%	9.6%
1,000-3,299	90.7%	6.0%	0.0%	1.4%	0.3%	0.9%	0.0%	0.2%	0.1%	0.5%	91.1%	8.9%
3,300-9,999	90.7%	6.0%	0.0%	1.4%	0.3%	0.9%	0.0%	0.2%	0.1%	0.5%	91.1%	8.9%
10,000-49,999	82.2%	13.1%			1.0%	0.8%	0.0%	0.5%	1.7%	0.8%	84.9%	15.1%
50,000-99,999	82.2%	13.1%			1.0%	0.8%	0.0%	0.5%	1.7%	0.8%	84.9%	15.1%
100,000-999,999	82.9%	12.7%			1.0%	0.7%	0.0%	0.4%	1.7%	0.7%	85.5%	14.5%
>=1,000,000	82.9%	12.7%			1.0%	0.7%	0.0%	0.4%	1.7%	0.7%	85.5%	14.5%
Total %	89.1%	7.4%	0.0%	1.1%	0.3%	0.6%	0.1%	0.5%	0.4%	0.5%	89.9%	10.1%

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Alternative 2.

Exhibit C.10b
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Alternative 2

System Size (Population Served)	No Advanced Treatment Technology CL2[1]	No Advanced Treatment Technology CLM[1]	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	5,836	400	0	59	0	0	20	56	22	29	5,878	545
100-499	13,709	1,017	0	200	25	74	22	97	20	80	13,775	1,467
500-999	5,480	406	0	80	10	29	9	39	8	32	5,507	587
1,000-3,299	6,884	454	0	108	22	66	0	13	4	36	6,910	677
3,300-9,999	4,564	301	0	71	15	44	0	8	3	24	4,581	449
10,000-49,999	4,426	706			53	42	0	24	90	42	4,568	815
50,000-99,999	589	94			7	6	0	3	12	6	608	108
100,000-999,999	761	116			9	6	0	4	15	7	785	133
>=1,000,000	23	3			0	0	0	0	0	0	23	4
Total Plants	42,271	3,499	0	519	140	267	51	245	173	255	42,635	4,784

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Alternative 2.

Exhibit C.10c
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Alternative 2

System Size (Population Served)	No Advanced Treatment Technology CL21	No Advanced Treatment Technology CLM1	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	90.9%	6.2%	0.0%	0.9%	0.0%	0.0%	0.3%	0.9%	0.3%	0.5%	91.5%	8.5%
100-499	89.9%	6.7%	0.0%	1.3%	0.2%	0.5%	0.1%	0.6%	0.1%	0.5%	90.4%	9.6%
500-999	89.9%	6.7%	0.0%	1.3%	0.2%	0.5%	0.1%	0.6%	0.1%	0.5%	90.4%	9.6%
1,000-3,299	90.7%	6.0%	0.0%	1.4%	0.3%	0.9%	0.0%	0.2%	0.1%	0.5%	91.1%	8.9%
3,300-9,999	90.7%	6.0%	0.0%	1.4%	0.3%	0.9%	0.0%	0.2%	0.1%	0.5%	91.1%	8.9%
10,000-49,999	82.2%	13.1%			1.0%	0.8%	0.0%	0.5%	1.7%	0.8%	84.9%	15.1%
50,000-99,999	82.2%	13.1%			1.0%	0.8%	0.0%	0.5%	1.7%	0.8%	84.9%	15.1%
100,000-999,999	82.9%	12.7%			1.0%	0.7%	0.0%	0.4%	1.7%	0.7%	85.5%	14.5%
>=1,000,000	0.0%	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	90.4%	6.4%	0.0%	1.1%	0.1%	0.3%	0.2%	0.7%	0.2%	0.5%	90.9%	9.1%

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Alternative 2.

Exhibit C.10d
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Alternative 2

System Size (Population Served)	No Advanced Treatment Technology CL21	No Advanced Treatment Technology CLM1	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	2,265	155	0	23	0	0	8	22	9	11	2,281	211
100-499	1,915	142	0	28	3	10	3	14	3	11	1,924	205
500-999	530	39	0	8	1	3	1	4	1	3	533	57
1,000-3,299	224	15	0	4	1	2	0	0	0	1	225	22
3,300-9,999	19	1	0	0	0	0	0	0	0	0	20	2
10,000-49,999	3	0			0	0	0	0	0	0	3	0
50,000-99,999	0	0			0	0	0	0	0	0	0	0
100,000-999,999	0	0			0	0	0	0	0	0	0	0
>=1,000,000	0	0			0	0	0	0	0	0	0	0
Total Plants	4,957	353	0	63	5	16	12	40	12	27	4,986	498

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Alternative 2.

Exhibit C.11a
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Alternative 3

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A			B			C			D			E			F			G			H			I			J			K	
<100	-8.8%	-10.4%	-7.3%							2.1%	1.7%	2.4%	2.2%	1.8%	2.5%							0.0%	0.0%	0.0%	4.7%	3.9%	5.5%						
100-499	-8.2%	-10.1%	-6.3%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.6%	0.9%	5.6%	4.6%	6.5%						
500-999	-8.2%	-10.1%	-6.3%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.6%	0.9%	5.6%	4.6%	6.5%						
1,000-3,299	-8.6%	-10.6%	-6.7%	0.0%	0.0%	0.0%	2.1%	1.8%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.6%	0.9%	4.8%	4.0%	5.6%						
3,300-9,999	-8.6%	-10.6%	-6.7%	0.0%	0.0%	0.0%	2.1%	1.8%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.6%	0.9%	4.8%	4.0%	5.6%						
10,000-49,999	4.0%	3.3%	4.7%	5.9%	4.9%	6.9%	3.9%	3.2%	4.5%	2.8%	2.3%	3.3%	1.2%	1.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	0.7%	0.6%	0.9%	12.7%	10.6%	14.9%	5.9%	4.9%	6.8%
50,000-99,999	4.0%	3.3%	4.7%	5.9%	4.9%	6.9%	3.9%	3.2%	4.5%	2.8%	2.3%	3.3%	1.2%	1.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	0.7%	0.6%	0.9%	12.7%	10.6%	14.9%	5.9%	4.9%	6.8%
100,000-999,999	4.0%	3.3%	4.7%	5.9%	4.9%	6.9%	3.9%	3.2%	4.5%	2.8%	2.3%	3.3%	1.2%	1.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	0.7%	0.6%	0.9%	12.7%	10.6%	14.9%	5.9%	4.9%	6.8%
>=1,000,000	4.0%	3.3%	4.7%	5.9%	4.9%	6.9%	3.9%	3.2%	4.5%	2.8%	2.3%	3.3%	1.2%	1.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	0.7%	0.6%	0.9%	12.7%	10.6%	14.9%	5.9%	4.9%	6.8%
Total %	-3.6%	-5.1%	-2.2%	2.3%	1.9%	2.7%	2.4%	2.0%	2.8%	1.2%	1.0%	1.4%	0.6%	0.5%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.5%	0.8%	3.4%	2.8%	3.9%	5.0%	4.1%	5.8%	2.3%	1.9%	2.7%

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		L			M			N			O			P			Q			R			S			T=A+C+E+G+I+K+M+O+Q+S				L = SUM(A:S)			
<100							8.2%	6.8%	9.5%	9.5%	7.9%	11.1%	4.6%	3.8%	5.4%	4.8%	4.0%	5.6%	0.6%	0.5%	0.7%	1.6%	1.4%	1.9%	13.9%	8.6%	19.3%	29.4%	21.5%	37.3%			
100-499							6.6%	5.5%	7.7%	11.4%	9.5%	13.3%	2.7%	2.3%	3.1%	4.7%	3.9%	5.5%	1.4%	1.2%	1.7%	2.6%	2.2%	3.1%	16.7%	10.7%	22.8%	28.3%	20.3%	36.3%			
500-999							6.6%	5.5%	7.7%	11.4%	9.5%	13.3%	2.7%	2.3%	3.1%	4.7%	3.9%	5.5%	1.4%	1.2%	1.7%	2.6%	2.2%	3.1%	16.7%	10.7%	22.8%	28.3%	20.3%	36.3%	28.2%	20.2%	36.2%
1,000-3,299							5.9%	5.0%	6.9%	14.0%	11.7%	16.3%	2.3%	1.9%	2.7%	5.6%	4.7%	6.6%	0.2%	0.2%	0.2%	0.7%	0.6%	0.8%	18.6%	12.1%	25.1%	27.9%	19.8%	35.9%			
3,300-9,999							5.9%	5.0%	6.9%	14.0%	11.7%	16.3%	2.3%	1.9%	2.7%	5.6%	4.7%	6.6%	0.2%	0.2%	0.2%	0.7%	0.6%	0.8%	18.6%	12.1%	25.1%	27.9%	19.8%	35.9%			
10,000-49,999	5.1%	4.2%	5.9%	2.4%	2.0%	2.9%	0.9%	0.7%	1.0%	0.5%	0.4%	0.5%	0.3%	0.3%	0.4%	0.1%	0.1%	0.2%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	19.0%	15.9%	22.2%	47.9%	39.9%	55.8%			
50,000-99,999	5.1%	4.2%	5.9%	2.4%	2.0%	2.9%	0.9%	0.7%	1.0%	0.5%	0.4%	0.5%	0.3%	0.3%	0.4%	0.1%	0.1%	0.2%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	19.0%	15.9%	22.2%	47.9%	39.9%	55.8%	47.9%	39.9%	55.8%
100,000-999,999	5.1%	4.2%	5.9%	2.4%	2.0%	2.9%	0.9%	0.7%	1.0%	0.5%	0.4%	0.5%	0.3%	0.3%	0.4%	0.1%	0.1%	0.2%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	19.0%	15.9%	22.2%	47.9%	39.9%	55.8%			
>=1,000,000	5.1%	4.2%	5.9%	2.4%	2.0%	2.9%	0.9%	0.7%	1.0%	0.5%	0.4%	0.5%	0.3%	0.3%	0.4%	0.1%	0.1%	0.2%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	19.0%	15.9%	22.2%	47.9%	39.9%	55.8%			
Total %	2.0%	1.7%	2.3%	1.0%	0.8%	1.1%	4.2%	3.5%	4.9%	8.0%	6.6%	9.3%	1.7%	1.5%	2.0%	3.3%	2.7%	3.8%	0.6%	0.5%	0.7%	1.0%	0.8%	1.1%	18.2%	13.1%	23.2%	35.8%	27.8%	43.8%	35.8%	27.8%	43.8%

Note: Detail may not add to totals due to independent rounding
Source: Technology Selection for the Alternative 3 minus the Stage 1 Technology Selection from Appendix C, Exhibit C.1a.

Exhibit C.11b
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Alternative 3

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A					B						C						D						E						F		
<100	-32	-37	-26							7	6	9	8	6	9							0	0	0	17	14	20						
100-499	-63	-77	-48	0	0	0	5	4	6	0	0	0	0	0	0	0	0	0	0	0	0	6	5	7	43	36	50						
500-999	-39	-49	-30	0	0	0	3	3	4	0	0	0	0	0	0	0	0	0	0	0	0	4	3	4	27	22	31						
1,000-3,299	-98	-120	-75	0	0	0	24	20	28	0	0	0	0	0	0	0	0	0	0	0	0	9	7	10	54	45	64						
3,300-9,999	-109	-134	-84	0	0	0	27	22	31	0	0	0	0	0	0	0	0	0	0	0	0	10	8	11	61	51	71						
10,000-49,999	52	43	60	76	63	89	50	42	58	36	30	42	15	13	18	0	0	0	0	0	0	8	6	9	10	8	11	164	137	192	76	63	88
50,000-99,999	23	19	27	34	28	40	22	19	26	16	14	19	7	6	8	0	0	0	0	0	0	3	3	4	4	4	5	74	62	86	34	28	40
100,000-999,999	24	20	29	36	30	42	24	20	28	17	14	20	7	6	8	0	0	0	0	0	0	4	3	4	5	4	5	78	65	91	36	30	42
>=1,000,000	3	2	3	4	4	5	3	2	3	2	2	2	1	1	1	0	0	0	0	0	0	0	0	1	1	0	1	9	8	11	4	4	5
Total Plants	-238	-332	-144	150	125	175	158	131	184	79	66	92	38	32	44	0	0	0	0	0	0	43	36	50	221	184	257	325	271	380	150	125	175

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
			G						H						I						J				T=A+C+E+G+I+K+M+O+Q+S				L = SUM(A:S)				
<100							29	25	34	34	28	40	17	14	19	17	14	20	2	2	3	6	5	7	50	31	69	106	77	134			
100-499							51	42	59	87	73	102	21	17	24	36	30	42	11	9	13	20	17	24	128	82	175	217	156	278			
500-999							32	27	37	55	46	64	13	11	15	23	19	26	7	6	8	13	11	15	81	52	110	136	98	175	1,124	804	1,445
1,000-3,299							67	56	78	158	132	184	26	22	31	64	53	74	2	2	3	8	6	9	210	137	284	315	224	406			
3,300-9,999							75	62	87	176	147	205	29	25	34	71	59	83	3	2	3	8	7	10	234	152	316	351	249	452			
10,000-49,999	66	55	77	32	26	37	11	9	13	6	5	7	4	3	5	2	1	2	7	6	8	4	4	5	246	205	287	618	516	721			
50,000-99,999	29	25	34	14	12	17	5	4	6	3	2	3	2	2	2	1	1	1	3	3	4	2	2	2	110	92	129	277	231	324	1,223	1,020	1,427
100,000-999,999	31	26	36	15	12	17	5	4	6	3	2	3	2	2	2	1	1	1	3	3	4	2	2	2	116	97	136	292	244	341			
>=1,000,000	4	3	4	2	1	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	12	16	35	29	41			
Total Plants	130	108	152	62	52	73	276	231	322	522	436	609	114	95	133	214	178	249	39	33	46	63	53	74	1,190	859	1,522	2,347	1,824	2,872	2,347	1,824	2,872

Note: Detail may not add to totals due to independent rounding
Source: Above table with technologies switching from an advanced technology with Cl2 to the same advanced technology with CLM being moved into the CLM only column

Exhibit C.11c

Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)

Alternative 3

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A			B			C			D			E			F			G			H			I			J			K	
<100	-8.8%	-10.4%	-7.3%							2.1%	1.7%	2.4%	2.2%	1.8%	2.5%							0.0%	0.0%	0.0%	4.7%	3.9%	5.5%						
100-499	-8.2%	-10.1%	-6.3%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.6%	0.9%	5.6%	4.6%	6.5%						
500-999	-8.2%	-10.1%	-6.3%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.6%	0.9%	5.6%	4.6%	6.5%						
1,000-3,299	-8.6%	-10.6%	-6.7%	0.0%	0.0%	0.0%	2.1%	1.8%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.6%	0.9%	4.8%	4.0%	5.6%						
3,300-9,999	-8.6%	-10.6%	-6.7%	0.0%	0.0%	0.0%	2.1%	1.8%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.6%	0.9%	4.8%	4.0%	5.6%						
10,000-49,999	4.0%	3.3%	4.7%	5.9%	4.9%	6.9%	3.9%	3.2%	4.5%	2.8%	2.3%	3.3%	1.2%	1.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	0.7%	0.6%	0.9%	12.7%	10.6%	14.9%	5.9%	4.9%	6.8%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	4.0%	3.3%	4.7%	5.9%	4.9%	6.9%	3.9%	3.2%	4.5%	2.8%	2.3%	3.3%	1.2%	1.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.5%	0.7%	0.7%	0.6%	0.9%	12.7%	10.6%	14.9%	5.9%	4.9%	6.8%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	-8.3%	-10.2%	-6.5%	0.0%	0.0%	0.1%	0.7%	0.6%	0.8%	0.6%	0.5%	0.7%	0.6%	0.5%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.4%	0.6%	5.2%	4.3%	6.0%	0.1%	0.1%	0.1%	0.0%	0.0%	0.1%

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		L			M			N			O			P			Q			R			S		T=A+C+E+G+I+K+M+O+Q+S				L = SUM(A:S)				
<100							8.2%	6.8%	9.5%	9.5%	7.9%	11.1%	4.6%	3.8%	5.4%	4.8%	4.0%	5.6%	0.6%	0.5%	0.7%	1.6%	1.4%	1.9%	13.9%	8.6%	19.3%	29.4%	21.5%	37.3%			
100-499							6.6%	5.5%	7.7%	11.4%	9.5%	13.3%	2.7%	2.3%	3.1%	4.7%	3.9%	5.5%	1.4%	1.2%	1.7%	2.6%	2.2%	3.1%	16.7%	10.7%	22.8%	28.3%	20.3%	36.3%			
500-999							6.6%	5.5%	7.7%	11.4%	9.5%	13.3%	2.7%	2.3%	3.1%	4.7%	3.9%	5.5%	1.4%	1.2%	1.7%	2.6%	2.2%	3.1%	16.7%	10.7%	22.8%	28.3%	20.3%	36.3%	28.8%	20.9%	36.7%
1,000-3,299							5.9%	5.0%	6.9%	14.0%	11.7%	16.3%	2.3%	1.9%	2.7%	5.6%	4.7%	6.6%	0.2%	0.2%	0.2%	0.7%	0.6%	0.8%	18.6%	12.1%	25.1%	27.9%	19.8%	35.9%			
3,300-9,999							5.9%	5.0%	6.9%	14.0%	11.7%	16.3%	2.3%	1.9%	2.7%	5.6%	4.7%	6.6%	0.2%	0.2%	0.2%	0.7%	0.6%	0.8%	18.6%	12.1%	25.1%	27.9%	19.8%	35.9%			
10,000-49,999	5.1%	4.2%	5.9%	2.4%	2.0%	2.9%	0.9%	0.7%	1.0%	0.5%	0.4%	0.5%	0.3%	0.3%	0.4%	0.1%	0.1%	0.2%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	19.0%	15.9%	22.2%	47.9%	39.9%	55.8%			
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	47.9%	39.9%	55.8%
100,000-999,999	5.1%	4.2%	5.9%	2.4%	2.0%	2.9%	0.9%	0.7%	1.0%	0.5%	0.4%	0.5%	0.3%	0.3%	0.4%	0.1%	0.1%	0.2%	0.6%	0.5%	0.6%	0.3%	0.3%	0.4%	19.0%	15.9%	22.2%	47.9%	39.9%	55.8%			
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.9%	5.8%	8.1%	11.1%	9.3%	13.0%	3.2%	2.7%	3.7%	4.8%	4.0%	5.6%	1.0%	0.8%	1.2%	2.0%	1.7%	2.4%	16.2%	10.3%	22.1%	28.7%	20.7%	36.7%	28.7%	20.7%	36.7%

Note: Detail may not add to totals due to independent rounding

Source: Technology Selection for the Alternative 3 minus the Stage 1 Technology Selection from Appendix C, Exhibit C.1b.

Exhibit C.11d

Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Surface Water Plants (Number of Plants by Residual Disinfection Type)

Alternative 3

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A					B					C							D						E						F		
<100	-20	-23	-17							5	4	5	5	4	6							0	0	0	11	9	12						
100-499	-26	-32	-20	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	3	17	14	20						
500-999	-9	-11	-7	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	6	5	7						
1,000-3,299	-8	-10	-6	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	4	4	5						
3,300-9,999	-2	-3	-2	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1						
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	-64	-78	-50	0	0	0	5	4	6	5	4	6	5	4	6	0	0	0	0	0	0	4	3	5	40	33	46	1	1	1	0	0	0

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
			G							H						I						J			T=A+C+E+G+I+K+M+O+Q+S				L = SUM(A:S)				
<100							18	15	22	21	18	25	10	9	12	11	9	13	1	1	2	4	3	4	32	19	44	66	49	84			
100-499							21	17	24	36	30	41	8	7	10	15	12	17	4	4	5	8	7	10	52	33	71	88	63	113			
500-999							7	6	8	12	10	14	3	2	3	5	4	6	2	1	2	3	2	3	18	11	24	30	22	38	217	157	278
1,000-3,299							5	5	6	13	11	15	2	2	3	5	4	6	0	0	0	1	1	1	17	11	23	26	18	33			
3,300-9,999							1	1	2	3	3	4	1	0	1	1	1	2	0	0	0	0	0	0	5	3	6	7	5	9			
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	3			
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2	3
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total Plants	0	0	0	0	0	0	53	44	62	85	71	100	24	20	28	37	31	43	8	6	9	16	13	18	124	79	170	220	159	281	220	159	281

Note: Detail may not add to totals due to independent rounding

Source: Above table with technologies switching from an advanced technology with Cl2 to the same advanced technology with CLM being moved into the CLM only column

Exhibit C.12a
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Alternative 3

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	1.8%	0.0%	1.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	2.8%	3.1%	
100-499	2.1%	0.0%	1.5%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.6%	3.8%	
500-999	2.1%	0.0%	1.5%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.6%	3.8%	3.5%
1,000-3,299	1.5%	0.0%	1.6%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	3.3%	3.3%	
3,300-9,999	1.5%	0.0%	1.6%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	3.3%	3.3%	
10,000-49,999	3.4%			0.1%	0.0%	0.0%	0.6%	0.0%	0.6%	4.7%	4.8%	
50,000-99,999	3.4%			0.1%	0.0%	0.0%	0.6%	0.0%	0.6%	4.7%	4.8%	4.7%
100,000-999,999	3.2%			0.1%	0.0%	0.0%	0.6%	0.0%	0.5%	4.3%	4.4%	
>=1,000,000	3.2%			0.1%	0.0%	0.0%	0.6%	0.0%	0.5%	4.3%	4.4%	
Total %	2.1%	0.0%	1.2%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	3.6%	3.7%	3.7%

Note: Detail may not add to totals due to independent rounding

Exhibit C.12b
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Alternative 3

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	117	0	64	0	0	21	0	0	0	181	202	
100-499	320	0	230	0	0	26	0	0	0	550	575	
500-999	128	0	92	0	0	10	0	0	0	220	230	1,420
1,000-3,299	112	0	122	0	0	0	15	0	0	248	248	
3,300-9,999	74	0	81	0	0	0	10	0	0	165	165	
10,000-49,999	185			7	0	0	34	0	31	251	258	
50,000-99,999	25			1	0	0	5	0	4	33	34	334
100,000-999,999	29			1	0	0	5	0	5	40	41	
>=1,000,000	1			0	0	0	0	0	0	1	1	
Total Plants	990	0	588	9	0	57	69	0	40	1,688	1,754	1,754

Note: Detail may not add to totals due to independent rounding

Exhibit C.12c
Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Alternative 3

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	1.8%	0.0%	1.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	2.8%	3.1%	3.5%
100-499	2.1%	0.0%	1.5%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.6%	3.8%	
500-999	2.1%	0.0%	1.5%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.6%	3.8%	
1,000-3,299	1.5%	0.0%	1.6%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	3.3%	3.3%	
3,300-9,999	1.5%	0.0%	1.6%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	3.3%	3.3%	
10,000-49,999	3.4%			0.1%	0.0%	0.0%	0.6%	0.0%	0.6%	4.7%	4.8%	4.8%
50,000-99,999	3.4%			0.1%	0.0%	0.0%	0.6%	0.0%	0.6%	4.7%	4.8%	
100,000-999,999	3.2%			0.1%	0.0%	0.0%	0.6%	0.0%	0.5%	4.3%	4.4%	
>=1,000,000	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Total %	1.9%	0.0%	1.3%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.2%	3.5%	3.5%

Note: Detail may not add to totals due to independent rounding

Exhibit C.12d
Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Alternative 3

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	45	0	25	0	0	8	0	0	0	70	78	190
100-499	45	0	32	0	0	4	0	0	0	77	80	
500-999	12	0	9	0	0	1	0	0	0	21	22	
1,000-3,299	4	0	4	0	0	0	0	0	0	8	8	
3,300-9,999	0	0	0	0	0	0	0	0	0	1	1	
10,000-49,999	0			0	0	0	0	0	0	0	0	0
50,000-99,999	0			0	0	0	0	0	0	0	0	
100,000-999,999	0			0	0	0	0	0	0	0	0	
>=1,000,000	0			0	0	0	0	0	0	0	0	
Total Plants	106	0	70	0	0	13	1	0	0	177	190	190

Note: Detail may not add to totals due to independent rounding

Exhibit C.13a
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Alternative 3

System Size (Population Served)	No Advanced Treatment Technology CL2[1] Mean	5th	95th	No Advanced Treatment Technology CLM1 Mean	5th	95th	Chlorine Dioxide CL2 Mean	5th	95th	Chlorine Dioxide CLM Mean	5th	95th	UV CL2 Mean	5th	95th	UV CLM Mean	5th	95th
	A			B			C			D			E			F		
<100	12.4%	4.5%	20.3%	20.9%	19.4%	22.4%							2.1%	1.7%	2.4%	2.2%	1.8%	2.5%
100-499	7.3%	-0.7%	15.3%	27.2%	25.3%	29.2%	1.0%	1.0%	1.0%	1.5%	1.4%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
500-999	7.3%	-0.7%	15.3%	27.2%	25.3%	29.2%	1.0%	1.0%	1.0%	1.5%	1.4%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1,000-3,299	5.6%	-2.5%	13.6%	32.7%	30.7%	34.7%	1.9%	1.9%	1.9%	4.3%	3.9%	4.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3,300-9,999	5.6%	-2.5%	13.6%	32.7%	30.7%	34.7%	1.9%	1.9%	1.9%	4.3%	3.9%	4.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10,000-49,999	12.6%	12.6%	12.6%	27.0%	27.0%	27.0%	4.6%	4.6%	4.6%	9.7%	9.7%	9.7%	0.8%	0.8%	0.8%	1.7%	1.7%	1.7%
50,000-99,999	12.6%	12.6%	12.6%	27.0%	27.0%	27.0%	4.6%	4.6%	4.6%	9.7%	9.7%	9.7%	0.8%	0.8%	0.8%	1.7%	1.7%	1.7%
100,000-999,999	12.6%	12.6%	12.6%	27.0%	27.0%	27.0%	4.6%	4.6%	4.6%	9.7%	9.7%	9.7%	0.8%	0.8%	0.8%	1.7%	1.7%	1.7%
>=1,000,000	12.6%	12.6%	12.6%	27.0%	27.0%	27.0%	4.6%	4.6%	4.6%	9.7%	9.7%	9.7%	0.8%	0.8%	0.8%	1.7%	1.7%	1.7%
Total %	9.0%	4.1%	13.9%	28.8%	27.6%	29.9%	2.7%	2.7%	2.7%	5.6%	5.5%	5.8%	0.4%	0.4%	0.5%	0.8%	0.8%	0.8%

System Size (Population Served)	Ozone CL2 Mean	5th	95th	Ozone CLM Mean	5th	95th	MF/UF CL2 Mean	5th	95th	MF/UF CLM Mean	5th	95th	GAC 10 CL2 Mean	5th	95th	GAC 10 CLM Mean	5th	95th
	G			H			I			J			K			L		
<100							14.5%	14.5%	14.5%	11.8%	11.1%	12.6%						
100-499	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	9.7%	9.5%	9.8%	10.4%	9.4%	11.3%						
500-999	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	9.7%	9.5%	9.8%	10.4%	9.4%	11.3%						
1,000-3,299	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.9%	6.8%	7.1%	7.7%	6.9%	8.5%						
3,300-9,999	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.9%	6.8%	7.1%	7.7%	6.9%	8.5%						
10,000-49,999	4.1%	4.1%	4.1%	8.7%	8.7%	8.7%	0.9%	0.9%	0.9%	2.0%	2.0%	2.0%	5.5%	5.5%	5.5%	11.7%	11.7%	11.7%
50,000-99,999	4.1%	4.1%	4.1%	8.7%	8.7%	8.7%	0.9%	0.9%	0.9%	2.0%	2.0%	2.0%	5.5%	5.5%	5.5%	11.7%	11.7%	11.7%
100,000-999,999	4.1%	4.1%	4.1%	8.7%	8.7%	8.7%	0.9%	0.9%	0.9%	2.0%	2.0%	2.0%	5.5%	5.5%	5.5%	11.7%	11.7%	11.7%
>=1,000,000	4.1%	4.1%	4.1%	8.7%	8.7%	8.7%	0.9%	0.9%	0.9%	2.0%	2.0%	2.0%	5.5%	5.5%	5.5%	11.7%	11.7%	11.7%
Total %	4.0%	4.0%	4.0%	5.9%	5.9%	5.9%	5.5%	5.5%	5.6%	6.2%	5.7%	6.7%	2.1%	2.1%	2.1%	4.6%	4.6%	4.6%

System Size (Population Served)	GAC10 + AD CL2 Mean	5th	95th	GAC10 + AD CLM Mean	5th	95th	GAC20 CL2 Mean	5th	95th	GAC20 CLM Mean	5th	95th	GAC20 + AD CL2 Mean	5th	95th
	M			N			O			P			Q		
<100							10.2%	8.8%	11.5%	10.8%	9.2%	12.3%	4.6%	3.8%	5.4%
100-499							7.7%	6.6%	8.8%	12.4%	10.5%	14.3%	3.2%	2.7%	3.6%
500-999							7.7%	6.6%	8.8%	12.4%	10.5%	14.3%	3.2%	2.7%	3.6%
1,000-3,299							7.0%	6.0%	8.0%	15.1%	12.8%	17.5%	2.9%	2.5%	3.2%
3,300-9,999							7.0%	6.0%	8.0%	15.1%	12.8%	17.5%	2.9%	2.5%	3.2%
10,000-49,999	2.3%	2.3%	2.3%	5.0%	5.0%	5.0%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	0.1%	0.1%	0.1%
50,000-99,999	2.3%	2.3%	2.3%	5.0%	5.0%	5.0%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	0.1%	0.1%	0.1%
100,000-999,999	2.3%	2.3%	2.3%	5.0%	5.0%	5.0%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	0.1%	0.1%	0.1%
>=1,000,000	2.3%	2.3%	2.3%	5.0%	5.0%	5.0%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	0.1%	0.1%	0.1%
Total %	0.9%	0.9%	0.9%	1.9%	1.9%	1.9%	4.8%	4.1%	5.4%	8.9%	7.6%	10.2%	1.9%	1.7%	2.2%

System Size (Population Served)	GAC20 + AD CLM Mean	5th	95th	Membranes CL2 Mean	5th	95th	Membranes CLM Mean	5th	95th	TOTAL CL2 Mean	5th	95th	TOTAL CLM Mean	5th	95th
	R			S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100	4.8%	4.0%	5.6%	2.7%	2.6%	2.8%	3.0%	2.8%	3.3%	46.5%	36.0%	57.0%	53.5%	48.2%	58.8%
100-499	5.1%	4.3%	5.9%	1.9%	1.6%	2.1%	3.1%	2.6%	3.5%	35.8%	25.9%	45.7%	64.2%	58.2%	70.3%
500-999	5.1%	4.3%	5.9%	1.9%	1.6%	2.1%	3.1%	2.6%	3.5%	35.8%	25.9%	45.7%	64.2%	58.2%	70.3%
1,000-3,299	6.2%	5.3%	7.2%	0.4%	0.4%	0.4%	0.9%	0.8%	1.0%	28.7%	19.0%	38.2%	71.3%	64.8%	77.9%
3,300-9,999	6.2%	5.3%	7.2%	0.4%	0.4%	0.4%	0.9%	0.8%	1.0%	28.7%	19.0%	38.2%	71.3%	64.8%	77.9%
10,000-49,999	0.2%	0.2%	0.2%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	31.9%	31.9%	31.9%	68.1%	68.1%	68.1%
50,000-99,999	0.2%	0.2%	0.2%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	31.9%	31.9%	31.9%	68.1%	68.1%	68.1%
100,000-999,999	0.2%	0.2%	0.2%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	31.9%	31.9%	31.9%	68.1%	68.1%	68.1%
>=1,000,000	0.2%	0.2%	0.2%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	31.9%	31.9%	31.9%	68.1%	68.1%	68.1%
Total %	3.6%	3.1%	4.1%	0.8%	0.8%	0.9%	1.5%	1.3%	1.6%	32.2%	26.3%	38.2%	67.8%	63.9%	71.6%

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Alternative 3. Surface water systems serving 10,000 or more people: Use ending technolo

Exhibit C.13b
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Alternative 3

System Size (Population Served)	No Advanced Treatment Technology CL21 Mean	5th	95th	No Advanced Treatment Technology CLM1 Mean	5th	95th	Chlorine Dioxide CL2 Mean	5th	95th	Chlorine Dioxide CLM Mean	5th	95th	UV CL2 Mean	5th	95th	UV CLM Mean	5th	95th
	A			B			C			D			E			F		
<100	45	16	73	75	70	81							7	6	9	8	6	9
100-499	56	-5	117	209	194	224	7	7	7	12	11	12	0	0	0	0	0	0
500-999	35	-3	74	132	122	141	5	5	5	7	7	8	0	0	0	0	0	0
1,000-3,299	63	-28	154	369	347	392	22	22	22	48	44	52	0	0	0	0	0	0
3,300-9,999	70	-31	171	412	387	437	24	24	24	54	49	58	0	0	0	0	0	0
10,000-49,999	163	163	163	348	348	348	59	59	59	126	126	126	11	11	11	23	23	23
50,000-99,999	73	73	73	156	156	156	26	26	26	56	56	56	5	5	5	10	10	10
100,000-999,999	77	77	77	165	165	165	28	28	28	59	59	59	5	5	5	11	11	11
>=1,000,000	9	9	9	20	20	20	3	3	3	7	7	7	1	1	1	1	1	1
Total Plants	592	271	912	1,885	1,808	1,962	174	174	174	369	359	379	28	27	30	52	51	54

System Size (Population Served)	Ozone CL2 Mean	5th	95th	Ozone CLM Mean	5th	95th	MF/UF CL2 Mean	5th	95th	MF/UF CLM Mean	5th	95th	GAC 10 CL2 Mean	5th	95th	GAC 10 CLM Mean	5th	95th
	G			H			I			J			K			L		
<100							52	52	52	43	40	45						
100-499	39	39	39	35	35	35	74	73	75	79	72	87						
500-999	24	24	24	22	22	22	47	46	47	50	46	55						
1,000-3,299	45	45	45	51	51	51	78	77	80	87	78	96						
3,300-9,999	50	50	50	56	56	56	87	86	89	97	87	107						
10,000-49,999	53	53	53	113	113	113	12	12	12	26	26	26	71	71	71	152	152	152
50,000-99,999	24	24	24	51	51	51	5	5	5	12	12	12	32	32	32	68	68	68
100,000-999,999	25	25	25	53	53	53	6	6	6	12	12	12	33	33	33	72	72	72
>=1,000,000	3	3	3	6	6	6	1	1	1	1	1	1	4	4	4	9	9	9
Total Plants	263	263	263	387	387	387	362	358	367	407	373	440	140	140	140	300	300	300

System Size (Population Served)	GAC10 + AD CL2 Mean	5th	95th	GAC10 + AD CLM Mean	5th	95th	GAC20 CL2 Mean	5th	95th	GAC20 CLM Mean	5th	95th	GAC20 + AD CL2 Mean	5th	95th
	M			N			O			P			Q		
<100							36	32	41	39	33	44	17	14	19
100-499							59	51	68	95	80	109	24	21	28
500-999							37	32	43	60	51	69	15	13	18
1,000-3,299							79	68	90	171	145	197	32	28	37
3,300-9,999							88	75	100	191	161	220	36	31	41
10,000-49,999	30	30	30	64	64	64	6	6	6	13	13	13	2	2	2
50,000-99,999	14	14	14	29	29	29	3	3	3	6	6	6	1	1	1
100,000-999,999	14	14	14	30	30	30	3	3	3	6	6	6	1	1	1
>=1,000,000	2	2	2	4	4	4	0	0	0	1	1	1	0	0	0
Total Plants	60	60	60	128	128	128	311	269	354	580	496	665	127	110	145

System Size (Population Served)	GAC20 + AD CLM Mean	5th	95th	Membranes CL2 Mean	5th	95th	Membranes CLM Mean	5th	95th	TOTAL CL2 Mean	5th	95th	TOTAL CLM Mean	5th	95th
	R			S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100	17	14	20	10	9	10	11	10	12	167	129	205	192	173	211
100-499	39	33	45	14	13	16	23	20	27	274	198	350	492	446	539
500-999	25	21	28	9	8	10	15	13	17	173	125	221	310	281	339
1,000-3,299	70	60	81	4	4	5	10	9	11	324	215	432	806	732	879
3,300-9,999	78	66	90	5	4	5	11	9	12	361	240	481	898	816	980
10,000-49,999	3	3	3	6	6	6	13	13	13	412	412	412	880	880	880
50,000-99,999	1	1	1	3	3	3	6	6	6	185	185	185	395	395	395
100,000-999,999	2	2	2	3	3	3	6	6	6	195	195	195	416	416	416
>=1,000,000	0	0	0	0	0	0	1	1	1	23	23	23	50	50	50
Total Plants	236	201	271	55	50	59	95	86	104	2,113	1,722	2,503	4,439	4,189	4,690

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Alternative 3. Surface water systems serving 10,000 or more people: Use ending technolo

Exhibit C.13c
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Alternative 3

System Size	No Advanced Treatment Technology CL2[1]			No Advanced Treatment Technology CLM[1]			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A			B			C			D			E			F			G			H			I			J			K			L	
<100	12.4%	4.5%	20.3%	20.9%	19.4%	22.4%							2.1%	1.7%	2.4%	2.2%	1.8%	2.5%							14.5%	14.5%	14.5%	11.8%	11.1%	12.6%						
100-499	7.3%	-0.7%	15.3%	27.2%	25.3%	29.2%	1.0%	1.0%	1.0%	1.5%	1.4%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	9.7%	9.5%	9.8%	10.4%	9.4%	11.3%						
500-999	7.3%	-0.7%	15.3%	27.2%	25.3%	29.2%	1.0%	1.0%	1.0%	1.5%	1.4%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	9.7%	9.5%	9.8%	10.4%	9.4%	11.3%						
1,000-3,299	5.6%	-2.5%	13.6%	32.7%	30.7%	34.7%	1.9%	1.9%	1.9%	4.3%	3.9%	4.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.9%	6.8%	7.1%	7.7%	6.9%	8.5%						
3,300-9,999	5.6%	-2.5%	13.6%	32.7%	30.7%	34.7%	1.9%	1.9%	1.9%	4.3%	3.9%	4.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.9%	6.8%	7.1%	7.7%	6.9%	8.5%						
10,000-49,999	12.6%	12.6%	12.6%	27.0%	27.0%	27.0%	4.6%	4.6%	4.6%	9.7%	9.7%	9.7%	0.8%	0.8%	0.8%	1.7%	1.7%	1.7%	4.1%	4.1%	4.1%	8.7%	8.7%	8.7%	0.9%	0.9%	0.9%	2.0%	2.0%	2.0%	5.5%	5.5%	5.5%	11.7%	11.7%	11.7%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	12.6%	12.6%	12.6%	27.0%	27.0%	27.0%	4.6%	4.6%	4.6%	9.7%	9.7%	9.7%	0.8%	0.8%	0.8%	1.7%	1.7%	1.7%	4.1%	4.1%	4.1%	8.7%	8.7%	8.7%	0.9%	0.9%	0.9%	2.0%	2.0%	2.0%	5.5%	5.5%	5.5%	11.7%	11.7%	11.7%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	8.6%	0.7%	16.5%	26.2%	24.4%	28.0%	0.8%	0.8%	0.8%	1.5%	1.4%	1.7%	0.6%	0.5%	0.7%	0.6%	0.5%	0.8%	3.4%	3.4%	3.4%	3.2%	3.2%	3.2%	10.6%	10.5%	10.7%	10.3%	9.5%	11.2%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%

System Size	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		M			N			O			P			Q			R			S			T		U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100							10.2%	8.8%	11.5%	10.8%	9.2%	12.3%	4.6%	3.8%	5.4%	4.8%	4.0%	5.6%	2.7%	2.6%	2.8%	3.0%	2.8%	3.3%	46.5%	36.0%	57.0%	53.5%	48.2%	58.8%
100-499							7.7%	6.6%	8.8%	12.4%	10.5%	14.3%	3.2%	2.7%	3.6%	5.1%	4.3%	5.9%	1.9%	1.6%	2.1%	3.1%	2.6%	3.5%	35.8%	25.9%	45.7%	64.2%	58.2%	70.3%
500-999							7.7%	6.6%	8.8%	12.4%	10.5%	14.3%	3.2%	2.7%	3.6%	5.1%	4.3%	5.9%	1.9%	1.6%	2.1%	3.1%	2.6%	3.5%	35.8%	25.9%	45.7%	64.2%	58.2%	70.3%
1,000-3,299							7.0%	6.0%	8.0%	15.1%	12.8%	17.5%	2.9%	2.5%	3.2%	6.2%	5.3%	7.2%	0.4%	0.4%	0.4%	0.9%	0.8%	1.0%	28.7%	19.0%	38.2%	71.3%	64.8%	77.9%
3,300-9,999							7.0%	6.0%	8.0%	15.1%	12.8%	17.5%	2.9%	2.5%	3.2%	6.2%	5.3%	7.2%	0.4%	0.4%	0.4%	0.9%	0.8%	1.0%	28.7%	19.0%	38.2%	71.3%	64.8%	77.9%
10,000-49,999	2.3%	2.3%	2.3%	5.0%	5.0%	5.0%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	31.9%	31.9%	31.9%	68.1%	68.1%	68.1%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	2.3%	2.3%	2.3%	5.0%	5.0%	5.0%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	31.9%	31.9%	31.9%	68.1%	68.1%	68.1%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	7.1%	9.4%	12.2%	10.4%	14.1%	3.5%	3.0%	4.1%	5.2%	4.4%	6.0%	1.9%	1.7%	2.1%	2.7%	2.4%	3.0%	37.8%	27.9%	47.8%	62.2%	56.3%	68.1%

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Alternative 3. Surface water systems serving 10,000 or more people: Use ending technolo

Exhibit C.13d
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Alternative 3

System Size	No Advanced Treatment Technology CL2[1]			No Advanced Treatment Technology CLM[1]			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A			B			C			D			E			F			G			H			I			J			K			L	
<100	28	10	46	47	44	51							5	4	5	5	4	6							33	33	33	27	25	29						
100-499	23	-2	48	85	79	91	3	3	3	5	4	5	0	0	0	0	0	0	16	16	16	14	14	14	30	30	31	32	29	35						
500-999	8	-1	16	29	27	31	1	1	1	2	1	2	0	0	0	0	0	0	5	5	5	5	5	5	10	10	10	11	10	12						
1,000-3,299	5	-2	13	30	28	32	2	2	2	4	4	4	0	0	0	0	0	0	4	4	4	4	4	4	6	6	7	7	6	8						
3,300-9,999	1	-1	3	8	8	9	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	2	2	2	2	2	2						
10,000-49,999	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	66	5	127	201	187	215	7	7	7	12	11	13	5	4	5	5	4	6	26	26	26	25	25	25	81	81	82	79	73	86	0	0	0	1	1	1

System Size	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		M			N			O			P			Q			R			S			T		U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100							23	20	26	24	21	28	10	9	12	11	9	13	6	6	6	7	6	7	105	81	129	121	109	133
100-499							24	21	27	39	33	44	10	9	11	16	14	18	6	5	7	10	8	11	112	81	142	200	181	219
500-999							8	7	9	13	11	15	3	3	4	5	5	6	2	2	2	3	3	4	38	27	48	68	62	74
1,000-3,299							6	6	7	14	12	16	3	2	3	6	5	7	0	0	0	1	1	1	26	18	35	66	60	72
3,300-9,999							2	1	2	4	3	4	1	1	1	2	1	2	0	0	0	0	0	0	7	5	10	18	16	19
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	3	3	3
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	0	0	0	0	0	0	63	54	72	94	80	108	27	23	31	40	33	46	15	13	16	21	18	23	290	214	366	477	432	522

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Alternative 3. Surface water systems serving 10,000 or more people: Use ending technolo

Exhibit C.14a

Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)

Alternative 3

System Size (Population Served)	No Advanced Treatment Technology CL2[1]	No Advanced Treatment Technology CLM[1]	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	92.8%	4.2%	0.0%	1.0%	0.0%	0.0%	0.3%	0.9%	0.3%	0.5%	93.4%	6.6%
100-499	91.5%	4.9%	0.0%	1.5%	0.2%	0.5%	0.2%	0.6%	0.1%	0.5%	91.9%	8.1%
500-999	91.5%	4.9%	0.0%	1.5%	0.2%	0.5%	0.2%	0.6%	0.1%	0.5%	91.9%	8.1%
1,000-3,299	92.5%	4.0%	0.0%	1.6%	0.3%	0.9%	0.0%	0.3%	0.1%	0.5%	92.8%	7.2%
3,300-9,999	92.5%	4.0%	0.0%	1.6%	0.3%	0.9%	0.0%	0.3%	0.1%	0.5%	92.8%	7.2%
10,000-49,999	84.4%	10.7%			1.0%	0.8%	0.0%	0.7%	1.7%	0.8%	87.0%	13.0%
50,000-99,999	84.4%	10.7%			1.0%	0.8%	0.0%	0.7%	1.7%	0.8%	87.0%	13.0%
100,000-999,999	85.0%	10.3%			1.0%	0.7%	0.0%	0.6%	1.7%	0.8%	87.6%	12.4%
>=1,000,000	85.0%	10.3%			1.0%	0.7%	0.0%	0.6%	1.7%	0.8%	87.6%	12.4%
Total %	90.9%	5.4%	0.0%	1.2%	0.3%	0.6%	0.1%	0.6%	0.4%	0.5%	91.7%	8.3%

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Alternative 3.

Exhibit C.14b

Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)

Alternative 3

System Size (Population Served)	No Advanced Treatment Technology CL2[1]	No Advanced Treatment Technology CLM[1]	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	5,958	272	0	64	0	0	21	56	22	29	6,002	421
100-499	13,945	747	0	230	25	74	26	97	20	80	14,015	1,227
500-999	5,575	299	0	92	10	29	10	39	8	32	5,603	491
1,000-3,299	7,015	303	0	122	22	66	0	19	4	36	7,041	546
3,300-9,999	4,651	201	0	81	15	44	0	13	3	24	4,668	362
10,000-49,999	4,543	574			53	42	0	36	90	45	4,685	697
50,000-99,999	604	76			7	6	0	5	12	6	623	93
100,000-999,999	781	94			9	6	0	6	15	7	805	113
>=1,000,000	23	3			0	0	0	0	0	0	24	3
Total Plants	43,095	2,570	0	588	140	267	57	271	173	258	43,465	3,954

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Alternative 3.

Exhibit C.14c
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Alternative 3

System Size (Population Served)	No Advanced Treatment Technology CL2[1]	No Advanced Treatment Technology CLM[1]	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	92.8%	4.2%	0.0%	1.0%	0.0%	0.0%	0.3%	0.9%	0.3%	0.5%	93.4%	6.6%
100-499	91.5%	4.9%	0.0%	1.5%	0.2%	0.5%	0.2%	0.6%	0.1%	0.5%	91.9%	8.1%
500-999	91.5%	4.9%	0.0%	1.5%	0.2%	0.5%	0.2%	0.6%	0.1%	0.5%	91.9%	8.1%
1,000-3,299	92.5%	4.0%	0.0%	1.6%	0.3%	0.9%	0.0%	0.3%	0.1%	0.5%	92.8%	7.2%
3,300-9,999	92.5%	4.0%	0.0%	1.6%	0.3%	0.9%	0.0%	0.3%	0.1%	0.5%	92.8%	7.2%
10,000-49,999	84.4%	10.7%			1.0%	0.8%	0.0%	0.7%	1.7%	0.8%	87.0%	13.0%
50,000-99,999	84.4%	10.7%			1.0%	0.8%	0.0%	0.7%	1.7%	0.8%	87.0%	13.0%
100,000-999,999	85.0%	10.3%			1.0%	0.7%	0.0%	0.6%	1.7%	0.8%	87.6%	12.4%
>=1,000,000	0.0%	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	92.1%	4.6%	0.0%	1.3%	0.1%	0.3%	0.2%	0.7%	0.2%	0.5%	92.7%	7.3%

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Alternative 3.

Exhibit C.14d
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Alternative 3

System Size (Population Served)	No Advanced Treatment Technology CL2[1]	No Advanced Treatment Technology CLM[1]	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	2,313	106	0	25	0	0	8	22	9	11	2,329	164
100-499	1,948	104	0	32	3	10	4	14	3	11	1,957	171
500-999	539	29	0	9	1	3	1	4	1	3	542	47
1,000-3,299	228	10	0	4	1	2	0	1	0	1	229	18
3,300-9,999	20	1	0	0	0	0	0	0	0	0	20	2
10,000-49,999	3	0			0	0	0	0	0	0	3	0
50,000-99,999	0	0			0	0	0	0	0	0	0	0
100,000-999,999	0	0			0	0	0	0	0	0	0	0
>=1,000,000	0	0			0	0	0	0	0	0	0	0
Total Plants	5,051	250	0	70	5	16	13	40	12	27	5,081	402

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Alternative 3.

Exhibit C.15a
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K		
<100	2.1%	1.1%	3.0%							4.5%	2.3%	6.6%	3.3%	1.7%	4.9%							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
100-499	4.5%	2.3%	6.6%	0.1%	0.1%	0.2%	0.4%	0.2%	0.6%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
500-999	4.5%	2.3%	6.6%	0.1%	0.1%	0.2%	0.4%	0.2%	0.6%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
1,000-3,299	4.6%	2.4%	6.9%	0.2%	0.1%	0.3%	1.0%	0.5%	1.5%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
3,300-9,999	4.6%	2.4%	6.9%	0.2%	0.1%	0.3%	1.0%	0.5%	1.5%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
10,000-49,999	8.6%	4.5%	12.7%	0.1%	0.0%	0.1%	0.7%	0.3%	1.0%	1.2%	0.6%	1.7%	0.3%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50,000-99,999	8.6%	4.5%	12.7%	0.1%	0.0%	0.1%	0.7%	0.3%	1.0%	1.2%	0.6%	1.7%	0.3%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	8.6%	4.5%	12.7%	0.1%	0.0%	0.1%	0.7%	0.3%	1.0%	1.2%	0.6%	1.7%	0.3%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
>=1,000,000	8.6%	4.5%	12.7%	0.1%	0.0%	0.1%	0.7%	0.3%	1.0%	1.2%	0.6%	1.7%	0.3%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	6.0%	3.1%	8.9%	0.1%	0.1%	0.2%	0.7%	0.4%	1.0%	1.3%	0.7%	2.0%	1.1%	0.6%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	L			M			N			O			P			Q			R			S			T=A+C+E+G+I+K+M+O+Q+S			L = SUM(A:S)					
<100							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.4%	1.1%	0.5%	0.3%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%	3.1%	8.8%	11.1%	5.8%	16.5%			
100-499							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.3%	0.9%	0.8%	0.4%	1.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	7.1%	3.7%	10.5%	9.2%	4.8%	13.6%			
500-999							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.3%	0.9%	0.8%	0.4%	1.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	7.1%	3.7%	10.5%	9.2%	4.8%	13.6%	9.6%	5.0%	14.2%
1,000-3,299							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.3%	0.8%	0.9%	0.5%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.9%	4.1%	11.7%	9.7%	5.0%	14.3%			
3,300-9,999							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.3%	0.8%	0.9%	0.5%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.9%	4.1%	11.7%	9.7%	5.0%	14.3%			
10,000-49,999	1.1%	0.5%	1.6%	0.4%	0.2%	0.6%	0.5%	0.3%	0.8%	0.2%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	5.2%	14.9%	12.9%	6.7%	19.1%			
50,000-99,999	1.1%	0.5%	1.6%	0.4%	0.2%	0.6%	0.5%	0.3%	0.8%	0.2%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	5.2%	14.9%	12.9%	6.7%	19.1%	12.9%	6.7%	19.1%
100,000-999,999	1.1%	0.5%	1.6%	0.4%	0.2%	0.6%	0.5%	0.3%	0.8%	0.2%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	5.2%	14.9%	12.9%	6.7%	19.1%			
>=1,000,000	1.1%	0.5%	1.6%	0.4%	0.2%	0.6%	0.5%	0.3%	0.8%	0.2%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	5.2%	14.9%	12.9%	6.7%	19.1%			
Total %	0.4%	0.2%	0.6%	0.1%	0.1%	0.2%	0.2%	0.1%	0.3%	0.1%	0.0%	0.1%	0.4%	0.2%	0.5%	0.5%	0.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.5%	4.4%	12.5%	10.9%	5.7%	16.1%	10.9%	5.7%	16.1%

Note: Detail may not add to totals due to independent rounding

Source: Technology Selection for the Stage 2 Preferred Alternative, 20% Safety Margin minus the Stage 1 Technology Selection from Appendix C, Exhibit C.1a.

Exhibit C.15b
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B						C						D						E						F					
<100	7	4	11							16	8	24	12	6	18							0	0	0	0	0	0						
100-499	34	18	51	1	1	1	3	2	5	10	5	15	11	6	16	0	0	0	0	0	0	0	0	0	0	0	0						
500-999	22	11	32	1	0	1	2	1	3	6	3	10	7	4	10	0	0	0	0	0	0	0	0	0	0	0	0						
1,000-3,299	52	27	78	2	1	3	11	6	16	12	6	17	15	8	23	0	0	0	0	0	0	0	0	0	0	0	0						
3,300-9,999	58	30	86	2	1	4	12	6	18	13	7	19	17	9	26	0	0	0	0	0	0	0	0	0	0	0	0						
10,000-49,999	111	58	164	1	0	1	8	4	12	15	8	22	4	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	50	26	73	0	0	1	4	2	6	7	4	10	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	52	27	77	0	0	1	4	2	6	7	4	10	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	6	3	9	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	393	205	582	8	4	12	45	24	67	87	46	129	69	36	102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	G						H						I						J						T=A+C+E+G+I+K+M+O+Q+S			L = SUM(A:S)					
<100							0	0	0	0	0	0	3	1	4	2	1	3	0	0	0	0	0	0	21	11	31	40	21	59			
100-499							0	0	0	0	0	0	5	2	7	6	3	9	0	0	0	0	0	1	54	28	81	70	37	104			
500-999							0	0	0	0	0	0	3	2	4	4	2	5	0	0	0	0	0	0	34	18	51	44	23	66	385	201	570
1,000-3,299							0	0	0	0	0	0	6	3	9	10	5	15	0	0	0	0	0	0	89	47	132	109	57	162			
3,300-9,999							0	0	0	0	0	0	7	4	10	11	6	17	0	0	0	0	0	0	99	52	147	122	63	180			
10,000-49,999	14	7	20	5	3	7	7	4	10	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	130	68	192	166	87	246			
50,000-99,999	6	3	9	2	1	3	3	2	5	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	58	30	86	75	39	110	329	172	487
100,000-999,999	6	3	10	2	1	3	3	2	5	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	61	32	91	79	41	116			
>=1,000,000	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	4	11	9	5	14			
Total Plants	27	14	40	10	5	15	14	7	21	4	2	7	23	12	34	33	17	49	0	0	0	1	0	1	555	290	822	714	373	1,057	714	373	1,057

Note: Detail may not add to totals due to independent rounding

Source: Above table with technologies switching from an advanced technology with Cl2 to the same advanced technology with CLM being moved into the CLM only column

Exhibit C.15c

Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)

Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K		
<100	2.1%	1.1%	3.0%							4.5%	2.3%	6.6%	3.3%	1.7%	4.9%							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
100-499	4.5%	2.3%	6.6%	0.1%	0.1%	0.2%	0.4%	0.2%	0.6%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
500-999	4.5%	2.3%	6.6%	0.1%	0.1%	0.2%	0.4%	0.2%	0.6%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
1,000-3,299	4.6%	2.4%	6.9%	0.2%	0.1%	0.3%	1.0%	0.5%	1.5%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
3,300-9,999	4.6%	2.4%	6.9%	0.2%	0.1%	0.3%	1.0%	0.5%	1.5%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
10,000-49,999	8.6%	4.5%	12.7%	0.1%	0.0%	0.1%	0.7%	0.3%	1.0%	1.2%	0.6%	1.7%	0.3%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	8.6%	4.5%	12.7%	0.1%	0.0%	0.1%	0.7%	0.3%	1.0%	1.2%	0.6%	1.7%	0.3%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	3.8%	2.0%	5.7%	0.1%	0.1%	0.1%	0.4%	0.2%	0.6%	2.2%	1.2%	3.3%	2.0%	1.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	L			M			N			O			P			Q			R			S			T=A+C+E+G+I+K+M+O+Q+S			L = SUM(A:S)					
<100							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.4%	1.1%	0.5%	0.3%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%	3.1%	8.8%	11.1%	5.8%	16.5%			
100-499							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.3%	0.9%	0.8%	0.4%	1.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	7.1%	3.7%	10.5%	9.2%	4.8%	13.6%			
500-999							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.3%	0.9%	0.8%	0.4%	1.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	7.1%	3.7%	10.5%	9.2%	4.8%	13.6%	10.1%	5.3%	14.9%
1,000-3,299							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.3%	0.8%	0.9%	0.5%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.9%	4.1%	11.7%	9.7%	5.0%	14.3%			
3,300-9,999							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.3%	0.8%	0.9%	0.5%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.9%	4.1%	11.7%	9.7%	5.0%	14.3%			
10,000-49,999	1.1%	0.5%	1.6%	0.4%	0.2%	0.6%	0.5%	0.3%	0.8%	0.2%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	5.2%	14.9%	12.9%	6.7%	19.1%			
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.9%	6.7%	19.1%
100,000-999,999	1.1%	0.5%	1.6%	0.4%	0.2%	0.6%	0.5%	0.3%	0.8%	0.2%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	5.2%	14.9%	12.9%	6.7%	19.1%			
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.3%	0.9%	0.7%	0.4%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	6.9%	3.6%	10.2%	9.9%	5.1%	14.6%	9.9%	5.1%	14.6%

Note: Detail may not add to totals due to independent rounding

Source: Technology Selection for the Stage 2 Preferred Alternative, 20% Safety Margin minus the Stage 1 Technology Selection from Appendix C, Exhibit C.1b.

Exhibit C.15d

Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Surface Water Plants (Number of Plants by Residual Disinfection Type)

Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B						C						D						E						F					
<100	5	2	7							10	5	15	7	4	11							0	0	0	0	0	0						
100-499	14	7	21	0	0	1	1	1	2	4	2	6	4	2	6	0	0	0	0	0	0	0	0	0	0	0	0						
500-999	5	2	7	0	0	0	0	0	1	1	1	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0						
1,000-3,299	4	2	6	0	0	0	1	0	1	1	1	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0						
3,300-9,999	1	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0						
10,000-49,999	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	29	15	43	1	0	1	3	1	4	17	9	25	15	8	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	G						H						I						J						T=A+C+E+G+I+K+M+O+Q+S			L = SUM(A:S)					
<100							0	0	0	0	0	0	2	1	2	1	1	2	0	0	0	0	0	0	13	7	20	25	13	37			
100-499							0	0	0	0	0	0	2	1	3	2	1	4	0	0	0	0	0	0	22	12	33	29	15	42			
500-999							0	0	0	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0	8	4	11	10	5	14	75	39	111
1,000-3,299							0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	7	4	11	9	5	13			
3,300-9,999							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	2	1	4			
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1			
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total Plants	0	0	0	0	0	0	0	0	0	0	0	0	5	3	7	5	3	8	0	0	0	0	0	0	53	28	78	76	39	112	76	39	112

Note: Detail may not add to totals due to independent rounding

Source: Above table with technologies switching from an advanced technology with Cl2 to the same advanced technology with CLM being moved into the CLM only column

Exhibit C.16a
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	1.0%	0.0%	1.1%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	2.0%	2.4%	
100-499	1.4%	0.0%	1.6%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.0%	3.2%	
500-999	1.4%	0.0%	1.6%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.0%	3.2%	2.9%
1,000-3,299	1.1%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	2.7%	
3,300-9,999	1.1%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	2.7%	
10,000-49,999	1.4%			0.1%	0.2%	0.0%	0.2%	0.0%	0.2%	2.0%	2.1%	
50,000-99,999	1.4%			0.1%	0.2%	0.0%	0.2%	0.0%	0.2%	2.0%	2.1%	2.1%
100,000-999,999	1.3%			0.1%	0.2%	0.0%	0.1%	0.0%	0.2%	1.9%	2.0%	
>=1,000,000	1.4%			0.1%	0.2%	0.0%	0.1%	0.0%	0.2%	2.0%	2.1%	
Total %	1.3%	0.0%	1.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	2.6%	2.8%	2.8%

Note: Detail may not add to totals due to independent rounding

Exhibit C.16b
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	61	0	70	0	0	23	0	0	0	132	155	
100-499	213	0	243	0	0	27	0	0	0	456	483	
500-999	85	0	97	0	0	11	0	0	0	182	193	1,169
1,000-3,299	82	0	118	0	0	0	4	0	0	204	204	
3,300-9,999	54	0	78	0	0	0	2	0	0	135	135	
10,000-49,999	75			3	12	0	8	2	11	107	111	
50,000-99,999	10			0	2	0	1	0	2	14	15	145
100,000-999,999	12			0	2	0	1	0	2	17	18	
>=1,000,000	0			0	0	0	0	0	0	1	1	
Total Plants	593	0	607	4	15	61	17	2	15	1,247	1,314	1,314

Note: Detail may not add to totals due to independent rounding

Exhibit C.16c
Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	1.0%	0.0%	1.1%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	2.0%	2.4%	
100-499	1.4%	0.0%	1.6%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.0%	3.2%	
500-999	1.4%	0.0%	1.6%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.0%	3.2%	2.8%
1,000-3,299	1.1%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	2.7%	
3,300-9,999	1.1%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	2.7%	
10,000-49,999	1.4%			0.1%	0.2%	0.0%	0.2%	0.0%	0.2%	2.0%	2.1%	
50,000-99,999	1.4%			0.1%	0.2%	0.0%	0.2%	0.0%	0.2%	2.0%	2.1%	2.1%
100,000-999,999	1.3%			0.1%	0.2%	0.0%	0.1%	0.0%	0.2%	1.9%	2.0%	
>=1,000,000	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Total %	1.2%	0.0%	1.4%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	2.5%	2.8%	2.8%

Note: Detail may not add to totals due to independent rounding

Exhibit C.16d
Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	24	0	27	0	0	9	0	0	0	51	60	
100-499	30	0	34	0	0	4	0	0	0	64	67	
500-999	8	0	9	0	0	1	0	0	0	18	19	153
1,000-3,299	3	0	4	0	0	0	0	0	0	7	7	
3,300-9,999	0	0	0	0	0	0	0	0	0	1	1	
10,000-49,999	0			0	0	0	0	0	0	0	0	
50,000-99,999	0			0	0	0	0	0	0	0	0	0
100,000-999,999	0			0	0	0	0	0	0	0	0	
>=1,000,000	0			0	0	0	0	0	0	0	0	
Total Plants	65	0	75	0	0	14	0	0	0	140	154	154

Note: Detail may not add to totals due to independent rounding

Exhibit C.17a
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	No Advanced Treatment Technology CL2[1]			No Advanced Treatment Technology CLM1			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F		
<100	30.7%	25.4%	36.0%	31.8%	30.8%	32.8%							4.5%	2.3%	6.6%	3.3%	1.7%	4.9%
100-499	26.4%	22.0%	30.8%	39.9%	37.8%	42.0%	1.1%	1.0%	1.1%	1.3%	1.1%	1.5%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%
500-999	26.4%	22.0%	30.8%	39.9%	37.8%	42.0%	1.1%	1.0%	1.1%	1.3%	1.1%	1.5%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%
1,000-3,299	23.8%	19.1%	28.4%	46.0%	43.8%	48.2%	2.1%	2.0%	2.2%	3.1%	2.6%	3.6%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%
3,300-9,999	23.8%	19.1%	28.4%	46.0%	43.8%	48.2%	2.1%	2.0%	2.2%	3.1%	2.6%	3.6%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%
10,000-49,999	31.2%	31.2%	31.2%	41.0%	41.0%	41.0%	3.0%	3.0%	3.0%	4.0%	4.0%	4.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%
50,000-99,999	31.2%	31.2%	31.2%	41.0%	41.0%	41.0%	3.0%	3.0%	3.0%	4.0%	4.0%	4.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%
100,000-999,999	31.2%	31.2%	31.2%	41.0%	41.0%	41.0%	3.0%	3.0%	3.0%	4.0%	4.0%	4.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%
>=1,000,000	31.2%	31.2%	31.2%	41.0%	41.0%	41.0%	3.0%	3.0%	3.0%	4.0%	4.0%	4.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%
Total %	27.6%	24.7%	30.4%	42.1%	40.8%	43.4%	2.1%	2.1%	2.2%	2.9%	2.7%	3.1%	1.0%	0.6%	1.4%	1.1%	0.7%	1.6%

System Size (Population Served)	Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	G			H			I			J			K			L		
<100							14.5%	14.5%	14.5%	7.1%	7.1%	7.1%						
100-499	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	8.9%	8.9%	8.9%	4.8%	4.8%	4.8%						
500-999	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	8.9%	8.9%	8.9%	4.8%	4.8%	4.8%						
1,000-3,299	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.2%	6.2%	6.2%	2.9%	2.9%	2.9%						
3,300-9,999	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.2%	6.2%	6.2%	2.9%	2.9%	2.9%						
10,000-49,999	5.5%	5.5%	5.5%	7.3%	7.3%	7.3%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	1.2%	1.2%	1.2%
50,000-99,999	5.5%	5.5%	5.5%	7.3%	7.3%	7.3%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	1.2%	1.2%	1.2%
100,000-999,999	5.5%	5.5%	5.5%	7.3%	7.3%	7.3%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	1.2%	1.2%	1.2%
>=1,000,000	5.5%	5.5%	5.5%	7.3%	7.3%	7.3%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	1.2%	1.2%	1.2%
Total %	4.6%	4.6%	4.6%	5.3%	5.3%	5.3%	5.1%	5.1%	5.1%	2.8%	2.8%	2.8%	0.4%	0.4%	0.4%	0.5%	0.5%	0.5%

System Size (Population Served)	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R			S			T		
<100							2.0%	2.0%	2.0%	1.3%	1.3%	1.3%	0.7%	0.4%	1.1%	0.5%	0.3%	0.8%	2.1%	2.1%	2.1%	1.4%	1.4%	1.4%
100-499							1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	1.1%	0.8%	1.4%	1.2%	0.8%	1.6%	0.5%	0.5%	0.5%	0.5%	0.4%	0.5%
500-999							1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	1.1%	0.8%	1.4%	1.2%	0.8%	1.6%	0.5%	0.5%	0.5%	0.5%	0.4%	0.5%
1,000-3,299							1.0%	1.0%	1.0%	1.2%	1.2%	1.2%	1.1%	0.8%	1.3%	1.5%	1.1%	1.9%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
3,300-9,999							1.0%	1.0%	1.0%	1.2%	1.2%	1.2%	1.1%	0.8%	1.3%	1.5%	1.1%	1.9%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
10,000-49,999	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%
50,000-99,999	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%
100,000-999,999	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%
>=1,000,000	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%
Total %	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.6%	0.5%	0.8%	0.8%	0.6%	1.0%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%

System Size (Population Served)	TOTAL CL2			TOTAL CLM		
	Mean	5th	95th	Mean	5th	95th
	U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100	54.5%	46.7%	62.3%	45.5%	42.6%	48.3%
100-499	45.4%	40.0%	50.8%	54.6%	51.2%	58.0%
500-999	45.4%	40.0%	50.8%	54.6%	51.2%	58.0%
1,000-3,299	39.4%	33.9%	44.8%	60.6%	56.9%	64.4%
3,300-9,999	39.4%	33.9%	44.8%	60.6%	56.9%	64.4%
10,000-49,999	43.2%	43.2%	43.2%	56.8%	56.8%	56.8%
50,000-99,999	43.2%	43.2%	43.2%	56.8%	56.8%	56.8%
100,000-999,999	43.2%	43.2%	43.2%	56.8%	56.8%	56.8%
>=1,000,000	43.2%	43.2%	43.2%	56.8%	56.8%	56.8%
Total %	42.9%	39.4%	46.3%	57.1%	55.0%	59.3%

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 20% Safety Margin. Surface water systems serving 10,000 o

Exhibit C.17b
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	No Advanced Treatment Technology CL2[1]			No Advanced Treatment Technology CLM1			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F		
<100	110	91	129	114	111	118							16	8	24	12	6	18
100-499	203	169	236	306	289	322	8	8	9	10	8	11	10	5	15	11	6	16
500-999	128	106	149	193	182	203	5	5	6	6	5	7	6	3	10	7	4	10
1,000-3,299	269	216	321	519	494	544	24	23	25	35	30	40	12	6	17	15	8	23
3,300-9,999	299	241	357	579	551	607	26	25	27	39	33	45	13	7	19	17	9	26
10,000-49,999	403	403	403	529	529	529	39	39	39	51	51	51	4	4	4	5	5	5
50,000-99,999	181	181	181	237	237	237	17	17	17	23	23	23	2	2	2	2	2	2
100,000-999,999	190	190	190	250	250	250	18	18	18	24	24	24	2	2	2	3	3	3
>=1,000,000	23	23	23	30	30	30	2	2	2	3	3	3	0	0	0	0	0	0
Total Plants	1,805	1,620	1,989	2,758	2,674	2,841	140	138	143	191	177	205	66	38	94	73	43	103

System Size (Population Served)	Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	G			H			I			J			K			L		
<100							52	52	52	26	26	26						
100-499	39	39	39	35	35	35	68	68	68	37	37	37						
500-999	24	24	24	22	22	22	43	43	43	23	23	23						
1,000-3,299	45	45	45	51	51	51	70	70	70	32	32	32						
3,300-9,999	50	50	50	56	56	56	78	78	78	36	36	36						
10,000-49,999	72	72	72	94	94	94	10	10	10	13	13	13	12	12	12	16	16	16
50,000-99,999	32	32	32	42	42	42	5	5	5	6	6	6	6	6	6	7	7	7
100,000-999,999	34	34	34	44	44	44	5	5	5	6	6	6	6	6	6	8	8	8
>=1,000,000	4	4	4	5	5	5	1	1	1	1	1	1	1	1	1	1	1	1
Total Plants	301	301	301	350	350	350	331	331	331	181	181	181	24	24	24	32	32	32

System Size (Population Served)	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R			S			T		
<100							7	7	7	5	5	5	3	1	4	2	1	3	8	8	8	5	5	5
100-499							8	8	8	7	7	7	8	6	11	9	6	12	3	3	3	4	3	4
500-999							5	5	5	5	5	5	5	4	7	6	4	8	2	2	2	2	2	2
1,000-3,299							12	12	12	13	13	13	12	9	15	17	12	22	2	2	2	2	2	2
3,300-9,999							13	13	13	15	15	15	13	10	16	19	13	24	2	2	2	2	2	2
10,000-49,999	10	10	10	13	13	13	4	4	4	5	5	5	0	0	0	0	0	0	4	4	4	5	5	5
50,000-99,999	5	5	5	6	6	6	2	2	2	2	2	2	0	0	0	0	0	0	2	2	2	2	2	2
100,000-999,999	5	5	5	6	6	6	2	2	2	3	3	3	0	0	0	0	0	0	2	2	2	3	3	3
>=1,000,000	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	20	20	20	27	27	27	53	53	53	55	55	55	41	30	52	52	37	68	26	26	26	26	26	27

System Size (Population Served)	TOTAL CL2			TOTAL CLM		
	Mean	5th	95th	Mean	5th	95th
	U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100	196	168	224	163	153	174
100-499	348	307	390	418	392	445
500-999	219	193	245	264	247	280
1,000-3,299	445	383	506	685	642	728
3,300-9,999	495	426	564	763	716	811
10,000-49,999	558	558	558	733	733	733
50,000-99,999	250	250	250	329	329	329
100,000-999,999	264	264	264	347	347	347
>=1,000,000	32	32	32	42	42	42
Total Plants	2,808	2,581	3,034	3,744	3,601	3,887

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 20% Safety Margin. Surface water systems serving 10,000 o

Exhibit C.17c
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Stage 2 Preferred Alternative, 20% Safety Margin

System Size	No Advanced Treatment Technology CL21			No Advanced Treatment Technology CLM1			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K			L		
<100	30.7%	25.4%	36.0%	31.8%	30.8%	32.8%							4.5%	2.3%	6.6%	3.3%	1.7%	4.9%							14.5%	14.5%	14.5%	7.1%	7.1%	7.1%						
100-499	26.4%	22.0%	30.8%	39.9%	37.8%	42.0%	1.1%	1.0%	1.1%	1.3%	1.1%	1.5%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	8.9%	8.9%	8.9%	4.8%	4.8%	4.8%						
500-999	26.4%	22.0%	30.8%	39.9%	37.8%	42.0%	1.1%	1.0%	1.1%	1.3%	1.1%	1.5%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	8.9%	8.9%	8.9%	4.8%	4.8%	4.8%						
1,000-3,299	23.8%	19.1%	28.4%	46.0%	43.8%	48.2%	2.1%	2.0%	2.2%	3.1%	2.6%	3.6%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.2%	6.2%	6.2%	2.9%	2.9%	2.9%						
3,300-9,999	23.8%	19.1%	28.4%	46.0%	43.8%	48.2%	2.1%	2.0%	2.2%	3.1%	2.6%	3.6%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.2%	6.2%	6.2%	2.9%	2.9%	2.9%						
10,000-49,999	31.2%	31.2%	31.2%	41.0%	41.0%	41.0%	3.0%	3.0%	3.0%	4.0%	4.0%	4.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	5.5%	5.5%	5.5%	7.3%	7.3%	7.3%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	1.2%	1.2%	1.2%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	31.2%	31.2%	31.2%	41.0%	41.0%	41.0%	3.0%	3.0%	3.0%	4.0%	4.0%	4.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	5.5%	5.5%	5.5%	7.3%	7.3%	7.3%	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	1.2%	1.2%	1.2%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	27.3%	22.6%	32.0%	38.4%	36.7%	40.3%	0.9%	0.9%	1.0%	1.2%	1.0%	1.4%	2.2%	1.2%	3.3%	2.0%	1.0%	2.9%	3.4%	3.4%	3.4%	3.2%	3.2%	3.2%	10.1%	10.1%	10.1%	5.2%	5.2%	5.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

System Size	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R			S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100							2.0%	2.0%	2.0%	1.3%	1.3%	1.3%	0.7%	0.4%	1.1%	0.5%	0.3%	0.8%	2.1%	2.1%	2.1%	1.4%	1.4%	1.4%	54.5%	46.7%	62.3%	45.5%	42.6%	48.3%
100-499							1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	1.1%	0.8%	1.4%	1.2%	0.8%	1.6%	0.5%	0.5%	0.5%	0.5%	0.4%	0.5%	45.4%	40.0%	50.8%	54.6%	51.2%	58.0%
500-999							1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	1.1%	0.8%	1.4%	1.2%	0.8%	1.6%	0.5%	0.5%	0.5%	0.5%	0.4%	0.5%	45.4%	40.0%	50.8%	54.6%	51.2%	58.0%
1,000-3,299							1.0%	1.0%	1.0%	1.2%	1.2%	1.2%	1.1%	0.8%	1.3%	1.5%	1.1%	1.9%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	39.4%	33.9%	44.8%	60.6%	56.9%	64.4%
3,300-9,999							1.0%	1.0%	1.0%	1.2%	1.2%	1.2%	1.1%	0.8%	1.3%	1.5%	1.1%	1.9%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	39.4%	33.9%	44.8%	60.6%	56.9%	64.4%
10,000-49,999	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	43.2%	43.2%	43.2%	56.8%	56.8%	56.8%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	0.8%	0.8%	0.8%	1.0%	1.0%	1.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	43.2%	43.2%	43.2%	56.8%	56.8%	56.8%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	1.3%	1.3%	1.1%	1.1%	1.1%	1.0%	0.7%	1.3%	1.0%	0.7%	1.4%	0.9%	0.9%	0.9%	0.7%	0.7%	0.7%	47.2%	41.1%	53.2%	52.8%	49.6%	56.1%

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 20% Safety Margin. Surface water systems serving 10,000 o

Exhibit C.17d
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Stage 2 Preferred Alternative, 20% Safety Margin

System Size	No Advanced Treatment Technology CL21			No Advanced Treatment Technology CLM1			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K			L		
<100	69	57	81	72	70	74							10	5	15	7	4	11							33	33	33	16	16	16						
100-499	82	69	96	124	118	131	3	3	4	4	3	5	4	2	6	4	2	6	16	16	16	14	14	14	28	28	28	15	15	15						
500-999	28	23	33	42	40	45	1	1	1	1	1	2	1	1	2	1	1	2	5	5	5	5	5	5	9	9	9	5	5	5						
1,000-3,299	22	18	26	42	40	44	2	2	2	3	2	3	1	1	1	1	1	2	4	4	4	4	4	4	6	6	6	3	3	3						
3,300-9,999	6	5	7	11	11	12	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	2	2	2	1	1	1						
10,000-49,999	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	210	174	245	295	281	309	7	7	8	9	8	11	17	9	25	15	8	22	26	26	26	25	25	25	77	77	77	40	40	40	0	0	0	0	0	0

System Size	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R			S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100							4	4	4	3	3	3	2	1	2	1	1	2	5	5	5	3	3	3	123	105	141	103	96	109
100-499							3	3	3	3	3	3	3	2	4	4	3	5	1	1	1	1	1	2	142	125	159	170	160	181
500-999							1	1	1	1	1	1	1	1	1	1	1	2	0	0	0	1	0	1	48	42	54	58	54	61
1,000-3,299							1	1	1	1	1	1	1	1	1	1	1	2	0	0	0	0	0	0	36	31	41	56	52	59
3,300-9,999							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	8	11	15	14	16
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	3	3	3
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	0	0	0	0	0	0	10	10	10	8	8	8	7	5	10	8	5	11	7	7	7	5	5	6	362	315	408	405	380	430

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 20% Safety Margin. Surface water systems serving 10,000 o

Exhibit C.18a

Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)

Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	No Advanced Treatment Technology CL2[1]	No Advanced Treatment Technology CLM[1]	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	93.5%	3.4%	0.0%	1.1%	0.0%	0.0%	0.4%	0.9%	0.3%	0.5%	94.2%	5.8%
100-499	92.1%	4.2%	0.0%	1.6%	0.2%	0.5%	0.2%	0.6%	0.1%	0.5%	92.6%	7.4%
500-999	92.1%	4.2%	0.0%	1.6%	0.2%	0.5%	0.2%	0.6%	0.1%	0.5%	92.6%	7.4%
1,000-3,299	93.0%	3.6%	0.0%	1.6%	0.3%	0.9%	0.0%	0.1%	0.1%	0.5%	93.4%	6.6%
3,300-9,999	93.0%	3.6%	0.0%	1.6%	0.3%	0.9%	0.0%	0.1%	0.1%	0.5%	93.4%	6.6%
10,000-49,999	87.1%	8.6%			0.9%	1.0%	0.0%	0.2%	1.7%	0.5%	89.7%	10.3%
50,000-99,999	87.1%	8.6%			0.9%	1.0%	0.0%	0.2%	1.7%	0.5%	89.7%	10.3%
100,000-999,999	87.5%	8.4%			0.9%	0.9%	0.0%	0.2%	1.7%	0.4%	90.1%	9.9%
>=1,000,000	87.4%	8.5%			0.9%	0.9%	0.0%	0.2%	1.7%	0.4%	90.0%	10.0%
Total %	91.8%	4.6%	0.0%	1.3%	0.3%	0.6%	0.1%	0.5%	0.4%	0.5%	92.6%	7.4%

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 20% Safety Margin.

Exhibit C.18b

Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)

Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	No Advanced Treatment Technology CL2[1]	No Advanced Treatment Technology CLM[1]	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	6,005	217	0	70	0	0	23	56	22	29	6,051	372
100-499	14,038	640	0	243	25	74	27	97	20	80	14,109	1,133
500-999	5,612	256	0	97	10	29	11	39	8	32	5,640	453
1,000-3,299	7,060	273	0	118	22	66	0	8	4	36	7,086	502
3,300-9,999	4,680	181	0	78	15	44	0	5	3	24	4,698	332
10,000-49,999	4,690	464			48	53	0	10	91	25	4,829	553
50,000-99,999	624	62			6	7	0	1	12	3	642	74
100,000-999,999	803	77			8	8	0	2	15	4	827	91
>=1,000,000	24	2			0	0	0	0	0	0	25	3
Total Plants	43,535	2,173	0	607	134	282	61	218	175	233	43,906	3,514

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 20% Safety Margin.

Exhibit C.18c
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	No Advanced Treatment Technology CL21	No Advanced Treatment Technology CLM1	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	93.5%	3.4%	0.0%	1.1%	0.0%	0.0%	0.4%	0.9%	0.3%	0.5%	94.2%	5.8%
100-499	92.1%	4.2%	0.0%	1.6%	0.2%	0.5%	0.2%	0.6%	0.1%	0.5%	92.6%	7.4%
500-999	92.1%	4.2%	0.0%	1.6%	0.2%	0.5%	0.2%	0.6%	0.1%	0.5%	92.6%	7.4%
1,000-3,299	93.0%	3.6%	0.0%	1.6%	0.3%	0.9%	0.0%	0.1%	0.1%	0.5%	93.4%	6.6%
3,300-9,999	93.0%	3.6%	0.0%	1.6%	0.3%	0.9%	0.0%	0.1%	0.1%	0.5%	93.4%	6.6%
10,000-49,999	87.1%	8.6%			0.9%	1.0%	0.0%	0.2%	1.7%	0.5%	89.7%	10.3%
50,000-99,999	87.1%	8.6%			0.9%	1.0%	0.0%	0.2%	1.7%	0.5%	89.7%	10.3%
100,000-999,999	87.5%	8.4%			0.9%	0.9%	0.0%	0.2%	1.7%	0.4%	90.1%	9.9%
>=1,000,000	0.0%	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	92.8%	3.8%	0.0%	1.4%	0.1%	0.3%	0.3%	0.7%	0.2%	0.5%	93.3%	6.7%

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 20% Safety Margin.

Exhibit C.18d
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 20% Safety Margin

System Size (Population Served)	No Advanced Treatment Technology CL21	No Advanced Treatment Technology CLM1	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	2,331	84	0	27	0	0	9	22	9	11	2,348	145
100-499	1,961	89	0	34	3	10	4	14	3	11	1,971	158
500-999	543	25	0	9	1	3	1	4	1	3	545	44
1,000-3,299	230	9	0	4	1	2	0	0	0	1	231	16
3,300-9,999	20	1	0	0	0	0	0	0	0	0	20	1
10,000-49,999	3	0			0	0	0	0	0	0	3	0
50,000-99,999	0	0			0	0	0	0	0	0	0	0
100,000-999,999	0	0			0	0	0	0	0	0	0	0
>=1,000,000	0	0			0	0	0	0	0	0	0	0
Total Plants	5,087	208	0	75	5	16	14	39	12	27	5,119	365

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 20% Safety Margin.

Exhibit C.19a

Stage 2 DBPR Treatment Technology Selection Deltas for CWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)

Stage 2 Preferred Alternative, 25% Safety Margin

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K		
<100	2.1%	1.1%	3.0%							4.5%	2.3%	6.6%	3.3%	1.7%	4.9%							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
100-499	4.5%	2.3%	6.6%	0.1%	0.1%	0.2%	0.4%	0.2%	0.6%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
500-999	4.5%	2.3%	6.6%	0.1%	0.1%	0.2%	0.4%	0.2%	0.6%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
1,000-3,299	4.6%	2.4%	6.9%	0.2%	0.1%	0.3%	1.0%	0.5%	1.5%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
3,300-9,999	4.6%	2.4%	6.9%	0.2%	0.1%	0.3%	1.0%	0.5%	1.5%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
10,000-49,999	10.5%	7.0%	13.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	3.4%	6.8%	1.5%	1.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50,000-99,999	10.5%	7.0%	13.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	3.4%	6.8%	1.5%	1.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	10.5%	7.0%	13.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	3.4%	6.8%	1.5%	1.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
>=1,000,000	10.5%	7.0%	13.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	3.4%	6.8%	1.5%	1.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	6.7%	4.1%	9.4%	0.1%	0.0%	0.1%	0.4%	0.2%	0.6%	2.9%	1.8%	3.9%	1.5%	0.9%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	L			M			N			O			P			Q			R			S			T=A+C+E+G+I+K+M+O+Q+S			L = SUM(A:S)					
<100							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.4%	1.1%	0.5%	0.3%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%	3.1%	8.8%	11.1%	5.8%	16.5%			
100-499							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.3%	0.9%	0.8%	0.4%	1.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	7.1%	3.7%	10.5%	9.2%	4.8%	13.6%			
500-999							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.3%	0.9%	0.8%	0.4%	1.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	7.1%	3.7%	10.5%	9.2%	4.8%	13.6%	9.6%	5.0%	14.2%
1,000-3,299							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.3%	0.8%	0.9%	0.5%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.9%	4.1%	11.7%	9.7%	5.0%	14.3%			
3,300-9,999							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.3%	0.8%	0.9%	0.5%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.9%	4.1%	11.7%	9.7%	5.0%	14.3%			
10,000-49,999	1.6%	1.0%	2.1%	0.6%	0.4%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.6%	8.4%	16.7%	19.2%	12.8%	25.5%			
50,000-99,999	1.6%	1.0%	2.1%	0.6%	0.4%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.6%	8.4%	16.7%	19.2%	12.8%	25.5%	19.2%	12.8%	25.5%
100,000-999,999	1.6%	1.0%	2.1%	0.6%	0.4%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.6%	8.4%	16.7%	19.2%	12.8%	25.5%			
>=1,000,000	1.6%	1.0%	2.1%	0.6%	0.4%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.6%	8.4%	16.7%	19.2%	12.8%	25.5%			
Total %	0.6%	0.4%	0.8%	0.2%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.2%	0.5%	0.5%	0.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.5%	5.6%	13.3%	13.4%	8.1%	18.7%	13.4%	8.1%	18.7%

Note: Detail may not add to totals due to independent rounding

Source: Technology Selection for the Stage 2 Preferred Alternative, 25% Safety Margin minus the Stage 1 Technology Selection from Appendix C, Exhibit C.1a.

Exhibit C.19b

Stage 2 DBPR Treatment Technology Selection Deltas for CWS Surface Water Plants (Number of Plants by Residual Disinfection Type)

Stage 2 Preferred Alternative, 25% Safety Margin

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B						C						D						E						F					
<100	7	4	11							16	8	24	12	6	18							0	0	0	0	0	0						
100-499	34	18	51	1	1	1	3	2	5	10	5	15	11	6	16	0	0	0	0	0	0	0	0	0	0	0	0						
500-999	22	11	32	1	0	1	2	1	3	6	3	10	7	4	10	0	0	0	0	0	0	0	0	0	0	0	0						
1,000-3,299	52	27	78	2	1	3	11	6	16	12	6	17	15	8	23	0	0	0	0	0	0	0	0	0	0	0	0						
3,300-9,999	58	30	86	2	1	4	12	6	18	13	7	19	17	9	26	0	0	0	0	0	0	0	0	0	0	0	0						
10,000-49,999	135	90	180	0	0	0	0	0	0	66	44	87	19	13	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	61	40	81	0	0	0	0	0	0	29	20	39	8	6	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	64	43	85	0	0	0	0	0	0	31	21	41	9	6	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	8	5	10	0	0	0	0	0	0	4	2	5	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	442	269	613	6	3	9	28	15	42	188	117	258	100	57	142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	G						H						I						J						T=A+C+E+G+I+K+M+O+Q+S			L = SUM(A:S)					
<100							0	0	0	0	0	0	3	1	4	2	1	3	0	0	0	0	0	0	21	11	31	40	21	59			
100-499							0	0	0	0	0	0	5	2	7	6	3	9	0	0	0	0	0	1	54	28	81	70	37	104			
500-999							0	0	0	0	0	0	3	2	4	4	2	5	0	0	0	0	0	0	34	18	51	44	23	66	385	201	570
1,000-3,299							0	0	0	0	0	0	6	3	9	10	5	15	0	0	0	0	0	0	89	47	132	109	57	162			
3,300-9,999							0	0	0	0	0	0	7	4	10	11	6	17	0	0	0	0	0	0	99	52	147	122	63	180			
10,000-49,999	20	13	27	8	5	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	162	108	216	248	166	330			
50,000-99,999	9	6	12	4	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73	49	97	111	74	148	491	327	652
100,000-999,999	10	6	13	4	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77	51	102	117	78	156			
>=1,000,000	1	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	6	12	14	9	19			
Total Plants	40	27	53	16	11	21	0	0	0	0	0	0	23	12	34	33	17	49	0	0	0	1	0	1	619	370	869	876	529	1,223	876	529	1,223

Note: Detail may not add to totals due to independent rounding

Source: Above table with technologies switching from an advanced technology with Cl2 to the same advanced technology with CLM being moved into the CLM only column

Exhibit C.19c

Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)

Stage 2 Preferred Alternative, 25% Safety Margin

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A			B			C			D			E			F			G			H			I			J			K	
<100	2.1%	1.1%	3.0%							4.5%	2.3%	6.6%	3.3%	1.7%	4.9%							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
100-499	4.5%	2.3%	6.6%	0.1%	0.1%	0.2%	0.4%	0.2%	0.6%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
500-999	4.5%	2.3%	6.6%	0.1%	0.1%	0.2%	0.4%	0.2%	0.6%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
1,000-3,299	4.6%	2.4%	6.9%	0.2%	0.1%	0.3%	1.0%	0.5%	1.5%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
3,300-9,999	4.6%	2.4%	6.9%	0.2%	0.1%	0.3%	1.0%	0.5%	1.5%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
10,000-49,999	10.5%	7.0%	13.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	3.4%	6.8%	1.5%	1.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	10.5%	7.0%	13.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	3.4%	6.8%	1.5%	1.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	3.8%	2.0%	5.7%	0.1%	0.1%	0.1%	0.4%	0.2%	0.5%	2.2%	1.2%	3.3%	2.0%	1.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		L			M			N			O			P			Q			R			S		T=A+C+E+G+I+K+M+O+Q+S				L = SUM(A:S)				
<100							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.4%	1.1%	0.5%	0.3%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%	3.1%	8.8%	11.1%	5.8%	16.5%			
100-499							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.3%	0.9%	0.8%	0.4%	1.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	7.1%	3.7%	10.5%	9.2%	4.8%	13.6%			
500-999							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.3%	0.9%	0.8%	0.4%	1.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	7.1%	3.7%	10.5%	9.2%	4.8%	13.6%	10.1%	5.3%	14.9%
1,000-3,299							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.3%	0.8%	0.9%	0.5%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.9%	4.1%	11.7%	9.7%	5.0%	14.3%			
3,300-9,999							0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.3%	0.8%	0.9%	0.5%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.9%	4.1%	11.7%	9.7%	5.0%	14.3%			
10,000-49,999	1.6%	1.0%	2.1%	0.6%	0.4%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.6%	8.4%	16.7%	19.2%	12.8%	25.5%			
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	19.2%	12.8%	25.5%
100,000-999,999	1.6%	1.0%	2.1%	0.6%	0.4%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.6%	8.4%	16.7%	19.2%	12.8%	25.5%			
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.3%	0.9%	0.7%	0.4%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	6.9%	3.6%	10.2%	9.9%	5.2%	14.6%	9.9%	5.2%	14.6%

Note: Detail may not add to totals due to independent rounding

Source: Technology Selection for the Stage 2 Preferred Alternative, 25% Safety Margin minus the Stage 1 Technology Selection from Appendix C, Exhibit C.1b.

Exhibit C.19d

Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Surface Water Plants (Number of Plants by Residual Disinfection Type)

Stage 2 Preferred Alternative, 25% Safety Margin

System Size (Population Served)	Converting to CLM Only			Chlorine Dioxide						UV						Ozone						MF/UF						GAC10					
				CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM		
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
		A				B							C						D						E					F			
<100	5	2	7							10	5	15	7	4	11							0	0	0	0	0	0						
100-499	14	7	21	0	0	1	1	1	2	4	2	6	4	2	6	0	0	0	0	0	0	0	0	0	0	0	0						
500-999	5	2	7	0	0	0	0	0	1	1	1	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0						
1,000-3,299	4	2	6	0	0	0	1	0	1	1	1	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0						
3,300-9,999	1	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0						
10,000-49,999	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	29	15	43	1	0	1	3	1	4	17	9	25	15	8	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

System Size (Population Served)	GAC10 + Advanced Disinfectants						GAC20						GAC20 + Advanced Disinfectants						Membranes						Total Converting to CLM			Total Adding Treatment Technology					
	CL2			CLM			CL2			CLM			CL2			CLM			CL2			CLM											
	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
			G						H							I						J			T=A+C+E+G+I+K+M+O+Q+S				L = SUM(A:S)				
<100							0	0	0	0	0	0	2	1	2	1	1	2	0	0	0	0	0	0	13	7	20	25	13	37			
100-499							0	0	0	0	0	0	2	1	3	2	1	4	0	0	0	0	0	0	22	12	33	29	15	42			
500-999							0	0	0	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0	8	4	11	10	5	14	75	39	111
1,000-3,299							0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	7	4	11	9	5	13			
3,300-9,999							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	2	1	4			
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1			
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total Plants	0	0	0	0	0	0	0	0	0	0	0	0	5	3	7	5	3	8	0	0	0	0	0	0	53	28	78	76	40	112	76	40	112

Note: Detail may not add to totals due to independent rounding

Source: Above table with technologies switching from an advanced technology with Cl2 to the same advanced technology with CLM being moved into the CLM only column

Exhibit C.20a
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 25% Safety Margin

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	1.0%	0.0%	1.1%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	2.0%	2.4%	
100-499	1.4%	0.0%	1.6%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.0%	3.2%	
500-999	1.4%	0.0%	1.6%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.0%	3.2%	2.9%
1,000-3,299	1.1%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	2.7%	
3,300-9,999	1.1%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	2.7%	
10,000-49,999	1.4%			0.1%	0.2%	0.0%	0.2%	0.0%	0.2%	2.0%	2.1%	
50,000-99,999	1.4%			0.1%	0.2%	0.0%	0.2%	0.0%	0.2%	2.0%	2.1%	2.1%
100,000-999,999	1.3%			0.1%	0.2%	0.0%	0.1%	0.0%	0.2%	1.9%	2.0%	
>=1,000,000	1.5%			0.1%	0.2%	0.0%	0.1%	0.0%	0.2%	2.0%	2.1%	
Total %	1.3%	0.0%	1.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	2.6%	2.8%	2.8%

Note: Detail may not add to totals due to independent rounding

Exhibit C.20b
Stage 2 DBPR Treatment Technology Selection Deltas for CWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 25% Safety Margin

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	61	0	70	0	0	23	0	0	0	132	155	
100-499	213	0	243	0	0	27	0	0	0	456	483	
500-999	85	0	97	0	0	11	0	0	0	182	193	1,169
1,000-3,299	82	0	118	0	0	0	4	0	0	204	204	
3,300-9,999	54	0	78	0	0	0	2	0	0	135	135	
10,000-49,999	75			3	12	0	8	2	11	107	111	
50,000-99,999	10			0	2	0	1	0	2	14	15	145
100,000-999,999	12			0	2	0	1	0	2	17	18	
>=1,000,000	0			0	0	0	0	0	0	1	1	
Total Plants	593	0	607	4	15	61	17	2	15	1,247	1,314	1,314

Note: Detail may not add to totals due to independent rounding

Exhibit C.20c
Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 25% Safety Margin

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	1.0%	0.0%	1.1%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	2.0%	2.4%	
100-499	1.4%	0.0%	1.6%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.0%	3.2%	
500-999	1.4%	0.0%	1.6%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	3.0%	3.2%	2.8%
1,000-3,299	1.1%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	2.7%	
3,300-9,999	1.1%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	2.7%	
10,000-49,999	1.4%			0.1%	0.2%	0.0%	0.2%	0.0%	0.2%	2.0%	2.1%	
50,000-99,999	1.4%			0.1%	0.2%	0.0%	0.2%	0.0%	0.2%	2.0%	2.1%	2.1%
100,000-999,999	1.3%			0.1%	0.2%	0.0%	0.1%	0.0%	0.2%	1.9%	2.0%	
>=1,000,000	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Total %	1.2%	0.0%	1.4%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	2.5%	2.8%	2.8%

Note: Detail may not add to totals due to independent rounding

Exhibit C.20d
Stage 2 DBPR Treatment Technology Selection Deltas for NTNCWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 25% Safety Margin

System Size (Population Served)	CLM Only	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Converting to CLM	Total Adding Treatment Technology	
	A	B	C	D	E	F	G	H	I	J = A+C+E+G+I	K = SUM(A:I)	
<100	24	0	27	0	0	9	0	0	0	51	60	
100-499	30	0	34	0	0	4	0	0	0	64	67	
500-999	8	0	9	0	0	1	0	0	0	18	19	153
1,000-3,299	3	0	4	0	0	0	0	0	0	7	7	
3,300-9,999	0	0	0	0	0	0	0	0	0	1	1	
10,000-49,999	0			0	0	0	0	0	0	0	0	
50,000-99,999	0			0	0	0	0	0	0	0	0	0
100,000-999,999	0			0	0	0	0	0	0	0	0	
>=1,000,000	0			0	0	0	0	0	0	0	0	
Total Plants	65	0	75	0	0	14	0	0	0	140	154	154

Note: Detail may not add to totals due to independent rounding

Exhibit C.21a
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Stage 2 Preferred Alternative, 25% Safety Margin

System Size	No Advanced Treatment Technology CL2[1]			No Advanced Treatment Technology CLM[1]			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K			L		
<100	30.7%	25.4%	36.0%	31.8%	30.8%	32.8%							4.5%	2.3%	6.6%	3.3%	1.7%	4.9%							14.5%	14.5%	14.5%	7.1%	7.1%	7.1%						
100-499	26.4%	22.0%	30.8%	39.9%	37.8%	42.0%	1.1%	1.0%	1.1%	1.3%	1.1%	1.5%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	8.9%	8.9%	8.9%	4.8%	4.8%	4.8%						
500-999	26.4%	22.0%	30.8%	39.9%	37.8%	42.0%	1.1%	1.0%	1.1%	1.3%	1.1%	1.5%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	8.9%	8.9%	8.9%	4.8%	4.8%	4.8%						
1,000-3,299	23.8%	19.1%	28.4%	46.0%	43.8%	48.2%	2.1%	2.0%	2.2%	3.1%	2.6%	3.6%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.2%	6.2%	6.2%	2.9%	2.9%	2.9%						
3,300-9,999	23.8%	19.1%	28.4%	46.0%	43.8%	48.2%	2.1%	2.0%	2.2%	3.1%	2.6%	3.6%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.2%	6.2%	6.2%	2.9%	2.9%	2.9%						
10,000-49,999	27.5%	27.5%	27.5%	41.4%	41.4%	41.4%	2.3%	2.3%	2.3%	3.5%	3.5%	3.5%	1.9%	1.9%	1.9%	2.9%	2.9%	2.9%	5.1%	5.1%	5.1%	7.7%	7.7%	7.7%	0.7%	0.7%	0.7%	1.1%	1.1%	1.1%	0.9%	0.9%	0.9%	1.3%	1.3%	1.3%
50,000-99,999	27.5%	27.5%	27.5%	41.4%	41.4%	41.4%	2.3%	2.3%	2.3%	3.5%	3.5%	3.5%	1.9%	1.9%	1.9%	2.9%	2.9%	2.9%	5.1%	5.1%	5.1%	7.7%	7.7%	7.7%	0.7%	0.7%	0.7%	1.1%	1.1%	1.1%	0.9%	0.9%	0.9%	1.3%	1.3%	1.3%
100,000-999,999	27.5%	27.5%	27.5%	41.4%	41.4%	41.4%	2.3%	2.3%	2.3%	3.5%	3.5%	3.5%	1.9%	1.9%	1.9%	2.9%	2.9%	2.9%	5.1%	5.1%	5.1%	7.7%	7.7%	7.7%	0.7%	0.7%	0.7%	1.1%	1.1%	1.1%	0.9%	0.9%	0.9%	1.3%	1.3%	1.3%
>=1,000,000	27.5%	27.5%	27.5%	41.4%	41.4%	41.4%	2.3%	2.3%	2.3%	3.5%	3.5%	3.5%	1.9%	1.9%	1.9%	2.9%	2.9%	2.9%	5.1%	5.1%	5.1%	7.7%	7.7%	7.7%	0.7%	0.7%	0.7%	1.1%	1.1%	1.1%	0.9%	0.9%	0.9%	1.3%	1.3%	1.3%
Total %	26.1%	23.3%	28.9%	42.2%	41.0%	43.5%	1.9%	1.8%	1.9%	2.7%	2.5%	3.0%	1.6%	1.2%	2.0%	2.1%	1.6%	2.5%	4.4%	4.4%	4.4%	5.5%	5.5%	5.5%	5.0%	5.0%	5.0%	2.8%	2.8%	2.8%	0.3%	0.3%	0.3%	0.5%	0.5%	0.5%

System Size	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R			S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100							2.0%	2.0%	2.0%	1.3%	1.3%	1.3%	0.7%	0.4%	1.1%	0.5%	0.3%	0.8%	2.1%	2.1%	2.1%	1.4%	1.4%	1.4%	54.5%	46.7%	62.3%	45.5%	42.6%	48.3%
100-499							1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	1.1%	0.8%	1.4%	1.2%	0.8%	1.6%	0.5%	0.5%	0.5%	0.5%	0.4%	0.5%	45.4%	40.0%	50.8%	54.6%	51.2%	58.0%
500-999							1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	1.1%	0.8%	1.4%	1.2%	0.8%	1.6%	0.5%	0.5%	0.5%	0.5%	0.4%	0.5%	45.4%	40.0%	50.8%	54.6%	51.2%	58.0%
1,000-3,299							1.0%	1.0%	1.0%	1.2%	1.2%	1.2%	1.1%	0.8%	1.3%	1.5%	1.1%	1.9%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	39.4%	33.9%	44.8%	60.6%	56.9%	64.4%
3,300-9,999							1.0%	1.0%	1.0%	1.2%	1.2%	1.2%	1.1%	0.8%	1.3%	1.5%	1.1%	1.9%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	39.4%	33.9%	44.8%	60.6%	56.9%	64.4%
10,000-49,999	1.0%	1.0%	1.0%	1.5%	1.5%	1.5%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	39.9%	39.9%	39.9%	60.1%	60.1%	60.1%
50,000-99,999	1.0%	1.0%	1.0%	1.5%	1.5%	1.5%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	39.9%	39.9%	39.9%	60.1%	60.1%	60.1%
100,000-999,999	1.0%	1.0%	1.0%	1.5%	1.5%	1.5%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	39.9%	39.9%	39.9%	60.1%	60.1%	60.1%
>=1,000,000	1.0%	1.0%	1.0%	1.5%	1.5%	1.5%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	39.9%	39.9%	39.9%	60.1%	60.1%	60.1%
Total %	0.4%	0.4%	0.4%	0.6%	0.6%	0.6%	0.7%	0.7%	0.7%	0.8%	0.8%	0.8%	0.6%	0.5%	0.8%	0.8%	0.6%	1.0%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	41.6%	38.1%	45.0%	58.4%	56.3%	60.6%

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 25% Safety Margin. Surface water systems serving 10,000 o

Exhibit C.21b
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Stage 2 Preferred Alternative, 25% Safety Margin

System Size	No Advanced Treatment Technology CL2[1]			No Advanced Treatment Technology CLM[1]			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K			L		
<100	110	91	129	114	111	118							16	8	24	12	6	18							52	52	52	26	26	26						
100-499	203	169	236	306	289	322	8	8	9	10	8	11	10	5	15	11	6	16	39	39	39	35	35	35	68	68	68	37	37	37						
500-999	128	106	149	193	182	203	5	5	6	6	5	7	6	3	10	7	4	10	24	24	24	22	22	22	43	43	43	23	23	23						
1,000-3,299	269	216	321	519	494	544	24	23	25	35	30	40	12	6	17	15	8	23	45	45	45	51	51	51	70	70	70	32	32	32						
3,300-9,999	299	241	357	579	551	607	26	25	27	39	33	45	13	7	19	17	9	26	50	50	50	56	56	56	78	78	78	36	36	36						
10,000-49,999	355	355	355	534	534	534	30	30	30	45	45	45	25	25	25	37	37	37	66	66	66	99	99	99	9	9	9	14	14	14	11	11	11	17	17	17
50,000-99,999	159	159	159	240	240	240	14	14	14	20	20	20	11	11	11	17	17	17	30	30	30	45	45	45	4	4	4	6	6	6	5	5	5	8	8	8
100,000-999,999	168	168	168	253	253	253	14	14	14	21	21	21	12	12	12	17	17	17	31	31	31	47	47	47	4	4	4	7	7	7	5	5	5	8	8	8
>=1,000,000	20	20	20	30	30	30	2	2	2	3	3	3	1	1	1	2	2	2	4	4	4	6	6	6	1	1	1	1	1	1	1	1	1	1	1	1
Total Plants	1,711	1,526	1,895	2,768	2,685	2,851	123	120	126	180	166	194	106	79	134	135	106	165	290	290	290	361	361	361	329	329	329	182	182	182	22	22	22	34	34	34

System Size	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R			S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100							7	7	7	5	5	5	3	1	4	2	1	3	8	8	8	5	5	5	196	168	224	163	153	174
100-499							8	8	8	7	7	7	8	6	11	9	6	12	3	3	3	4	3	4	348	307	390	418	392	445
500-999							5	5	5	5	5	5	5	4	7	6	4	8	2	2	2	2	2	2	219	193	245	264	247	280
1,000-3,299							12	12	12	13	13	13	12	9	15	17	12	22	2	2	2	2	2	2	445	383	506	685	642	728
3,300-9,999							13	13	13	15	15	15	13	10	16	19	13	24	2	2	2	2	2	2	495	426	564	763	716	811
10,000-49,999	13	13	13	20	20	20	2	2	2	3	3	3	0	0	0	0	0	0	4	4	4	6	6	6	516	516	516	776	776	776
50,000-99,999	6	6	6	9	9	9	1	1	1	1	1	1	0	0	0	0	0	0	2	2	2	3	3	3	231	231	231	348	348	348
100,000-999,999	6	6	6	9	9	9	1	1	1	1	1	1	0	0	0	0	0	0	2	2	2	3	3	3	244	244	244	367	367	367
>=1,000,000	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	29	29	44	44	44
Total Plants	26	26	26	39	39	39	49	49	49	50	50	50	41	30	52	52	37	68	25	25	25	27	26	27	2,723	2,497	2,949	3,828	3,685	3,972

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 25% Safety Margin. Surface water systems serving 10,000 o

Exhibit C.21c
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Surface Water Plants (Percent of Plants by Residual Disinfection Type)
Stage 2 Preferred Alternative, 25% Safety Margin

System Size	No Advanced Treatment Technology CL2[1]			No Advanced Treatment Technology CLM[1]			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K			L		
<100	30.7%	25.4%	36.0%	31.8%	30.8%	32.8%							4.5%	2.3%	6.6%	3.3%	1.7%	4.9%							14.5%	14.5%	14.5%	7.1%	7.1%	7.1%						
100-499	26.4%	22.0%	30.8%	39.9%	37.8%	42.0%	1.1%	1.0%	1.1%	1.3%	1.1%	1.5%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	8.9%	8.9%	8.9%	4.8%	4.8%	4.8%						
500-999	26.4%	22.0%	30.8%	39.9%	37.8%	42.0%	1.1%	1.0%	1.1%	1.3%	1.1%	1.5%	1.3%	0.7%	2.0%	1.4%	0.7%	2.1%	5.1%	5.1%	5.1%	4.6%	4.6%	4.6%	8.9%	8.9%	8.9%	4.8%	4.8%	4.8%						
1,000-3,299	23.8%	19.1%	28.4%	46.0%	43.8%	48.2%	2.1%	2.0%	2.2%	3.1%	2.6%	3.6%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.2%	6.2%	6.2%	2.9%	2.9%	2.9%						
3,300-9,999	23.8%	19.1%	28.4%	46.0%	43.8%	48.2%	2.1%	2.0%	2.2%	3.1%	2.6%	3.6%	1.0%	0.5%	1.5%	1.4%	0.7%	2.0%	4.0%	4.0%	4.0%	4.5%	4.5%	4.5%	6.2%	6.2%	6.2%	2.9%	2.9%	2.9%						
10,000-49,999	27.5%	27.5%	27.5%	41.4%	41.4%	41.4%	2.3%	2.3%	2.3%	3.5%	3.5%	3.5%	1.9%	1.9%	1.9%	2.9%	2.9%	2.9%	5.1%	5.1%	5.1%	7.7%	7.7%	7.7%	0.7%	0.7%	0.7%	1.1%	1.1%	1.1%	0.9%	0.9%	0.9%	1.3%	1.3%	1.3%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	27.5%	27.5%	27.5%	41.4%	41.4%	41.4%	2.3%	2.3%	2.3%	3.5%	3.5%	3.5%	1.9%	1.9%	1.9%	2.9%	2.9%	2.9%	5.1%	5.1%	5.1%	7.7%	7.7%	7.7%	0.7%	0.7%	0.7%	1.1%	1.1%	1.1%	0.9%	0.9%	0.9%	1.3%	1.3%	1.3%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	27.3%	22.6%	32.0%	38.5%	36.7%	40.3%	0.9%	0.9%	1.0%	1.2%	1.0%	1.4%	2.2%	1.2%	3.3%	2.0%	1.0%	2.9%	3.4%	3.4%	3.4%	3.2%	3.2%	3.2%	10.1%	10.1%	10.1%	5.2%	5.2%	5.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

System Size	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R			S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100							2.0%	2.0%	2.0%	1.3%	1.3%	1.3%	0.7%	0.4%	1.1%	0.5%	0.3%	0.8%	2.1%	2.1%	2.1%	1.4%	1.4%	1.4%	54.5%	46.7%	62.3%	45.5%	42.6%	48.3%
100-499							1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	1.1%	0.8%	1.4%	1.2%	0.8%	1.6%	0.5%	0.5%	0.5%	0.5%	0.4%	0.5%	45.4%	40.0%	50.8%	54.6%	51.2%	58.0%
500-999							1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	1.1%	0.8%	1.4%	1.2%	0.8%	1.6%	0.5%	0.5%	0.5%	0.5%	0.4%	0.5%	45.4%	40.0%	50.8%	54.6%	51.2%	58.0%
1,000-3,299							1.0%	1.0%	1.0%	1.2%	1.2%	1.2%	1.1%	0.8%	1.3%	1.5%	1.1%	1.9%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	39.4%	33.9%	44.8%	60.6%	56.9%	64.4%
3,300-9,999							1.0%	1.0%	1.0%	1.2%	1.2%	1.2%	1.1%	0.8%	1.3%	1.5%	1.1%	1.9%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	39.4%	33.9%	44.8%	60.6%	56.9%	64.4%
10,000-49,999	1.0%	1.0%	1.0%	1.5%	1.5%	1.5%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	39.9%	39.9%	39.9%	60.1%	60.1%	60.1%
50,000-99,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100,000-999,999	1.0%	1.0%	1.0%	1.5%	1.5%	1.5%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	39.9%	39.9%	39.9%	60.1%	60.1%	60.1%
>=1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	1.3%	1.3%	1.1%	1.1%	1.1%	1.0%	0.7%	1.3%	1.0%	0.7%	1.4%	0.9%	0.9%	0.9%	0.7%	0.7%	0.7%	47.1%	41.0%	53.2%	52.9%	49.6%	56.1%

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 25% Safety Margin. Surface water systems serving 10,000 o

Exhibit C.21d
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Surface Water Plants (Number of Plants by Residual Disinfection Type)
Stage 2 Preferred Alternative, 25% Safety Margin

System Size	No Advanced Treatment Technology CL2[1]			No Advanced Treatment Technology CLM[1]			Chlorine Dioxide CL2			Chlorine Dioxide CLM			UV CL2			UV CLM			Ozone CL2			Ozone CLM			MF/UF CL2			MF/UF CLM			GAC 10 CL2			GAC 10 CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	A			B			C			D			E			F			G			H			I			J			K			L		
<100	69	57	81	72	70	74							10	5	15	7	4	11							33	33	33	16	16	16						
100-499	82	69	96	124	118	131	3	3	4	4	3	5	4	2	6	4	2	6	16	16	16	14	14	14	28	28	28	15	15	15						
500-999	28	23	33	42	40	45	1	1	1	1	1	2	1	1	2	1	1	2	5	5	5	5	5	5	9	9	9	5	5	5						
1,000-3,299	22	18	26	42	40	44	2	2	2	3	2	3	1	1	1	1	1	2	4	4	4	4	4	4	6	6	6	3	3	3						
3,300-9,999	6	5	7	11	11	12	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	2	2	2	1	1	1						
10,000-49,999	1	1	1	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	209	173	245	295	281	309	7	7	8	9	8	11	17	9	25	15	8	22	26	26	26	25	25	25	77	77	77	40	40	40	0	0	0	0	0	0

System Size	GAC10 + AD CL2			GAC10 + AD CLM			GAC20 CL2			GAC20 CLM			GAC20 + AD CL2			GAC20 + AD CLM			Membranes CL2			Membranes CLM			TOTAL CL2			TOTAL CLM		
(Population Served)	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th	Mean	5th	95th
	M			N			O			P			Q			R			S			T			U = A+C+E+G+I+K+M+O+Q+S			V = B+D+F+H+J+L+N+P+R+T		
<100							4	4	4	3	3	3	2	1	2	1	1	2	5	5	5	3	3	3	123	105	141	103	96	109
100-499							3	3	3	3	3	3	3	2	4	4	3	5	1	1	1	1	1	2	142	125	159	170	160	181
500-999							1	1	1	1	1	1	1	1	1	1	1	2	0	0	0	1	0	1	48	42	54	58	54	61
1,000-3,299							1	1	1	1	1	1	1	1	1	1	1	2	0	0	0	0	0	0	36	31	41	56	52	59
3,300-9,999							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	8	11	15	14	16
10,000-49,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	3	3	3
50,000-99,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-999,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
>=1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	0	0	0	0	0	0	10	10	10	8	8	8	7	5	10	8	5	11	7	7	7	5	5	6	362	315	408	405	380	431

Note: Detail may not add to totals due to independent rounding

[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.

Source: Surface water systems serving <10,000 people: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.16) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 25% Safety Margin. Surface water systems serving 10,000 o

Exhibit C.22a
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 25% Safety Margin

System Size (Population Served)	No Advanced Treatment Technology CL2[1]	No Advanced Treatment Technology CLM[1]	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	93.5%	3.4%	0.0%	1.1%	0.0%	0.0%	0.4%	0.9%	0.3%	0.5%	94.2%	5.8%
100-499	92.1%	4.2%	0.0%	1.6%	0.2%	0.5%	0.2%	0.6%	0.1%	0.5%	92.6%	7.4%
500-999	92.1%	4.2%	0.0%	1.6%	0.2%	0.5%	0.2%	0.6%	0.1%	0.5%	92.6%	7.4%
1,000-3,299	93.0%	3.6%	0.0%	1.6%	0.3%	0.9%	0.0%	0.1%	0.1%	0.5%	93.4%	6.6%
3,300-9,999	93.0%	3.6%	0.0%	1.6%	0.3%	0.9%	0.0%	0.1%	0.1%	0.5%	93.4%	6.6%
10,000-49,999	87.1%	8.6%			0.9%	1.0%	0.0%	0.2%	1.7%	0.5%	89.7%	10.3%
50,000-99,999	87.1%	8.6%			0.9%	1.0%	0.0%	0.2%	1.7%	0.5%	89.7%	10.3%
100,000-999,999	87.5%	8.4%			0.9%	0.9%	0.0%	0.2%	1.7%	0.4%	90.1%	9.9%
>=1,000,000	87.4%	8.5%			0.9%	0.9%	0.0%	0.2%	1.7%	0.4%	90.0%	10.0%
Total %	91.8%	4.6%	0.0%	1.3%	0.3%	0.6%	0.1%	0.5%	0.4%	0.5%	92.6%	7.4%

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 25% Safety Margin.

Exhibit C.22b
Post-Stage 2 DBPR Treatment Technologies-in-Place for CWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 25% Safety Margin

System Size (Population Served)	No Advanced Treatment Technology CL2[1]	No Advanced Treatment Technology CLM[1]	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	6,005	217	0	70	0	0	23	56	22	29	6,051	372
100-499	14,038	640	0	243	25	74	27	97	20	80	14,109	1,133
500-999	5,612	256	0	97	10	29	11	39	8	32	5,640	453
1,000-3,299	7,060	273	0	118	22	66	0	8	4	36	7,086	502
3,300-9,999	4,680	181	0	78	15	44	0	5	3	24	4,698	332
10,000-49,999	4,690	464			48	53	0	10	91	25	4,829	553
50,000-99,999	624	62			6	7	0	1	12	3	642	74
100,000-999,999	803	77			8	8	0	2	15	4	827	91
>=1,000,000	24	2			0	0	0	0	0	0	25	3
Total Plants	43,535	2,173	0	607	134	282	61	218	175	233	43,906	3,514

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 25% Safety Margin.

Exhibit C.22c
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Ground Water Plants (Percent of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 25% Safety Margin

System Size (Population Served)	No Advanced Treatment Technology CL21	No Advanced Treatment Technology CLM1	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	93.5%	3.4%	0.0%	1.1%	0.0%	0.0%	0.4%	0.9%	0.3%	0.5%	94.2%	5.8%
100-499	92.1%	4.2%	0.0%	1.6%	0.2%	0.5%	0.2%	0.6%	0.1%	0.5%	92.6%	7.4%
500-999	92.1%	4.2%	0.0%	1.6%	0.2%	0.5%	0.2%	0.6%	0.1%	0.5%	92.6%	7.4%
1,000-3,299	93.0%	3.6%	0.0%	1.6%	0.3%	0.9%	0.0%	0.1%	0.1%	0.5%	93.4%	6.6%
3,300-9,999	93.0%	3.6%	0.0%	1.6%	0.3%	0.9%	0.0%	0.1%	0.1%	0.5%	93.4%	6.6%
10,000-49,999	87.1%	8.6%			0.9%	1.0%	0.0%	0.2%	1.7%	0.5%	89.7%	10.3%
50,000-99,999	87.1%	8.6%			0.9%	1.0%	0.0%	0.2%	1.7%	0.5%	89.7%	10.3%
100,000-999,999	87.5%	8.4%			0.9%	0.9%	0.0%	0.2%	1.7%	0.4%	90.1%	9.9%
>=1,000,000	0.0%	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total %	92.8%	3.8%	0.0%	1.4%	0.1%	0.3%	0.3%	0.7%	0.2%	0.5%	93.3%	6.7%

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 25% Safety Margin.

Exhibit C.22d
Post-Stage 2 DBPR Treatment Technologies-in-Place for NTNCWS Ground Water Plants (Number of Plants, by Residual Disinfectant Type)
Stage 2 Preferred Alternative, 25% Safety Margin

System Size (Population Served)	No Advanced Treatment Technology CL21	No Advanced Treatment Technology CLM1	UV CL2	UV CLM	Ozone CL2	Ozone CLM	GAC20 CL2	GAC20 CLM	Membranes CL2	Membranes CLM	Total Using CL2	Total Using CLM
	A	B	C	D	E	F	G	H	I	J	K = A+C+E+G+I	L = B+D+F+H+J
<100	2,331	84	0	27	0	0	9	22	9	11	2,348	145
100-499	1,961	89	0	34	3	10	4	14	3	11	1,971	158
500-999	543	25	0	9	1	3	1	4	1	3	545	44
1,000-3,299	230	9	0	4	1	2	0	0	0	1	231	16
3,300-9,999	20	1	0	0	0	0	0	0	0	0	20	1
10,000-49,999	3	0			0	0	0	0	0	0	3	0
50,000-99,999	0	0			0	0	0	0	0	0	0	0
100,000-999,999	0	0			0	0	0	0	0	0	0	0
>=1,000,000	0	0			0	0	0	0	0	0	0	0
Total Plants	5,087	208	0	75	5	16	14	39	12	27	5,119	365

Note: Detail may not add to totals due to independent rounding
[1]No advanced Treatment Technologies includes conventional, non-conventional, and softening plants.
Source: Add Technologies-in-Place for the Pre-Stage 2 Baseline (Exhibit 3.17) to the Technology Selection Delta for the Stage 2 Preferred Alternative, 25% Safety Margin.

Appendix D
Rule Activity Schedule

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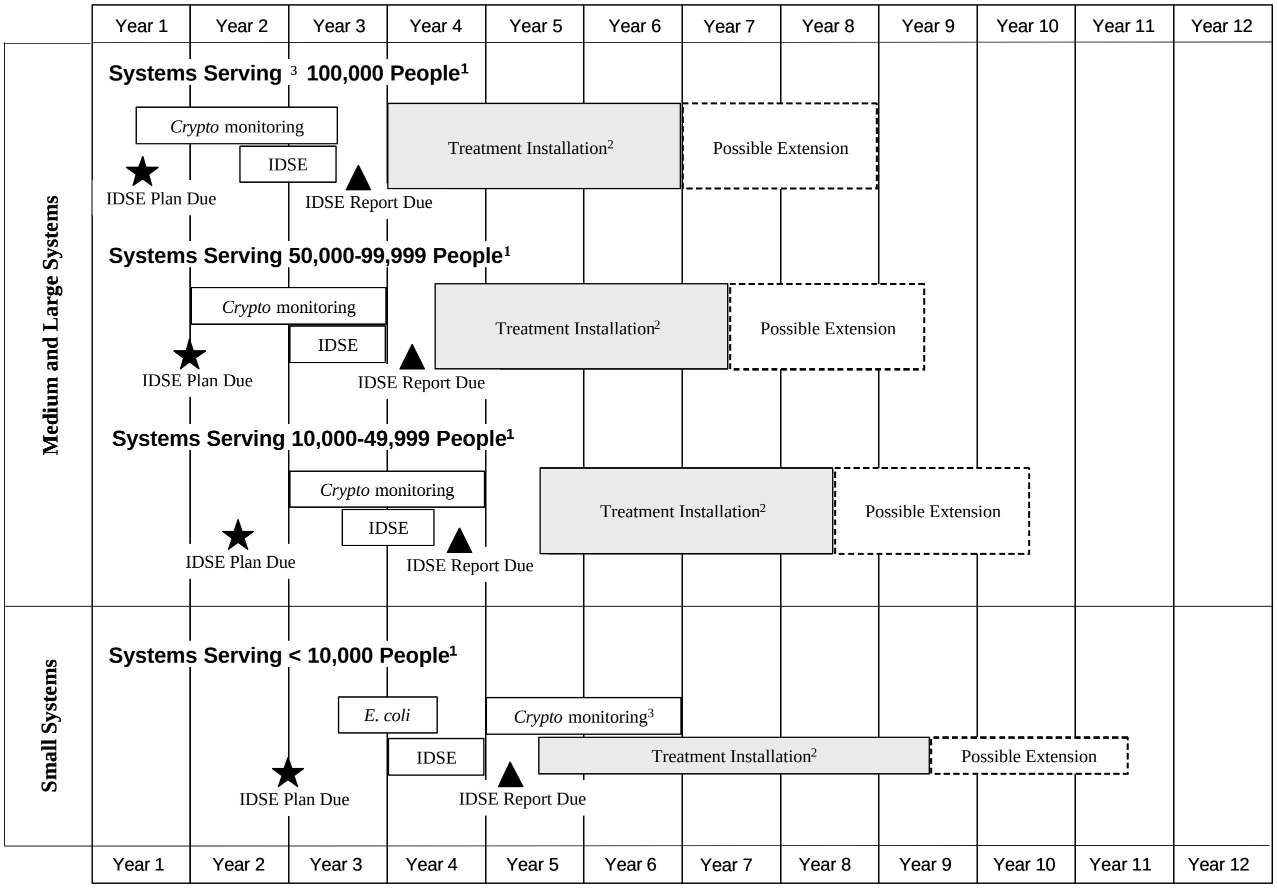
Rule Activity Schedule

This appendix presents the year-by-year schedules for systems for the following rule activities: capital and operations and maintenance (O&M) treatment technology costs (Exhibits D.3 and D.4), implementation (Exhibit D.5), Initial Distribution System Evaluation (IDSE) activities (Exhibit D.6), preparation of monitoring plans (Exhibit D.7), annual routine monitoring (Exhibit D.8), and operational evaluations (Exhibit D.9). Schedules for State/Primacy Agency activities are presented in Exhibit D.10. These schedules are based on the Stage 2 implementation timeline, as presented in Exhibit D.1. When systems and States had several years within which to complete a rule activity, the Environmental Protection Agency (EPA) assumed that the same proportion of systems would perform the activity in each year. EPA recognizes that more systems may start in early or later years, but believes that a uniform schedule is still a reasonable approximation nationally.

Exhibit D.1 Schedule of Rule Activities



[1] Includes all systems that are part of a combined distribution system that have a largest system with this population.
[2] A State may grant up to an additional 2 years for systems to comply if the State determines that additional time is necessary for capital improvements.
[3] Subpart H systems that must conduct *Cryptosporidium* monitoring have an additional 12 months to comply with the Stage 2 Disinfectants and Disinfection Byproducts Rule (DBPR) maximum contaminant levels (MCLs).
Notes: Systems adding disinfection for the Ground Water Rule (GWR) are predicted to add disinfection after Stage 2 systems begin compliance monitoring.
The IDSE plan is comprised of either the Standard Monitoring plan, a system specific study (SSS) plan, or 40/30 certification.
IDSE includes either completing the Standard Monitoring or a SSS.

D.1 Estimate of Small and Medium Systems on Early Implementation Schedules

Systems are required to perform IDSE and routine monitoring on the same schedule as the largest system in their combined distribution system. For the Stage 2 DBPR, a combined distribution system encompasses all systems that are connected by common buyers and sellers. EPA used the linking analysis described in Chapter 3, section 3.4.2.1 to approximate systems' combined distribution systems. The linking analysis uses a variety of decision rules to calculate the linked population for a given system. Exhibit D.2a presents an estimate of surface water CWSs that will be on early implementation schedules based on the linking analysis.

There are uncertainties in using the results of the linking exercise to estimate the number of small systems on accelerated schedules. Consider the example buying and selling relationships shown in Exhibit

D.2b. In this example, systems E and F would be linked to system G. System C would not be linked to system G, however, according to the linking protocol since F is larger than C (20K to 10K). This means that system G would be on the same schedule as systems E and F, but not system A. According to the definition of combined distribution systems, systems E, F, and G should be included in the same combined distribution system as system A and would be on the earliest schedule. Thus, the estimate of small systems on early implementation based on the linking analysis is likely underestimated in this appendix, resulting in a potential underestimate of costs and benefits. The impacts of this uncertainty on benefits and costs of the Stage 2 DBPR are expected to be very minor.

Exhibit D.2a Numbers of Surface Water CWSs on Accelerated Schedules

Type of System	Size Category (People Served)	Total Systems	Number of Smaller Systems Buying from or Selling to Medium 1 Category	Number of Smaller Systems Buying from or Selling to Medium 2 Category	Number of Smaller Systems Buying from or Selling to Large Category	Percent Systems on Medium 1 Schedule	Percent Systems on Medium 2 Schedule	Percent Systems on Large Schedule
		A	**B**	**C**	**D**	**E = B/A[1]**	**F = C/A[1]**	**G = D/A**
SW CWS	Small	9,397	1,874	465	1,535	19.94%	4.95%	16.34%
	Medium 1	1,773		81	508	66.78%	4.57%	28.65%
	Medium 2	334			102		69.46%	30.54%
	Large	299						100.00%

Notes:

Small serves < 10,000 retail population

Medium 1 serves from 10,000 to 49,999 retail population

Medium 2 serves from 50,000 to 99,999 retail population

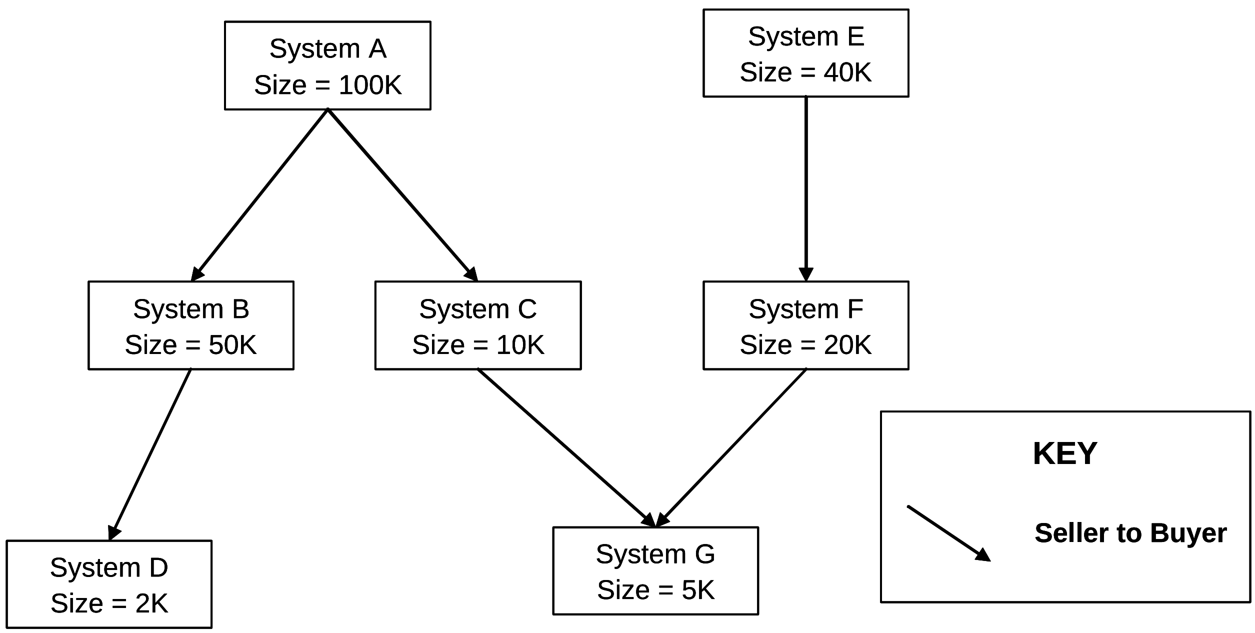
Large serves 100,000 or more retail population

[1] For medium 1 E = 1 - F - G, for medium 2 F = 1 - G

Sources:

(A) - (D) SDWIS 4th quarter 2003 frozen database - IDSE4 analysis 10/14/2004

Exhibit D.2b Example of a Combined Distribution System



D.2 Capital and Operation and Maintenance Schedule

The schedule for making treatment technology changes is based on the rule schedule. EPA assumed that systems will start making capital improvements as soon as their IDSE monitoring is complete. Capital costs for large systems are spread evenly over a 5-year period, including 3 years for compliance plus a possible 2-year extension for systems making capital improvements. The even distribution of costs over this period reflects both proactive systems that begin implementing solutions as soon as problems are noted and systems that require the full 5 years.

Capital costs are spread over 5 years for medium systems, 6 years for small systems not conducting *Cryptosporidium* monitoring, and 7 years for small systems conducting *Cryptosporidium* monitoring.[1] Costs for small and medium systems are distributed according to the estimated percent of systems on accelerated schedules. O&M costs for all system sizes lag behind capital costs by 1 year and are incurred annually.

Exhibits D.3a and D.3b display the capital cost schedule for surface and ground water systems, respectively. Exhibits D.4a and D.4b display the O&M costs for surface and ground water systems, respectively.

[1]Time periods for capital costs for small and medium systems include a possible 2-year extension for systems making capital improvements.

D.3 Implementation and IDSE Schedule

EPA assumed that systems will incur half of their implementation costs the year before they begin IDSE monitoring and the other half the year after completing their IDSE monitoring. The implementation and IDSE schedules for small surface water CWSs are adjusted to account for small systems that are in a combined distribution system with medium and large systems and are thus on an earlier schedule. See section D.1 for a discussion on how EPA estimated the number of systems on an accelerated schedule. Implementation costs are distributed according to the estimated percentages of systems on accelerated schedules. For example, for the 50,000 to 99,999 category incurring IDSE costs, 31 percent are expected to be on the greater than 100,000 schedule, and the remaining 69 percent are expected to stay on the 50,000 to 99,999 schedule, which is delayed by 6 months.

The IDSE schedule applies to costs related to the standard monitoring, System Specific Studies (SSSs), and 40/30 certification. Although the 40/30 certification will occur before the IDSE and SSSs, the portion of the costs represented by the 40/30 certification is so small (< 0.1%) that discounting it on a separate schedule would make no noticeable difference in total costs. Therefore, to simplify the calculations, EPA discounted the 40/30 costs using the same schedule.

Exhibits D.5a and D.5b present the schedule for implementation costs for surface and ground water systems, respectively. Exhibits D.6a and D.6b display the schedule for IDSE costs for surface and ground water systems, respectively.

D.4 Monitoring Plans

The routine monitoring plans indicate the planned locations and schedule on which routine monitoring will be conducted, based on information collected during the IDSE and provided in the IDSE report. EPA assumed that the costs for preparing routine monitoring plans will be incurred as soon as the IDSE ends. This may be a conservative estimate, as systems could potentially delay monitoring plans until just before the Stage 2 DBPR requirements take effect. Exhibits D.7a and D.7b display the schedule for monitoring plan preparation for surface and ground water systems, respectively.

D.5 Additional Routine Monitoring

The costs for additional routine monitoring are assumed to begin when Stage 2 DBPR requirements take effect. Systems that add disinfection to comply with the Ground Water Rule (GWR) will have to monitor and will incur these costs. These systems will not incur costs for making treatment technology changes or for the IDSE, as the two rules are expected to be promulgated in the same time frame. EPA assumes that systems choosing to install disinfection to comply with the GWR will also maintain compliance with the Stage 2 DBPR. Although there may be a slight decrease in systems qualifying because of the change from RAA to LRAA, other systems may qualify as they install better treatment technologies. EPA believes monitoring costs incurred for the reduced monitoring systems from Stage 1 to Stage 2 are expected to change minimally. This EA does not calculate costs associated with changes in reduced monitoring status. Exhibits D.8a and D.8b display the routine monitoring costs for surface and ground water systems, respectively.

D.6 Operational Evaluations

An operational evaluation is only triggered when a system exceeds an operational evaluation level. Since a system needs at least three quarters of data to calculate an operational evaluation level, EPA assumes that operational evaluations will not begin until 1 year after Stage 2 DBPR requirements take effect. Exhibits D.9a and D.9b display the operational evaluation level schedule for costs for surface and ground water systems, respectively.

D.7 Primacy Agency Schedule

EPA assumed that primacy agencies will incur implementation costs during the first 2 years after promulgation of the Stage 2 DBPR. Since primacy agencies will incur IDSE costs as systems conduct their IDSEs, cost were weighted according to the number of systems performing the IDSE each year. EPA assumed that monitoring costs will be incurred annually. Exhibit D.10 displays the schedule for primacy agency costs.

Exhibit D.3a Schedule for Surface Water Capital Costs

All Alternatives

Year	Community Water Systems				Nontransient Noncommunity Water Systems			
	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-
4	-	-	10%	20%	-	-	10%	20%
5	10%	10%	20%	20%	10%	10%	20%	20%
6	20%	20%	20%	20%	20%	20%	20%	20%
7	20%	20%	20%	20%	20%	20%	20%	20%
8	20%	20%	20%	20%	20%	20%	20%	20%
9	20%	20%	10%	-	20%	20%	10%	-
10	10%	10%	-	-	10%	10%	0%	-
11-25	No Capital Costs							

Source: Derived from rule implementation schedule.

Exhibit D.3b Schedule for Ground Water Capital Costs

All Alternatives

Year	Community Water Systems				Nontransient Noncommunity Water Systems			
	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-
4	-	-	10%	20%	-	-	10%	20%
5	10%	10%	20%	20%	10%	10%	20%	20%
6	20%	20%	20%	20%	20%	20%	20%	20%
7	20%	20%	20%	20%	20%	20%	20%	20%
8	20%	20%	20%	20%	20%	20%	20%	20%
9	20%	20%	10%	-	20%	20%	10%	-
10	10%	10%	-	-	10%	10%	-	-
11 - 25	No Capital Costs							

Source: Derived from rule implementation schedule.

Exhibit D.4a Schedule for Surface Water O&M Costs

All Alternatives

Year	Community Water Systems				Nontransient Noncommunity Water Systems			
	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	-	10%	20%	-	-	10%	20%
6	10%	10%	30%	40%	10%	10%	30%	40%
7	30%	30%	50%	60%	30%	30%	50%	60%
8	50%	50%	70%	80%	50%	50%	70%	80%
9	70%	70%	90%	100%	70%	70%	90%	100%
10	90%	90%	100%	100%	90%	90%	100%	100%
11	100%	100%	100%	100%	100%	100%	100%	100%
12	100%	100%	100%	100%	100%	100%	100%	100%
13	100%	100%	100%	100%	100%	100%	100%	100%
14	100%	100%	100%	100%	100%	100%	100%	100%
15	100%	100%	100%	100%	100%	100%	100%	100%
16	100%	100%	100%	100%	100%	100%	100%	100%
17	100%	100%	100%	100%	100%	100%	100%	100%
18	100%	100%	100%	100%	100%	100%	100%	100%
19	100%	100%	100%	100%	100%	100%	100%	100%
20	100%	100%	100%	100%	100%	100%	100%	100%
21	100%	100%	100%	100%	100%	100%	100%	100%
22	100%	100%	100%	100%	100%	100%	100%	100%
23	100%	100%	100%	100%	100%	100%	100%	100%
24	100%	100%	100%	100%	100%	100%	100%	100%
25	100%	100%	100%	100%	100%	100%	100%	100%

Source: Derived from rule implementation schedule.

Exhibit D.4b Schedule for Ground Water O&M Costs

All Alternatives

Year	Community Water Systems				Nontransient Noncommunity Water Systems			
	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	-	10%	20%	-	-	10%	20%
6	10%	10%	30%	40%	10%	10%	30%	40%
7	30%	30%	50%	60%	30%	30%	50%	60%
8	50%	50%	70%	80%	50%	50%	70%	80%
9	70%	70%	90%	100%	70%	70%	90%	100%
10	90%	90%	100%	100%	90%	90%	100%	100%
11	100%	100%	100%	100%	100%	100%	100%	100%
12	100%	100%	100%	100%	100%	100%	100%	100%
13	100%	100%	100%	100%	100%	100%	100%	100%
14	100%	100%	100%	100%	100%	100%	100%	100%
15	100%	100%	100%	100%	100%	100%	100%	100%
16	100%	100%	100%	100%	100%	100%	100%	100%
17	100%	100%	100%	100%	100%	100%	100%	100%
18	100%	100%	100%	100%	100%	100%	100%	100%
19	100%	100%	100%	100%	100%	100%	100%	100%
20	100%	100%	100%	100%	100%	100%	100%	100%
21	100%	100%	100%	100%	100%	100%	100%	100%
22	100%	100%	100%	100%	100%	100%	100%	100%
23	100%	100%	100%	100%	100%	100%	100%	100%
24	100%	100%	100%	100%	100%	100%	100%	100%
25	100%	100%	100%	100%	100%	100%	100%	100%

Source: Derived from rule implementation schedule.

Exhibit D.5a Schedule for SW PWS Implementation Costs

All Alternatives

Year	Community Water Systems				Nontransient Noncommunity Water Systems			
	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	11%	17%	50%	50%	-	-	50%	50%
2	39%	33%	-	-	50%	50%	-	-
3	-	-	-	-	-	-	-	-
4	9%	15%	33%	50%	-	-	25%	50%
5	21%	18%	17%	-	25%	25%	25%	-
6	20%	17%	-	-	25%	25%	-	-
7-25	No Implementation Costs							

Source: Derived from rule implementation schedule.
The schedule for all systems assumes that they will incur half of implementation costs as they prepare for the IDSE and the other half as they prepare for compliance with the Stage 2 requirements.
The schedule for small surface water systems has been adjusted to account for consecutive systems that are on a faster schedule because they buy from or sell to larger systems

Exhibit D.5b Schedule for GW PWS Implementation Costs

All Alternatives

Year	Community Water Systems				Nontransient Noncommunity Water Systems			
	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	-	-	50%	50%	-	-	50%	50%
2	50%	50%	-	-	50%	50%	-	-
3	-	-	-	-	-	-	-	-
4	-	-	25%	50%	-	-	25%	50%
5	25%	25%	25%	-	25%	25%	25%	-
6	25%	25%	-	-	25%	25%	-	-
7 - 25	No Implementation Costs							

Source: Derived from rule implementation schedule.
The schedule for all systems assumes that they will incur half of implementation costs as they prepare for the IDSE and the other half as they prepare for compliance with the Stage 2 requirements.
The schedule for small surface water systems has been adjusted to account for consecutive systems that are on a faster schedule because they buy from or sell to larger systems

Exhibit D.6a Schedule for SW PWS IDSE Costs

All Alternatives

Year	Community Water Systems				Nontransient Noncommunity Water Systems			
	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	-	-	-	-	-	-	-	
2	8%	14%	15%	50%	-	-	-	50%
3	23%	52%	85%	50%	-	50%	100%	50%
4	69%	33%	-	-	100%	50%	-	-
5 - 25	No IDSE Costs							

Source: Derived from rule implementation schedule.
Although 40/30 Certification costs will be incurred earlier, the percent of total costs is so small as to be negligible.

Exhibit D.6b Schedule for GW PWS IDSE Costs

All Alternatives

Year	Community Water Systems				Nontransient Noncommunity Water Systems			
	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	-	-	-	-	-	-	-	-
2	-	-	-	50%	-	-	-	50%
3	-	50%	100%	50%	-	50%	100%	50%
4	100%	50%	-	-	100%	50%	-	-
5 - 25	No IDSE Costs							

Source: Derived from rule implementation schedule.
The schedule for small surface water systems has been adjusted to account for consecutive systems that are on a faster schedule because they buy from or sell to larger systems

Exhibit D.7a Schedule for SW PWS Monitoring Plan Costs

All Alternatives

Year	Community Water Systems				Nontransient Noncommunity Water Systems			
	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	8%	14%	15%	50%	-	-	-	50%
4	23%	52%	85%	50%	-	50%	100%	50%
5	69%	33%	-	-	100%	50%	-	-
6 - 25	No Monitoring Plan Costs							

Source: Derived from rule implementation schedule.
The schedule for small surface water systems has been adjusted to account for consecutive systems that are

Exhibit D.7b Schedule for GW PWS Monitoring Plan Costs

All Alternatives

Year	Community Water Systems				NonTransient Noncommunity Water Systems			
	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	50%	-	-	-	50%
4	-	50%	100%	50%	-	50%	100%	50%
5	100%	50%	-	-	100%	50%	-	-
6 - 25	No Monitoring Plan Costs							

Source: Derived from rule implementation schedule.
The schedule for small surface water systems has been adjusted to account for consecutive systems that are on a faster

Exhibit D.8a Schedule for Annual Surface Water Stage 2 Routine Compliance Monitoring Costs

All Alternatives

	Community Water Systems				Nontransient Noncommunity Water Systems			
Year	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-
7	-	-	50%	100%	-	-	50%	100%
8	50%	50%	100%	100%	50%	50%	100%	100%
9	100%	100%	100%	100%	100%	100%	100%	100%
10	100%	100%	100%	100%	100%	100%	100%	100%
11	100%	100%	100%	100%	100%	100%	100%	100%
12	100%	100%	100%	100%	100%	100%	100%	100%
13	100%	100%	100%	100%	100%	100%	100%	100%
14	100%	100%	100%	100%	100%	100%	100%	100%
15	100%	100%	100%	100%	100%	100%	100%	100%
16	100%	100%	100%	100%	100%	100%	100%	100%
17	100%	100%	100%	100%	100%	100%	100%	100%
18	100%	100%	100%	100%	100%	100%	100%	100%
19	100%	100%	100%	100%	100%	100%	100%	100%
20	100%	100%	100%	100%	100%	100%	100%	100%
21	100%	100%	100%	100%	100%	100%	100%	100%
22	100%	100%	100%	100%	100%	100%	100%	100%
23	100%	100%	100%	100%	100%	100%	100%	100%
24	100%	100%	100%	100%	100%	100%	100%	100%
25	100%	100%	100%	100%	100%	100%	100%	100%

Source: Derived from rule implementation schedule.

Exhibit D.8b Schedule for Annual Ground Water Routine Stage 2 Compliance Monitoring Costs

All Alternatives

	Community Water Systems				Nontransient Noncommunity Water Systems			
Year	**< 10,000**	**10,000 - 49,999**	**50,000 - 99,999**	**100,000+**	**< 10,000**	**10,000 - 49,999**	**50,000 - 99,999**	**100,000+**
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-
7	-	-	50%	100%	-	-	50%	100%
8	50%	50%	100%	100%	50%	50%	100%	100%
9	100%	100%	100%	100%	100%	100%	100%	100%
10	100%	100%	100%	100%	100%	100%	100%	100%
11	100%	100%	100%	100%	100%	100%	100%	100%
12	100%	100%	100%	100%	100%	100%	100%	100%
13	100%	100%	100%	100%	100%	100%	100%	100%
14	100%	100%	100%	100%	100%	100%	100%	100%
15	100%	100%	100%	100%	100%	100%	100%	100%
16	100%	100%	100%	100%	100%	100%	100%	100%
17	100%	100%	100%	100%	100%	100%	100%	100%
18	100%	100%	100%	100%	100%	100%	100%	100%
19	100%	100%	100%	100%	100%	100%	100%	100%
20	100%	100%	100%	100%	100%	100%	100%	100%
21	100%	100%	100%	100%	100%	100%	100%	100%
22	100%	100%	100%	100%	100%	100%	100%	100%
23	100%	100%	100%	100%	100%	100%	100%	100%
24	100%	100%	100%	100%	100%	100%	100%	100%
25	100%	100%	100%	100%	100%	100%	100%	100%

Source: Derived from rule implementation schedule.

Exhibit D.9a Schedule for Annual Surface Water Operational Evaluation Costs

All Alternatives

Year	Community Water Systems				Nontransient Noncommunity Water Systems			
	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-
8	-	-	50%	100%	-	-	50%	100%
9	50%	50%	100%	100%	50%	50%	100%	100%
10	100%	100%	100%	100%	100%	100%	100%	100%
11	100%	100%	100%	100%	100%	100%	100%	100%
12	100%	100%	100%	100%	100%	100%	100%	100%
13	100%	100%	100%	100%	100%	100%	100%	100%
14	100%	100%	100%	100%	100%	100%	100%	100%
15	100%	100%	100%	100%	100%	100%	100%	100%
16	100%	100%	100%	100%	100%	100%	100%	100%
17	100%	100%	100%	100%	100%	100%	100%	100%
18	100%	100%	100%	100%	100%	100%	100%	100%
19	100%	100%	100%	100%	100%	100%	100%	100%
20	100%	100%	100%	100%	100%	100%	100%	100%
21	100%	100%	100%	100%	100%	100%	100%	100%
22	100%	100%	100%	100%	100%	100%	100%	100%
23	100%	100%	100%	100%	100%	100%	100%	100%
24	100%	100%	100%	100%	100%	100%	100%	100%
25	100%	100%	100%	100%	100%	100%	100%	100%

Source: Derived from rule implementation schedule.

Exhibit D.9b Schedule for Annual Ground Water Operational Evaluation Costs

All Alternatives

Year	Community Water Systems				Nontransient Noncommunity Water Systems			
	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+	< 10,000	10,000 - 49,999	50,000 - 99,999	100,000+
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-
8	-	-	50%	100%	-	-	50%	100%
9	50%	50%	100%	100%	50%	50%	100%	100%
10	100%	100%	100%	100%	100%	100%	100%	100%
11	100%	100%	100%	100%	100%	100%	100%	100%
12	100%	100%	100%	100%	100%	100%	100%	100%
13	100%	100%	100%	100%	100%	100%	100%	100%
14	100%	100%	100%	100%	100%	100%	100%	100%
15	100%	100%	100%	100%	100%	100%	100%	100%
16	100%	100%	100%	100%	100%	100%	100%	100%
17	100%	100%	100%	100%	100%	100%	100%	100%
18	100%	100%	100%	100%	100%	100%	100%	100%
19	100%	100%	100%	100%	100%	100%	100%	100%
20	100%	100%	100%	100%	100%	100%	100%	100%
21	100%	100%	100%	100%	100%	100%	100%	100%
22	100%	100%	100%	100%	100%	100%	100%	100%
23	100%	100%	100%	100%	100%	100%	100%	100%
24	100%	100%	100%	100%	100%	100%	100%	100%
25	100%	100%	100%	100%	100%	100%	100%	100%

Source: Derived from rule implementation schedule.

Exhibit D.10 Schedule for State/Primacy Agency Costs

All Alternatives

Year	Implementation Costs	IDSE Costs	Monitoring Plan Costs	Compliance Monitoring Costs	Significant Excursion Report Cost
1	50%	-	-	-	-
2	50%	2%	-	-	-
3	-	6%	2%	-	-
4	-	92%	6%	-	-
5	-	-	92%	-	-
6	-	-	-	-	-
7	-	-	-	100%	100%
8	-	-	-	100%	100%
9	-	-	-	100%	100%
10	-	-	-	100%	100%
11	-	-	-	100%	100%
12	-	-	-	100%	100%
13	-	-	-	100%	100%
14	-	-	-	100%	100%
15	-	-	-	100%	100%
16	-	-	-	100%	100%
17	-	-	-	100%	100%
18	-	-	-	100%	100%
19	-	-	-	100%	100%
20	-	-	-	100%	100%
21	-	-	-	100%	100%
22	-	-	-	100%	100%
23	-	-	-	100%	100%
24	-	-	-	100%	100%
25	-	-	-	100%	100%

Source: Derived from rule implementation schedule.
State implementation will occur in years 1 and 2 as states prepare their primacy packages.

State IDSE activities will lag 6 months behind large system IDSE progress and be concurrent with IDSE work by small systems.

Appendix E
Annual Bladder Cancer Cases Avoided as a Result of the Stage 2 DBPR

E.1 Introduction

This appendix presents the assumptions and calculations used to estimate reductions in the number of bladder cancer cases as a result of the Stage 2 Disinfectants and Disinfection Byproducts Rule (DBPR), and supports the discussion related to average exposure reduction in Chapter 5. This Appendix is organized as follows:

- Section E.2 describes the number of baseline bladder cancers in the U.S. by age group and in total.

- Section E.3 explains the derivation of Population Attributable Risk (PAR), Relative Risk (RR) and Odds Ratios (OR); it explains the derivation of the PAR of bladder cancer associated with chlorination disinfection byproducts (DBPs); and it presents estimates of the pre-Stage 1 occurrence of bladder cancer cases attributable to DBPs using three different approaches.

- Section E.4 defines "Annual bladder cancer cases ultimately avoidable" in relation to predicted reductions in total trihalomethane (TTHM) and haloacetic acid (HAA5) concentrations from pre-Stage 1 to pre-Stage 2 and from pre-Stage 2 to post-Stage 2 conditions for all regulatory alternatives.

- Section E.5 defines "cessation lag" and discusses how it affects the prediction of avoidable cases in the population born prior to rule implementation.

- Section E.6 presents the computational procedures for predicting cases of bladder cancer avoided for each regulatory alternative, along with consideration of model uncertainties. It also presents the implementation schedule and describes how it affects the computation of costs and benefits over the 25-year horizon considered in the benefit analysis.

- Section E.7 presents the results in detail.

All data in this appendix are derived from the Stage 2 DBPR Benefits Model (USEPA 2005).

E.2 Baseline Bladder Cancer Cases in the U.S., in Total and by Age Group

The American Cancer Society (ACS) predicted in 2004 that 60,240 new cases of bladder cancer would occur in the U.S. population that year, of which 75 percent were expected to occur in men and 25 percent in women (ACS 2004). To model the incidence of bladder cancer cases and cases attributable to DBPs so that information on latency can be considered, it is necessary to use bladder cancer incidence data that represent the age at which bladder cancer cases occur. (See Section E.3 for how latency is incorporated into the benefits calculations.)

The National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER 2004) program provides data on cancer rates (new cases per 100,000 population per year) as a function of age in 5-year intervals. EPA used this information in conjunction with population-by-age data from the 2000 U.S. Census to estimate the number of new cases of bladder cancer by age in one-year steps for ages 1 through 101:

$$BI_i = POP_i \times \frac{Br_i}{100{,}000} \qquad \text{(Equation E.1)}$$

where for any age i, BI_i is the number of new bladder cancer cases per year by age, POP_i is the population for that age, and Br_i is the background rate per 100,000 people for that age from the SEER data.

The results of these calculations and the SEER data upon which they are based are shown in Exhibit E.1. The number of new bladder cancer cases per year starts to increase at about age 35 and peaks at 1,500 to over 2,000 cases per one-year age group from about age 66 to 85. Although the annual rate of bladder cancer does not decline much after age 85, the incidence of bladder cancer does, because of the overall decline in the number of individuals alive after that age.

Note that the total cases obtained by this procedure, 56,506, is slightly lower than the prediction for 2004 from the American Cancer Society data noted above. This likely reflects EPA's use of the census population data from 2000. Though the American Cancer Society data uses more recent population data, it was necessary to use the U.S. Census population age group breakdown to estimate the age-group incidence. Using the SEER data with the 2000 census data may be a slight underestimate, but the impact on the benefits will be small.

E.3 Derivation of PAR and Bladder Cancer Incidence Associated with DBPs

This section first explains the general concepts of PAR, RR and OR.[1] It then presents the derivation of PAR for bladder cancer associated with DBPs and estimates the pre-Stage 1 occurrence of bladder cancer attributable to DBPs.

[1] Additional background information on the concepts of PAR, OR, and RR is available in Rockhill et al. (1998) and Gordis (2000)

E.3.1 Introduction to Concepts of OR, RR and PAR

The risk assessment methodology used to estimate the number of cancer cases that are attributable to DBPs in chlorinated drinking water involves the estimation of a PAR value. PAR, which is also referred to frequently and perhaps more appropriately as Population Attributable Fraction, is a measure of the fraction of a disease that occurs in the population that is attributable to some specified risk factor. It can also be interpreted as a measure of the fraction of that disease that would be eliminated from the population if that risk factor were eliminated.

As stated in the previous section, ACS estimated that 60,240 new cases of bladder cancer would occur in 2004. As described in Chapter 5, available epidemiological data indicate an association between bladder cancer and exposure to chlorinated (disinfected) drinking water. PAR in this case would be the fraction of those 60,240 new cases of bladder cancer occurring annually in the entire U.S. population that could be attributed to exposure to disinfected drinking water (i.e., the risk factor).

For the purposes of illustrating the derivation of PAR values, suppose that the distribution of the bladder cancer cases in the population were known with respect to those who are exposed to disinfected water and those who are not. Exhibit E.2 provides a hypothetical example of such a distribution. Several measures in Exhibit E.2 suggest that exposure to DBPs is a risk factor for cases of bladder cancer. For example, as shown in the last column, the bladder cancer risk for exposed individuals (2.03×10^{-4}) is higher than that for unexposed individuals (1.81×10^{-4}). This is further shown by the RR measure of 1.123 for exposed to unexposed individuals. RR is an important measure in evaluating epidemiological data.

Another important measure used in evaluating epidemiological data is the OR. The odds of an event occurring are simply the ratio of the number of events to the number of non-events. So, in the example used here the odds of a case being exposed is 10.61 (51,632 / 4,868) whereas the odds of a non-case being exposed is 9.44 (254,426,956 / 26,938,450). The OR for exposed to non-exposed cases is 1.123. If exposure were not related to the event, then we would expect an OR equal to one. If exposure is positively linked to the event, then the OR will be greater than one, and an odds ratio that is statistically significantly greater than one indicates that the positive association has not occurred by chance.

It is important to note that the identical value of 1.123 for both the OR and RR in this example does not imply that they are identical measures. As will be discussed further below, RR is the desired measure for calculating PAR from sample data; however, an OR is often more readily obtained from available studies and can under appropriate conditions be used as an approximation of RR (Rockhill et al. 1998, Gordis 2000).

One other indication of a relationship between exposure and increased incidence is that the probability of having been exposed for someone who has bladder cancer (0.914) is higher than the probability of having been exposed for someone who does not (0.904).

There are alternative ways to calculate PAR using various measures of risk (Gordis 2000). The most direct method would be to calculate PAR from the difference between the risk in the entire population (R_t) and the risk in the unexposed population (R_u) divided by the total risk:

$$PAR = \frac{R_t - R_u}{R_t} = \frac{(2.01 \times 10^{-4}) - (1.81 \times 10^{-4})}{2.01 \times 10^{-4}} = 0.0995 \approx 10\% \qquad \text{(Equation E.2)}$$

That is, this example would imply that 10% (i.e., approximately 5,650 cases) of the 56,506 bladder cancer cases are due to exposure to DBPs.

Exhibit E.1 Baseline Incidence of Bladder Cancer, Pre-Stage 1 Conditions

Age (years)	Number of Individuals in Age Group	Background Incidence Rate (per 100,000)	Baseline Cases (in Age Group)	Age (years)	Number of Individuals in Age Group	Background Incidence Rate (per 100,000)	Baseline Cases (in Age Group)
	A	B	C = A * B / 100,000		A	B	C = A * B / 100,000
1	3,805,648	0.0574	2	52	3,616,997	15.3155	554
2	3,820,582	0.0574	2	53	3,707,436	15.3155	568
3	3,790,446	0.0574	2	54	3,635,040	15.3155	557
4	3,832,799	0.0574	2	55	2,817,560	15.3155	432
5	3,926,323	0.0574	2	56	2,850,600	28.8233	822
6	3,965,103	0.0274	1	57	2,837,452	28.8233	818
7	4,019,705	0.0274	1	58	2,864,020	28.8233	826
8	4,118,147	0.0274	1	59	2,540,152	28.8233	732
9	4,179,230	0.0274	1	60	2,377,013	28.8233	685
10	4,267,320	0.0274	1	61	2,319,944	49.3850	1,146
11	4,274,056	0.0215	1	62	2,221,227	49.3850	1,097
12	4,115,093	0.0215	1	63	2,171,072	49.3850	1,072
13	4,075,842	0.0215	1	64	2,053,151	49.3850	1,014
14	4,010,850	0.0215	1	65	2,040,053	49.3850	1,007
15	4,052,231	0.0215	1	66	2,029,911	77.0165	1,563
16	4,019,404	0.0892	4	67	1,860,320	77.0165	1,433
17	3,975,021	0.0892	4	68	1,896,451	77.0165	1,461
18	4,046,012	0.0892	4	69	1,864,515	77.0165	1,436
19	4,051,598	0.0892	4	70	1,882,348	77.0165	1,450
20	4,127,855	0.0892	4	71	1,875,175	111.1442	2,084
21	4,049,448	0.2299	9	72	1,788,269	111.1442	1,988
22	3,841,082	0.2299	9	73	1,791,696	111.1442	1,991
23	3,758,648	0.2299	9	74	1,725,168	111.1442	1,917
24	3,673,582	0.2299	8	75	1,677,133	111.1442	1,864
25	3,641,241	0.2299	8	76	1,651,641	137.7068	2,274
26	3,744,539	0.4917	18	77	1,556,567	137.7068	2,143
27	3,619,660	0.4917	18	78	1,460,781	137.7068	2,012
28	3,789,800	0.4917	19	79	1,431,916	137.7068	1,972
29	3,984,812	0.4917	20	80	1,314,908	137.7068	1,811
30	4,242,525	0.4917	21	81	1,207,365	157.3246	1,899
31	4,289,970	0.7423	32	82	1,072,048	157.3246	1,687
32	4,011,575	0.7423	30	83	981,562	157.3246	1,544
33	3,994,121	0.7423	30	84	883,063	157.3246	1,389
34	4,026,573	0.7423	30	85	801,329	157.3246	1,261
35	4,188,149	0.7423	31	86	730,194	147.3673	1,076
36	4,516,118	1.8064	82	87	635,154	147.3673	936
37	4,511,168	1.8064	81	88	557,330	147.3673	821
38	4,517,060	1.8064	82	89	465,481	147.3673	686
39	4,553,814	1.8064	82	90	401,659	147.3673	592
40	4,608,504	1.8064	83	91	327,904	147.3673	483
41	4,711,434	3.8318	181	92	266,386	147.3673	393
42	4,466,676	3.8318	171	93	218,217	147.3673	322
43	4,547,220	3.8318	174	94	169,066	147.3673	249
44	4,407,870	3.8318	169	95	130,958	147.3673	193
45	4,308,663	3.8318	165	96	98,095	147.3673	145
46	4,341,460	7.7976	339	97	72,680	147.3673	107
47	4,087,563	7.7976	319	98	52,844	147.3673	78
48	4,019,692	7.7976	313	99	36,003	147.3673	53
49	3,885,145	7.7976	303	100	27,162	147.3673	40
50	3,758,544	7.7976	293	101	50,454	147.3673	74
51	3,808,515	15.3155	583	Total	281,421,906		56,506

Sources: (A) 2000 U.S. Census data
(B) National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER, 2004)

Exhibit E.2 Hypothetical Data for Example Derivation of PAR

	Cases	Non-Cases	Totals	Risk
Exposed to DBPs	51,632 (C_e)	254,426,956 (N_e)	254,478,588 (T_e)	$2.03x\ 10^{-4}$ ($R_e = C_e / T_e$)
Not exposed to DBPs	4,868 (C_u)	26,938,450 (N_u)	26,943,318 (T_u)	1.81×10^{-4} ($R_u = C_u / T_u$)
Totals	56,500 (C_t)	281,365,406 (N_t)	281,421,906 (T_t)	2.01×10^{-4} ($R_t = C_t / T_t$)
			Probability of Exposure 0.904 ($P_{e/t} = T_e / T_t$)	**Relative Risk (RR)** 1.123 ($RR = R_e / R_u$)
	Probability of DBP Exposure for Cases 0.914 ($P_{e/c} = C_e / C_t$)	**Probability of DBP Exposure for Non-Cases** 0.904 ($P_{e/n} = N_e / N_t$)		
	Odds of Cases Being Exposed 10.61 ($O_C = C_e / C_u$)	**Odds of Non-Cases Being Exposed** 9.44 ($O_N = N_e / N_u$)		
	Odds Ratio (OR) 1.123 ($OR = O_C / O_N$)			

One can also calculate PAR from the information provided by the *RR* and the probability of exposure in the overall population:

$$PAR = \frac{P_{e/t}\,(RR - 1)}{[P_{e/t}\,(RR - 1)]+1} = \frac{0.904 \times (1.123 - 1)}{[0.904 \times (1.123 - 1)]+1} = \frac{0.1112}{1.1112} = 0.1001 \approx 10\% \qquad \text{(Equation E.3)}$$

Equation E.3 is essentially a transformation of Equation E.2.

A third method for calculating PAR from these data is:

$$PAR = P_{e/c}\,[(RR -1) /RR] = 0.914\,[(1.123 -1) /1.123] = 0.914 \times 0.1095 = 0.1001 = 10\%$$

(Equation E.4)

In this third formulation for calculating PAR, the value obtained from the quantity [(*RR*-1) / *RR*] is a direct measure of the attributable fraction within the exposed group. That is, in this example, 10.95% of the cases within the exposed group are attributable to that exposure, or 0.1095 × C_e. The corresponding fraction of total cases due to exposure is, then, [(0.1095 × C_e) / C_t], or [0.1095 × (C_e / C_t)] which is 0.914 × 0.1095 = 10%.

A more detailed discussion of these alternative methods of calculating PAR is provided in Rockhill et al. (1998), who also provide some additional information regarding limitations on the use of these approaches. The major limitation the authors note is that Equations E.2 and E.3 are only valid as shown here when confounding is controlled for in the study, whereas Equation E.4 can be used to provide internally valid estimates when confounding exists (examples of possible confounding factors include age, sex, smoking history, occupation, socioeconomic status). "Confounding" refers to a factor that is associated with the exposure and independently affects the risk of developing the disease. More detail on basic epidemiological terms can be found in epidemiological texts, including Gordis (2000).

Of course, having information such as that presented in the hypothetical data above for the entire population is extremely rare, and PAR values are typically estimated from representative sample data provided in epidemiological studies. There are two primary types of epidemiological studies that can provide data for estimating PAR: cohort (prospective) studies and case-control (retrospective) studies.

Prospective cohort studies can most directly provide the data needed for PAR calculations. In these studies, sample populations are selected at random to be representative of exposure to the risk factor of interest without any prior consideration of the presence or absence of the disease in the sample. A major problem with prospective studies is that when the disease of interest is relatively rare, a very large sample group is required in order to obtain a sufficient number of cases of the disease for subsequent analysis.

For example, if one were to attempt a prospective study for a disease having a risk factor similar to those assumed for bladder cancer in this example (approximately 2 x 10^{-4}), it would be necessary to have a sample population of at least 1,000,000 people (and likely more than that) to ensure observation of enough cases to be able to estimate RRs and PAR values to a reasonable degree of precision. Exhibit E.3 provides a display of such a prospective study. In this example, the researchers would target a sample of 1,000,000 individuals whose exposure would be representative of the more than 281 million in the overall population who they are meant to represent.

Exhibit E.3 Hypothetical Data for a Prospective Study

	Cases	Non-Cases	Totals	Risk
Exposed to DBPs	184	905,876	906,060	2.03×10^{-4}
Not exposed to DBPs	17	93,923	93,940	1.81×10^{-4}
Totals	201	999,799	1,000,000	2.01×10^{-4}

Assuming also that the observed incidence of cases for the exposed and unexposed groups represent the actual risks in those underlying populations (as shown in Exhibit E.3), then one would expect a total of only 201 cases in the entire 1,000,000 sample group – 184 in the exposed subset and a mere 17 in the unexposed subset.

If one were actually able to carry out such a study, then PAR could be calculated using these data and the methods described previously. However, it should be obvious from the sample size requirements alone that prospective studies for diseases with such a low frequency of occurrence are highly impractical, and indeed they are rarely conducted.

The alternative study approach—and that which has been used in the epidemiological studies used in this Economic Analysis (EA)—is to use retrospective case-control studies. These have the advantage of a more practical sample size. Their potential disadvantage, however, is that one cannot calculate RR values for PAR calculations directly. However, it is possible to calculate an OR from a case-control study which, under appropriate conditions, can be used as an estimate of RR for PAR calculations.

In a typical case-control epidemiological study, a researcher would identify a group of cases, ideally selected in a manner that is unbiased with respect to the underlying exposure factor of interest. Similarly, a set of controls (non-cases) would be selected in a manner that is also unbiased with respect to the underlying exposure factor of interest. Exhibit E.4 presents a set of hypothetical data for such a case-control study. For this example, it is assumed that the study identifies 201 cases and that these are found (ideally) to be distributed as expected (based on our overall hypothetical data set) with respect to exposure. The researcher also selects a set of controls not having the disease (1,000 assumed here), also distributed ideally in a manner that is representative of exposure for non-cases.

Exhibit E.4 Hypothetical Data for a Case-Control Study

	Cases	Non-Cases (Controls)	Totals	Risk
Exposed to DBPs	184	904	1,088	Risk within exposure subgroups and for the entire sample group cannot be calculated.
Not exposed to DBPs	17	96	113	
Totals	201	1,000	1,201	
	Probability of DBP Exposure for Cases (P_d) 0.915 (184 / 201)	**Probability of DBP Exposure for Non-Cases** 0.904 (904 / 1,000)		
	Odds of Cases Being Exposed 10.82 (184 / 17)	**Odds of Non-Cases Being Exposed** 9.42 (904 / 96)		
	OR 1.149 (10.82 / 9.42)			

In a case-control study such as this, "Risk" (and therefore Relative Risk) would be meaningless and entirely an artifact of the number of cases and controls selected. Therefore, it is not possible to use Equation E.1 to calculate PAR values from a case-control study. However, it is possible to calculate the OR (that is, the ratio of the odds of a case being exposed to the odds of a non-case being exposed as shown in these examples) from a case-control study. The OR can be used as an estimate for RR, allowing PAR to be calculated from the alternative formulations, when the case-control study is designed and executed in a manner that meets three main conditions (Rockhill et al. 1998, Gordis 2000):

- The disease being considered occurs at a low frequency in the studied population.
- The cases have been selected in a manner that is representative with regard to the history of exposure of all people with the disease in the population from which they are drawn.
- The controls have been selected in a manner that is representative with regard to the history of exposure of all people without the disease in the population from which they are drawn.

If these conditions are met, then the OR will be a reasonable estimate of the RR and can be used in place of RR in Equations 3 or 4 for calculating PAR.

It is important to note, however, that the use of Equation E.3 is limited to circumstances where there is no confounding and ORs calculated directly, as shown here, are used (Rockhill et al. 1998). Usually, this is not the case and it is necessary in a case-control study to adjust for confounding factors. This is often done by computing ORs that take into account the interactions of multiple (potential) risk factors by the use of logistic regression techniques. In such cases, Equation E.4 is the appropriate equation to use to calculate PAR. Using the case-control example here, that calculation would be:

$$PAR = P_d\,[(OR - 1) / OR] = 0.915 \text{ x } [(1.149 - 1) / 1.149] = 0.915 \text{ x } 0.1297 = 0.1187 = 11.9\%$$

In the foregoing examples of PAR calculations, the population is stratified into two exposure groups only: those with and those without. More often, multiple exposure groups are used to represent potential relationships between exposure levels and risk. For PAR calculations involving multiple exposure groups, the PAR equations shown above as Equations E.3 and E.4 can be modified as follows:

$$PAR = \frac{\sum_{i=0}^{k} (p_{e/t(i)})(RR_i - 1)}{1 + \sum_{i=0}^{k} (p_{e/t(i)})(RR_i - 1)} \qquad \text{(Equation E.5)}$$

$$PAR = \sum_{i=0}^{k} p_{e/c(i)} \left(\frac{RR_i - 1}{RR_i} \right) \qquad \text{(Equation E.6)}$$

The first of these multiple-exposure-group forms of the PAR calculations corresponds to Equation E.3 and the second to Equation E.4. They both indicate that there are "*k*" exposure categories, including an unexposed referent group for which the RR = 1 (or OR = 1 if ORs are being used in place of RR). These equations are also addressed more fully in Rockhill et al. (1998). As indicated in the next section, Equation E.6 was used to compute PAR from the epidemiological data for bladder cancer associated with exposure to chlorinated drinking water.

It is useful to note that calculation of the ORs from epidemiological data where there are multiple exposure categories and where there is a need to adjust for confounding factors (e.g., age, sex, smoking, occupation, socioeconomic status, etc.) generally is performed using logistic regression methods rather than the simple method shown above. As noted in the following section in this Appendix, logistic regression methods were used to compute the ORs in the specific studies used in this EA to estimate PARs for pre-Stage 1 bladder cancer incidence.

E.3.2 Data Sources for and Methods for the Pre-Stage 1 Bladder Cancer PAR Analysis

The relationship between bladder cancer and chlorinated DBP exposure has historically been the most strongly supported association among various cancers and chlorinated drinking water. The Stage 1 DBPR RIA (USEPA 1998a) presented EPA's review of the large body of epidemiology literature for bladder cancer and its association with DBPs in drinking water. From that review, EPA concluded that although causality has not been established, the data support a weak association that is worthy of concern. The epidemiological studies used to support the Stage 1 DBPR, the Stage 2 DBPR proposal, and the Stage 2 DBPR final rule are identified in the next two sections. A more detailed discussion of these studies is provided in Chapter 6.

The estimates of PAR for DBPs and bladder cancer necessarily reflect Pre-Stage 1 conditions. This is because the various epidemiology studies that are the sources of data used to estimate PAR were all conducted prior to promulgation and implementation of the Stage 1 DBPR. The risk and benefits analysis supporting the Stage 2 DBPR begins with the Pre-Stage 1 estimate of the number of new bladder cancer cases each year, that is, the annual cases that can be attributed to DBPs given the national occurrence and exposure conditions prior to the Stage 1 rule. Anticipated reductions in these occurrence and exposure levels due to the Stage 1 rule are then accounted for, and following that the anticipated reductions in occurrence and exposure due to the Stage 2 rule are considered in order to estimate the rule's benefits.

E.3.2.1 Data Sources Used for the Stage 1 and Stage 2 DBP Proposed Rule

Consistent with the approach used for the Stage 1 DBPR, the Stage 2 DBPR proposal (July 2003) EPA used data provided in five epidemiological studies to calculate the Pre-Stage 1 PAR values for bladder cancer associated with exposure to chlorinated drinking water:

- Cantor et al. (1985, 1987)[2]
- McGeehin et al. (1993)
- King and Marrett (1996)
- Freedman et al. (1997)
- Cantor et al. (1998)

These five studies provided a range of estimates of PAR from 2 percent to 17 percent bounded by a 95 percent confidence interval ranging as high as 33 percent and truncated at 0 percent to maintain biological plausibility. As discussed below, EPA is also using the data from these five studies for one of the approaches for calculating the Pre-Stage 1 PAR values in support of the Stage 2 Final Rule.

[2]Cantor et al. 1985 and Cantor et al. 1987 use the same epidemiological data

E.3.2.2 Data Sources Used for the Final Rule

Just prior to the publication of the Stage 2 DBPR proposal in 2003, a meta-analysis study of bladder cancer and the consumption of chlorinated drinking water that was published by Villanueva et al. (2003). Subsequent to the publication of the Stage 2 proposal, a study group comprised of some of the same investigators published another study using a pooled analysis that focused more specifically on bladder cancer related to TTHMs in drinking water.

In support of the final Stage 2 DBPR, EPA has considered three approaches to estimating the Pre-Stage 1 PAR value. These are based on the three sets of studies noted above:

- Using the range of Population Attributable Risk (PAR) values derived from consideration of 5 individual epidemiology studies used for the Stage 1 EA and the Stage 2 proposal EA (yields a pre-Stage 1 range of best estimates for PAR of 2% to 17%).

- Using the Odds Ratio (OR) of 1.2 from the Villanueva et al. (2003) meta-analysis that reflects both sexes, ever exposed population from the studies considered (yields a pre-Stage 1 best estimate for PAR of ~16%)

- Using the Villanueva et al. (2004) pooled data analysis to develop a dose-response relationship for OR as a function of Average TTHM. The dose-response relationship was modeled as linear with an intercept of OR = 1.0 at TTHM exposure level = 0 (yields a pre-Stage 1 best estimate for PAR of ~17%)

EPA considers all three of these approaches to estimating the PAR for DBPs to be equally valid and to provide plausible quantitative estimates of bladder cancer risk, which are similar to each other. EPA has long recognized that while the several epidemiology studies described above indicate a potential association between exposure to DBPs in drinking water and bladder cancer incidence, uncertainty remains with respect to quantifying the number of new bladder cases that occur each year that can be attributed to that exposure.

Two basic methodologies for using the epidemiology data are represented in the three approaches. The first is to consider multiple studies separately rather than combining the information into a single estimate of the attributable risk. The second is to combine the information provided by multiple epidemiology studies using either a meta-analysis or a pooled data analysis. Each methodology has advantages and disadvantages.

One advantage to keeping estimates of individual studies separate and presenting them as a full range of plausible results, is that an explicit depiction of the extent of uncertainty that exists in the quantitative risk estimate is retained. EPA chose to consider studies separately in the economic analyses for both the Stage 1 DBP rule and the proposal for the Stage 2 DBP rule. EPA relied upon a range of risk estimates derived separately from 5 key studies that were published in the 1980's and 1990's. The individual estimates of the fraction of bladder cancer cases attributable to DBP exposure (or more specifically to chlorinated water exposure) obtained from each of these five studies covered a wide range:

2% to 17%. Further, as EPA noted, consideration of uncertainty for each of the individual estimates leads a wider range of values and, on the low end, includes the possibility of 0%.

One criterion to consider when deciding whether or not to combine multiple studies is the heterogeneity of the data. In developing the Stage 1 rule, EPA evaluated two meta-analyses available at that time (Poole et al., 1997 and Morris et al., 1992) and concluded that the existing studies were too heterogeneous to be combined in any way.

Meta-analyses and pooled data analyses are two approaches that are used to combine the information provided by multiple epidemiology studies. In a meta-analysis, the measures of an effect size obtained in the individual studies (such as the Odds Ratio) are weighted, typically by the inverse of the variance of the effect size, and the weighted values combined to obtain the overall estimate of that effect. In a pooled data analysis, the underlying data of the multiple studies are combined together, typically without weighting, and an estimate of the effect is made from the combined data as though it were obtained from a single study.

Meta-analysis is more commonly used for combining multiple epidemiology studies than is pooled data analysis. If heterogeneity is not properly controlled for across the studies used, pooled data analysis can be subject to outcomes that are greater, less, and often opposite that of the outcomes observed in the individual studies (Bravata and Olkin, 2001). Although the results of meta-analysis can also be affected by heterogeneity across the studies used, it is not as subject to these same effects. Meta-analysis can also combine data by weighting certain studies more than others, while pooled data analysis cannot do this. However, whereas meta-analysis is limited to consideration of the specific effect measures studied by the author's of the underlying studies, pooled data analysis can provide an opportunity to evaluate an effect that was not specifically considered in some or all of the underlying studies.

EPA determined that the meta-analysis published by Villanueva et al. (2003) and the pooled data analysis published by Villanueva et al. (2004), both of which combine the results of multiple select studies, offer reasonable approaches to arriving at a single, overall estimate of attributable risk while still retaining an appropriate characterization of the uncertainty in that risk estimate.

The Villanueva et al. (2003) meta-analysis, which considered four of the same five studies as EPA has used historically for its PAR analyses in addition to two other lower weighted studies, obtained results that are consistent with the five study estimates. The meta-analysis found a relationship between duration of exposure to DBPs (or chlorinated water) and risk of bladder cancer, which EPA used to inform the relationship between exposure and risk. With this approach to estimating risk, EPA assumes that the exposure of the study populations is characteristic of the National pre-Stage 1 exposure without knowing the exposure levels explicitly.

The Villanueva et al. (2004) pooled data analysis produced results that are consistent with the other approaches. The Villanueva et al. (2004) paper provided a dose response relationship between OR and TTHM concentrations that allowed EPA to estimate PAR values based specifically on the estimated average concentrations of TTHMs before and after implementation of the Stage 2 rule, a unique feature not possible with the other two approaches. A variety of methods, including modeling, were used to estimate TTHM concentrations. In using the Villanueva et al. (2004) analysis to estimate risk, EPA assumes that these estimated exposures represent the exposure of the study populations and that the study population exposures are characteristic of the National pre-Stage 1 exposure. In addition, the Villanueva et al. (2004) paper used different studies, one of which is unpublished, than the other approaches. In using the analysis, EPA assumes that the relationship found between exposure and risk is valid for the US population although the study populations in the pooled analysis are from Italy, Canada, France, and Finland as well as the US.

Additional discussion of the studies included in each of these approaches is provided in Chapter 6. The remainder of this section focuses primarily on the derivation of Pre-Stage 1 PAR estimates from these studies.

E.3.3 Derivation of Pre-Stage 1 PAR values for the Final Rule

Approach 1: Pre-Stage 1 PAR Range Based on Five Studies

Exhibit E.5 summarizes the key data from the five studies (note that Cantor et al. 1985 and Cantor et al. 1987 use the same epidemiological data) used to calculate PAR values for pre-Stage 1 bladder cancer incidence. These studies are discussed more fully in Chapter 6 of the EA. The ORs and their 95% confidence intervals for each exposure group were calculated by the researchers performing these studies.

EPA calculated PAR values from the data shown in Exhibit E.5 using the multiple-exposure-group form of Equation E.3 as described in Section E.2.1. These calculations and the resulting PAR values are shown in Exhibit E.6. The PAR estimates shown in Exhibit E.6 reflect the point estimates of the ORs for each exposure group in each study. As shown in Exhibit E.5, the researchers for those studies also presented 95% confidence intervals for those ORs, reflecting uncertainty in the values.

EPA has calculated corresponding 95% confidence intervals on the PAR point estimates shown in Exhibit E.6 using a Monte Carlo simulation analysis. The confidence intervals on the ORs reported by the researchers were used to parameterize each OR as a normal distribution. For each study, 10,000 iterations were run, and the OR for each exposure group was selected from its respective uncertainty distribution assuming independence among the groups (and among the studies). PAR values were calculated (using the computation as shown in Exhibit E.4) for each of the 10,000 iterations and collected.

Using the 10,000 PAR estimates for each study, lower and upper confidence bounds were derived. The upper 95% confidence limit is taken from the 97.5 percentile values. The lower limit is taken from the 2.5 percentile values of the 10,000 values, unless those values are below zero, in which case the lower confidence interval is assumed to be 0% because it is biologically implausible that the true PAR value should be less than 0%. The confidence intervals obtained from the Monte Carlo simulation are summarized in Exhibit E.7.

Exhibit E.5 Summary of Data from the Five Epidemiological Studies Relevant to PAR Calculations

Study	Location	Sex	Years of Exposure	# of Cases	# of Controls	OR[1] (95% C.I.)	$P_{c/e(i)}$[2]
Cantor et al. 1985, 1987	10 Geographic areas	Both	0 1-19 20-39 40-59 >59	231 141 324 437 111 *Total: 1,244*	570 285 650 849 196 *Total: 2,550*	1.0 1.1 (0.8-1.4) 1.0 (0.8-1.3) 1.0 (0.8-1.3) 1.1 (0.8-1.5)	0.186 0.113 0.260 0.351 0.089
			0 1-19 20-39 40-59 >59	153 107 236 310 74 *Total: 880*	345 173 379 430 91 *Total: 1,418*	1.0 1.2 (0.9-1.7) 1.1 (0.8-1.6) 1.3 (0.9-1.9) 1.4 (0.9-2.3)	0.174 0.122 0.268 0.352 0.084
Cantor et al. 1998	Iowa	Both	0 0-19 20-39 40-59 >59	689 257 87 61 29 *Total: 1,123*	1275 428 139 101 40 *Total: 1,983*	1.0 1.0 (0.8-1.2) 1.1 (0.8-1.4) 1.2 (0.8-1.7) 1.5 (0.9-2.6)	0.614 0.229 0.077 0.054 0.026
Freedman et al. 1997	Washington County, Maryland	Both	0 1-10 11-20 21-30 31-40 >40	79 91 56 38 16 13 *Total: 293*	722 701 432 266 107 78 *Total: 2,306*	1.0 1.0 (0.6-1.5) 1.0 (0.6-1.6) 1.1 (0.6-1.8) 1.1 (0.6-2.2) 1.4 (0.7-2.9)	0.270 0.311 0.191 0.130 0.055 0.044
King and Marret 1996	Ontario, Canada	Both	0-9 10-19 20-34 >35	157 55 169 315 *Total: 696*	413 154 433 545 *Total: 1,545*	1.0 1.0 (0.7-1.5) 1.2 (0.9-1.5) 1.4 (1.1-1.8)	0.226 0.079 0.243 0.453
McGeehin et al. 1993	Colorado	Both	0 1-10 11-20 21-30 >30	104 37 38 32 116 *Total: 327*	102 46[3] 29[3] 25[3] 50[3] *Total: 252*	1.0 0.7 (0.4-1.2) 1.1 (0.6-2.0) 1.3 (0.7-2.5) 2.1 (1.4-3.2)	0.318 0.113 0.116 0.098 0.355

Notes: [1] ORs and 95 percent confidence intervals as reported in the studies.
[2] Probability of a case being in the indicated years of each i^{th} exposure group.
[3] Actual number of controls for McGeehin *et al.* were not available, proportions were used.
Source: Quantification of Bladder Cancer Risk from Exposure to Chlorinated Surface Water (USEPA 1998h).

Exhibit E.6 Summary of PAR Calculations from OR Data for Five Epidemiological Studies

Study	Years of Exposure	OR	$P_{e/c(i)}$	$P_{e/c(i)}$x[(OR-1)/OR]	PAR
Cantor et al., 1985, 1987	0	1.0	0.186	0.000	2%
	< 19	1.1	0.113	0.010	
	20-39	1.0	0.260	0.000	
	40-59	1.0	0.351	0.000	
	>59	1.1	0.089	0.008	
				Sum = 0.018	
	0	1.0	0.174	0.000	15%
	< 19	1.2	0.122	0.020	
	20-39	1.1	0.268	0.024	
	40-59	1.3	0.352	0.081	
	>59	1.4	0.084	0.024	
				Sum = 0.149	
Cantor et al., 1998	0	1.0	0.614	0.000	3%
	< 19	1.0	0.229	0.000	
	20-39	1.1	0.077	0.007	
	40-59	1.2	0.054	0.009	
	>59	1.5	0.026	0.009	
				Sum = 0.025	
Freedman et al., 1997	0	1.0	0.270	0.000	3%
	1-10	1.0	0.311	0.000	
	11-20	1.0	0.191	0.000	
	21-30	1.1	0.130	0.012	
	31-40	1.1	0.055	0.005	
	>40	1.4	0.044	0.013	
				Sum = 0.029	
King and Marret, 1996	0-9	1.0	0.226	0.000	17%
	10-19	1.0	0.079	0.000	
	20-34	1.2	0.243	0.040	
	>35	1.4	0.453	0.129	
				Sum = 0.169	
McGeehin et al., 1993	0	1.0	0.318	0.000	17%
	1-10	0.7	0.113	-0.048	
	11-20	1.1	0.116	0.011	
	21-30	1.3	0.098	0.023	
	>30	2.1	0.355	0.186	
				Sum = 0.170	

Exhibit E.7 Summary of PAR Values with Confidence Intervals Obtained from Monte Carlo Simulation

Study	PAR Values Obtained from Simulation			Point Estimates from Studies
	Lower 95% CI	Mean	Upper 95% CI	
Cantor et al., 1985	0%	3%	15%	2%
Cantor et al., 1987	0%	17%	31%	15%
Cantor et al., 1998	0%	2%	8%	3%
Freedman et al., 1997	0%	3%	22%	3%
King and Marret, 1996	1%	17%	28%	17%
McGeehin et al., 1993	0%	17%	33%	17%

In addition to the uncertainty in the PAR values calculated for each of the individual studies as reflected by the confidence intervals, it is important to consider the uncertainty associated with the use of those studies—each of which was based upon a specific subset of the entire US population—to represent the PAR value for the US population as a whole.

One important consideration in this regard is the extent to which exposure in the study population groups is comparable to exposure in the overall US population. Exhibit E.8 provides an overall summary of the percent of cases and controls in each study who were in the DBP exposure groups (across all exposure durations). As shown in this exhibit, the exposure groups typically range from 65 – 80% of the study populations, with one instance (Cantor 1998) where only about 35 – 40% of the study population were exposed to DBPs. It is currently estimated that approximately 90% of the US population consumes water from public water supplies that are disinfecting, and the vast majority of these systems use chlorination (USEPA 2005k). As a result, it can be argued that the PAR values obtained from these five epidemiological studies under-represent exposure in the United States, and that the actual PAR values are higher than suggested by the values calculated and used in this EA.

Lastly, it is important to recognize that, notwithstanding the associations indicated by these studies, causality has not yet been established between bladder cancer and exposure to chlorinated water. Therefore, it is possible that the attributable risk from chlorinated water is zero, but not probable.

Exhibit E.8 Summary of Study Group DBP Exposure for Five Epidemiological Studies

Study	Total Cases (a)	Cases in Exposed Group (b)	% of Cases in Exposed Group (b/a) %	Odds of Case Being in Exposed Group (b) / (a-b)	% of Controls in Exposed Group
Cantor et al., 1985	1,244	1,013	81.4%	4.4	80%
Cantor et al., 1987	880	727	82.6	4.8	76%
Cantor et al., 1998	1,123	434	38.6%	0.6	35%
Freedman et al., 1997	293	214	73.0%	2.7	70%
King and Marret, 1996	696	539	77.4%	3.4	75%
McGeehin et al., 1993	327	223	68.2%	2.1	65%

Approach 2: Pre-Stage 1 PAR Based on Villanueva et al. (2003) Meta-Analysis

As discussed in Chapter 6, the Villanueva et al. (2003) meta-analysis generated several estimates of the OR for bladder cancer as a function of sex (men, women, both) and exposure duration (mid-term, long-term, ever-exposed). Exhibit E.9 summarizes the OR values for these various combinations of exposure and population groups.

Of the various OR values shown in Exhibit E.9 from the Villanueva et al. (2003) meta-analysis, EPA determined that the estimates for the Ever Exposed, Both Sexes was the most appropriate to use for estimating an overall PAR for the Stage 2 benefits analysis since it includes both men and women, and it covers of the full range of exposure conditions experienced in the population being addressed by this analysis.

Using Equation E.3 for the PAR calculation, with the other assumptions noted below, EPA derived a PAR estimate from these data of 15.7%:

$$PAR = \frac{Pe \times (RR-1)}{1+[Pe \times (rr-1)]} = \frac{0.935 \times (1.2-1)}{1+[0.935 \times (1.2-1)]} = 0.157 \qquad \text{(Equation E.7)}$$

EPA has used the OR from Villanueva et al. (2003) as the estimate for RR in the PAR calculations (see earlier discussion) and including an estimate of 0.935 for P_e, the portion of the population exposed to chlorinated water obtained from the estimated 263 million people exposed to chlorinated water (see Chapter 3 for baseline estimates) and a total US population of 281 million (U.S. Census Bureau 2001).

Using the lower and upper 95% confidence interval estimates on the OR of 1.1 and 1.4, respectively, yields corresponding lower and upper bound PAR values of 8.5% and 27.2%.

Exhibit E.9 Combined OR estimates from Villanueva et al. 2003

Exposure Category	Combined OR (95% CI)
Mid Term (1-40 years)	
Both Sexes	1.1 (1.0 - 1.2)
Men	1.3 (1.0 - 1.7)
Women	1.0 (0.7 - 1.6)
Long Term (> 40 years)	
Both Sexes	1.4 (1.2 - 1.7) *
Men	1.6 (1.2 - 2.2) *
Women	1.4 (0.6 - 3.6)
Ever-Exposed	
Both Sexes	**1.2 (1.1 - 1.4) ***
Men	1.4 (1.1 - 1.9) *
Women	1.2 (0.7 - 1.8)

Note: The Mid Term and Long Term OR estimates are based on the five case control studies; the Ever Exposed OR estimates are based on those five studies plus the Wilkins and Comstock cohort study.
* Statistically significant

Approach 3: Pre-Stage 1 PAR Based on Villanueva et al. (2004) Pooled Analysis

As discussed in Chapter 6, the Villanueva et al. (2004) study involved a pooled analysis using some of the same studies included in their 2003 meta-analysis and included among the “Five Studies” used for the Stage 1 rule and Stage 2 proposal. One notable aspect of the Villanueva et al. (2004) study is its focus on the relationship between OR and TTHM exposure measures specifically. Villanueva et al. (2004) included results showing a dose-response relationship of increasing OR as a function of average TTHM exposure and as a function of cumulative TTHM exposure.

For this approach to estimating the Pre-Stage 1 PAR value, EPA drew upon the information relating OR to average TTHM exposure concentrations to develop a dose-response relationship. Exhibit E.10 provides a summary of the information on this relationship that is presented in the Villanueva et al. (2004) study.

Exhibit E.10 Summary of Estimated OR Values Associated with Average TTHM Exposures for Both Sexes from Villanueva et al. (2004)

Average TTHM (ug/L)	OR	95% CI
0	1.00	NA
> 0	1.18	1.00 - 1.39
0 - 1	1.00	NA
> 1	1.18	1.06 - 1.32
0 - 1	1.00	NA
> 1 - 5	1.08	0.93 - 1.26
> 5 - 25	1.15	0.98 - 1.35
> 25 - 50	1.22	1.04 - 1.42
> 50	1.31	1.12 - 1.54

The authors of the Villanueva et al. (2004) also provided EPA with a more detailed data showing the relationship between OR and average TTHM level. These are presented in Exhibit E.11.

Exhibit E.11 Detailed Data on OR as a Function of Average TTHM Exposure Level by Kogevinas and Villanueva (2005)

Average TTHM (ug/L)	Odds Ratio	Lower 95% CI	Upper 95% CI
0	1.00	--	--
10	1.13	0.96	1.33
20	1.16	0.98	1.38
30	1.17	1.00	1.37
40	1.19	1.02	1.39
50	1.22	1.04	1.43
60	1.26	1.08	1.47
70	1.32	1.12	1.55
80	1.38	1.14	1.68
90	1.46	1.13	1.89
100	1.55	1.11	2.17
110	1.66	1.07	2.55
120	1.77	1.03	3.06
130	1.90	0.98	3.66

EPA used the detailed data in Exhibit E.11 to derive a linear relationships between the average TTHM concentration and the OR. Since the OR at 0 ug/L TTHM is 1.0 by definition, the slope for the linear relationship was derived with the intercept forced to 1.0 and 0 ug/L. For the best estimates, the slope of the linear relationship was estimated to be 0.00581. Linear relationships were also derived from the data in Exhibit E.11 for the lower and upper 95% CI values. The slopes for these were estimated to be 0.00072 for the lower confidence bound and 0.01393 for the upper confidence bound. These linear relationships are shown in Exhibit E.12 along with the data used to derive them.

The Pre-Stage 1 OR values were estimated from these linear relationships using the estimated Pre-Stage 1 average TTHM concentration of 38.05 ug/L and the slopes noted above as OR = 1.0 + (slope * 38.05). The resulting OR values are shown in Exhibit E.13 below. Also shown are the corresponding Pre-Stage 1 PAR values for these OR estimates derived from the PAR calculation method show previously for Approach 2.

Exhibit E.12 OR as a Function of Average TTHM from Data Provided by Villanueva et al. (2004) Authors (Linear Regression with Intercept Forced to 1.0)

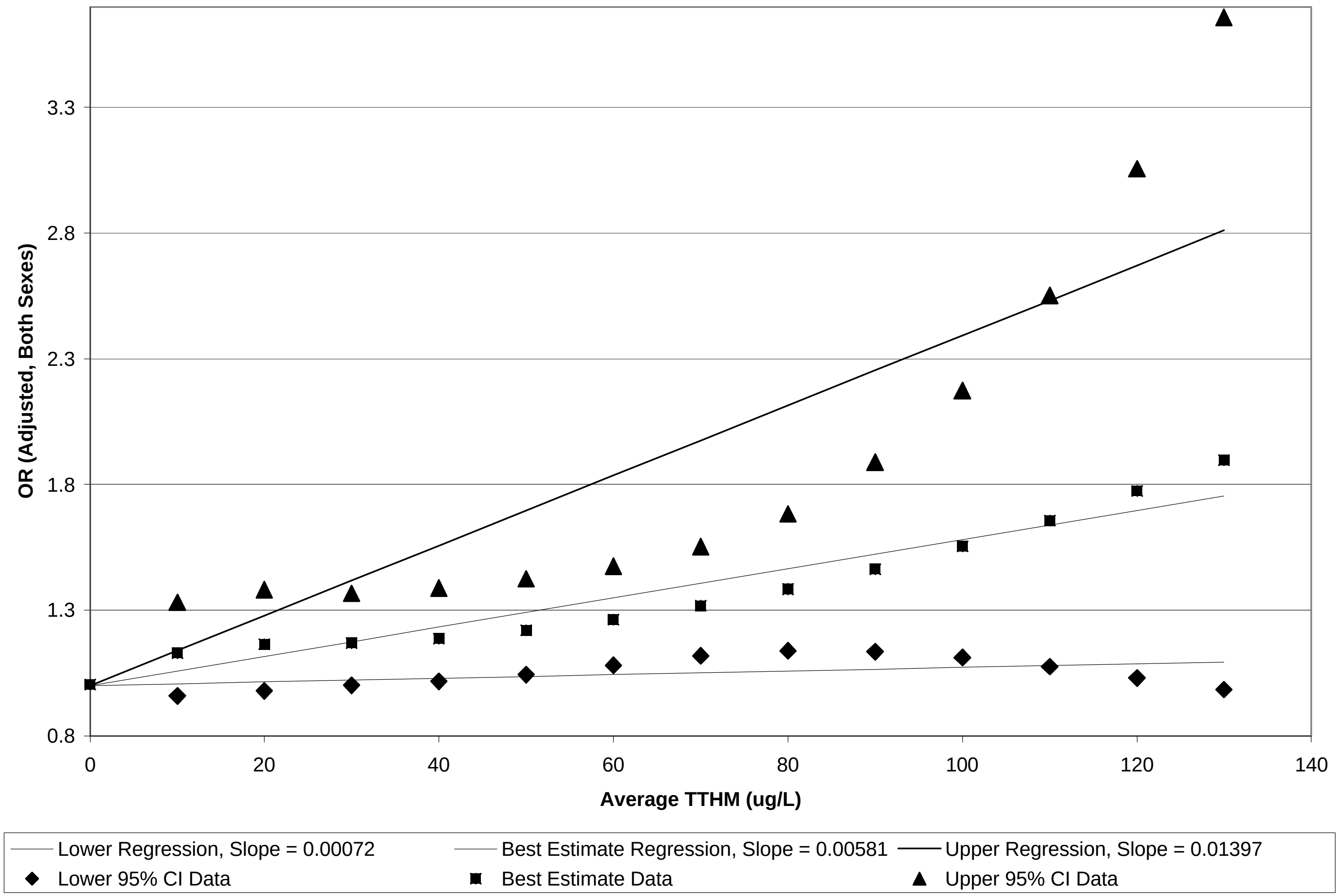


Exhibit E.13 Estimates of OR and PAR Values from Villanueva et al. (2004) Data

	Lower 95% CI	Best Estimate	Upper 95% CI
OR	1.03	1.22	1.53
PAR	0.025	0.171	0.331

E.3.4 Estimates of Pre-Stage 1 Annual Bladder Cancer Cases Attributable to DBPs

Using the Pre-Stage 1 PAR values described in the preceding section, estimates of the Pre-Stage 1 annual bladder cancer cases attributable to DBPs can be made by applying the PAR values to the estimated 56,506 new cases of bladder cancer per year from all causes. These estimates are shown in Exhibit E.14

Exhibit E.14 Estimated Pre-Stage 1 Annual Bladder Cancer Cases Attributable to DBPs Based on the Three Approaches to PAR

	Lower 95% CI	Best Estimate	Upper 95% CI
Approach 1	0	1,130 - 9,606	18,647
Approach 2	4,830	8,899	15,376
Approach 3	1,412	9,670	18,716

Note: The "Best Estimate" for Approach 1 reflects the 2% to 17% range of PAR values from the five studies used.

E.4 Derivation of Annual Bladder Cancer Cases Ultimately Avoidable

As discussed further in the Section E.5 below, there is an anticipated delay (cessation lag) between when the reductions in DBP occurrence and exposure levels begin following implementation of Stage 2 and when the full achievement of the reduction in annual bladder cases expected for that reduction in exposure occurs. The discussion in Section E.5 focuses on modeling this transition period from higher risks to lower risks following exposure reduction.

The end-point of that transition period is the realization of the full benefits of the rule in terms of annual bladder cancer cases avoided. The purpose of this section is to describe how EPA has quantified that end-point, which is referred to here as the annual bladder cancer cases ultimately avoidable for Stage 2. As discussed here, it is necessary to first determine the expected annual cases avoided from Stage 1, and then use the post-Stage 1 cases remaining that are attributable to DBPs to derive the annual bladder cancer cases ultimately avoidable for Stage 2.

E.4.1 Relationship of Cases Avoided to Average DBP Reduction

The quantitative benefits calculations in this EA assume that there is a linear relationship between average DBP concentration and the cases of bladder cancer attributable to DBPs, at least within the general range of concentrations people will typically be exposed to, on average, before and after the rule. This implies that for a given percent reduction in the national average DBP concentration (for example, 10%) there will be a similar reduction in the annual cases of bladder cancer attributable to DBP exposure (that is, also 10% for this example). The amount of time it takes to achieve the full reduction in the number of attributable cases is called the cessation lag period.

EPA recognizes that this assumption of linearity is uncertain, and that there is limited data to establish and evaluate this relationship in detail. A key source of supporting data for this assumption is the Villanueva et al. (2004) pooled data analysis study which provided the basis for the linear dose-response relationship used in Approach 3 for PAR described in the proceeding section.

In the context of assuming linearity in this range, it is important to note the implications of what a non-linear relationship would be, relative to the assumption of linearity made here. A dose-response relationship for a carcinogen that is non-linear in lower dose ranges is typically sublinear. If that is the case for DBPs, then the assumption of linearity back to zero being used here would be conservative with respect to the estimation of benefits from the Stage 2 rule. That is, if the relationship is sublinear in this range, then the slope would be steeper and the estimated cases avoided for a given change in average DBP levels could be greater than that which is currently being estimated.

On the other hand, if the relationship were markedly supralinear in the range of interest, DBP reductions expected from the Stage 2 rule might result in a substantially lower reduction in attributable cases in the DBP concentration range of concern. However, supralinearity would also imply that at some lower DBP concentrations the reduction in attributable cases relative to the reduction in DBPs would become quite high as the slope for this relationship becomes very steep again.

EPA concluded that the assumption of a straight linear relationship back to zero, which falls between these two options of sublinearity and supralinearity, is a reasonable approximation given the uncertainty in knowing the actual dose-response relationship. This uncertainty is discussed further in Section 6.6.

To estimate bladder cancer cases avoided as a result of the Stage 2 DBPR, the average reduction in plant-mean TTHM and HAA5 concentrations is assumed to represent the range of reductions for all chlorination DBPs. A more detailed explanation of the derivation of the estimated reduction in concentration can be found in Chapter 5. Using these two DBP classes as indicators for all chlorination DBPs may overestimate or underestimate the true concentration reduction. However, because measurable halogen-substituted DBP concentrations, comprised primarily of TTHM and HAA5, are estimated to make up 30 to 60 percent of the measured total organic halide (TOX) concentration (Singer 1999), TTHM and HAA5 reductions are assumed to be reasonable indicators of the overall DBP reductions. Separate evaluations for TTHM and HAA5 are carried throughout the analyses.

The specific calculations to arrive at the annual bladder cancer cases ultimately avoidable from Stage 1 and Stage 2 for Approaches 1 and 2 are different from those for Approach 3. For Approaches 1 and 2, the linearity assumption used to estimate the effects of DBP reductions for Stage 1 and Stage 2 is applied to the estimated Pre-Stage 1 cases attributable to DBPs. First, the Pre-Stage 2 cases attributable are calculated as:

Pre-Stage 2 Cases Attributable = Pre-Stage 1 Cases Attributable * (1 - % DBP Reduction for Stage 1)

The % DBP Reduction for Stage 1 is calculated from the estimated Pre-Stage 1 and Post-Stage 1 national average DBP (either TTHM or HAA5) concentrations. If, for example, the Pre-Stage 1 cases attributable to DBPs is 8,899 and the %DBP reduction estimate for Stage 1 is 26.96%, the Pre-Stage 2 cases attributable are 6,500 (= 8,899* 0.7304). The Stage 1 cases avoided are then calculated as the difference between the Pre-Stage 1 and Pre-Stage 2 attributable cases.

Similarly, to estimate the annual bladder cancer cases ultimately avoidable for Stage 2, the Post-Stage 2 cases attributable are calculated as:

Stage 2 Cases Attributable = Pre-Stage 2 Attributable Cases * (1 - % DBP Reduction for Stage 2)

Using the example, if the % DBP reduction from Stage 1 to Stage 2 is 8%, then the Post-Stage 2 attributable cases would be 5,995 (= 6,500 * 0.9224). The Stage 2 cases avoided are then calculated as the difference between the Pre-Stage 2 and Post-Stage 2 attributable cases.

For Approach 3, the calculation of annual bladder cancer cases ultimately avoidable from Stage 1 and Stage 2 is different from that for Approaches 1 and 2. Whereas Approaches 1 and 2 can produce a PAR estimate for Pre-Stage 1 only, the dose-response function derived from the Villanueva et al. (2004) study used in Approach 3 allows for the PAR to be calculated explicitly for Pre-Stage 1, Pre-Stage 2 and Post-Stage 2 based on the corresponding estimated national average TTHM concentrations.

To calculate the PAR for these rule stages, it is first necessary to calculate the OR values for the national average TTHM concentrations estimated for each stage. Using the slope of 0.00581 (see earlier discussion of the Approach 3 dose-response function), and the indicated estimates of TTHMs, the OR values for each stage are calculated as:

$$OR_{\Pr eSt1} = 1.0 + \left(0.00581 * 38.05\right) = 1.221$$
$$OR_{\Pr eSt2} = 1.0 + \left(0.00581 * 27.79\right) = 1.161$$
$$OR_{PostSt2} = 1.0 + (0.00581 * 25.64) = 1.149$$

The PAR value is then calculated from the PAR equation as discussed previously (where 0.935 is the fraction of the population exposed to disinfected drinking water):

$$PAR_{PreSt1} = \frac{0.935*(OR_{PreSt1} - 1.0)}{1 + [0.935*(OR_{PreSt1} - 1.0)]} = 17.1\%$$

$$PAR_{PreSt2} = \frac{0.935*(OR_{PreSt1} - 1.0)}{1 + [0.935*(OR_{PreSt1} - 1.0)]} = 13.1\%$$

$$PAR_{PostSt2} = \frac{0.935*(OR_{PreSt1} - 1.0)}{1 + [0.935*(OR_{PreSt1} - 1.0)]} = 12.2\%$$

For Pre-Stage 1, the attributable cases can be calculated by multiply the total bladder cancer cases by the Pre-Stage 1 PAR value. If, for example, using the Pre-Stage 1 total cases is 56,506, the attributable cases would be 9,670 (= 56,506 * 0.171).

The calculation of cases attributable after Stage 1 and after Stage 2 for Approach 3 requires that the total cases at each stage to which the PAR is applied appropriately reflects reductions in those total cases resulting from the DBP reductions for the stages. This is done by recognizing that:

$$PAR = \frac{\textit{Attributable Cases}}{\textit{Total Cases}} = \frac{\textit{Attributable Cases}}{\textit{(NonAttributable Cases + Attributable cases)}}$$

Rearranging this relationship yields:

$$\textit{Attributable Cases} = \frac{\textit{PAR * NonAttributable Cases}}{\textit{(1-PAR)}}$$

If 9,670 of the 56,506 Pre-Stage 1 cases are attributable to DBPs, then 46,836 (= 56,506 - 9,670) are not attributable to DBPs. Using that information and the formula above, the Pre-Stage 2 and Post-Stage 2 attributable cases would be calculated as:

$$AttribCases_{PreSt2} = \frac{0.131*46{,}836}{(1-0.131)} = 7{,}036$$

$$AttribCases_{PostSt2} = \frac{0.121*46{,}836}{(1-0.131)} = 6{,}515$$

The cases avoided from Stage 1 and Stage 2 are then calculated by subtraction:

Stage 1 Cases Avoided = 9,670 - 7,063 = 2,607
Stage 2 Cases Avoided = 7,063 - 6,515 = 548

E.4.2 Results for Stage 1 and Stage 2

E.4.2.1 Estimates of Cases Attributable and Annual Bladder Cancer Cases Ultimately Avoidable Using the Three Approaches to Pre-Stage 1 PAR

This section provides detailed estimates of the Pre-Stage 1, Pre-Stage 2 and Post-Stage 2 attributable cases of bladder cancer, and the corresponding annual bladder cancer cases ultimately avoidable for the Stage 1 and Stage 2 (preferred option) rules. These estimates reflect the three approaches to estimating PAR described previously.

Exhibit E.15 presents estimates of the Pre-Stage 1 cases attributable to DBPs for the three approaches. As noted, these value are obtained by multiplying the indicated PAR values by 56,506, the estimated total annual bladder cancer cases due to all causes.

Exhibit E.15 Pre-Stage 1 Cases Attributable to DBPs from Three Approaches to PAR (Pre-Stage 1 PAR Estimates)

	Lower 95% CI for PAR	Best Estimate for PAR		Upper 95% CI for PAR
Approach 1: Five Studies	0 (0% PAR)	1,130 (2% PAR)	9,606 (17% PAR)	18,647 (33% PAR)
Approach 2: Villanueva et al. (2003)	4,830 (8.5% PAR)	8,899 (15.7% PAR)		15,376 (27.2% PAR)
Approach 3: Villanueva et al. (2004)	1,412 (2.5% PAR)	9,670 (17.1% PAR)		18,716 (33.1% PAR)

Note: Calculated from Pre-Stage 1 PAR * 56,506
Some numbers may reflect rounding

Exhibit E.16 presents the estimated Pre-Stage 2 attributable cases based on the estimated percent reduction in the national average TTHM concentration from Stage 1.

Exhibit E.16 Pre-Stage 2 Cases Attributable to DBPs from Three Approaches to PAR, Based on Stage 1 TTHM Reduction of 27.0%

	Lower 95% CI for Pre-Stage 1 PAR	Best Estimate for PAR		Upper 95% CI for Pre-Stage 1 PAR
Approach 1: Five Studies	0	825	7,016	13,620
Approach 2: Villanueva et al. (2003)	3,528	6,500		11,231
Approach 3: Villanueva et al. (2004)	1,032	7,063		13,670

Note: Approaches 1 and 2 are calculated from the Pre-Stage 1 values in Exhibit E.15 multiplied by 0.73 (that is, a 27.0% reduction in TTHMs implying a 27.0% reduction in attributable cases)
Approach 3 is calculated from the Post-Stage 1 PAR based on the OR for TTHM = 27.79 ug/L as described previously.
Some numbers may reflect rounding

Exhibit E.17 provides the estimated Stage 1 cases avoided for the three approaches based on the estimated Stage 1 TTHM reduction. As described previously, these are obtained by subtracting the Pre-Stage 2 attributable cases from the Pre-Stage 1 attributable cases.

Exhibit E.17 Stage 1 Cases Avoided from Three Approaches to PAR, Based on Stage 1 TTHM Reduction of 27.0%

	Lower 95% CI for PAR	Best Estimate for Pre-Stage 1 PAR		Upper 95% CI for Pre-Stage 1 PAR
Approach 1: Five Studies	0	305	2,590	5,027
Approach 2: Villanueva et al. (2003)	1,302	2,399		4,145
Approach 3: Villanueva et al. (2004)	381	2,607		5,046

Notes: Some numbers may reflect rounding
These represent the difference between the Pre-Stage 1cases attributable (Exhibit E.15) and the Pre-Stage 2 cases attributable (Exhibit E.16).

Exhibit E.18 presents estimates of the Post-Stage 2 attributable cases based on the estimated percent reduction in the national average TTHM concentration from Stage 2. The % reduction values shown are the 5th percentile, mean, and 95th percentile values for TTHMs for the range reflecting uncertainty as described in Chapter 5.

Exhibit E.18 Post-Stage 2 Cases Attributable to DBPs from Three Approaches to PAR, Based on Stage 2 TTHM Reductions

	Lower 95% CI for Pre-Stage 1 PAR	Best Estimate for Pre-Stage 1 PAR		Upper 95% CI for Pre-Stage 1 PAR
Approach 1: Five Studies				
4.5% Reduction	0	788	6,702	13,010
7.8% Reduction	0	761	6,472	12,563
11.1% Reduction	0	734	6,240	12,113
Approach 2:Villanueva et al. (2003)				
4.5% Reduction	3,370	6,209		10,728
7.8% Reduction	3,254	5,995		10,359
11.1% Reduction	3,138	5,781		9,989
Approach 3: Villanueva et al. (2004)				
4.5% Reduction	985	6,747		13,058
7.8% Reduction	951	6,515		12,610
11.1% Reduction	917	6,282		12,158

Note: Approaches 1 and 2 are calculated from the Post-Stage 1 values in Exhibit E.17 multiplied by 1 minus % Reduction indicated.

For Approach 3 is calculated from the Post-Stage 2 PAR based on the OR for the TTHM concentration resulting from the indicated Stage 2 % reduction.

Some numbers may reflect rounding

Exhibit E.19 provides the estimated Stage 2 cases avoided for the three approaches based on the estimated Stage 2 TTHM % reduction. As described previously, these are obtained by subtracting the Pre-Stage 2 attributable cases from the Pre-Stage 1 attributable cases.

Exhibit E.19 Stage 2 Cases Avoided from Three Approaches to PAR, Based on Stage 2 TTHM Reductions

	Lower 95% CI for Pre-Stage 1 PAR	Best Estimate for Pre-Stage 1 PAR		Upper 95% CI for Pre-Stage 1 PAR
Approach 1: Five Studies				
4.5% Reduction	0	37	314	610
7.8% Reduction	0	64	544	1,057
11.1% Reduction	0	91	776	1,507
Approach 2:Villanueva et al. (2003)				
4.5% Reduction	158	291		503
7.8% Reduction	274	504		872
11.1% Reduction	390	719		1,242
Approach 3: Villanueva et al. (2004)				
4.5% Reduction	46	316		612
7.8% Reduction	80	548		1,061
11.1% Reduction	114	781		1,512

Note: Some numbers may reflect rounding

Exhibits E.20 through E.22 provide estimates of the Pre-Stage 2 cases attributable, Post-Stage 2 cases attributable and Stage 2 Cases avoided based on reductions in average HAA5 concentrations. As noted in these tables, Approach 3 is not used since it is based on a dose-response function involving TTHMs and not HAA5s.

Exhibit E.20 Pre-Stage 2 Cases Attributable to DBPs from Three Approaches to PAR, Based on Stage 1 HAA5 Reduction of 28.6%

	Lower 95% CI for PAR	Best Estimate for Pre-Stage 1 PAR		Upper 95% CI for Pre-Stage 1 PAR
Approach 1: Five Studies	0	807	6,863	13,322
Approach 2: Villanueva et al. (2003)	3,451	6,358		10,986
Approach 3: Villanueva et al. (2004)	Approach 3 not applicable to HAA5 reductions			

Notes: Approaches 1 and 2 are calculated from the Pre-Stage 1 values in Exhibit E.19 multiplied by 0.714 (a 28.6% reduction in HAA5s implying a 28.6% reduction in attributable cases).
Some numbers may reflect rounding

Exhibit E.21 Post-Stage 2 Cases Attributable to DBPs from Three Approaches to PAR, Based on Stage 2 HAA5 Reductions

	Lower 95% CI for Pre-Stage 1 PAR	Best Estimate for Pre-Stage 1 PAR		Upper 95% CI for Pre-Stage 1 PAR
Approach 1: Five Studies				
5.0% Reduction	0	767	6,520	12,656
9.0% Reduction	0	735	6,247	12,127
13.5% Reduction	0	698	5,937	11,525
Approach 2:Villanueva et al. (2003)				
5.0% Reduction	3,278	6,040		10,437
9.0% Reduction	3,141	5,788		10,001
13.5% Reduction	2,985	5,500		9,503
Approach 3: Villanueva et al. (2004)				
Approach 3 not applicable to HAA5 reductions				

Notes: Approaches 1 & 2 are calculated from the Post-Stage 1 values in Exhibit E.20 multiplied by 1 minus % Reduction indicated.
Approach 3 is calculated from the Post-Stage 2 PAR based on the OR for the TTHM concentration resulting from the indicated Stage 2 % reduction
Some numbers may reflect rounding

Exhibit E.22 Stage 2 Cases Avoided from Three Approaches to PAR, Based on Stage 2 HAA5 Reductions

	Lower 95% CI for Pre-Stage 1 PAR	Best Estimate for Pre-Stage 1 PAR		Upper 95% CI for Pre-Stage 1 PAR
Approach 1: Five Studies				
5.0% Reduction	0	40	343	667
9.0% Reduction	0	72	616	1,196
13.5% Reduction	0	109	926	1,798
Approach 2:Villanueva et al. (2003)				
5.0% Reduction	173	318		549
9.0% Reduction	310	570		985
13.5% Reduction	466	858		1,483
Approach 3: Villanueva et al. (2004)				
Approach 3 not applicable to HAA5 reductions				

Note: Some numbers may reflect rounding

E.4.2.2 Annual Bladder Cancer Cases Ultimately Avoidable Estimated in Benefits Model

As discussed in Chapter 6, for the sake of simplicity, EPA has selected Approach 2 based on Villanueva et al. (2003) to estimate Pre-Stage 1 PAR values to carry through the full benefits modeling. That is, the Monte Carlo simulation used to generate the benefits of the Stage 2 rule used only the inputs from Approach 3 to estimate Pre-Stage 1 PAR values. This simulation included uncertainty in the OR values reported by Villanueva et al. (2003) for the PAR calculations, and also included uncertainty in the predicted DBP reductions for Stage 2. Exhibits E.23 and E.24 summarize the estimated annual bladder cancer cases ultimately avoidable for both Stage 1 and Stage 2 derived from the benefits simulation model.

Exhibit E.23 Annual Bladder Cancer Cases Ultimately Avoidable for the Stage 1 DBPR

	Post-Stage 1 (Pre-Stage 2) Cases Attributable to DBPs			Maximum Cases Avoided for the Stage 1 DBPR		
DBP	Mean	5th	95th	Mean	5th	95th
TTHM	7,420	4,072	10,695	2,739	1,503	3,947
HAA5	7,258	3,983	10,461	2,901	1,592	4,181

Exhibit E.24 Annual Bladder Cancer Cases Ultimately Avoidable for the Stage 2 DBPR

DBP	Post-Stage 2 Cases Attributable to DBPs			Maximum Cases Avoided for the Stage 2 DBPR		
	Mean	5th	95th	Mean	5th	95th
TTHM	6,843	3,813	9,808	577	229	1,079
HAA5	6,591	3,657	9,461	667	252	1,271

E.5 Adjustments to Account for Cessation Lag

E.5.1 Background

If the reduction in bladder cancer risk for individuals exposed to DBPs from drinking water were to begin immediately when the DBP levels in drinking water are reduced as result of these regulations, then the benefits of the regulations in terms of annual bladder cancer cases avoided would simply be the annual bladder cancer cases ultimately avoidable (as described in the preceding section) starting when those exposure reductions begin and continuing each year thereafter.

Cancer risk reductions (in terms of annual individual risk) are, generally not expected to occur instantaneously when exposure to a carcinogen is reduced or eliminated. Rather, it is expected that the risks for those individuals having had previous higher exposures will decline over time, eventually reaching or at least approaching the risk level associated with the lower exposure levels. The rate may depend upon a combination of the carcinogen, its particular end-point and mode of action, and other factors as mentioned in Chapter 6.

The term "cessation lag" is used to refer to this transition period between higher risks from higher exposures and lower risks from lower exposures. Cessation lag models, based on available empirical data of cancer risk reduction following exposure reduction to carcinogens, have been used in this benefits analysis to quantify the rate of the risk reduction following rule implementation and reduction in exposure to DBPs from drinking water.

This section of Appendix E provides some additional background on cessation lag and describes the specific data sources and model-fitting procedures used to derive the cessation lag models included in the Stage 2 benefits analysis. It also describes the calculations performed in the benefits model to compute the annual cases avoided each year following exposure reduction that draw upon the cessation lag models.

When considering cessation lag and its incorporation into the benefits modeling, it is important to separate the exposed population into two groups: (1) those who are alive at the time that the rule is implemented and who have, therefore, already been exposed for some portion of their lifetime at the higher pre-rule DBP levels, and (2) those who are born after the rule is implemented who will only ever be exposed to the lower post-rule DBP levels.

Cessation lag enters into the calculation of benefits only for the first of these two groups. Cessation lag does not enter into the calculation of benefits for the second group since there is no change from a higher to a lower exposure level for that population, and therefore there is no transition period from the higher to the lower risk level.

At some point following rule implementation, the annual cases avoided will become equal to the annual bladder cancer cases ultimately avoidable. The time that it takes for this to occur depends mainly upon the cessation lag model and how it describes the transition to the lower risks. It is also influenced by the turn-over in the population from being composed primarily of those alive prior to rule implementation to being composed primarily of those born after rule implementation. It is useful to note that the absolute upper bound on the time that it will take for the annual cases avoided to become equal to the annual cases ultimately avoidable described in the preceding section is when the population is composed solely of those who were born after the rule has gone into effect. For the purposes of the Stage 2 benefits modeling, it is assumed that this will be 100 years after the rule is implemented. At that time (and from that point forward) the annual bladder cancer cases ultimately avoidable is achieved for the exposed population.

E.5.2 Data Sources for Cessation Lag Models

As noted above, the bladder cancer risk reductions are not expected to be instantaneous; Rather, it is assumed that there is a transition period from the risk associated with the higher DBP exposure levels to the risk associated with the lower exposure levels. The challenge is to estimate the rate at which this transition occurs.

No epidemiological or other empirical data are available that specifically address the rate or pattern of achieving the bladder cancer benefits of DBP exposure reductions. In lieu of using data specific to DBPs, EPA is drawing upon empirical data from three epidemiology studies that address the rate at which cancer risk reduction occurs for individuals following exposure reduction to other carcinogens. The three studies used, and the cancer end-points and risk factors they consider, are:

1. Hrubec and McLaughlin (1997a): smoking and lung cancer
2. Hartge et al. (1987): smoking and bladder cancer
3. Chen and Gibb (2003): arsenic (in drinking water) and bladder cancer

Each study provides information on how the cancer risk for individuals having some high level of exposure to the risk factor for a substantial portion of their lifetime transitions over time to the risk for individuals at some lower level of exposure following exposure reduction. The first two data sets involve a change from smoking to not-smoking (complete cessation) while the third involves a change from a high arsenic exposure level of 50 micrograms per liter (ug/L) in drinking water to a lower exposure level of 10 ug/L.

In all cases, the risk reduction in these studies is considered over time in terms of changes in the RR of cancer where “relative” refers to the lower exposure group (for example, never-smokers for the first two studies; and those always exposed to 10 ug/L of arsenic for the third study). For these lower exposure groups, referred to as the referent group, the RR is set equal to 1.0. That is, the risk for the exposed individuals is measured relative to the risk of those who have not been exposed (or who are at a lower exposure). This referent group therefore represents the lowest possible risk that can be reached following the exposure reduction.

E.5.3 Model Specification Using Cessation Lag

The benefits model incorporates cessation lag by using the concept of % Maximum Relative Risk Reduction (%MRRR) which is expressed as:

$$\%MRRR_j = \frac{RR_0 - RR_j}{RR_0 - 1.0} \times 100 \qquad \text{(Equation E.8)}$$

That is, the %MRRR achieved in any year j following exposure cessation or reduction is computed as the Relative Risk for those at the higher exposure level (RR_0) minus the Relative Risk observed in year j for those whose exposure has been reduced (RR_j), divided by the maximum Relative Risk reduction, which is the Relative Risk for those at the higher exposure (RR_0) minus 1.0 (since 1.0 is the lowest value of Relative Risk that can be achieved under this formulation).

The empirical Relative Risk reduction data in these studies typically provides the changes in RR for several time periods (usually ranges) representing years following exposure reduction. To be incorporated in the Stage 2 benefits modeling, continuous functions were fit to the empirical data from each of the three studies and those functions were then used to calculate the %MRRR for each year after exposure reduction begins.

E.5.3.1 Model Fitting Process

Based on a set of analyses performed, two general functional forms were found to provide the most suitable fits to the data from each of these studies. These are a Weibull function and a Pareto function, as shown below:

Weibull Function:

$$LF_j = 1 - e^{-\left(\frac{j}{r}\right)^q} \qquad \text{(Equation E.9)}$$

Pareto Function:

$$LF_j = 1 - \left(1 + \frac{j}{r}\right)^q \qquad \text{(Equation E.10)}$$

As discussed later in this section, EPA initially evaluated nine different functions for the cessation lag model form from which these two were selected.

Here the term LFj refers to the "Lag Function" value for year j after rule implementation and is the modeled equivalent to the %MRRR noted above for – and derived from – the empirical data sets. All LFj values fall between 0 and 1. The parameters q and r in these functions are estimated from the curve fitting procedures using the data from the individual studies.

All model fitting procedures were carried out in SAS.

Smoking and Bladder Cancer

The smoking and bladder cancer data used to parameterize the cessation lag models for smoking and bladder cancer is derived from Table 1 of Hartge et al. (1987) and shown in Exhibit E.25. The study provides values for RR and years following cessation, and %MRRR was calculated from these data using the RR for never smokers as the referent value (RR = 1.0).

Exhibit E.25 Summary of Smoking / Bladder Cancer Data from Hartge et al. (1987) Used to Model Cessation Lag

Years After Cessation	Estimated RR (95% CI)	%MRRR (Using Estimated RR Value)
< 1 (RR_0)	2.9 (2.6 - 3.3)	0.0%
1 - 10	2.2 (1.9 - 2.6)	36.8%
10 - 20	1.6 (1.4 - 1.9)	68.4%
20 - 30	1.7 (1.4 - 2.1)	63.2%
30 - 40	1.3 (1.0 - 1.7)	84.2%
> 40	1.5 (1.1- 2.1)	73.7%
Never Smokers	1.0	NA

Exhibit E.26 is a graph of the Weibull form using parameters fit to the best estimates of the RR in the study and the mid-point of the years after cessation together with the empirical data for those inputs. The estimated parameters for the Weibull form for these inputs are q = 0.52; r = 17.539.

Exhibit E.26 Graph of the Weibull Form for Smoking / Bladder Cancer Data

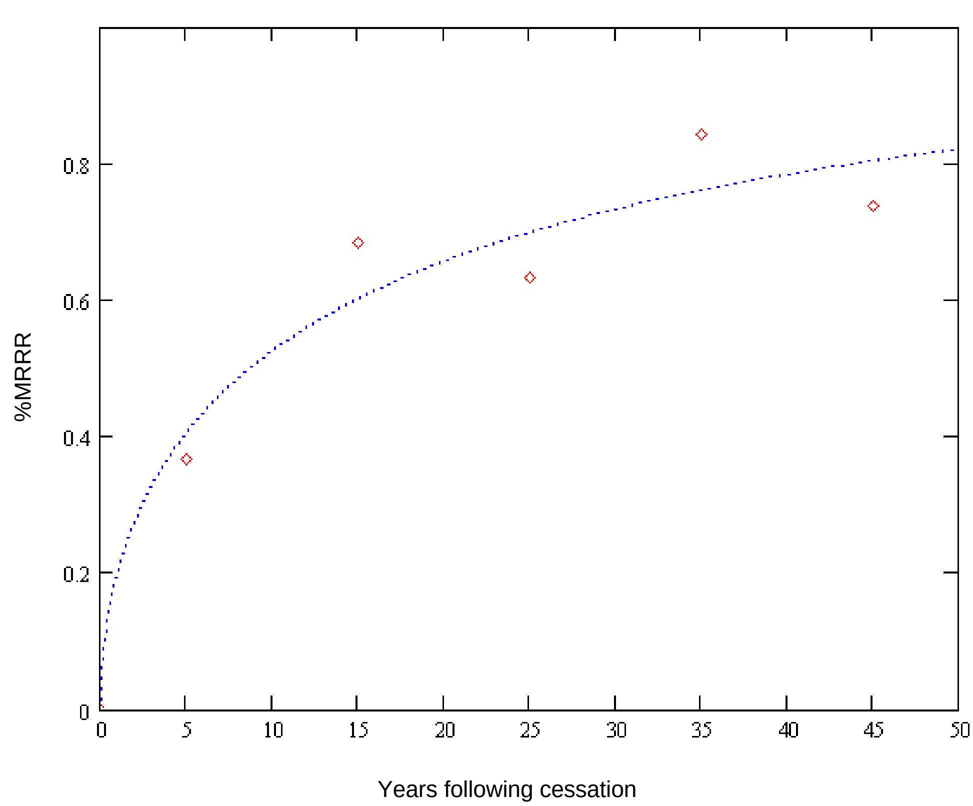
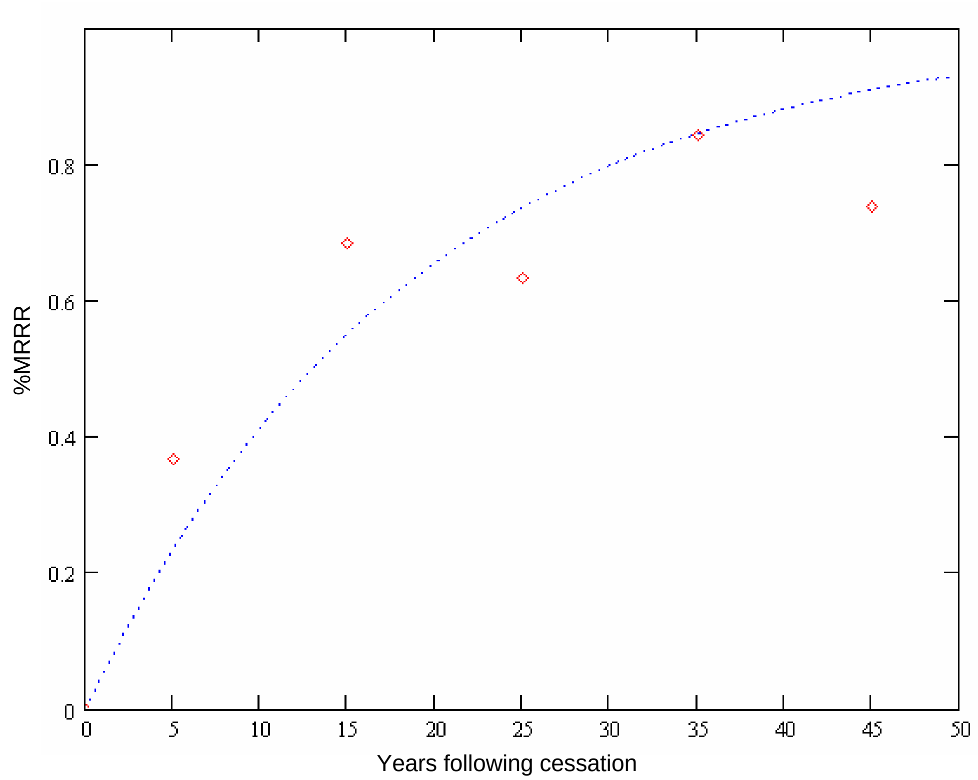


Exhibit E.27 is a graph of the Pareto form using parameters fit to the best estimates of the RR in the study and the mid-point of the years after cessation together with the empirical data for those inputs. The estimated parameters for the Pareto form for these inputs are a = - 4.11 x 10^7; b = 7.703 x 10^8.

Exhibit E.27 Graph of the Pareto Form for Smoking / Bladder Cancer Data



Smoking and Lung Cancer

The smoking and lung cancer data used to parameterize the cessation lag models for smoking and lung cancer is derived from Table 4 of Hrubec and McLaughlin (1997a) and are presented in Exhibit E.28. The study provides values for RR and years following cessation, and %MRRR was calculated from these data using the RR for never smokers as the referent value (RR = 1.0). The Hrubec and McLaughlin study did not provide an estimate of RR for current smokers for the RR_0 value. The range of values used, as shown in Exhibit E.28, were obtained from two sources: The American Cancer Society (2004) and Halpern et al. (1993).

Exhibit E.28 Summary of Smoking / Lung Cancer Data from Hrubec and McLaughlin (1997b) used to Model Cessation Lag

Years After Cessation	Estimated RR (95% CI)	%MRRR (Using Estimated RR Value)
< 1 (RR0)	22.1 (16.6 - 29.5)*	0.0%
1 - 5	16.1 (10.4 - 24.8)	18.4%
5 - 10	7.8 (5.7 - 10.5)	69.9%
10 - 20	5.1 (4.2 - 6.1)	81.8%
20 - 30	3.3 (2.8 - 4.0)	86.5%
30 - 40	2.0 (1.6 - 2.6)	95.6%
> 40	1.5 (1.1- 2.0)	97.1%
Never Smokers	1.0	NA

*RR_0 values for current smokers were not provided in Hrubec and McLaughlin (1997b). The values used here were obtained from relative risks for current smokers reported by American Cancer Society (2004) and Halpern et al. (1993)

Exhibit E.29 is a graph of the Weibull form using parameters fit to the best estimates of the RR in the study and the mid-point of the years after cessation together with the empirical data for those inputs. The estimated parameters for the Weibull form for these inputs are q = 9.17; r = 9.00.

Exhibit E.29 Graph of the Weibull Form for Smoking / Lung Cancer Data

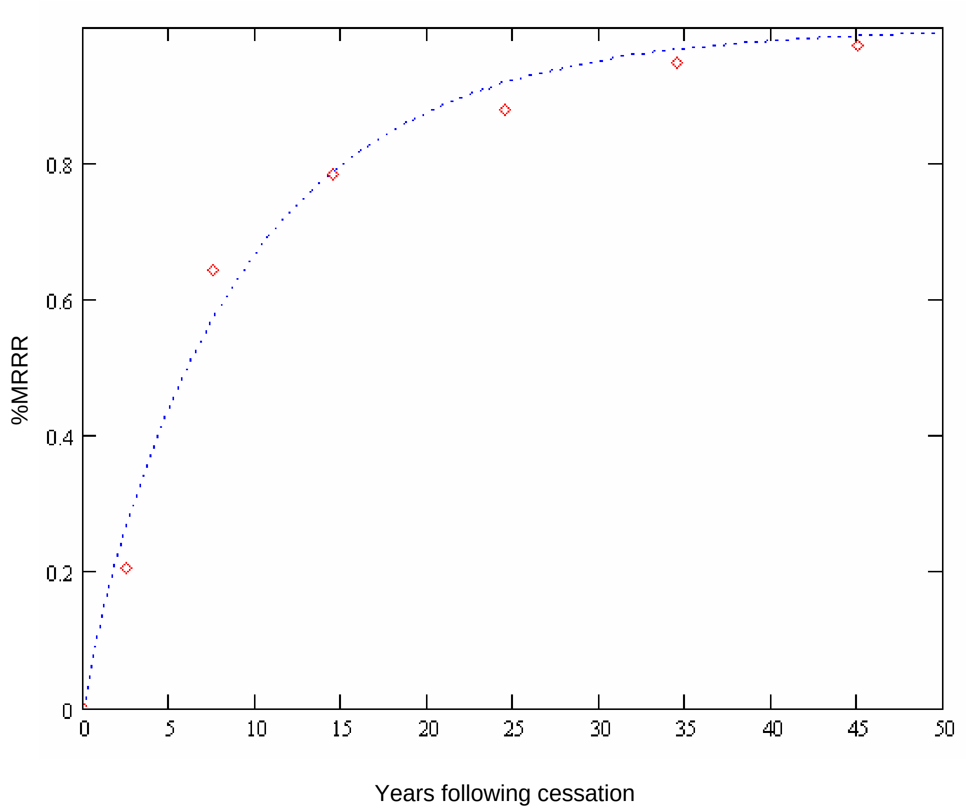
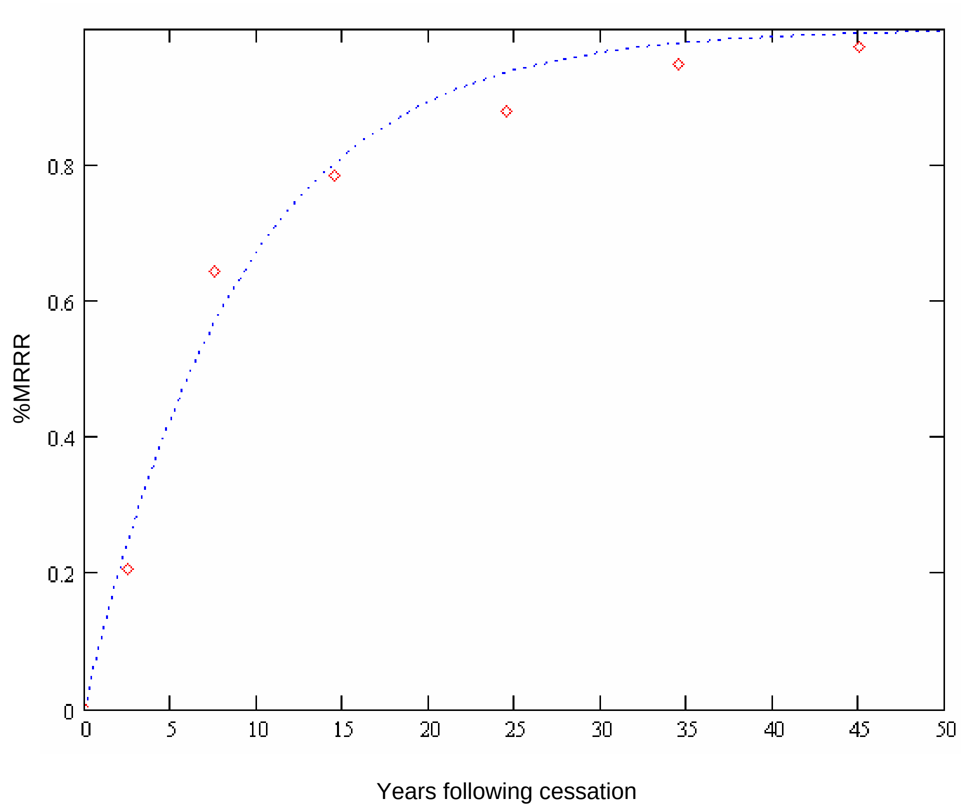


Exhibit E.30 is a graph of the Pareto form using parameters fit to the best estimates of the RR in the study and the mid-point of the years after cessation together with the empirical data for those inputs. The estimated parameters for the Pareto form for these inputs are q = - 9.388×10^8; r = 8.402×10^9.

Exhibit E.30 Graph of Pareto Form for Smoking / Lung Cancer Data



Arsenic (from drinking water) and Bladder Cancer

The data used to parameterize the cessation lag models for arsenic from drinking water and bladder cancer is derived from Table 5 of Chen and Gibb (2003) and are shown in Exhibit E.31. Data are shown separately for the smokers and non-smokers. However, parameters for the Weibull and Pareto functions were estimated using both the smoker and non-smoker data together. The data were not weighted to reflect smoking because the results were so similar between the two groups and information on the proportion of smokers in the study group was not available.

The arsenic and bladder cancer data did not provide ranges for either the RR or the years following arsenic exposure reduction, and therefore it was not possible to generate uncertainty sets of parameters for this cessation lag model as was done for the smoking and bladder cancer and the smoking and lung cancer cessation lag models.

Exhibit E.31 Summary of Arsenic / Bladder Cancer Data from Chen and Gibb (2003) used to Model Cessation Lag

Years After Exposure Reduction from 50 to 10 ug/L	Estimated RR for Smokers	%MRRR for Smokers	Estimated RR for Non-Smokers	%MRRR for Non-Smokers
0 (RR0)	1.0360	0.0%	1.0396	0.0%
8	1.0141	60.80%	1.0096	75.69%
12	1.0065	81.85%	1.0087	77.89%
20	1.0044	87.82%	1.0098	75.26%
22	1.0050	86.25%	0.9989	102.77%
23	1.0012	96.74%	1.0000	100%
25	1.0000	100%	1.0000	100%
Always at 10 ug/L	1.0	NA	1.0	NA

Exhibit E.32 is a graph of the Weibull form using parameters fit using both the smoker and non-smoker data on RR in the study and the years after cessation, together with the empirical data for those inputs (smokers are diamonds; non-smokers are circles). The estimated parameters for the Weibull form for these inputs are a = 1.079 b = 6.635.

Exhibit E.32 Graph of Weibull Form for Arsenic / Bladder Cancer Data

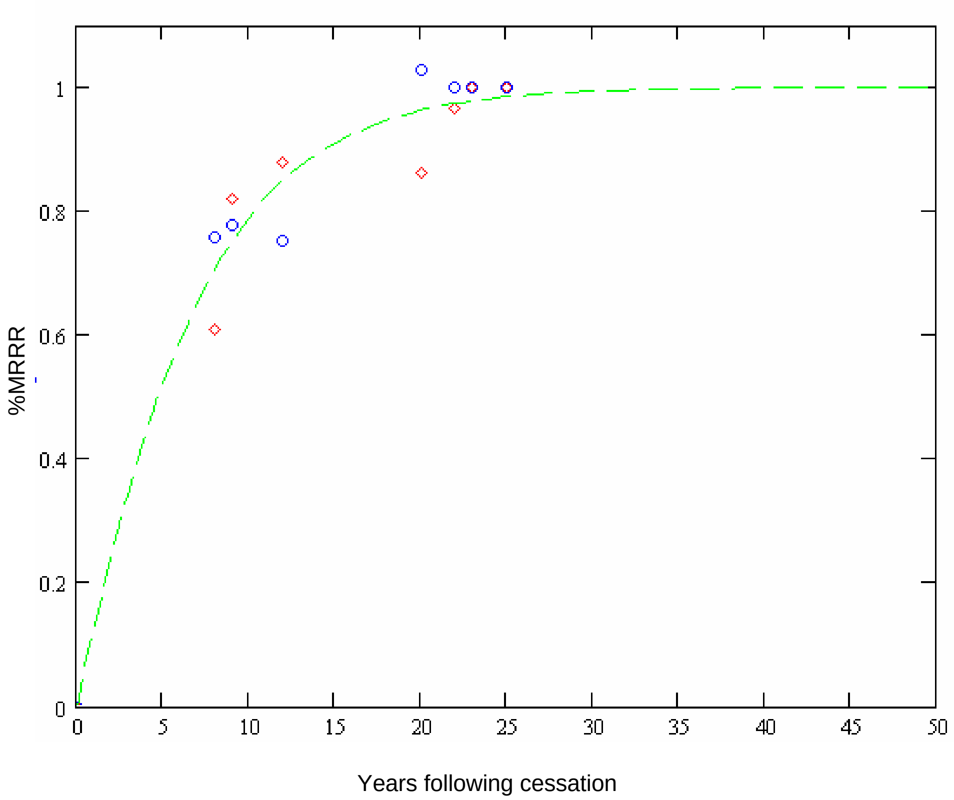
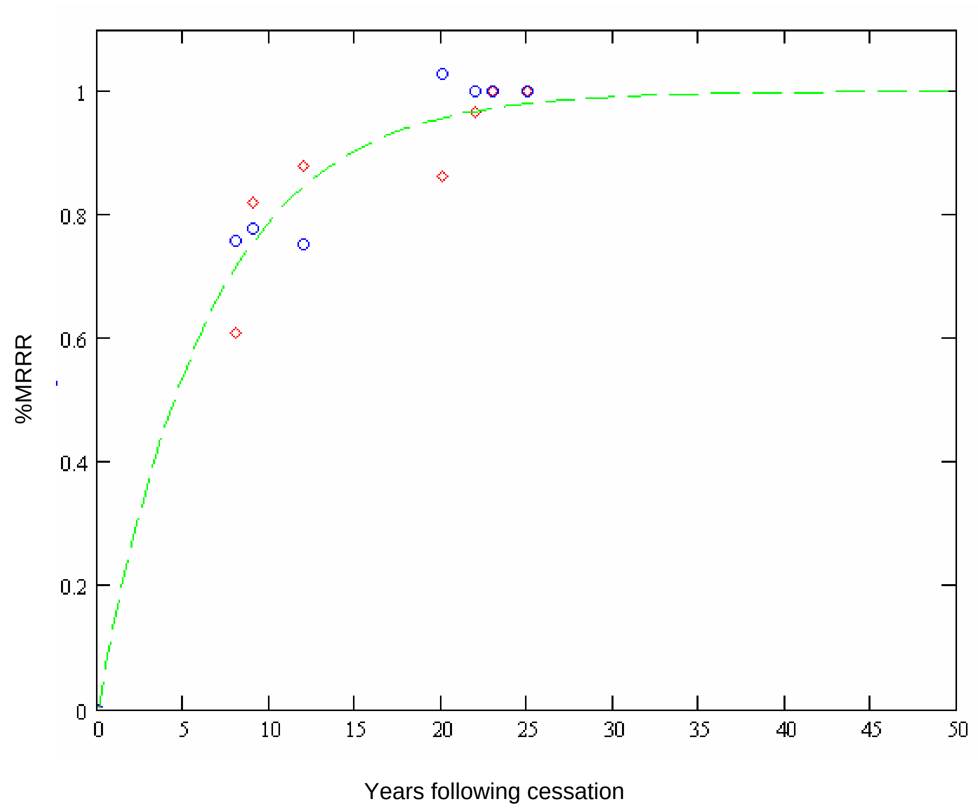


Exhibit E.33 is a graph of the Pareto form using parameters fit to %MRRR using both the smoker and non-smoker data on RR in the study and the years after cessation, together with the empirical data for those inputs (smokers are diamonds; non-smokers are circles). The estimated parameters for the Pareto form for these inputs are a = -7.224 x 10^6; b = 4.629 x 10^7.

Exhibit E.33 Graph of Pareto Form for the Arsenic / Bladder Cancer Data



E.5.3.2 Other Model Forms Evaluated for the Cessation Lag Function

There were a total of nine functional forms initially considered for the cessation lag models. The general shape of the cessation lag (as %MRRR over time) was expected to be an increasing function on the range of 0 to 1 over the domain of years following cessation, reaching or becoming asymptotic to 1 as the number of years following cessation increases. Therefore, a set of general functional forms were identified that exhibit this pattern. The specific set of function forms evaluated was (x is time after cessation, a, b, and c are model parameters):

Weibull (3 parameters): $$f(x) = 1 - e^{-\left(\frac{x-c}{b}\right)^a}$$

Weibull (2 parameters): $$f(x) = 1 - e^{-\left(\frac{x}{b}\right)^a}$$

Pareto I: $$f(x) = 1 - \left(\frac{b}{x}\right)^{a}$$

Pareto II: $$f(x) = 1 - \left(1 + \frac{x}{b}\right)^{a}$$

Log n: $$f(x) = a \cdot \ln(x) + b$$

Logistic: $$f(x) = \left(1 + e^{-(x-a)/b}\right)^{-1}$$

Exponential: $$f(x) = a \cdot e^{-bx} + c$$

LgS: $$f(x) = a \cdot \left(1 + b \cdot e^{-c \cdot x}\right)^{-1}$$

Extreme: $$f(x) = e^{-e^{a-x/b}}$$

All of these functions were evaluated using the best estimates of the RR values and the mid-points of the ranges of years following cessation provided in the three studies. For the Stage 2 benefits modeling, the objective of exploring several various model forms was to select two forms for each data set rather than a single "best fit" to capture some measure of model uncertainty.

For uniformity in running the benefits analysis, it was desired that the same two models forms be used for all three cessation lag data sets, so model selection was not strictly the best fits for each data set, although the two models ultimately selected were among the best fits in all cases. Goodness of fit tests performed included average-square-residuals, sign test and run test.

Because it was also desired that uncertainty in the parameter values for each of the two model forms selected be considered in the benefits modeling, it was also necessary that a large set of parameters for the models reflecting that uncertainty (by considering the reported ranges of values in years following cessation for each group and the range of RR values reflected by the 95% CI reported for the RR values) were able to be readily estimated in SAS using its nonlinear curve fitting procedures.

Some model forms were found not to converge or to do so with great difficulty with certain input data; generally, these were cases where the models also did not fit well.

Another desired characteristic of the cessation lag functions was that the curves that were fit to the data would pass through the origin - that is, it would predict 0% maximum relative risk reduction at 0 years after cessation. Not all of these model forms did that with the estimated parameters for all of the data sets.

The parameters for these various functional forms were estimated in SAS using the NLIN SAS procedure. Estimation of a nonlinear model is an iterative process that begins with a set of initial parameter value estimates as inputs and explores alternative values around them. The procedure evaluates the residual sum of squares at each combination of parameter values to determine the set of parameter values producing the lowest residual sum of squares. The numerical method used to come up with alternative parameter estimates was the default Modified Gauss-Newton

Based on the results of these model fits together with the other general criteria and characteristics described above, it was determined that the 2-parameter Weibull and the Pareto IIa model forms were the most suitable for these data sets.

E.5.3.3 Benefit Model Calculation Using Cessation Lag Function

The number of cases avoided among that part of the population born before the rule goes into effect for a specific age group i in any j years after implementation is computed in the benefits model as:

$$CAVS2_{bij} = (CAVS2MAX_i) \times (LF_i) \text{ for all } i > j \qquad \text{(Equation E.11)}$$

Here, the subscript b refers to those born before the Stage 2 rule is implemented, i refers to each of the one-year age groups and j refers to the number of years after exposure reduction. The total cases avoided across all age groups born before rule implementation in any given year j is:

$$CAVS2_{b,j} = \sum_{i=j+1}^{100} (CAVS2MAX_i) * (LF_j) \qquad \text{(Equation E.12)}$$

So, for example, 25 years after the rule goes into effect (j = 25) the age groups comprising those born before the rule went into effect are ages 26 (i = j + 1) to 100. (As noted previously, 25 years after the rule is implemented those in age groups 25 years old or younger will all have been born after the rule went into effect.)

The annual bladder cancer cases ultimately avoidable for each age group born before the rule goes into effect (and exposure reduction begins) is reduced according to the fraction of the maximum relative risk reduction that is estimated from the Lag Function to be attained j years (25 in this example) after exposure to the lower levels of DBPs began (based on the particular cessation lag function used).

E.6 Computational Procedures for Predicting Cases of Bladder Cancer Avoided

The purpose of this section is to provide all necessary equations and background information for computing the final number of annual cancer cases avoided.

E.6.1 Estimating Cases Avoided for Populations Born Before and After the Rule

The calculation of annual benefits for the portion of the population born after the rule is implemented is relatively straightforward. For any specific age group born after the rule is implemented, the annual benefits are simply based on the cases ultimately avoidable for that age group. The total for all age groups born after the rule is implemented is the sum across all the appropriate age groups.

So, for example, 10 years after the rule goes into effect, this part of the population consists only of those who are 10 years old or younger; the benefit of the rule is calculated as the sum of the cases ultimately avoidable for each age group 1 through 10. Similarly, 25 years after the rule goes into effect, the benefits for this portion of the population are the sum of the annual cases ultimately avoidable for each age group 1 through 25. In the modeling performed for Stage 2, the population is considered in one-year age groups through age 100. Therefore, 100 years after the rule is implemented, the entire population is composed of individuals born after the rule is implemented and at that time– at the latest – and from that time on the cases ultimately avoidable will be achieved.

While the modeling for the Stage 2 benefits is set up for the full 100-year time horizon, the focus for the comparison of benefits with costs is limited to the first 25 years after the rule is implemented. Nevertheless, for the sake of completeness, these benefits (cases avoided) are computed in the model for each year after the rule and are combined with the benefits (cases avoided) obtained for the other portion of the population: those who are born before the Stage 2 is implemented.

The calculation of annual benefits for the portion of the population born before implementation of the rule must account for cessation lag. To provide initial insight into how the annual benefits are computed each year for this part of the population born, consider the group of people who are 50 years old at the time the rule goes into effect. One year after the rule is implemented, that group has become the 51-year-old group, two years after the rule they are the 52-year-old group, and so on. For example, if the annual cases ultimately avoidable from Stage 2 for the 51-year-old age group is 5.3 cases, the number for the 52-year-old group would be approximately 5.1 cases. Again, if the benefits of the Stage 2 exposure reduction to those who have had some years of exposure to the pre-Stage 2 levels of DBPs (in this case 50 years of such exposure) were instantaneous, then one year after the rule is implemented the expected benefits would be all of those 5.3 cases and two years after they would be all of the 5.1 cases – just as if those individuals had spent their entire lives exposed only to the lower, post-Stage 2 levels.

As we have discussed in Section E.5, however, cancer risk reductions are not instantaneous; there is a transition period from the risk associated with the higher exposure levels to the risk associated with the lower exposure levels (referred to as cessation lag). Section E.5 provides a discussion of how cessation lag is accounted for in the population born before the rule is implemented.

Cases avoided for the two populations (those born before and those born after the rule is implemented) are added to produce total cases avoided for the rule.

E.6.2 Accounting for Uncertainties in the Benefits Model

The calculation of bladder cancer cases avoided is carried out as a Monte Carlo simulation where uncertainty in several of the key inputs is considered quantitatively. Three separate benefits estimates are modeled, each representing the use of one of the three studies serving as the basis for the cessation lag function as noted above (smoking/lung cancer; smoking/bladder cancer; and arsenic/bladder cancer). Each model is run independently for percent DBP reduction based on TTHM and HAA5.

Each of these three separate cessation lag models is, as noted, a Monte Carlo simulation in which several specific inputs will be incorporated as uncertainty variables. These are:

1. Three approaches were used to estimate the baseline number of bladder cancer cases attributable to DBP exposure. For the sake of simplicity, one approach using data from Villanueva et al. (2003) was carried through the full benefits model.

2. The PAR value for Pre-Stage 1 that is derived from the Villanueva et al. (2003) study is input as an uncertain variable. Specifically, the OR and its 95% confidence interval reported by Villanueva et al. (2003) were used to parameterize a triangular uncertainty distribution with minumum = 1.0725, mode = 1.2, and maximum = 1.4359. The minimum was estimated from the lower 95% bound of 1.1 multiplied by 0.975; the maximum was estimated from the upper 95% confidence bound of 1.4 divided by 0.975; the mode of 1.2 was taken from the best estimate of the OR reported by the authors. Note that the expected value of this distribution of 1.24 is higher than the mode of 1.2 because of the asymmetry of the 95% confidence interval reported by Villanueva et al. (2003). The confidence bounds from Villanueva et al. (2003) capture a significant portion of the confidence intervals of the other two approaches.

3. Percent DBP (TTHM or HAA5) reductions for Stage 1 and Stage 2. These values are derived using the SWAT model and the ICR Matrix Method. For the estimates of DBP reduction as a result of the Stage 2 DBPR, EPA produces two separate estimates of percent reduction to account for the potential impact of the IDSE on the compliance forecast. Also, the uncertainty in SWAT-predicted equations is incorporated into the model.

4. Model form uncertainty for cessation lag functions. As noted above, two functional forms have been used to model the Lag Function values: Weibull and Pareto. In the Monte Carlo simulation, one or the other of these functions is selected randomly (with equal probability) on a given iteration.

5. Model parameter uncertainty for cessation lag functions. For the Lag Functions based on the smoking/lung cancer and the smoking/bladder cancer data sets, the two parameters

for the Weibull and Pareto functions (q and r as shown above) are uncertain values; that uncertainty is accounted for in the simulation. One thousand parameter pairs were estimated for each function reflecting uncertainty in the time following cessation and in the reported RR values in those studies and, on a given iteration, once one of the two functional forms has been selected at random, a parameter pair for that function is selected at random and used for the subsequent calculations. Note that for the arsenic/bladder cancer data provided in the Chen and Gibb study, there was insufficient information to estimate the uncertainty around these parameters (Chen and Gibb 2003). In the model runs using the arsenic/bladder cancer data, only the single best estimates of those parameters are used once the model function is randomly selected.

E.6.3 Benefits Model Equations

The function and flow of the model is presented in Exhibit E.34. The upper portion presents the model inputs and distributions for uncertain values. The bottom portion shows the progression of the model.

The model is run independently to produce PAR values for TTHM and HAA5 as indicators of DBP reduction, and for each of three cessation lag functions based on smoking and lung cancer, smoking and bladder cancer, and arsenic and bladder cancer data (a total of 6 estimates of PAR). The PAR values are generated by using the slope (S) for DBP risk as a function of age, estimated from Villanueva et al. (2003) and Equations E.5 and E.6 , as described earlier.

The set of PAR values for each run are used to generate sets of cases attributable to chlorination DBPs (CATT) as in Equation E.15 by using the background incidence of bladder cancer (BI) from Equation E.1.

$$CATT_i = BI_i \times PAR_i \qquad \text{(Equation E.13)}$$

The sets of values for CATT are then used to generate sets of the cases ultimately avoidable due to Stage 1 (CAVS1Max) by using the following equation:

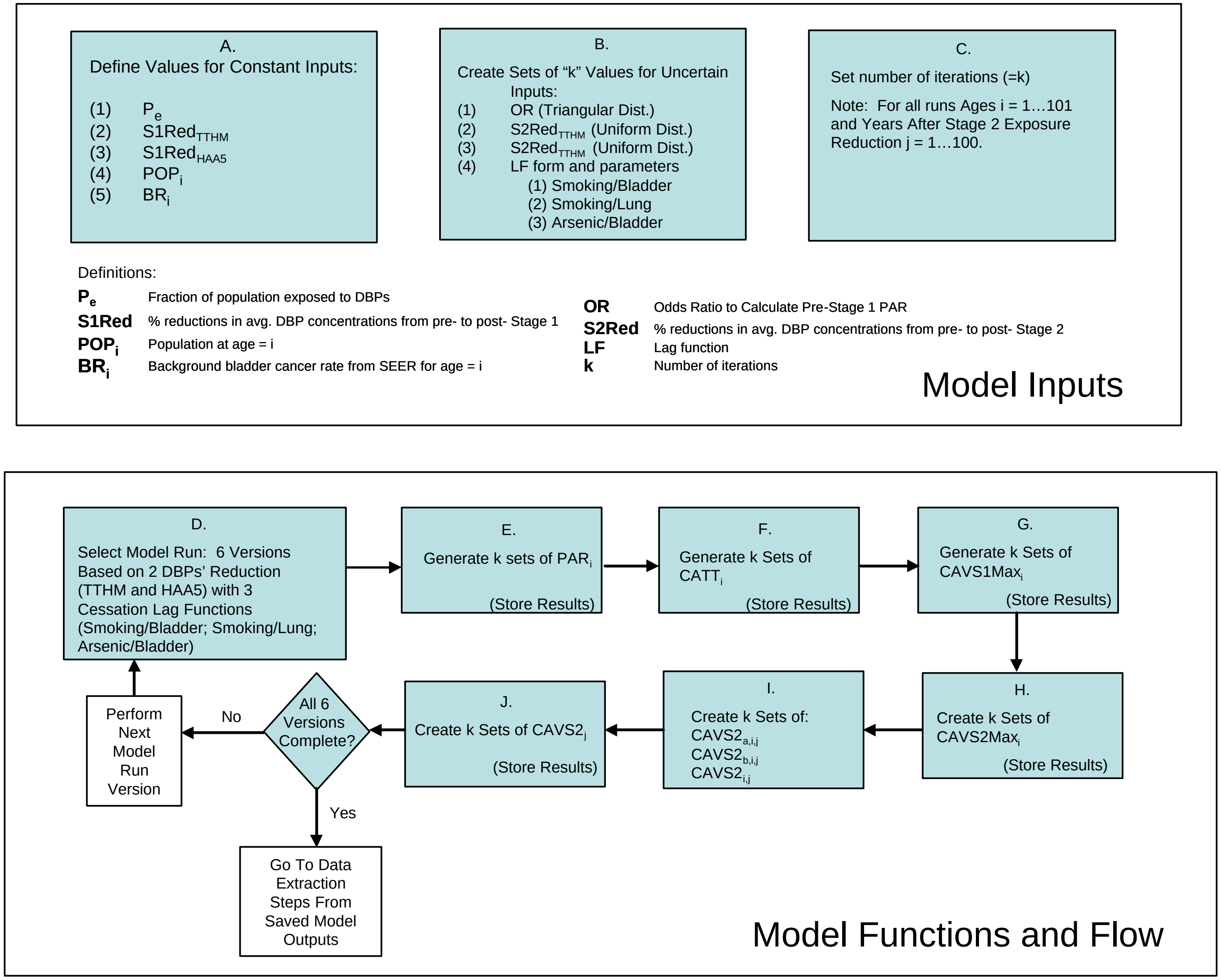
$$CAVS1Max=CATT \times (S1Red) \qquad \text{(Equation E.14)}$$

The percent reduction in average DBP (TTHM or HAA5) concentration from Pre-Stage 1 to Post-Stage 1 (S1Red) is applied to the cases attributable to DBPs.

These ultimately avoidable values are used to calculate sets of cases avoided for Stage 1. The total of cases consists of cases avoided for two different populations, those born before the rule and those born after the rule. Since the group that is born after the rule only experiences post-rule exposure levels, the cases avoided for this group are equal to the cases ultimately avoidable (CAVS1a = CAVS1Max). For the population alive when the rule is promulgated, there will be a cessation lag effect, as described in Section E.5. The cases avoided for this group is some fraction of the ultimate value, each year after the rule is promulgated. This is referred to as the lag function (LF). The cases avoided for this group is

CAVS1b = (CAVS1Max × LF). The lag function is explained in more detail in Section E.5.3.1. To estimate the total cases avoided by the Stage 1 rule, the cases avoided for each of the two populations is summed to come up with sets of cases avoided (CAVS1). The model then repeats this process for all 6 combinations of the two DBPs and three cessation lag models.

Exhibit E.34 Benefits Model Process Flow Chart



A similar process is performed for the annual cases ultimately avoidable due to Stage 2 (CAVS2Max), but this built on the CAVS1Max in the following equation:

$$CAVS2Max = [CATT - CAVS1Max] \times S2Red \qquad \text{(Equation E.15)}$$

The percent reduction in average DBP (TTHM or HAA5) concentration from Pre-Stage 2 to Post-Stage 2 is applied to the cases available after Stage 1 (S2Red). Note that while the percent DBP reduction for Stage 1 is a point estimate, the percent DBP reduction for Stage 2 incorporates uncertainties (see previous section).

These ultimate values are used to calculate sets of cases avoided for Stage 2. As was the case for Stage 1, the total cases avoided consist of those for two different populations, those born before the rule and those born after the rule. Since the group that is born after the rule only experiences post-rule exposure levels, the cases avoided for this group equal the cases ultimately avoidable (CAVS2a = CAVS2Max). As described for Stage 1 above, we apply the lag function to obtain the cases avoided for the population alive when the rule is promulgated, CAV2b = CAVS2Max × LF. To estimate the total cases avoided by the Stage 2 rule, the cases avoided for each of the two populations is summed to come up with sets of cases avoided (CAVS2). The model then repeats this process for all 6 combinations of the two DBPs and three cessation lag models.

Addition details for the Stage 2 DBPR benefits model are provided in Appendix K.

E.6.4 Allocating Cases Avoided to Different System Size and Source Water Categories

The total number of bladder cancer cases avoided as a result of the Stage 2 DBPR includes those from all system sizes and source water categories. To adjust the projection of cases over 25 years to account for the rule implementation schedule (see next Section), the total cases are allocated to the following system categories:

- Large and medium surface water systems
- Small surface water systems
- Large and medium ground water systems
- Small groundwater systems

The cases are allocated in proportion to 1) total population served and 2) reduction in TTHM or HAA5 concentrations. The percent of cases allocated to the four system categories is shown in Exhibit E.35 for the Stage 1 DBPR, and Exhibit E.36 for the Stage 2 DBPR.

Exhibit E.35 Allocation of Cases Avoided by the Stage 1 DBPR to System Categories

System Size and Type:	Population Served	Population (Percent of Total)	Pre-Stage 2 DBP Concentration (µg/L)	Pre-S2 Population Weighted Average Concentration	Percent Reduction in DBP Concentration	Amount Reduced (µg/L)	Population Weighted Amount Reduced	Allocation of Cases Avoided
	A	B = A / 263,024,518	C	D = B * C	E	F = C * E	G = F * B	H = G/G total
TTHM								
SW > 10,000	160,935,736	61.2%	48.70	29.80	27.17%	13.23	8.10	78.9%
SW < 10,000	8,422,403	3.2%	82.80	2.65	57.16%	47.33	1.52	14.8%
GW > 10,000	65,152,168	24.8%	15.36	3.80	14.31%	2.20	0.54	5.3%
GW < 10,000	28,514,211	10.8%	16.53	1.79	5.64%	0.93	0.10	1.0%
Total	263,024,518	100.0%					10.26	100%
HAA5								
SW > 10,000	160,935,736	61.2%	35.48	21.71	29.54%	10.48	6.41	85.6%
SW < 10,000	8,422,403	3.2%	45.32	1.45	44.83%	20.32	0.65	8.7%
GW > 10,000	65,152,168	24.8%	8.45	2.09	17.63%	1.49	0.37	4.9%
GW < 10,000	28,514,211	10.8%	9.09	0.99	6.13%	0.56	0.06	0.8%
Total	263,024,518	100.0%					7.49	100%

Note: Allocation of cases to system sizes within the size classes noted above (<>10,000) are consistent with the available DBP information and calculations on a finer level must be based upon population only.

Sources: (A) Population baseline in Chapter 3
(C) (E) Exhibit 5.22

Exhibit E.36 Allocation of Cases Avoided by the Stage 2 DBPR to System Categories

System Size and Type:	Population Served A	Population (Percent of Total) B = A / 263,024,518	Pre-Stage 2 DBP Concentration (µg/L) C	Pre-S2 Population Weighted Average Concentration D = B * C	Percent Reduction in DBP Concentration E	Amount Reduced (µg/L) F = C * E	Population Weighted Amount Reduced G = F * B	Allocation of Cases Avoided H = G/G total
TTHM (20% SM)								
SW > 10,000	160,935,736	61.2%	35.47	21.70	7.30%	2.59	1.58	91.8%
SW < 10,000	8,422,403	3.2%	35.47	1.14	7.30%	2.59	0.08	4.8%
GW > 10,000	65,152,168	24.8%	13.16	3.26	1.44%	0.19	0.05	2.7%
GW < 10,000	28,514,211	10.8%	15.60	1.69	0.72%	0.11	0.01	0.7%
Total	263,024,518	100.0%					1.73	100%
HAA5 (20% SM)								
SW > 10,000	160,935,736	61.2%	25.00	15.30	7.69%	1.92	1.18	88.1%
SW < 10,000	8,422,403	3.2%	25.00	0.80	7.69%	1.92	0.06	4.6%
GW > 10,000	65,152,168	24.8%	6.96	1.72	4.47%	0.31	0.08	5.8%
GW < 10,000	28,514,211	10.8%	8.53	0.92	2.23%	0.19	0.02	1.5%
Total	263,024,518	100.0%					1.34	100%
TTHM (25% SM)								
SW > 10,000	160,935,736	61.2%	35.47	21.70	11.16%	3.96	2.42	94.5%
SW < 10,000	8,422,403	3.2%	35.47	1.14	7.30%	2.59	0.08	3.2%
GW > 10,000	65,152,168	24.8%	13.16	3.26	1.44%	0.19	0.05	1.8%
GW < 10,000	28,514,211	10.8%	15.60	1.69	0.72%	0.11	0.01	0.5%
Total	263,024,518	100.0%					2.56	100%
HAA5 (25% SM)								
SW > 10,000	160,935,736	61.2%	25.00	15.30	12.23%	3.06	1.87	92.2%
SW < 10,000	8,422,403	3.2%	25.00	0.80	7.69%	1.92	0.06	3.0%
GW > 10,000	65,152,168	24.8%	6.96	1.72	4.47%	0.31	0.08	3.8%
GW < 10,000	28,514,211	10.8%	8.53	0.92	2.23%	0.19	0.02	1.0%
Total	263,024,518	100.0%					2.03	100%

Note: Allocation of cases to system sizes within the size classes noted above (<>10,000) are consistent with the available DBP information and calculations on a finer level must be based upon population only.

Sources:
(A) Population baseline in Chapter 3
(C) Exhibit 5.22
(E) For SW, Percent Reduction = [(SWAT predicted reduction) + ICR/SWAT ratio * (SWAT predicted reduction)]/2. See Exhibit 5.18. For GW, see Exhibit 5.23

E.6.5 Adjusting the 25-year Projection of Cases Avoided to Account for the Rule Implementation Schedule

Reduction in exposure to DBPs does not begin immediately when the Stage 2 DBPR is promulgated. Water systems are given a certain amount of time to make treatment technology changes to come into compliance with the rule. Appendix D shows estimates of when systems will install treatment technology changes (in the form of cumulative percentages) based on the required compliance schedule. Exhibit E.37 shows the estimated schedule for large and medium surface water systems, small surface water systems, large and medium ground water systems, and small ground water systems, as derived from Appendix D. The projected total estimate of bladder cancer cases avoided is multiplied by the percentages in Exhibit E.37 to generate the final stream of bladder cancer cases avoided for 25 years after the rule is promulgated.

Exhibit E.37 Estimated Schedule for Systems Making Treatment Technology Changes to Comply with the Stage 2 DBPR

Year after Rule Promulgation	% Surface Water Systems		% Ground Water Systems	
	Small	Large	Small	Large
1	0%	0%	0%	0%
2	0%	0%	0%	0%
3	0%	0%	0%	0%
4	0%	0%	0%	0%
5	0%	0%	15%	24%
6	15%	22%	31%	47%
7	31%	43%	46%	71%
8	46%	65%	62%	95%
9	62%	87%	77%	99%
10	77%	96%	92%	100%
11	92%	100%	100%	100%
12	100%	100%	100%	100%
13	100%	100%	100%	100%
14	100%	100%	100%	100%
15	100%	100%	100%	100%
16	100%	100%	100%	100%
17	100%	100%	100%	100%
18	100%	100%	100%	100%
19	100%	100%	100%	100%
20	100%	100%	100%	100%
21	100%	100%	100%	100%
22	100%	100%	100%	100%
23	100%	100%	100%	100%
24	100%	100%	100%	100%
25	100%	100%	100%	100%

Note: Small systems serve less than 10,000 people and large system serve greater than or equal to 10,000 people.

E.7 Detailed Results Output from Models

This section presents detailed results for annual cancer cases avoided (adjusted for cessation lag and rule implementation schedule) for the Stage 2 DBPR Preferred Regulatory Alternative (includes a requirement for the IDSE), all other regulatory alternatives, and all sensitivity analyses. Results for TTHM are shown for each alternative; however, detailed results for HAA5 are shown only for the Preferred Regulatory Alternative. The derivation of results using HAA5 occurrence data is exactly the same as the calculations using TTHM occurrence data. The percent reductions are similar.

Matrix of Section E.7 Contents

Applicable Rule Alternative(s)	Applicable DBP(s)	Cessation Lag Model Form	Exhibit Description	Applicable Source Water Type(s)	Applicable System Size	Exhibit Number
Stage 2 Preferred Alternative	TTHM	Smoking/Lung Cancer	Mean Number of Cases Avoided By Age Group and Yr	All	All	E.38a
			Projection of Cases Avoided by Year	Surface	All	E.38b
				Ground	All	E.38c
				All	All	E.38d
		Smoking/Bladder Cancer	Mean Number of Cases Avoided By Age Group and Yr	All	All	E.38e
			Projection of Cases Avoided by Year	Surface	All	E.38f
				Ground	All	E.38g
				All	All	E.38h
		Arsenic/Bladder Cancer	Mean Number of Cases Avoided By Age Group and Yr	All	All	E.38i
			Projection of Cases Avoided by Year	Surface	All	E.38j
				Ground	All	E.38k
				All	All	E.38l
	HAA5	Smoking/Lung Cancer	Mean Number of Cases Avoided By Age Group and Yr	All	All	E.39a
			Projection of Cases Avoided by Year	Surface	All	E.39b
				Ground	All	E.39c
				All	All	E.39d
		Smoking/Bladder Cancer	Mean Number of Cases Avoided By Age Group and Yr	All	All	E.39e
			Projection of Cases Avoided by Year	Surface	All	E.39f
				Ground	All	E.39g
				All	All	E.39h
		Arsenic/Bladder Cancer	Mean Number of Cases Avoided By Age Group and Yr	All	All	E.39i
			Projection of Cases Avoided by Year	Surface	All	E.39j
				Ground	All	E.39k
				All	All	E.39l
Stage 2 Alternative 1	TTHM	Smoking/Lung Cancer	Mean Number of Cases Avoided By Age Group and Yr	All	All	E.40a
			Projection of Cases Avoided by Year	Surface	All	E.40b
				Ground	All	E.40c
				All	All	E.40d
Stage 2 Alternative 2	TTHM	Smoking/Lung Cancer	Mean Number of Cases Avoided By Age Group and Yr	All	All	E.41a
			Projection of Cases Avoided by Year	Surface	All	E.41b
				Ground	All	E.41c
				All	All	E.41d
Stage 2 Alternative 3	TTHM	Smoking/Lung Cancer	Mean Number of Cases Avoided By Age Group and Yr	All	All	E.42a
			Projection of Cases Avoided by Year	Surface	All	E.42b
				Ground	All	E.42c
				All	All	E.42d
Stage 2 Colorectal Sensitivity Analysis	TTHM	Smoking/Lung Cancer	Mean Number of Cases Avoided By Age Group and Yr	All	All	E.43a
			Projection of Cases Avoided by Year	Surface	All	E.43b
				Ground	All	E.43c
				All	All	E.43d
Stage 2 Preferred Alternative, 20% Safety Margin	TTHM	Smoking/Lung Cancer	Mean Number of Cases Avoided By Age Group and Yr	All	All	E.44a
			Projection of Cases Avoided by Year	Surface	All	E.44b
				Ground	All	E.44c
				All	All	E.44d
Stage 2 Preferred Alternative, 25% Safety Margin	TTHM	Smoking/Lung Cancer	Mean Number of Cases Avoided By Age Group and Yr	All	All	E.45a
			Projection of Cases Avoided by Year	Surface	All	E.45b
				Ground	All	E.45c
				All	All	E.45d

Section E.7.1
Projection of Cases - Preferred Alternative
TTHM as Indicator

Exhibit E.38a Mean Number of Cases Avoided by Age Group per year following rule promulgation
(Smoking/Lung Cancer model - TTHM - Preferred Alternative)

Years After the Rule	Age Group 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0	0	0	0	0	0	0	0	0	0	0	0%
2	0	0	0	0	0	0	0	0	0	0	0	0%
3	0	0	0	0	0	0	0	0	0	0	0	0%
4	0	0	0	0	0	0	0	0	0	0	0	0%
5	0	0	0	0	0	0	0	0	0	0	0	0%
6	0.0113	0.0095	0.0588	0.2379	1.0265	2.7816	5.3633	8.4843	5.0303	0.9038	23.9073	4%
7	0.0298	0.0243	0.1505	0.6095	2.6297	7.1257	13.7393	21.7345	12.8864	2.3152	61.2449	11%
8	0.0539	0.0436	0.2696	1.0917	4.7104	12.7640	24.6108	38.9322	23.0829	4.1472	109.7064	19%
9	0.0828	0.0668	0.4135	1.6743	7.2241	19.5755	37.7444	59.7085	35.4012	6.3603	168.2516	29%
10	0.1067	0.0864	0.5348	2.1654	9.3431	25.3174	48.8155	77.2220	45.7849	8.2259	217.6021	38%
11	0.1256	0.1045	0.6462	2.6168	11.2904	30.5940	58.9895	93.3165	55.3273	9.9403	262.9511	46%
12	0.1399	0.1205	0.7455	3.0186	13.0241	35.2920	68.0480	107.6462	63.8234	11.4668	303.3250	53%
13	0.1503	0.1346	0.8326	3.3713	14.5459	39.4157	75.9990	120.2242	71.2809	12.8066	338.7611	59%
14	0.1574	0.1465	0.9066	3.6710	15.8389	42.9194	82.7546	130.9109	77.6171	13.9450	368.8674	64%
15	0.1627	0.1564	0.9674	3.9172	16.9014	45.7984	88.3058	139.6925	82.8237	14.8804	393.6061	68%
16	0.1663	0.1650	1.0179	4.1218	17.7843	48.1907	92.9184	146.9892	87.1499	15.6577	414.1613	72%
17	0.1685	0.1728	1.0603	4.2935	18.5251	50.1981	96.7891	153.1122	90.7802	16.3099	431.4098	75%
18	0.1696	0.1798	1.0963	4.4393	19.1541	51.9025	100.0754	158.3110	93.8625	16.8637	446.0543	77%
19	0.1699	0.1862	1.1272	4.5643	19.6935	53.3641	102.8936	162.7691	96.5058	17.3386	458.6124	79%
20	0.1700	0.1918	1.1539	4.6724	20.1599	54.6280	105.3306	166.6243	98.7915	17.7493	469.4717	81%
21	0.1700	0.1976	1.1772	4.7666	20.5664	55.7294	107.4542	169.9837	100.7833	18.1071	478.9355	83%
22	0.1700	0.2034	1.1976	4.8493	20.9230	56.6959	109.3177	172.9316	102.5311	18.4212	487.2410	84%
23	0.1700	0.2094	1.2156	4.9223	21.2379	57.5493	110.9631	175.5345	104.0744	18.6984	494.5750	86%
24	0.1700	0.2155	1.2316	4.9871	21.5175	58.3067	112.4236	177.8448	105.4441	18.9445	501.0854	87%
25	0.1700	0.2210	1.2459	5.0448	21.7667	58.9821	113.7258	179.9047	106.6655	19.1640	506.8904	88%
26	0.1700	0.2250	1.2608	5.0966	21.9898	59.5867	114.8916	181.7490	107.7590	19.3604	512.0889	89%
27	0.1700	0.2275	1.2763	5.1430	22.1904	60.1300	115.9392	183.4063	108.7415	19.5369	516.7613	90%
28	0.1700	0.2289	1.2921	5.1849	22.3711	60.6199	116.8838	184.9005	109.6274	19.6961	520.9748	90%
29	0.1700	0.2293	1.3082	5.2228	22.5346	61.0629	117.7379	186.2517	110.4286	19.8400	524.7861	91%
30	0.1700	0.2294	1.3228	5.2572	22.6829	61.4646	118.5125	187.4770	111.1551	19.9706	528.2421	91%
31	0.1700	0.2294	1.3376	5.2884	22.8177	61.8299	119.2168	188.5911	111.8156	20.0892	531.3857	92%
32	0.1700	0.2294	1.3523	5.3169	22.9405	62.1628	119.8586	189.6063	112.4176	20.1974	534.2517	93%
33	0.1700	0.2294	1.3671	5.3429	23.0527	62.4668	120.4447	190.5336	112.9673	20.2962	536.8707	93%
34	0.1700	0.2294	1.3822	5.3667	23.1554	62.7450	120.9812	191.3822	113.4705	20.3866	539.2692	93%
35	0.1700	0.2294	1.3963	5.3885	23.2495	63.0001	121.4731	192.1604	113.9319	20.4695	541.4688	94%
36	0.1700	0.2294	1.4069	5.4126	23.3360	63.2345	121.9250	192.8753	114.3557	20.5456	543.4910	94%
37	0.1700	0.2294	1.4140	5.4384	23.4156	63.4502	122.3409	193.5332	114.7457	20.6157	545.3532	94%
38	0.1700	0.2294	1.4180	5.4658	23.4890	63.6490	122.7242	194.1395	115.1053	20.6803	547.0705	95%
39	0.1700	0.2294	1.4190	5.4946	23.5567	63.8325	123.0781	194.6995	115.4372	20.7399	548.6570	95%
40	0.1700	0.2294	1.4193	5.5215	23.6194	64.0023	123.4054	195.2172	115.7442	20.7951	550.1237	95%
41	0.1700	0.2294	1.4194	5.5516	23.6774	64.1594	123.7085	195.6966	116.0285	20.8461	551.4869	96%
42	0.1700	0.2294	1.4194	5.5842	23.7312	64.3052	123.9895	196.1412	116.2921	20.8935	552.7557	96%
43	0.1700	0.2294	1.4194	5.6190	23.7811	64.4406	124.2506	196.5541	116.5369	20.9375	553.9387	96%
44	0.1700	0.2294	1.4194	5.6559	23.8276	64.5665	124.4933	196.9381	116.7646	20.9784	555.0433	96%
45	0.1700	0.2294	1.4194	5.6908	23.8708	64.6838	124.7194	197.2957	116.9766	21.0165	556.0724	96%
46	0.1700	0.2294	1.4194	5.7168	23.9253	64.7931	124.9302	197.6292	117.1743	21.0520	557.0397	96%
47	0.1700	0.2294	1.4194	5.7344	23.9894	64.8951	125.1269	197.9404	117.3588	21.0852	557.9491	97%
48	0.1700	0.2294	1.4194	5.7440	24.0626	64.9905	125.3109	198.2314	117.5313	21.1162	558.8057	97%
49	0.1700	0.2294	1.4194	5.7464	24.1437	65.0798	125.4830	198.5037	117.6928	21.1452	559.6134	97%
50	0.1700	0.2294	1.4194	5.7472	24.2207	65.1634	125.6443	198.7588	117.8441	21.1724	560.3697	97%
51	0.1700	0.2294	1.4194	5.7474	24.3042	65.2419	125.7955	198.9981	117.9860	21.1978	561.0897	97%
52	0.1700	0.2294	1.4194	5.7474	24.3912	65.3156	125.9376	199.2229	118.1192	21.2218	561.7744	97%
53	0.1700	0.2294	1.4194	5.7474	24.4814	65.3848	126.0712	199.4341	118.2444	21.2443	562.4265	97%
54	0.1700	0.2294	1.4194	5.7474	24.5743	65.4500	126.1968	199.6330	118.3623	21.2655	563.0481	98%
55	0.1700	0.2294	1.4194	5.7474	24.6603	65.5114	126.3152	199.8202	118.4734	21.2854	563.6321	98%
56	0.1700	0.2294	1.4194	5.7474	24.7240	65.6007	126.4269	199.9969	118.5781	21.3042	564.1970	98%
57	0.1700	0.2294	1.4194	5.7474	24.7666	65.7147	126.5323	200.1636	118.6769	21.3220	564.7423	98%
58	0.1700	0.2294	1.4194	5.7474	24.7898	65.8525	126.6319	200.3211	118.7703	21.3388	565.2706	98%
59	0.1700	0.2294	1.4194	5.7474	24.7955	66.0121	126.7261	200.4701	118.8587	21.3546	565.7833	98%
60	0.1700	0.2294	1.4194	5.7474	24.7976	66.1611	126.8152	200.6111	118.9423	21.3697	566.2632	98%
61	0.1700	0.2294	1.4194	5.7474	24.7979	66.3163	126.8997	200.7448	119.0216	21.3839	566.7304	98%
62	0.1700	0.2294	1.4194	5.7474	24.7979	66.4744	126.9798	200.8715	119.0967	21.3974	567.1839	98%
63	0.1700	0.2294	1.4194	5.7474	24.7979	66.6355	127.0559	200.9918	119.1680	21.4102	567.6256	98%
64	0.1700	0.2294	1.4194	5.7474	24.7979	66.8005	127.1281	201.1061	119.2358	21.4224	568.0570	98%
65	0.1700	0.2294	1.4194	5.7474	24.7979	66.9537	127.1968	201.2147	119.3002	21.4340	568.4635	98%
66	0.1700	0.2294	1.4194	5.7474	24.7979	67.0671	127.3080	201.3182	119.3615	21.4450	568.8638	99%
67	0.1700	0.2294	1.4194	5.7474	24.7979	67.1415	127.4575	201.4166	119.4198	21.4554	569.2551	99%
68	0.1700	0.2294	1.4194	5.7474	24.7979	67.1818	127.6427	201.5105	119.4755	21.4654	569.6401	99%
69	0.1700	0.2294	1.4194	5.7474	24.7979	67.1918	127.8595	201.5999	119.5285	21.4750	570.0188	99%
70	0.1700	0.2294	1.4194	5.7474	24.7979	67.1954	128.0697	201.6853	119.5792	21.4841	570.3777	99%
71	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	128.2900	201.7669	119.6275	21.4928	570.7373	99%
72	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	128.5131	201.8448	119.6738	21.5011	571.0929	99%
73	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	128.7408	201.9194	119.7180	21.5090	571.4474	99%
74	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	128.9729	201.9908	119.7603	21.5166	571.8008	99%
75	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.1944	202.0592	119.8008	21.5239	572.1385	99%
76	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.3621	202.1902	119.8397	21.5309	572.4830	99%
77	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.4765	202.3781	119.8770	21.5376	572.8292	99%
78	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5406	202.6208	119.9127	21.5440	573.1783	99%
79	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5564	202.9138	119.9470	21.5502	573.5276	99%
80	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5623	203.2014	119.9800	21.5561	573.8599	99%
81	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	203.4913	120.0117	21.5618	574.1882	99%
82	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	203.7749	120.0422	21.5673	574.5078	100%
83	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.0497	120.0715	21.5725	574.8172	100%
84	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.3167	120.0998	21.5776	575.1174	100%
85	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.5630	120.1269	21.5825	575.3959	100%
86	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.7452	120.2020	21.5872	575.6578	100%
87	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.8678	120.3178	21.5917	575.9008	100%
88	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9346	120.4694	21.5961	576.1235	100%
89	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9512	120.6518	21.6004	576.3268	100%
90	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9573	120.8220	21.6044	576.5072	100%
91	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	120.9755	21.6084	576.6657	100%
92	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.1091	21.6122	576.8031	100%
93	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.2236	21.6159	576.9213	100%
94	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.3201	21.6195	577.0214	100%
95	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.4012	21.6229	577.1059	100%
96	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.4579	21.6368	577.1765	100%
97	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.4939	21.6587	577.2344	100%
98	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.5129	21.6871	577.2818	100%
99	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.5177	21.7201	577.3196	100%
100	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.5194	21.7483	577.3495	100%

Exhibit E.38b Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Surface Water Systems

TTHM - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.00	0.01	0.00	0.03	0.02	0.00	0.05	0.13	0.01	0.33	0.37	0.02	0.95	2.48	0.16	7.02	2.16	0.14	6.11	9.55	0.64	27.04	8.13	0.54	23.02
2011	0.00	0.00	0.01	0.03	0.00	0.07	0.05	0.01	0.12	0.34	0.04	0.77	0.96	0.12	2.19	6.34	0.92	16.46	5.53	0.80	14.35	24.45	3.55	63.46	20.81	3.02	54.01
2012	0.01	0.00	0.01	0.05	0.01	0.11	0.09	0.02	0.20	0.60	0.12	1.28	1.72	0.36	3.65	11.36	2.36	27.71	9.90	2.06	24.14	43.80	9.12	106.81	37.27	7.76	90.90
2013	0.01	0.00	0.02	0.08	0.02	0.16	0.14	0.04	0.29	0.92	0.26	1.85	2.64	0.73	5.28	17.42	4.49	40.43	15.18	3.91	35.23	67.17	17.30	155.87	57.17	14.72	132.65
2014	0.01	0.00	0.02	0.11	0.04	0.22	0.20	0.07	0.38	1.30	0.43	2.47	3.71	1.23	7.06	24.52	7.07	54.68	20.29	6.09	44.59	84.98	26.62	183.73	72.32	22.66	156.36
2015	0.02	0.01	0.03	0.15	0.06	0.28	0.27	0.10	0.49	1.72	0.63	3.16	4.91	1.81	9.04	31.34	9.90	67.22	24.54	8.23	51.40	101.13	34.93	209.18	86.06	29.73	178.02
2016	0.02	0.01	0.04	0.19	0.08	0.33	0.33	0.13	0.58	2.11	0.85	3.75	6.03	2.44	10.71	36.96	12.60	76.49	28.34	10.02	57.64	115.69	41.55	233.31	98.46	35.36	198.56
2017	0.02	0.01	0.04	0.21	0.09	0.37	0.38	0.17	0.64	2.43	1.07	4.15	6.95	3.07	11.87	41.92	14.92	84.60	31.70	11.45	63.27	128.55	46.54	255.37	109.40	39.61	217.34
2018	0.03	0.01	0.04	0.24	0.11	0.40	0.42	0.20	0.70	2.71	1.27	4.49	7.74	3.62	12.86	46.28	16.74	91.90	34.59	12.53	68.33	139.35	50.47	274.84	118.60	42.95	233.91
2019	0.03	0.01	0.05	0.26	0.13	0.42	0.46	0.22	0.75	2.95	1.42	4.81	8.43	4.07	13.75	50.01	18.15	98.40	36.98	13.43	72.55	148.07	53.78	290.02	126.02	45.77	246.82
2020	0.03	0.01	0.05	0.28	0.14	0.45	0.49	0.24	0.79	3.15	1.55	5.09	9.02	4.43	14.55	53.11	19.30	103.97	38.94	14.17	75.98	155.31	56.59	302.39	132.18	48.16	257.36
2021	0.03	0.02	0.05	0.29	0.14	0.47	0.52	0.25	0.82	3.33	1.64	5.31	9.52	4.70	15.20	55.67	20.30	108.23	40.58	14.82	78.65	161.41	58.99	312.36	137.37	50.20	265.84
2022	0.03	0.02	0.05	0.31	0.15	0.48	0.54	0.27	0.85	3.47	1.72	5.50	9.93	4.92	15.73	57.82	21.17	111.82	41.98	15.39	80.99	166.61	61.15	321.11	141.80	52.04	273.28
2023	0.03	0.02	0.05	0.32	0.16	0.50	0.56	0.28	0.88	3.59	1.79	5.65	10.28	5.11	16.16	59.65	21.90	114.85	43.17	15.87	82.97	171.09	62.96	328.52	145.60	53.58	279.59
2024	0.04	0.02	0.05	0.33	0.16	0.51	0.57	0.29	0.90	3.70	1.84	5.78	10.58	5.27	16.54	61.22	22.51	117.56	44.20	16.28	84.71	174.96	64.51	334.81	148.90	54.90	284.95
2025	0.04	0.02	0.06	0.33	0.17	0.52	0.59	0.29	0.92	3.79	1.89	5.90	10.84	5.40	16.89	62.58	23.05	119.89	45.10	16.63	86.28	178.34	65.78	341.14	151.78	55.98	290.33
2026	0.04	0.02	0.06	0.34	0.17	0.53	0.60	0.30	0.93	3.87	1.93	6.00	11.07	5.52	17.17	63.77	23.52	121.96	45.89	16.92	87.71	181.32	66.85	346.47	154.31	56.89	294.87
2027	0.04	0.02	0.06	0.35	0.17	0.54	0.61	0.31	0.95	3.94	1.97	6.10	11.27	5.63	17.45	64.82	23.93	123.96	46.58	17.19	89.08	183.95	67.87	351.84	156.55	57.76	299.43
2028	0.04	0.02	0.06	0.35	0.18	0.55	0.62	0.31	0.96	4.00	2.00	6.19	11.45	5.73	17.71	65.74	24.28	125.69	47.20	17.44	90.25	186.29	68.87	356.17	158.54	58.62	303.12
2029	0.04	0.02	0.06	0.36	0.18	0.55	0.63	0.32	0.97	4.06	2.03	6.27	11.61	5.81	17.95	66.57	24.60	127.17	47.75	17.66	91.20	188.37	69.70	359.72	160.32	59.32	306.15
Total	**0.49**	**0.23**	**0.80**	**4.59**	**2.15**	**7.47**	**8.08**	**3.79**	**13.16**	**52.10**	**24.47**	**84.85**	**149.03**	**70.00**	**242.72**	**879.59**	**311.87**	**1,740.00**	**650.60**	**231.04**	**1,285.44**	**2,610.40**	**927.76**	**5,154.18**	**2,221.61**	**789.58**	**4,386.51**
Avg.	**0.02**	**0.01**	**0.03**	**0.18**	**0.09**	**0.30**	**0.32**	**0.15**	**0.53**	**2.08**	**0.98**	**3.39**	**5.96**	**2.80**	**9.71**	**35.18**	**12.47**	**69.60**	**26.02**	**9.24**	**51.42**	**104.42**	**37.11**	**206.17**	**88.86**	**31.58**	**175.46**

Avg. - All Size Categories		**263**	**94**	**517**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.38c Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Ground Water Systems

TTHM - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.01	0.04	0.00	0.10	0.04	0.00	0.10	0.12	0.01	0.31	0.19	0.01	0.49	0.24	0.01	0.61	0.10	0.01	0.25	0.28	0.01	0.70	0.05	0.00	0.12
2011	0.01	0.00	0.03	0.10	0.01	0.22	0.10	0.01	0.24	0.31	0.04	0.72	0.50	0.06	1.14	0.61	0.08	1.40	0.26	0.03	0.59	0.71	0.09	1.63	0.12	0.02	0.27
2012	0.02	0.00	0.05	0.18	0.04	0.37	0.19	0.04	0.40	0.56	0.12	1.20	0.89	0.19	1.89	1.10	0.23	2.34	0.46	0.10	0.98	1.28	0.27	2.72	0.21	0.04	0.45
2013	0.04	0.01	0.07	0.27	0.07	0.54	0.29	0.08	0.57	0.86	0.24	1.73	1.37	0.38	2.73	1.69	0.47	3.38	0.71	0.20	1.42	1.96	0.54	3.93	0.33	0.09	0.65
2014	0.05	0.02	0.10	0.38	0.13	0.72	0.40	0.13	0.77	1.21	0.40	2.31	1.92	0.64	3.66	2.37	0.79	4.53	0.94	0.33	1.77	2.48	0.90	4.55	0.41	0.15	0.76
2015	0.07	0.03	0.12	0.50	0.18	0.92	0.53	0.20	0.98	1.61	0.59	2.96	2.54	0.94	4.68	3.02	1.16	5.49	1.14	0.47	2.00	2.94	1.26	5.09	0.49	0.21	0.85
2016	0.08	0.03	0.15	0.61	0.25	1.09	0.65	0.26	1.16	1.97	0.80	3.51	3.12	1.26	5.55	3.56	1.52	6.16	1.31	0.59	2.22	3.34	1.56	5.60	0.56	0.26	0.93
2017	0.10	0.04	0.16	0.71	0.31	1.21	0.75	0.33	1.29	2.27	1.00	3.89	3.60	1.59	6.15	4.02	1.86	6.74	1.46	0.70	2.41	3.70	1.79	6.07	0.62	0.30	1.01
2018	0.11	0.05	0.18	0.79	0.37	1.31	0.84	0.39	1.40	2.53	1.19	4.21	4.01	1.88	6.66	4.42	2.12	7.25	1.58	0.77	2.58	4.00	1.95	6.48	0.67	0.33	1.08
2019	0.12	0.06	0.19	0.86	0.42	1.40	0.91	0.44	1.49	2.76	1.33	4.51	4.37	2.11	7.13	4.76	2.33	7.71	1.69	0.83	2.73	4.24	2.09	6.82	0.71	0.35	1.14
2020	0.12	0.06	0.20	0.92	0.45	1.48	0.98	0.48	1.58	2.95	1.45	4.77	4.67	2.29	7.54	5.05	2.49	8.11	1.78	0.88	2.84	4.44	2.20	7.09	0.74	0.37	1.18
2021	0.13	0.06	0.21	0.97	0.48	1.55	1.03	0.51	1.65	3.12	1.54	4.98	4.93	2.43	7.88	5.29	2.62	8.41	1.85	0.92	2.93	4.62	2.29	7.28	0.77	0.38	1.21
2022	0.14	0.07	0.22	1.01	0.50	1.60	1.08	0.53	1.71	3.25	1.61	5.15	5.14	2.55	8.15	5.49	2.73	8.66	1.92	0.95	3.01	4.77	2.37	7.47	0.79	0.40	1.24
2023	0.14	0.07	0.22	1.05	0.52	1.65	1.12	0.55	1.75	3.37	1.67	5.29	5.33	2.65	8.37	5.67	2.82	8.88	1.97	0.98	3.08	4.90	2.44	7.62	0.82	0.41	1.27
2024	0.15	0.07	0.23	1.08	0.54	1.69	1.15	0.57	1.80	3.47	1.73	5.42	5.48	2.73	8.57	5.82	2.90	9.07	2.02	1.01	3.13	5.01	2.50	7.76	0.83	0.42	1.29
2025	0.15	0.07	0.23	1.11	0.55	1.72	1.18	0.59	1.83	3.55	1.77	5.53	5.62	2.80	8.75	5.95	2.97	9.23	2.06	1.03	3.19	5.11	2.55	7.91	0.85	0.42	1.32
2026	0.15	0.08	0.24	1.13	0.56	1.75	1.20	0.60	1.86	3.63	1.81	5.63	5.74	2.86	8.90	6.06	3.03	9.39	2.10	1.05	3.24	5.19	2.59	8.03	0.86	0.43	1.34
2027	0.16	0.08	0.24	1.15	0.57	1.78	1.22	0.61	1.89	3.69	1.84	5.72	5.84	2.92	9.04	6.16	3.08	9.54	2.13	1.06	3.29	5.27	2.63	8.15	0.88	0.44	1.36
2028	0.16	0.08	0.24	1.17	0.58	1.81	1.24	0.62	1.92	3.75	1.88	5.80	5.93	2.97	9.18	6.25	3.13	9.67	2.16	1.08	3.34	5.34	2.68	8.25	0.89	0.45	1.37
2029	0.16	0.08	0.25	1.18	0.59	1.83	1.26	0.63	1.95	3.80	1.90	5.88	6.01	3.01	9.30	6.33	3.18	9.79	2.18	1.10	3.37	5.40	2.72	8.34	0.90	0.45	1.39
Total	**2.06**	**0.97**	**3.35**	**15.20**	**7.14**	**24.76**	**16.17**	**7.59**	**26.34**	**48.81**	**22.92**	**79.52**	**77.21**	**36.26**	**125.78**	**83.89**	**39.50**	**136.35**	**29.81**	**14.07**	**48.37**	**74.95**	**35.42**	**121.50**	**12.48**	**5.90**	**20.23**
Avg.	**0.08**	**0.04**	**0.13**	**0.61**	**0.29**	**0.99**	**0.65**	**0.30**	**1.05**	**1.95**	**0.92**	**3.18**	**3.09**	**1.45**	**5.03**	**3.36**	**1.58**	**5.45**	**1.19**	**0.56**	**1.93**	**3.00**	**1.42**	**4.86**	**0.50**	**0.24**	**0.81**

Avg. - All Size Categories	**14.42**	**6.79**	**23.45**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.38d Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - All Water Systems

TTHM - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.05	0.00	0.13	0.06	0.00	0.15	0.25	0.01	0.64	0.57	0.03	1.44	2.72	0.18	7.62	2.26	0.15	6.37	9.83	0.65	27.75	8.17	0.54	23.13
2011	0.02	0.00	0.04	0.13	0.02	0.29	0.16	0.02	0.36	0.65	0.08	1.49	1.46	0.19	3.33	6.96	1.00	17.87	5.78	0.83	14.93	25.17	3.64	65.09	20.93	3.03	54.28
2012	0.03	0.01	0.06	0.23	0.05	0.48	0.28	0.06	0.59	1.17	0.24	2.47	2.61	0.54	5.55	12.46	2.59	30.05	10.36	2.16	25.12	45.08	9.38	109.52	37.49	7.80	91.35
2013	0.05	0.01	0.09	0.35	0.10	0.70	0.43	0.12	0.86	1.79	0.50	3.57	4.01	1.11	8.01	19.12	4.96	43.82	15.89	4.11	36.65	69.13	17.84	159.80	57.49	14.81	133.31
2014	0.06	0.02	0.12	0.49	0.16	0.94	0.60	0.20	1.15	2.51	0.83	4.78	5.63	1.87	10.72	26.89	7.86	59.20	21.23	6.42	46.36	87.46	27.53	188.28	72.73	22.81	157.12
2015	0.08	0.03	0.15	0.65	0.24	1.20	0.80	0.29	1.47	3.32	1.23	6.12	7.45	2.75	13.72	34.36	11.06	72.71	25.68	8.69	53.41	104.06	36.19	214.27	86.55	29.94	178.87
2016	0.10	0.04	0.18	0.80	0.32	1.42	0.98	0.40	1.74	4.08	1.65	7.25	9.15	3.70	16.26	40.52	14.13	82.65	29.65	10.61	59.86	119.04	43.11	238.91	99.02	35.62	199.49
2017	0.12	0.05	0.20	0.92	0.41	1.58	1.13	0.50	1.93	4.70	2.08	8.04	10.54	4.65	18.03	45.94	16.77	91.34	33.16	12.14	65.68	132.25	48.33	261.45	110.02	39.91	218.35
2018	0.13	0.06	0.22	1.03	0.48	1.71	1.26	0.59	2.09	5.24	2.45	8.71	11.75	5.50	19.52	50.70	18.86	99.15	36.18	13.31	70.91	143.35	52.42	281.32	119.26	43.28	234.99
2019	0.14	0.07	0.24	1.12	0.54	1.83	1.37	0.66	2.24	5.71	2.76	9.31	12.80	6.18	20.88	54.78	20.48	106.12	38.67	14.26	75.28	152.31	55.87	296.84	126.72	46.12	247.96
2020	0.15	0.08	0.25	1.20	0.59	1.93	1.47	0.72	2.37	6.11	3.00	9.85	13.70	6.72	22.09	58.17	21.79	112.08	40.72	15.05	78.83	159.76	58.79	309.48	132.92	48.53	258.54
2021	0.16	0.08	0.26	1.26	0.62	2.02	1.55	0.76	2.47	6.44	3.18	10.29	14.45	7.13	23.07	60.96	22.92	116.64	42.44	15.74	81.58	166.03	61.28	319.65	138.14	50.58	267.05
2022	0.17	0.08	0.27	1.32	0.65	2.09	1.62	0.80	2.56	6.72	3.33	10.65	15.07	7.47	23.88	63.31	23.90	120.47	43.89	16.35	84.00	171.38	63.52	328.59	142.59	52.43	274.53
2023	0.18	0.09	0.28	1.36	0.68	2.15	1.67	0.83	2.63	6.96	3.46	10.94	15.61	7.75	24.53	65.32	24.72	123.73	45.14	16.86	86.05	175.98	65.40	336.15	146.42	53.99	280.86
2024	0.18	0.09	0.28	1.40	0.70	2.20	1.72	0.86	2.69	7.17	3.57	11.20	16.07	8.00	25.12	67.04	25.41	126.63	46.22	17.28	87.84	179.97	67.01	342.57	149.74	55.32	286.24
2025	0.19	0.09	0.29	1.44	0.72	2.24	1.76	0.88	2.75	7.34	3.66	11.44	16.46	8.21	25.64	68.53	26.01	129.12	47.16	17.66	89.47	183.45	68.33	349.05	152.63	56.41	291.65
2026	0.19	0.09	0.29	1.47	0.73	2.28	1.80	0.90	2.79	7.50	3.74	11.63	16.81	8.39	26.07	69.84	26.55	131.34	47.98	17.97	90.96	186.51	69.44	354.50	155.18	57.32	296.20
2027	0.19	0.10	0.30	1.50	0.75	2.32	1.83	0.92	2.84	7.63	3.81	11.82	17.11	8.55	26.50	70.98	27.01	133.50	48.71	18.25	92.37	189.22	70.50	359.99	157.43	58.20	300.79
2028	0.20	0.10	0.30	1.52	0.76	2.35	1.86	0.93	2.88	7.75	3.88	11.99	17.38	8.69	26.89	72.00	27.41	135.36	49.36	18.52	93.58	191.62	71.55	364.42	159.43	59.06	304.50
2029	0.20	0.10	0.31	1.54	0.77	2.38	1.89	0.95	2.92	7.86	3.94	12.15	17.62	8.83	27.25	72.90	27.77	136.95	49.93	18.76	94.57	193.77	72.42	368.06	161.22	59.77	307.53
Total	**2.55**	**1.20**	**4.15**	**19.78**	**9.29**	**32.23**	**24.25**	**11.39**	**39.50**	**100.91**	**47.39**	**164.36**	**226.24**	**106.26**	**368.50**	**963.48**	**351.38**	**1,876.35**	**680.42**	**245.11**	**1,333.82**	**2,685.35**	**963.18**	**5,275.68**	**2,234.09**	**795.48**	**4,406.74**
Avg.	**0.10**	**0.05**	**0.17**	**0.79**	**0.37**	**1.29**	**0.97**	**0.46**	**1.58**	**4.04**	**1.90**	**6.57**	**9.05**	**4.25**	**14.74**	**38.54**	**14.06**	**75.05**	**27.22**	**9.80**	**53.35**	**107.41**	**38.53**	**211.03**	**89.36**	**31.82**	**176.27**

Avg. - All Size Categories	**277**	**101**	**540**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.38e Cases avoided by Age Group per year following rule promulgation
(Smoking/Bladder Cancer model - TTHM - Preferred Alternative)

Years After the Rule	Age Group 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0110	0.0090	0.0557	0.2255	0.9730	2.6367	5.0839	8.0423	4.7683	0.8567	22.6621	4%
7	0.0279	0.0211	0.1306	0.5288	2.2814	6.1819	11.9196	18.8558	11.1796	2.0086	53.1353	9%
8	0.0500	0.0356	0.2203	0.8922	3.8497	10.4317	20.1139	31.8185	18.8652	3.3894	89.6666	16%
9	0.0765	0.0522	0.3227	1.3068	5.6384	15.2787	29.4595	46.6025	27.6306	4.9642	131.3322	23%
10	0.0984	0.0633	0.3914	1.5847	6.8373	18.5273	35.7233	56.5113	33.5055	6.0197	159.2621	28%
11	0.1163	0.0725	0.4488	1.8172	7.8408	21.2465	40.9662	64.8052	38.4230	6.9032	182.6397	32%
12	0.1306	0.0804	0.4973	2.0139	8.6891	23.5453	45.3986	71.8168	42.5802	7.6501	202.4023	35%
13	0.1418	0.0873	0.5403	2.1877	9.4393	25.5780	49.3179	78.0169	46.2562	8.3106	219.8761	38%
14	0.1504	0.0936	0.5793	2.3458	10.1213	27.4262	52.8816	83.6543	49.5986	8.9111	235.7623	41%
15	0.1580	0.0994	0.6152	2.4912	10.7485	29.1256	56.1582	88.8377	52.6718	9.4632	250.3690	43%
16	0.1636	0.1059	0.6485	2.6258	11.3294	30.6998	59.1935	93.6392	55.5187	9.9747	263.8991	46%
17	0.1673	0.1130	0.6794	2.7512	11.8705	32.1659	62.0203	98.1110	58.1700	10.4511	276.4996	48%
18	0.1693	0.1206	0.7084	2.8685	12.3764	33.5368	64.6637	102.2926	60.6493	10.8965	288.2821	50%
19	0.1698	0.1288	0.7356	2.9785	12.8510	34.8229	67.1435	106.2155	62.9751	11.3144	299.3351	52%
20	0.1700	0.1366	0.7611	3.0819	13.2974	36.0326	69.4759	109.9051	65.1627	11.7074	309.7308	54%
21	0.1700	0.1467	0.7852	3.1795	13.7182	37.1728	71.6744	113.3829	67.2247	12.0779	319.5322	55%
22	0.1700	0.1587	0.8079	3.2715	14.1156	38.2495	73.7504	116.6670	69.1718	12.4277	328.7902	57%
23	0.1700	0.1727	0.8295	3.3586	14.4914	39.2677	75.7138	119.7729	71.0134	12.7585	337.5486	59%
24	0.1700	0.1885	0.8498	3.4411	14.8472	40.2321	77.5732	122.7144	72.7574	13.0719	345.8457	60%
25	0.1700	0.2039	0.8691	3.5193	15.1847	41.1465	79.3363	125.5034	74.4110	13.3690	353.7132	61%
26	0.1700	0.2155	0.8953	3.5936	15.5050	42.0144	81.0097	128.1507	75.9805	13.6510	361.1857	63%
27	0.1700	0.2235	0.9274	3.6641	15.8093	42.8390	82.5996	130.6658	77.4717	13.9189	368.2894	64%
28	0.1700	0.2279	0.9650	3.7312	16.0986	43.6231	84.1115	133.0575	78.8898	14.1737	375.0483	65%
29	0.1700	0.2290	1.0076	3.7950	16.3740	44.3693	85.5503	135.3336	80.2392	14.4161	381.4841	66%
30	0.1700	0.2293	1.0485	3.8558	16.6363	45.0800	86.9206	137.5012	81.5244	14.6470	387.6133	67%
31	0.1700	0.2294	1.0947	3.9137	16.8862	45.7573	88.2265	139.5671	82.7493	14.8671	393.4614	68%
32	0.1700	0.2294	1.1449	3.9689	17.1246	46.4032	89.4719	141.5371	83.9174	15.0769	399.0444	69%
33	0.1700	0.2294	1.1995	4.0217	17.3520	47.0195	90.6602	143.4170	85.0319	15.2772	404.3784	70%
34	0.1700	0.2294	1.2589	4.0720	17.5692	47.6079	91.7948	145.2117	86.0960	15.4684	409.4783	71%
35	0.1700	0.2294	1.3181	4.1201	17.7766	48.1700	92.8785	146.9262	87.1125	15.6510	414.3525	72%
36	0.1700	0.2294	1.3636	4.1858	17.9749	48.7072	93.9144	148.5648	88.0841	15.8255	419.0198	73%
37	0.1700	0.2294	1.3953	4.2669	18.1645	49.2210	94.9049	150.1318	89.0131	15.9925	423.4894	73%
38	0.1700	0.2294	1.4133	4.3627	18.3458	49.7124	95.8526	151.6309	89.9019	16.1521	427.7712	74%
39	0.1700	0.2294	1.4176	4.4723	18.5194	50.1829	96.7596	153.0658	90.7526	16.3050	431.8747	75%
40	0.1700	0.2294	1.4191	4.5799	18.6857	50.6333	97.6282	154.4398	91.5673	16.4513	435.8041	76%
41	0.1700	0.2294	1.4194	4.7121	18.8449	51.0649	98.4603	155.7560	92.3477	16.5916	439.5963	76%
42	0.1700	0.2294	1.4194	4.8664	18.9976	51.4785	99.2577	157.0175	93.0956	16.7259	443.2580	77%
43	0.1700	0.2294	1.4194	5.0413	19.1439	51.8750	100.0223	158.2271	93.8128	16.8548	446.7959	77%
44	0.1700	0.2294	1.4194	5.2357	19.2843	52.2554	100.7557	159.3872	94.5006	16.9784	450.2160	78%
45	0.1700	0.2294	1.4194	5.4271	19.4190	52.6204	101.4595	160.5005	95.1607	17.0970	453.5029	79%
46	0.1700	0.2294	1.4194	5.5728	19.6352	52.9707	102.1351	161.5692	95.7944	17.2108	456.7070	79%
47	0.1700	0.2294	1.4194	5.6729	19.9249	53.3072	102.7838	162.5955	96.4029	17.3201	459.8261	80%
48	0.1700	0.2294	1.4194	5.7287	20.2861	53.6305	103.4071	163.5815	96.9874	17.4251	462.8652	80%
49	0.1700	0.2294	1.4194	5.7419	20.7132	53.9411	104.0061	164.5291	97.5492	17.5261	465.8256	81%
50	0.1700	0.2294	1.4194	5.7466	21.1320	54.2398	104.5820	165.4400	98.0894	17.6231	468.6717	81%
51	0.1700	0.2294	1.4194	5.7474	21.6120	54.5271	105.1359	166.3163	98.6089	17.7165	471.4827	82%
52	0.1700	0.2294	1.4194	5.7474	22.1353	54.8034	105.6688	167.1593	99.1087	17.8063	474.2479	82%
53	0.1700	0.2294	1.4194	5.7474	22.6987	55.0694	106.1817	167.9706	99.5897	17.8927	476.9689	83%
54	0.1700	0.2294	1.4194	5.7474	23.2980	55.3255	106.6755	168.7517	100.0529	17.9759	479.6457	83%
55	0.1700	0.2294	1.4194	5.7474	23.8685	55.5722	107.1511	169.5041	100.4990	18.0560	482.2171	84%
56	0.1700	0.2294	1.4194	5.7474	24.2970	56.0363	107.6093	170.2290	100.9288	18.1333	484.7999	84%
57	0.1700	0.2294	1.4194	5.7474	24.5863	56.6982	108.0510	170.9277	101.3430	18.2077	487.3802	85%
58	0.1700	0.2294	1.4194	5.7474	24.7451	57.5557	108.4768	171.6013	101.7424	18.2794	489.9670	85%
59	0.1700	0.2294	1.4194	5.7474	24.7826	58.5971	108.8875	172.2510	102.1276	18.3487	492.5607	85%
60	0.1700	0.2294	1.4194	5.7474	24.7958	59.5888	109.2838	172.8779	102.4992	18.4154	495.0272	86%
61	0.1700	0.2294	1.4194	5.7474	24.7979	60.6560	109.6662	173.4829	102.8579	18.4799	497.5071	86%
62	0.1700	0.2294	1.4194	5.7474	24.7979	61.7754	110.0354	174.0670	103.2042	18.5421	499.9882	87%
63	0.1700	0.2294	1.4194	5.7474	24.7979	62.9477	110.3920	174.6310	103.5387	18.6022	502.4758	87%
64	0.1700	0.2294	1.4194	5.7474	24.7979	64.1770	110.7365	175.1760	103.8618	18.6602	504.9757	88%
65	0.1700	0.2294	1.4194	5.7474	24.7979	65.3403	111.0695	175.7027	104.1740	18.7163	507.3669	88%
66	0.1700	0.2294	1.4194	5.7474	24.7979	66.2091	111.7617	176.2118	104.4759	18.7706	509.7932	88%
67	0.1700	0.2294	1.4194	5.7474	24.7979	66.7826	112.7858	176.7042	104.7679	18.8230	512.2276	89%
68	0.1700	0.2294	1.4194	5.7474	24.7979	67.0936	114.1233	177.1804	105.0503	18.8738	514.6855	89%
69	0.1700	0.2294	1.4194	5.7474	24.7979	67.1667	115.7463	177.6413	105.3235	18.9229	517.1648	90%
70	0.1700	0.2294	1.4194	5.7474	24.7979	67.1920	117.3459	178.0875	105.5880	18.9704	519.5479	90%
71	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	119.0630	178.5194	105.8441	19.0164	522.0031	91%
72	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	120.8369	178.9379	106.0922	19.0610	524.4881	91%
73	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	122.6847	179.3433	106.3326	19.1041	527.0248	91%
74	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	124.6021	179.7362	106.5656	19.1460	529.6100	92%
75	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	126.4600	180.1172	106.7914	19.1866	532.1153	92%
76	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	127.8741	181.0629	107.0104	19.2259	534.7335	93%
77	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	128.8434	182.5312	107.2229	19.2641	537.4217	93%
78	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.3858	184.5084	107.4291	19.3011	540.1847	94%
79	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5118	186.9613	107.6293	19.3371	542.9997	94%
80	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5563	189.3987	107.8236	19.3720	545.7108	95%
81	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	191.8889	108.0123	19.4059	548.4307	95%
82	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	194.3579	108.1957	19.4389	551.1159	96%
83	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	196.7818	108.3740	19.4709	553.7501	96%
84	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	199.1668	108.5472	19.5020	556.3394	96%
85	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	201.3927	108.7157	19.5323	558.7641	97%
86	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	203.0439	109.3389	19.5617	561.0680	97%
87	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.1582	110.3550	19.5904	563.2269	98%
88	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.7613	111.7208	19.6182	565.2238	98%
89	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9022	113.3921	19.6454	567.0631	98%
90	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9509	114.9616	19.6718	568.7078	99%
91	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	116.3835	19.6975	570.1629	99%
92	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	117.6289	19.7226	571.4334	99%
93	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	118.7057	19.7471	572.5345	99%
94	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	119.6191	19.7709	573.4718	99%
95	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	120.3931	19.7941	574.2690	100%
96	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	120.9360	19.9208	574.9387	100%
97	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.2807	20.1295	575.4921	100%
98	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.4613	20.4035	575.9466	100%
99	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.5033	20.7264	576.3115	100%
100	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.5175	21.0015	576.6008	100%

Exhibit E.38f Yearly Cancer Cases Avoided by System Size

Smoking/Bladder Cancer Model - Surface Water Systems

TTHM - Preferred Alternative

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.00	0.01	0.00	0.03	0.02	0.00	0.05	0.11	0.02	0.33	0.30	0.05	0.96	2.37	0.25	7.98	2.07	0.22	6.95	9.14	0.96	30.76	7.78	0.82	26.18
2011	0.00	0.00	0.01	0.02	0.00	0.06	0.04	0.01	0.11	0.25	0.05	0.73	0.73	0.16	2.09	5.55	0.74	17.41	4.84	0.64	15.17	21.41	2.85	67.11	18.22	2.43	57.11
2012	0.00	0.00	0.01	0.04	0.01	0.10	0.07	0.02	0.18	0.43	0.11	1.16	1.24	0.31	3.33	9.37	1.46	27.78	8.16	1.27	24.21	36.11	5.63	107.08	30.73	4.79	91.13
2013	0.01	0.00	0.02	0.06	0.02	0.14	0.10	0.03	0.25	0.64	0.18	1.62	1.83	0.51	4.64	13.71	2.40	38.68	11.95	2.09	33.70	52.85	9.27	149.10	44.98	7.89	126.89
2014	0.01	0.00	0.02	0.08	0.02	0.19	0.14	0.04	0.33	0.87	0.26	2.11	2.50	0.75	6.02	18.52	3.56	50.27	15.10	3.00	40.33	62.25	12.78	163.02	52.98	10.88	138.74
2015	0.01	0.00	0.02	0.10	0.03	0.23	0.18	0.06	0.41	1.13	0.36	2.62	3.24	1.03	7.49	22.57	4.81	58.48	17.24	3.87	43.37	70.15	16.16	173.70	59.70	13.76	147.83
2016	0.01	0.00	0.03	0.12	0.04	0.26	0.21	0.07	0.46	1.36	0.46	2.98	3.88	1.33	8.53	25.40	6.01	62.49	19.09	4.71	45.83	77.10	19.44	182.76	65.61	16.54	155.54
2017	0.01	0.01	0.03	0.13	0.05	0.28	0.24	0.09	0.49	1.53	0.56	3.17	4.37	1.62	9.06	27.87	7.15	65.70	20.74	5.51	47.98	83.36	22.54	191.27	70.94	19.19	162.78
2018	0.02	0.01	0.03	0.15	0.06	0.29	0.26	0.10	0.51	1.68	0.66	3.32	4.80	1.89	9.49	30.09	8.24	68.53	22.23	6.26	49.92	89.08	25.46	198.49	75.81	21.67	168.92
2019	0.02	0.01	0.03	0.16	0.07	0.30	0.28	0.12	0.53	1.82	0.75	3.45	5.20	2.15	9.87	32.11	9.26	71.09	23.61	6.97	51.58	94.35	28.18	204.68	80.29	23.98	174.19
2020	0.02	0.01	0.03	0.17	0.07	0.31	0.30	0.13	0.55	1.94	0.84	3.57	5.56	2.39	10.22	33.97	10.22	73.41	24.88	7.62	53.11	99.23	30.70	210.45	84.45	26.12	179.11
2021	0.02	0.01	0.03	0.18	0.08	0.32	0.32	0.14	0.57	2.06	0.92	3.69	5.90	2.63	10.55	35.70	11.11	75.56	26.06	8.24	54.59	103.79	33.06	216.22	88.33	28.13	184.02
2022	0.02	0.01	0.04	0.19	0.09	0.33	0.34	0.15	0.59	2.18	1.00	3.80	6.22	2.85	10.86	37.31	11.96	77.59	27.17	8.82	56.03	108.06	35.34	221.93	91.96	30.08	188.87
2023	0.02	0.01	0.04	0.20	0.09	0.34	0.35	0.17	0.60	2.28	1.07	3.90	6.52	3.06	11.16	38.81	12.77	79.50	28.21	9.39	57.39	112.06	37.54	227.29	95.37	31.95	193.44
2024	0.02	0.01	0.04	0.21	0.10	0.35	0.37	0.18	0.62	2.38	1.14	4.01	6.80	3.25	11.46	40.23	13.55	81.33	29.18	9.93	58.66	115.82	39.65	232.11	98.57	33.75	197.54
2025	0.02	0.01	0.04	0.22	0.11	0.36	0.38	0.19	0.64	2.47	1.20	4.11	7.06	3.43	11.75	41.56	14.30	83.08	30.10	10.46	59.84	119.38	41.73	236.57	101.60	35.51	201.33
2026	0.02	0.01	0.04	0.23	0.11	0.37	0.40	0.19	0.65	2.56	1.26	4.21	7.31	3.59	12.04	42.81	15.03	84.84	30.97	10.97	61.06	122.73	43.71	241.30	104.45	37.20	205.36
2027	0.02	0.01	0.04	0.23	0.12	0.38	0.41	0.20	0.67	2.64	1.31	4.30	7.55	3.74	12.30	44.00	15.73	86.43	31.79	11.47	62.18	125.91	45.63	245.78	107.16	38.83	209.18
2028	0.03	0.01	0.04	0.24	0.12	0.39	0.42	0.21	0.68	2.72	1.36	4.39	7.77	3.88	12.55	45.12	16.41	87.92	32.57	11.94	63.25	128.92	47.48	249.99	109.72	40.41	212.76
2029	0.03	0.01	0.04	0.25	0.12	0.39	0.43	0.22	0.69	2.79	1.40	4.47	7.98	4.01	12.78	46.18	17.06	89.46	33.30	12.39	64.35	131.77	49.24	254.31	112.15	41.90	216.43
Total	**0.32**	**0.14**	**0.59**	**2.98**	**1.31**	**5.45**	**5.25**	**2.31**	**9.60**	**33.83**	**14.90**	**61.92**	**96.77**	**42.63**	**177.13**	**593.25**	**182.01**	**1,287.51**	**439.24**	**135.77**	**949.52**	**1,763.45**	**547.34**	**3,803.91**	**1,500.80**	**465.82**	**3,237.35**
Avg.	**0.01**	**0.01**	**0.02**	**0.12**	**0.05**	**0.22**	**0.21**	**0.09**	**0.38**	**1.35**	**0.60**	**2.48**	**3.87**	**1.71**	**7.09**	**23.73**	**7.28**	**51.50**	**17.57**	**5.43**	**37.98**	**70.54**	**21.89**	**152.16**	**60.03**	**18.63**	**129.49**

Avg. - All Size Categories		**177.44**	**55.69**	**381.32**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.38g Yearly Cancer Cases Avoided by System Size

Smoking/Bladder Cancer Model - Ground Water Systems

TTHM - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.01	0.03	0.01	0.10	0.03	0.01	0.10	0.10	0.02	0.31	0.16	0.03	0.50	0.19	0.03	0.61	0.08	0.01	0.26	0.23	0.04	0.71	0.04	0.01	0.12
2011	0.01	0.00	0.03	0.07	0.02	0.21	0.08	0.02	0.23	0.24	0.05	0.68	0.38	0.08	1.08	0.46	0.10	1.33	0.19	0.04	0.56	0.54	0.12	1.55	0.09	0.02	0.26
2012	0.02	0.00	0.05	0.13	0.03	0.34	0.13	0.03	0.36	0.41	0.10	1.09	0.64	0.16	1.73	0.79	0.20	2.13	0.33	0.08	0.89	0.92	0.23	2.47	0.15	0.04	0.41
2013	0.03	0.01	0.06	0.19	0.05	0.47	0.20	0.05	0.50	0.60	0.17	1.52	0.95	0.26	2.40	1.17	0.32	2.97	0.49	0.14	1.24	1.36	0.38	3.44	0.23	0.06	0.57
2014	0.03	0.01	0.08	0.26	0.08	0.61	0.27	0.08	0.65	0.82	0.24	1.97	1.30	0.39	3.12	1.60	0.48	3.85	0.63	0.19	1.49	1.63	0.52	3.76	0.27	0.09	0.63
2015	0.04	0.01	0.10	0.33	0.11	0.76	0.35	0.11	0.81	1.06	0.34	2.45	1.68	0.53	3.88	1.97	0.64	4.48	0.73	0.25	1.60	1.87	0.65	4.01	0.31	0.11	0.67
2016	0.05	0.02	0.12	0.40	0.14	0.87	0.42	0.14	0.93	1.27	0.44	2.80	2.01	0.69	4.42	2.25	0.80	4.79	0.82	0.30	1.69	2.07	0.78	4.22	0.35	0.13	0.70
2017	0.06	0.02	0.13	0.45	0.16	0.92	0.47	0.18	0.98	1.43	0.53	2.97	2.26	0.84	4.70	2.50	0.95	5.04	0.90	0.35	1.77	2.26	0.90	4.42	0.38	0.15	0.74
2018	0.07	0.03	0.13	0.49	0.19	0.97	0.52	0.20	1.03	1.57	0.62	3.11	2.49	0.98	4.92	2.72	1.10	5.25	0.97	0.40	1.84	2.44	1.02	4.58	0.41	0.17	0.76
2019	0.07	0.03	0.14	0.53	0.22	1.01	0.56	0.23	1.07	1.70	0.70	3.23	2.69	1.11	5.12	2.92	1.24	5.45	1.04	0.45	1.90	2.60	1.13	4.73	0.43	0.19	0.79
2020	0.08	0.03	0.14	0.57	0.24	1.04	0.60	0.26	1.11	1.82	0.78	3.35	2.88	1.24	5.30	3.11	1.37	5.63	1.10	0.49	1.96	2.75	1.24	4.86	0.46	0.21	0.81
2021	0.08	0.04	0.15	0.60	0.27	1.08	0.64	0.29	1.15	1.93	0.86	3.46	3.06	1.36	5.47	3.29	1.49	5.79	1.16	0.53	2.01	2.89	1.34	4.99	0.48	0.22	0.83
2022	0.09	0.04	0.15	0.63	0.29	1.11	0.68	0.31	1.18	2.04	0.93	3.56	3.22	1.48	5.63	3.46	1.61	5.96	1.21	0.57	2.07	3.03	1.44	5.13	0.50	0.24	0.85
2023	0.09	0.04	0.15	0.66	0.31	1.14	0.71	0.33	1.21	2.14	1.00	3.66	3.38	1.58	5.78	3.61	1.72	6.12	1.26	0.61	2.12	3.15	1.52	5.27	0.52	0.25	0.88
2024	0.09	0.04	0.16	0.69	0.33	1.17	0.74	0.35	1.24	2.23	1.06	3.76	3.52	1.68	5.94	3.76	1.82	6.29	1.31	0.64	2.18	3.27	1.60	5.42	0.54	0.27	0.90
2025	0.10	0.05	0.16	0.72	0.35	1.20	0.77	0.37	1.28	2.31	1.12	3.85	3.66	1.78	6.09	3.90	1.91	6.44	1.36	0.67	2.23	3.38	1.67	5.55	0.56	0.28	0.92
2026	0.10	0.05	0.17	0.75	0.37	1.23	0.79	0.39	1.31	2.40	1.18	3.94	3.79	1.86	6.24	4.03	1.99	6.60	1.40	0.70	2.29	3.49	1.74	5.67	0.58	0.29	0.94
2027	0.10	0.05	0.17	0.77	0.38	1.25	0.82	0.41	1.34	2.47	1.23	4.03	3.91	1.94	6.38	4.16	2.07	6.73	1.44	0.72	2.33	3.59	1.80	5.78	0.60	0.30	0.96
2028	0.11	0.05	0.17	0.79	0.40	1.28	0.84	0.42	1.36	2.55	1.27	4.11	4.03	2.01	6.50	4.27	2.14	6.86	1.48	0.75	2.37	3.68	1.86	5.87	0.61	0.31	0.98
2029	0.11	0.06	0.18	0.81	0.41	1.30	0.87	0.43	1.39	2.61	1.31	4.19	4.14	2.08	6.62	4.38	2.21	6.98	1.52	0.77	2.41	3.77	1.91	5.97	0.63	0.32	0.99
Total	**1.34**	**0.59**	**2.45**	**9.87**	**4.34**	**18.07**	**10.50**	**4.62**	**19.23**	**31.70**	**13.95**	**58.04**	**50.14**	**22.07**	**91.82**	**54.58**	**24.21**	**99.31**	**19.44**	**8.67**	**35.21**	**48.94**	**21.88**	**88.39**	**8.15**	**3.64**	**14.72**
Avg.	**0.05**	**0.02**	**0.10**	**0.39**	**0.17**	**0.72**	**0.42**	**0.18**	**0.77**	**1.27**	**0.56**	**2.32**	**2.01**	**0.88**	**3.67**	**2.18**	**0.97**	**3.97**	**0.78**	**0.35**	**1.41**	**1.96**	**0.88**	**3.54**	**0.33**	**0.15**	**0.59**

Avg. - All Size Categories	**9.39**	**4.16**	**17.09**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.38h Yearly Cancer Cases Avoided by System Size

Smoking/Bladder Cancer Model - All Water Systems

TTHM - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.04	0.01	0.13	0.05	0.01	0.16	0.21	0.04	0.65	0.46	0.08	1.45	2.57	0.28	8.59	2.15	0.23	7.21	9.37	1.00	31.47	7.82	0.82	26.29
2011	0.01	0.00	0.04	0.10	0.02	0.28	0.12	0.03	0.34	0.49	0.11	1.41	1.10	0.24	3.17	6.02	0.84	18.74	5.03	0.69	15.73	21.95	2.97	68.65	18.31	2.44	57.37
2012	0.02	0.01	0.06	0.16	0.04	0.44	0.20	0.05	0.54	0.84	0.21	2.25	1.88	0.47	5.05	10.16	1.66	29.91	8.49	1.35	25.10	37.03	5.86	109.55	30.88	4.83	91.54
2013	0.03	0.01	0.08	0.24	0.07	0.62	0.30	0.08	0.75	1.24	0.34	3.14	2.79	0.77	7.04	14.88	2.73	41.64	12.44	2.23	34.95	54.21	9.64	152.54	45.20	7.95	127.46
2014	0.04	0.01	0.10	0.33	0.10	0.80	0.41	0.12	0.98	1.69	0.51	4.08	3.80	1.13	9.15	20.12	4.04	54.12	15.74	3.19	41.81	63.88	13.30	166.78	53.25	10.96	139.37
2015	0.06	0.02	0.13	0.43	0.14	0.99	0.53	0.17	1.22	2.19	0.70	5.07	4.91	1.57	11.37	24.54	5.45	62.96	17.97	4.12	44.97	72.01	16.82	177.71	60.01	13.87	148.50
2016	0.07	0.02	0.15	0.51	0.18	1.13	0.63	0.22	1.39	2.63	0.90	5.78	5.89	2.02	12.96	27.65	6.81	67.29	19.91	5.01	47.52	79.17	20.22	186.98	65.96	16.67	156.25
2017	0.07	0.03	0.16	0.58	0.21	1.20	0.71	0.26	1.47	2.96	1.09	6.14	6.63	2.45	13.76	30.37	8.11	70.74	21.63	5.86	49.75	85.62	23.45	195.68	71.32	19.34	163.51
2018	0.08	0.03	0.16	0.64	0.25	1.26	0.78	0.31	1.54	3.25	1.28	6.43	7.29	2.87	14.41	32.81	9.34	73.78	23.20	6.66	51.76	91.51	26.48	203.07	76.21	21.84	169.69
2019	0.09	0.04	0.17	0.69	0.29	1.31	0.85	0.35	1.61	3.52	1.45	6.68	7.89	3.26	14.98	35.03	10.49	76.54	24.64	7.41	53.48	96.95	29.31	209.40	80.73	24.17	174.98
2020	0.10	0.04	0.18	0.74	0.32	1.36	0.91	0.39	1.66	3.77	1.62	6.92	8.45	3.63	15.52	37.09	11.58	79.04	25.98	8.11	55.07	101.99	31.94	215.31	84.91	26.33	179.92
2021	0.10	0.04	0.18	0.78	0.35	1.40	0.96	0.43	1.72	4.00	1.78	7.15	8.96	3.99	16.02	38.99	12.60	81.35	27.22	8.77	56.60	106.69	34.40	221.22	88.81	28.36	184.85
2022	0.11	0.05	0.19	0.83	0.38	1.44	1.01	0.46	1.77	4.21	1.93	7.35	9.45	4.33	16.48	40.77	13.57	83.54	28.38	9.40	58.10	111.08	36.78	227.06	92.47	30.32	189.73
2023	0.11	0.05	0.19	0.87	0.41	1.48	1.06	0.50	1.82	4.41	2.07	7.55	9.90	4.65	16.94	42.43	14.49	85.62	29.47	10.00	59.52	115.21	39.06	232.56	95.89	32.20	194.31
2024	0.12	0.06	0.20	0.90	0.43	1.52	1.11	0.53	1.87	4.60	2.20	7.76	10.32	4.94	17.40	43.99	15.36	87.62	30.49	10.57	60.85	119.09	41.25	237.53	99.12	34.01	198.44
2025	0.12	0.06	0.20	0.94	0.45	1.56	1.15	0.56	1.91	4.78	2.32	7.96	10.72	5.20	17.84	45.46	16.21	89.52	31.46	11.13	62.07	122.76	43.40	242.11	102.16	35.79	202.26
2026	0.13	0.06	0.21	0.97	0.48	1.60	1.19	0.58	1.96	4.95	2.43	8.15	11.10	5.45	18.28	46.84	17.02	91.43	32.37	11.67	63.34	126.22	45.45	246.97	105.03	37.49	206.30
2027	0.13	0.06	0.21	1.00	0.50	1.63	1.23	0.61	2.00	5.11	2.53	8.33	11.46	5.68	18.68	48.15	17.80	93.16	33.23	12.19	64.51	129.50	47.42	251.56	107.75	39.13	210.14
2028	0.13	0.07	0.21	1.03	0.51	1.67	1.26	0.63	2.04	5.26	2.63	8.50	11.80	5.89	19.05	49.39	18.55	94.78	34.05	12.69	65.62	132.60	49.33	255.86	110.33	40.72	213.74
2029	0.14	0.07	0.22	1.06	0.53	1.70	1.30	0.65	2.08	5.41	2.71	8.66	12.12	6.08	19.40	50.57	19.27	96.44	34.82	13.16	66.76	135.55	51.15	260.28	112.77	42.22	217.42
Total	**1.66**	**0.73**	**3.03**	**12.85**	**5.66**	**23.52**	**15.75**	**6.93**	**28.83**	**65.53**	**28.85**	**119.97**	**146.92**	**64.70**	**268.95**	**647.83**	**206.22**	**1,386.82**	**458.69**	**144.44**	**984.72**	**1,812.39**	**569.22**	**3,892.30**	**1,508.95**	**469.46**	**3,252.07**
Avg.	**0.07**	**0.03**	**0.12**	**0.51**	**0.23**	**0.94**	**0.63**	**0.28**	**1.15**	**2.62**	**1.15**	**4.80**	**5.88**	**2.59**	**10.76**	**25.91**	**8.25**	**55.47**	**18.35**	**5.78**	**39.39**	**72.50**	**22.77**	**155.69**	**60.36**	**18.78**	**130.08**

Avg. - All Size Categories	**187**	**60**	**398**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.38i Cases avoided by Age Group per year following rule promulgation
(Arsenic/Bladder Cancer model - TTHM - Preferred Alternative)

Years After the Rule	Age Group											
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0166	0.0178	0.1102	0.4463	1.9255	5.2177	10.0604	15.9147	9.4358	1.6953	44.8403	8%
7	0.0409	0.0432	0.2671	1.0815	4.6664	12.6448	24.3810	38.5687	22.8673	4.1084	108.6693	19%
8	0.0701	0.0738	0.4564	1.8482	7.9744	21.6086	41.6644	65.9096	39.0778	7.0209	185.7041	32%
9	0.1030	0.1083	0.6700	2.7131	11.7060	31.7202	61.1610	96.7517	57.3640	10.3063	272.6036	47%
10	0.1251	0.1315	0.8139	3.2955	14.2188	38.5292	74.2897	117.5201	69.6777	12.5186	331.1200	57%
11	0.1407	0.1493	0.9237	3.7402	16.1376	43.7287	84.3151	133.3795	79.0807	14.2079	375.8034	65%
12	0.1512	0.1626	1.0063	4.0747	17.5809	47.6396	91.8560	145.3085	86.1534	15.4787	409.4119	71%
13	0.1581	0.1730	1.0701	4.3332	18.6961	50.6614	97.6824	154.5255	91.6181	16.4605	435.3783	75%
14	0.1625	0.1812	1.1208	4.5385	19.5820	53.0620	102.3111	161.8477	95.9594	17.2404	456.0056	79%
15	0.1658	0.1878	1.1617	4.7040	20.2959	54.9967	106.0413	167.7486	99.4581	17.8690	472.6289	82%
16	0.1679	0.1934	1.1950	4.8388	20.8779	56.5737	109.0820	172.5588	102.3100	18.3814	486.1790	84%
17	0.1692	0.1983	1.2224	4.9499	21.3571	57.8720	111.5855	176.5190	104.6581	18.8033	497.3348	86%
18	0.1698	0.2026	1.2452	5.0422	21.7552	58.9509	113.6656	179.8096	106.6091	19.1538	506.6041	88%
19	0.1700	0.2065	1.2643	5.1195	22.0889	59.8551	115.4092	182.5678	108.2444	19.4476	514.3732	89%
20	0.1700	0.2097	1.2805	5.1849	22.3709	60.6194	116.8828	184.8988	109.6265	19.6959	520.9394	90%
21	0.1700	0.2129	1.2942	5.2406	22.6112	61.2705	118.1382	186.8849	110.8040	19.9075	526.5341	91%
22	0.1700	0.2161	1.3060	5.2884	22.8175	61.8295	119.2161	188.5900	111.8149	20.0891	531.3378	92%
23	0.1700	0.2193	1.3162	5.3297	22.9960	62.3131	120.1484	190.0648	112.6893	20.2462	535.4930	93%
24	0.1700	0.2224	1.3251	5.3658	23.1514	62.7342	120.9604	191.3493	113.4510	20.3831	539.1127	93%
25	0.1700	0.2252	1.3329	5.3973	23.2877	63.1035	121.6724	192.4756	114.1187	20.5030	542.2864	94%
26	0.1700	0.2272	1.3409	5.4252	23.4079	63.4293	122.3006	193.4695	114.7080	20.6089	545.0875	94%
27	0.1700	0.2285	1.3489	5.4499	23.5146	63.7185	122.8582	194.3514	115.2310	20.7029	547.5740	95%
28	0.1700	0.2292	1.3571	5.4720	23.6099	63.9765	123.3558	195.1386	115.6977	20.7867	549.7934	95%
29	0.1700	0.2294	1.3652	5.4918	23.6953	64.2080	123.8020	195.8445	116.1162	20.8619	551.7844	96%
30	0.1700	0.2294	1.3726	5.5097	23.7722	64.4165	124.2042	196.4807	116.4934	20.9297	553.5783	96%
31	0.1700	0.2294	1.3799	5.5258	23.8419	64.6053	124.5681	197.0564	116.8346	20.9910	555.2023	96%
32	0.1700	0.2294	1.3872	5.5405	23.9052	64.7767	124.8986	197.5792	117.1447	21.0467	556.6782	96%
33	0.1700	0.2294	1.3944	5.5538	23.9628	64.9330	125.2000	198.0560	117.4274	21.0975	558.0244	97%
34	0.1700	0.2294	1.4017	5.5661	24.0156	65.0760	125.4757	198.4920	117.6859	21.1439	559.2563	97%
35	0.1700	0.2294	1.4085	5.5773	24.0640	65.2071	125.7285	198.8920	117.9231	21.1865	560.3865	97%
36	0.1700	0.2294	1.4135	5.5895	24.1085	65.3277	125.9611	199.2600	118.1412	21.2257	561.4267	97%
37	0.1700	0.2294	1.4169	5.6024	24.1495	65.4389	126.1755	199.5992	118.3423	21.2619	562.3862	97%
38	0.1700	0.2294	1.4188	5.6161	24.1875	65.5417	126.3737	199.9127	118.5282	21.2953	563.2734	98%
39	0.1700	0.2294	1.4192	5.6302	24.2226	65.6369	126.5572	200.2030	118.7003	21.3262	564.0951	98%
40	0.1700	0.2294	1.4194	5.6434	24.2552	65.7252	126.7274	200.4723	118.8600	21.3549	564.8572	98%
41	0.1700	0.2294	1.4194	5.6579	24.2855	65.8072	126.8857	200.7226	119.0084	21.3815	565.5675	98%
42	0.1700	0.2294	1.4194	5.6733	24.3136	65.8836	127.0329	200.9556	119.1465	21.4063	566.2307	98%
43	0.1700	0.2294	1.4194	5.6896	24.3399	65.9548	127.1702	201.1727	119.2752	21.4295	566.8508	98%
44	0.1700	0.2294	1.4194	5.7066	24.3644	66.0213	127.2983	201.3754	119.3954	21.4511	567.4312	98%
45	0.1700	0.2294	1.4194	5.7224	24.3874	66.0834	127.4181	201.5648	119.5077	21.4712	567.9737	98%
46	0.1700	0.2294	1.4194	5.7340	24.4149	66.1415	127.5301	201.7420	119.6128	21.4901	568.4843	98%
47	0.1700	0.2294	1.4194	5.7418	24.4464	66.1959	127.6350	201.9080	119.7112	21.5078	568.9650	99%
48	0.1700	0.2294	1.4194	5.7460	24.4814	66.2469	127.7334	202.0637	119.8035	21.5244	569.4182	99%
49	0.1700	0.2294	1.4194	5.7470	24.5193	66.2948	127.8258	202.2098	119.8901	21.5399	569.8457	99%
50	0.1700	0.2294	1.4194	5.7473	24.5548	66.3398	127.9126	202.3471	119.9715	21.5546	570.2465	99%
51	0.1700	0.2294	1.4194	5.7474	24.5922	66.3821	127.9941	202.4761	120.0480	21.5683	570.6272	99%
52	0.1700	0.2294	1.4194	5.7474	24.6304	66.4220	128.0709	202.5976	120.1200	21.5813	570.9883	99%
53	0.1700	0.2294	1.4194	5.7474	24.6691	66.4594	128.1432	202.7119	120.1879	21.5934	571.3311	99%
54	0.1700	0.2294	1.4194	5.7474	24.7080	66.4948	128.2113	202.8197	120.2518	21.6049	571.6567	99%
55	0.1700	0.2294	1.4194	5.7474	24.7433	66.5281	128.2756	202.9214	120.3120	21.6157	571.9624	99%
56	0.1700	0.2294	1.4194	5.7474	24.7691	66.5716	128.3362	203.0173	120.3689	21.6260	572.2554	99%
57	0.1700	0.2294	1.4194	5.7474	24.7860	66.6238	128.3935	203.1079	120.4226	21.6356	572.5358	99%
58	0.1700	0.2294	1.4194	5.7474	24.7950	66.6841	128.4477	203.1935	120.4734	21.6447	572.8047	99%
59	0.1700	0.2294	1.4194	5.7474	24.7971	66.7514	128.4988	203.2746	120.5214	21.6534	573.0629	99%
60	0.1700	0.2294	1.4194	5.7474	24.7978	66.8131	128.5473	203.3512	120.5668	21.6615	573.3039	99%
61	0.1700	0.2294	1.4194	5.7474	24.7979	66.8753	128.5931	203.4237	120.6098	21.6692	573.5353	99%
62	0.1700	0.2294	1.4194	5.7474	24.7979	66.9367	128.6365	203.4924	120.6506	21.6766	573.7568	99%
63	0.1700	0.2294	1.4194	5.7474	24.7979	66.9975	128.6777	203.5574	120.6891	21.6835	573.9694	99%
64	0.1700	0.2294	1.4194	5.7474	24.7979	67.0580	128.7167	203.6191	120.7257	21.6901	574.1738	99%
65	0.1700	0.2294	1.4194	5.7474	24.7979	67.1127	128.7537	203.6777	120.7604	21.6963	574.3650	99%
66	0.1700	0.2294	1.4194	5.7474	24.7979	67.1525	128.8039	203.7332	120.7934	21.7022	574.5494	100%
67	0.1700	0.2294	1.4194	5.7474	24.7979	67.1781	128.8656	203.7860	120.8247	21.7079	574.7264	100%
68	0.1700	0.2294	1.4194	5.7474	24.7979	67.1917	128.9373	203.8361	120.8544	21.7132	574.8968	100%
69	0.1700	0.2294	1.4194	5.7474	24.7979	67.1948	129.0175	203.8837	120.8827	21.7183	575.0611	100%
70	0.1700	0.2294	1.4194	5.7474	24.7979	67.1958	129.0932	203.9291	120.9095	21.7231	575.2148	100%
71	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.1693	203.9722	120.9350	21.7277	575.3643	100%
72	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.2438	204.0132	120.9594	21.7320	575.5085	100%
73	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.3173	204.0523	120.9825	21.7362	575.6484	100%
74	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.3898	204.0894	121.0046	21.7402	575.7841	100%
75	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.4567	204.1249	121.0256	21.7440	575.9113	100%
76	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5062	204.1767	121.0456	21.7475	576.0363	100%
77	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5394	204.2427	121.0647	21.7510	576.1579	100%
78	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5575	204.3217	121.0829	21.7542	576.2765	100%
79	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5617	204.4121	121.1003	21.7574	576.3916	100%
80	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5631	204.4979	121.1168	21.7603	576.4984	100%
81	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.5811	121.1327	21.7632	576.6004	100%
82	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.6597	121.1478	21.7659	576.6968	100%
83	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.7333	121.1623	21.7685	576.7875	100%
84	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.8024	121.1761	21.7710	576.8729	100%
85	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.8640	121.1893	21.7733	576.9501	100%
86	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9086	121.2130	21.7756	577.0206	100%
87	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9379	121.2451	21.7778	577.0843	100%
88	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9534	121.2843	21.7799	577.1410	100%
89	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9570	121.3292	21.7818	577.1914	100%
90	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9582	121.3697	21.7837	577.2351	100%
91	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.4051	21.7856	577.2724	100%
92	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.4350	21.7873	577.3041	100%
93	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.4598	21.7890	577.3306	100%
94	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.4802	21.7906	577.3526	100%
95	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.4967	21.7921	577.3706	100%
96	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.5080	21.7955	577.3853	100%
97	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.5150	21.8003	577.3971	100%
98	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.5185	21.8061	577.4065	100%
99	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.5194	21.8126	577.4138	100%
100	0.1700	0.2294	1.4194	5.7474	24.7979	67.1960	129.5633	204.9584	121.5196	21.8180	577.4194	100%

Exhibit E.38j Yearly Cancer Cases Avoided by System Size

Arsenic/Bladder Cancer Model - Surface Water Systems

TTHM - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.00	0.02	0.01	0.04	0.04	0.01	0.07	0.23	0.09	0.43	0.65	0.26	1.23	4.67	1.21	10.23	4.07	1.05	8.91	18.00	4.65	39.44	15.32	3.96	33.56
2011	0.01	0.00	0.01	0.05	0.02	0.09	0.09	0.04	0.15	0.56	0.25	1.00	1.61	0.70	2.85	11.30	3.34	23.78	9.85	2.91	20.72	43.56	12.89	91.67	37.07	10.97	78.02
2012	0.01	0.00	0.02	0.09	0.04	0.15	0.15	0.07	0.26	0.97	0.45	1.65	2.79	1.29	4.73	19.29	6.20	39.46	16.81	5.41	34.39	74.37	23.92	152.12	63.29	20.36	129.46
2013	0.01	0.01	0.02	0.13	0.06	0.21	0.22	0.11	0.37	1.44	0.69	2.38	4.13	1.97	6.81	28.30	9.62	56.69	24.66	8.39	49.40	109.11	37.10	218.54	92.86	31.57	185.99
2014	0.02	0.01	0.03	0.17	0.08	0.28	0.30	0.15	0.49	1.96	0.95	3.16	5.60	2.72	9.04	38.10	13.47	75.11	31.16	11.22	60.99	128.87	47.30	250.11	109.68	40.25	212.85
2015	0.02	0.01	0.04	0.22	0.11	0.35	0.39	0.19	0.62	2.51	1.23	3.98	7.17	3.53	11.39	46.18	17.06	89.37	35.32	13.41	67.51	143.45	55.19	272.55	122.09	46.97	231.96
2016	0.03	0.01	0.04	0.26	0.13	0.41	0.46	0.23	0.72	2.97	1.49	4.63	8.49	4.26	13.25	51.44	19.83	97.63	38.45	15.10	72.34	154.69	61.29	289.80	131.65	52.17	246.63
2017	0.03	0.02	0.05	0.29	0.15	0.44	0.51	0.26	0.78	3.28	1.68	5.03	9.39	4.80	14.39	55.43	21.98	103.82	40.90	16.41	76.13	163.55	66.02	303.60	139.19	56.19	258.38
2018	0.03	0.02	0.05	0.31	0.16	0.47	0.55	0.28	0.83	3.53	1.82	5.34	10.09	5.21	15.27	58.57	23.63	108.73	42.84	17.43	79.22	170.65	69.68	314.95	145.23	59.30	268.04
2019	0.04	0.02	0.05	0.33	0.17	0.49	0.58	0.30	0.87	3.72	1.93	5.59	10.63	5.52	15.99	61.07	24.92	112.75	44.41	18.21	81.78	176.40	72.50	324.46	150.13	61.71	276.13
2020	0.04	0.02	0.05	0.34	0.18	0.51	0.60	0.31	0.90	3.87	2.02	5.80	11.06	5.78	16.58	63.10	25.91	116.11	45.69	18.82	83.96	181.12	74.69	332.55	154.14	63.57	283.02
2021	0.04	0.02	0.06	0.35	0.18	0.53	0.62	0.32	0.93	3.99	2.09	5.97	11.41	5.98	17.08	64.76	26.68	118.96	46.75	19.29	85.81	185.02	76.39	339.52	157.46	65.01	288.95
2022	0.04	0.02	0.06	0.36	0.19	0.54	0.63	0.33	0.95	4.09	2.15	6.11	11.69	6.14	17.49	66.13	27.28	121.41	47.63	19.65	87.43	188.27	77.70	345.58	160.23	66.13	294.10
2023	0.04	0.02	0.06	0.37	0.19	0.55	0.65	0.34	0.97	4.17	2.19	6.23	11.92	6.26	17.83	67.28	27.74	123.54	48.37	19.94	88.83	191.02	78.71	350.88	162.57	66.99	298.62
2024	0.04	0.02	0.06	0.37	0.20	0.56	0.66	0.34	0.98	4.23	2.22	6.34	12.11	6.36	18.12	68.24	28.09	125.41	48.99	20.15	90.07	193.34	79.50	355.56	164.55	67.66	302.60
2025	0.04	0.02	0.06	0.38	0.20	0.57	0.67	0.35	1.00	4.29	2.25	6.42	12.27	6.43	18.37	69.06	28.37	127.05	49.52	20.32	91.16	195.33	80.10	359.71	166.24	68.17	306.13
2026	0.04	0.02	0.06	0.38	0.20	0.57	0.67	0.35	1.01	4.33	2.27	6.49	12.40	6.49	18.58	69.76	28.58	128.51	49.98	20.45	92.14	197.05	80.57	363.41	167.70	68.57	309.28
2027	0.04	0.02	0.06	0.38	0.20	0.58	0.68	0.35	1.02	4.37	2.28	6.56	12.51	6.53	18.76	70.36	28.75	129.81	50.38	20.55	93.01	198.54	80.94	366.72	168.97	68.88	312.10
2028	0.04	0.02	0.06	0.39	0.20	0.58	0.68	0.36	1.03	4.41	2.30	6.61	12.60	6.57	18.92	70.89	28.88	130.98	50.72	20.63	93.80	199.85	81.22	369.71	170.08	69.12	314.64
2029	0.04	0.02	0.06	0.39	0.20	0.59	0.69	0.36	1.03	4.43	2.31	6.66	12.69	6.60	19.05	71.34	28.97	132.03	51.03	20.69	94.50	200.99	81.44	372.40	171.06	69.31	316.93
Total	**0.60**	**0.31**	**0.91**	**5.58**	**2.87**	**8.48**	**9.82**	**5.06**	**14.95**	**63.35**	**32.64**	**96.39**	**181.21**	**93.38**	**275.72**	**1,055.26**	**420.52**	**1,971.40**	**777.54**	**310.05**	**1,452.13**	**3,113.18**	**1,241.79**	**5,813.25**	**2,649.50**	**1,056.84**	**4,947.42**
Avg.	**0.02**	**0.01**	**0.04**	**0.22**	**0.11**	**0.34**	**0.39**	**0.20**	**0.60**	**2.53**	**1.31**	**3.86**	**7.25**	**3.74**	**11.03**	**42.21**	**16.82**	**78.86**	**31.10**	**12.40**	**58.09**	**124.53**	**49.67**	**232.53**	**105.98**	**42.27**	**197.90**

Avg. - All Size Categories	**314.24**	**126.54**	**583.23**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.38k Yearly Cancer Cases Avoided by System Size

Arsenic/Bladder Cancer Model - Ground Water Systems

TTHM - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.07	0.03	0.13	0.07	0.03	0.13	0.21	0.08	0.40	0.34	0.13	0.64	0.42	0.16	0.78	0.17	0.07	0.33	0.48	0.19	0.91	0.08	0.03	0.15
2011	0.02	0.01	0.04	0.16	0.07	0.29	0.17	0.08	0.31	0.53	0.23	0.93	0.83	0.36	1.48	1.03	0.45	1.82	0.43	0.19	0.76	1.20	0.52	2.12	0.20	0.09	0.35
2012	0.04	0.02	0.07	0.28	0.13	0.48	0.30	0.14	0.51	0.91	0.42	1.55	1.44	0.67	2.45	1.78	0.83	3.03	0.75	0.35	1.27	2.07	0.96	3.51	0.35	0.16	0.58
2013	0.06	0.03	0.09	0.42	0.20	0.69	0.45	0.21	0.74	1.35	0.65	2.23	2.14	1.02	3.53	2.64	1.26	4.36	1.11	0.53	1.82	3.07	1.46	5.06	0.51	0.24	0.84
2014	0.08	0.04	0.12	0.57	0.28	0.92	0.61	0.29	0.98	1.83	0.89	2.96	2.90	1.41	4.68	3.59	1.74	5.78	1.41	0.69	2.26	3.68	1.83	5.80	0.61	0.30	0.97
2015	0.10	0.05	0.16	0.73	0.36	1.16	0.78	0.38	1.24	2.35	1.15	3.73	3.71	1.83	5.91	4.38	2.18	6.90	1.62	0.82	2.51	4.13	2.10	6.35	0.69	0.35	1.06
2016	0.12	0.06	0.18	0.87	0.43	1.35	0.92	0.46	1.44	2.78	1.39	4.34	4.40	2.20	6.87	4.92	2.50	7.57	1.77	0.91	2.70	4.48	2.30	6.79	0.75	0.38	1.13
2017	0.13	0.07	0.20	0.96	0.49	1.47	1.02	0.52	1.56	3.08	1.57	4.72	4.87	2.49	7.46	5.33	2.75	8.09	1.90	0.98	2.86	4.76	2.46	7.15	0.79	0.41	1.19
2018	0.14	0.07	0.21	1.03	0.53	1.56	1.09	0.56	1.66	3.30	1.70	5.01	5.23	2.70	7.92	5.66	2.93	8.51	1.99	1.04	2.99	4.97	2.60	7.45	0.83	0.43	1.24
2019	0.15	0.08	0.22	1.08	0.56	1.63	1.15	0.60	1.74	3.48	1.81	5.24	5.51	2.86	8.29	5.91	3.08	8.85	2.07	1.08	3.09	5.15	2.70	7.70	0.86	0.45	1.28
2020	0.15	0.08	0.23	1.13	0.59	1.69	1.20	0.63	1.80	3.62	1.89	5.43	5.73	2.99	8.59	6.11	3.20	9.14	2.13	1.12	3.18	5.29	2.78	7.90	0.88	0.46	1.32
2021	0.16	0.08	0.24	1.16	0.61	1.74	1.24	0.65	1.85	3.74	1.96	5.60	5.91	3.10	8.85	6.28	3.30	9.38	2.18	1.14	3.25	5.40	2.84	8.07	0.90	0.47	1.34
2022	0.16	0.08	0.24	1.19	0.63	1.78	1.27	0.67	1.90	3.83	2.01	5.73	6.06	3.18	9.07	6.41	3.37	9.58	2.22	1.17	3.31	5.50	2.89	8.21	0.92	0.48	1.37
2023	0.16	0.09	0.25	1.22	0.64	1.82	1.29	0.68	1.94	3.90	2.05	5.84	6.18	3.24	9.25	6.52	3.43	9.75	2.25	1.18	3.37	5.58	2.93	8.33	0.93	0.49	1.39
2024	0.17	0.09	0.25	1.23	0.65	1.85	1.31	0.69	1.97	3.97	2.08	5.94	6.27	3.29	9.39	6.62	3.47	9.89	2.28	1.20	3.41	5.64	2.96	8.45	0.94	0.49	1.41
2025	0.17	0.09	0.25	1.25	0.66	1.87	1.33	0.70	1.99	4.02	2.10	6.02	6.36	3.33	9.52	6.69	3.51	10.02	2.31	1.21	3.45	5.70	2.99	8.54	0.95	0.50	1.42
2026	0.17	0.09	0.26	1.26	0.66	1.89	1.35	0.70	2.02	4.06	2.12	6.09	6.42	3.36	9.63	6.76	3.54	10.12	2.33	1.22	3.49	5.74	3.00	8.61	0.96	0.50	1.43
2027	0.17	0.09	0.26	1.28	0.67	1.91	1.36	0.71	2.04	4.10	2.14	6.15	6.48	3.38	9.72	6.81	3.56	10.21	2.34	1.22	3.51	5.78	3.02	8.68	0.96	0.50	1.45
2028	0.17	0.09	0.26	1.29	0.67	1.93	1.37	0.71	2.05	4.13	2.15	6.20	6.53	3.40	9.80	6.86	3.57	10.29	2.36	1.23	3.54	5.82	3.03	8.74	0.97	0.50	1.45
2029	0.18	0.09	0.26	1.29	0.67	1.94	1.38	0.72	2.07	4.15	2.16	6.24	6.57	3.42	9.87	6.90	3.59	10.36	2.37	1.23	3.56	5.85	3.04	8.78	0.97	0.51	1.46
Total	**2.50**	**1.29**	**3.81**	**18.48**	**9.52**	**28.13**	**19.66**	**10.13**	**29.93**	**59.35**	**30.57**	**90.34**	**93.88**	**48.35**	**142.91**	**101.63**	**52.42**	**154.43**	**35.99**	**18.57**	**54.66**	**90.30**	**46.59**	**137.12**	**15.04**	**7.76**	**22.84**
Avg.	**0.10**	**0.05**	**0.15**	**0.74**	**0.38**	**1.13**	**0.79**	**0.41**	**1.20**	**2.37**	**1.22**	**3.61**	**3.76**	**1.93**	**5.72**	**4.07**	**2.10**	**6.18**	**1.44**	**0.74**	**2.19**	**3.61**	**1.86**	**5.48**	**0.60**	**0.31**	**0.91**

Avg. - All Size Categories	**17.47**	**9.01**	**26.57**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.38l Yearly Cancer Cases Avoided by System Size

Arsenic/Bladder Cancer Model - All Water Systems

TTHM - Preferred Alternative

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.09	0.03	0.16	0.11	0.04	0.20	0.44	0.17	0.83	0.99	0.39	1.86	5.09	1.37	11.01	4.24	1.12	9.24	18.48	4.84	40.35	15.40	3.99	33.72
2011	0.03	0.01	0.05	0.21	0.09	0.38	0.26	0.11	0.46	1.09	0.48	1.93	2.44	1.07	4.33	12.33	3.80	25.60	10.28	3.10	21.49	44.76	13.42	93.79	37.27	11.06	78.37
2012	0.05	0.02	0.08	0.37	0.17	0.63	0.45	0.21	0.77	1.89	0.87	3.20	4.23	1.96	7.18	21.08	7.03	42.49	17.56	5.75	35.65	76.44	24.88	155.63	63.64	20.52	130.05
2013	0.07	0.03	0.12	0.55	0.26	0.90	0.67	0.32	1.11	2.80	1.33	4.61	6.27	2.99	10.34	30.95	10.89	61.05	25.77	8.91	51.22	112.18	38.56	223.59	93.37	31.82	186.83
2014	0.10	0.05	0.15	0.74	0.36	1.20	0.91	0.44	1.47	3.79	1.84	6.12	8.50	4.12	13.72	41.68	15.22	80.89	32.58	11.91	63.25	132.55	49.13	255.91	110.29	40.56	213.82
2015	0.12	0.06	0.20	0.95	0.47	1.51	1.17	0.57	1.85	4.85	2.39	7.72	10.88	5.35	17.30	50.56	19.24	96.27	36.94	14.22	70.02	147.58	57.29	278.90	122.77	47.32	233.02
2016	0.15	0.07	0.23	1.13	0.56	1.76	1.38	0.69	2.16	5.75	2.88	8.97	12.88	6.46	20.12	56.36	22.33	105.20	40.22	16.01	75.04	159.17	63.60	296.58	132.40	52.55	247.76
2017	0.16	0.08	0.25	1.25	0.64	1.91	1.53	0.78	2.34	6.36	3.25	9.75	14.26	7.28	21.85	60.77	24.72	111.91	42.79	17.39	78.99	168.31	68.48	310.75	139.98	56.60	259.57
2018	0.17	0.09	0.26	1.34	0.69	2.03	1.64	0.85	2.49	6.83	3.53	10.35	15.31	7.90	23.19	64.22	26.57	117.24	44.83	18.47	82.20	175.62	72.27	322.40	146.06	59.73	269.28
2019	0.18	0.09	0.27	1.41	0.73	2.12	1.73	0.90	2.60	7.20	3.74	10.83	16.14	8.38	24.28	66.98	28.00	121.60	46.48	19.30	84.88	181.55	75.20	332.16	150.99	62.15	277.42
2020	0.19	0.10	0.28	1.47	0.77	2.20	1.80	0.94	2.70	7.49	3.91	11.23	16.80	8.77	25.17	69.21	29.12	125.25	47.82	19.94	87.14	186.41	77.47	340.45	155.02	64.03	284.34
2021	0.20	0.10	0.29	1.51	0.79	2.27	1.86	0.97	2.78	7.73	4.05	11.57	17.32	9.08	25.93	71.04	29.98	128.34	48.93	20.44	89.07	190.42	79.23	347.59	158.36	65.48	290.30
2022	0.20	0.10	0.30	1.55	0.81	2.32	1.90	1.00	2.85	7.92	4.15	11.85	17.75	9.32	26.56	72.54	30.65	130.99	49.85	20.82	90.74	193.77	80.59	353.78	161.15	66.61	295.47
2023	0.20	0.11	0.31	1.58	0.83	2.37	1.94	1.02	2.90	8.07	4.24	12.08	18.10	9.50	27.08	73.80	31.16	133.29	50.62	21.12	92.20	196.59	81.64	359.21	163.49	67.48	300.01
2024	0.21	0.11	0.31	1.61	0.84	2.41	1.97	1.03	2.95	8.20	4.30	12.27	18.39	9.65	27.52	74.86	31.57	135.30	51.27	21.35	93.48	198.99	82.46	364.00	165.49	68.15	304.00
2025	0.21	0.11	0.31	1.63	0.85	2.44	2.00	1.05	2.99	8.31	4.35	12.44	18.62	9.76	27.88	75.75	31.88	137.07	51.83	21.53	94.62	201.03	83.09	368.24	167.19	68.67	307.55
2026	0.21	0.11	0.32	1.65	0.86	2.47	2.02	1.06	3.02	8.40	4.39	12.58	18.82	9.85	28.20	76.51	32.12	138.63	52.31	21.67	95.63	202.80	83.58	372.02	168.66	69.07	310.71
2027	0.21	0.11	0.32	1.66	0.87	2.49	2.04	1.06	3.05	8.47	4.42	12.70	18.99	9.92	28.48	77.17	32.31	140.03	52.72	21.78	96.53	204.33	83.95	375.40	169.93	69.38	313.55
2028	0.22	0.11	0.32	1.67	0.87	2.51	2.05	1.07	3.08	8.53	4.45	12.81	19.13	9.97	28.72	77.74	32.45	141.27	53.08	21.86	97.34	205.66	84.25	378.44	171.05	69.63	316.10
2029	0.22	0.11	0.33	1.68	0.88	2.53	2.06	1.07	3.10	8.59	4.47	12.90	19.26	10.01	28.92	78.24	32.56	142.39	53.40	21.92	98.06	206.84	84.47	381.18	172.03	69.81	318.40
Total	**3.10**	**1.60**	**4.72**	**24.05**	**12.39**	**36.61**	**29.48**	**15.19**	**44.88**	**122.70**	**63.21**	**186.73**	**275.09**	**141.73**	**418.63**	**1,156.89**	**472.94**	**2,125.83**	**813.53**	**328.62**	**1,506.79**	**3,203.48**	**1,288.38**	**5,950.37**	**2,664.54**	**1,064.59**	**4,970.25**
Avg.	**0.12**	**0.06**	**0.19**	**0.96**	**0.50**	**1.46**	**1.18**	**0.61**	**1.80**	**4.91**	**2.53**	**7.47**	**11.00**	**5.67**	**16.75**	**46.28**	**18.92**	**85.03**	**32.54**	**13.14**	**60.27**	**128.14**	**51.54**	**238.01**	**106.58**	**42.58**	**198.81**

Avg. - All Size Categories	332	136	610

Note: Detail may not add to totals due to independent rounding.

Section E.7.2
Projection of Cases - Preferred Alternative
HAA5 as Indicator

Exhibit E.39a Cases avoided (mean) by Age Group per year following rule promulgation

(Smoking/Lung Cancer model - HAA5 - Preferred Alternative)

Years	Age Group (years)											
After the	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0130	0.0110	0.0678	0.2744	1.1840	3.2083	6.1860	9.7858	5.8020	1.0424	27.5746	4%
7	0.0343	0.0280	0.1735	0.7026	3.0315	8.2147	15.8390	25.0561	14.8557	2.6690	70.6046	11%
8	0.0622	0.0502	0.3108	1.2584	5.4296	14.7128	28.3684	44.8765	26.6073	4.7804	126.4567	19%
9	0.0956	0.0770	0.4767	1.9301	8.3279	22.5665	43.5113	68.8313	40.8100	7.3321	193.9585	29%
10	0.1232	0.0997	0.6170	2.4983	10.7794	29.2095	56.3200	89.0935	52.8235	9.4905	251.0547	38%
11	0.1451	0.1206	0.7460	3.0208	13.0338	35.3181	68.0983	107.7259	63.8707	11.4753	303.5546	46%
12	0.1616	0.1391	0.8609	3.4859	15.0405	40.7559	78.5832	124.3121	73.7046	13.2421	350.2861	53%
13	0.1736	0.1555	0.9619	3.8948	16.8045	45.5359	87.7996	138.8917	82.3489	14.7951	391.3616	59%
14	0.1818	0.1693	1.0477	4.2422	18.3038	49.5984	95.6328	151.2832	89.6958	16.1151	426.2702	64%
15	0.1880	0.1807	1.1181	4.5276	19.5351	52.9349	102.0660	161.4600	95.7296	17.1992	454.9392	68%
16	0.1921	0.1908	1.1767	4.7645	20.5572	55.7047	107.4066	169.9083	100.7386	18.0991	478.7387	72%
17	0.1947	0.1997	1.2257	4.9632	21.4143	58.0271	111.8844	176.9918	104.9385	18.8537	498.6929	75%
18	0.1960	0.2078	1.2673	5.1317	22.1416	59.9978	115.6843	183.0029	108.5024	19.4940	515.6257	77%
19	0.1963	0.2153	1.3030	5.2762	22.7649	61.6870	118.9413	188.1552	111.5572	20.0428	530.1392	79%
20	0.1964	0.2217	1.3339	5.4011	23.3038	63.1472	121.7566	192.6089	114.1978	20.5172	542.6846	81%
21	0.1964	0.2283	1.3607	5.5099	23.7732	64.4191	124.2091	196.4885	116.4980	20.9305	553.6137	83%
22	0.1964	0.2351	1.3843	5.6053	24.1850	65.5350	126.3606	199.8921	118.5160	21.2931	563.2028	84%
23	0.1964	0.2420	1.4051	5.6896	24.5485	66.5200	128.2599	202.8966	120.2973	21.6131	571.6685	86%
24	0.1964	0.2491	1.4236	5.7643	24.8711	67.3941	129.9454	205.5629	121.8781	21.8971	579.1820	87%
25	0.1964	0.2554	1.4400	5.8310	25.1587	68.1734	131.4480	207.9399	123.2875	22.1503	585.8807	88%
26	0.1964	0.2599	1.4573	5.8907	25.4161	68.8711	132.7932	210.0678	124.5492	22.3770	591.8786	89%
27	0.1964	0.2629	1.4751	5.9443	25.6475	69.4979	134.0018	211.9797	125.6827	22.5807	597.2690	90%
28	0.1964	0.2645	1.4933	5.9926	25.8560	70.0630	135.0914	213.7034	126.7047	22.7643	602.1296	90%
29	0.1964	0.2649	1.5119	6.0363	26.0446	70.5740	136.0767	215.2621	127.6288	22.9303	606.5260	91%
30	0.1964	0.2650	1.5287	6.0760	26.2156	71.0374	136.9702	216.6755	128.4668	23.0809	610.5124	92%
31	0.1964	0.2650	1.5457	6.1120	26.3711	71.4587	137.7824	217.9604	129.2287	23.2177	614.1381	92%
32	0.1964	0.2650	1.5627	6.1448	26.5127	71.8426	138.5226	219.1314	129.9229	23.3425	617.4437	93%
33	0.1964	0.2650	1.5797	6.1748	26.6421	72.1932	139.1987	220.2008	130.5570	23.4564	620.4642	93%
34	0.1964	0.2650	1.5971	6.2023	26.7605	72.5141	139.8174	221.1795	131.1372	23.5606	623.2301	93%
35	0.1964	0.2650	1.6133	6.2274	26.8691	72.8083	140.3847	222.0768	131.6693	23.6562	625.7666	94%
36	0.1964	0.2650	1.6255	6.2552	26.9688	73.0785	140.9058	222.9011	132.1581	23.7441	628.0985	94%
37	0.1964	0.2650	1.6337	6.2849	27.0606	73.3272	141.3853	223.6598	132.6078	23.8249	630.2457	94%
38	0.1964	0.2650	1.6383	6.3164	27.1452	73.5565	141.8273	224.3590	133.0224	23.8993	632.2259	95%
39	0.1964	0.2650	1.6394	6.3496	27.2233	73.7681	142.2354	225.0046	133.4052	23.9681	634.0551	95%
40	0.1964	0.2650	1.6398	6.3806	27.2956	73.9638	142.6128	225.6015	133.7591	24.0317	635.7463	95%
41	0.1964	0.2650	1.6398	6.4152	27.3624	74.1451	142.9622	226.1543	134.0868	24.0906	637.3179	96%
42	0.1964	0.2650	1.6398	6.4526	27.4245	74.3132	143.2862	226.6669	134.3908	24.1452	638.7807	96%
43	0.1964	0.2650	1.6398	6.4927	27.4821	74.4692	143.5872	227.1430	134.6730	24.1959	640.1443	96%
44	0.1964	0.2650	1.6398	6.5350	27.5356	74.6144	143.8670	227.5857	134.9355	24.2431	641.4177	96%
45	0.1964	0.2650	1.6398	6.5751	27.5855	74.7495	144.1276	227.9980	135.1800	24.2870	642.6039	96%
46	0.1964	0.2650	1.6398	6.6050	27.6482	74.8755	144.3706	228.3823	135.4078	24.3279	643.7186	97%
47	0.1964	0.2650	1.6398	6.6251	27.7219	74.9932	144.5974	228.7411	135.6205	24.3661	644.7667	97%
48	0.1964	0.2650	1.6398	6.6362	27.8060	75.1031	144.8094	229.0765	135.8194	24.4019	645.7538	97%
49	0.1964	0.2650	1.6398	6.6389	27.8992	75.2060	145.0078	229.3904	136.0055	24.4353	646.6844	97%
50	0.1964	0.2650	1.6398	6.6399	27.9877	75.3024	145.1936	229.6844	136.1798	24.4666	647.5557	97%
51	0.1964	0.2650	1.6398	6.6400	28.0835	75.3928	145.3680	229.9601	136.3433	24.4960	648.3850	97%
52	0.1964	0.2650	1.6398	6.6400	28.1833	75.4777	145.5317	230.2191	136.4968	24.5236	649.1736	97%
53	0.1964	0.2650	1.6398	6.6400	28.2867	75.5575	145.6856	230.4625	136.6412	24.5495	649.9244	97%
54	0.1964	0.2650	1.6398	6.6400	28.3932	75.6326	145.8304	230.6916	136.7770	24.5739	650.6400	98%
55	0.1964	0.2650	1.6398	6.6400	28.4918	75.7034	145.9668	230.9074	136.9049	24.5969	651.3126	98%
56	0.1964	0.2650	1.6398	6.6400	28.5648	75.8061	146.0954	231.1109	137.0256	24.6186	651.9627	98%
57	0.1964	0.2650	1.6398	6.6400	28.6136	75.9369	146.2168	231.3029	137.1394	24.6390	652.5900	98%
58	0.1964	0.2650	1.6398	6.6400	28.6402	76.0948	146.3315	231.4844	137.2470	24.6584	653.1976	98%
59	0.1964	0.2650	1.6398	6.6400	28.6467	76.2776	146.4400	231.6560	137.3488	24.6766	653.7871	98%
60	0.1964	0.2650	1.6398	6.6400	28.6490	76.4485	146.5427	231.8185	137.4451	24.6939	654.3390	98%
61	0.1964	0.2650	1.6398	6.6400	28.6494	76.6263	146.6400	231.9724	137.5363	24.7103	654.8760	98%
62	0.1964	0.2650	1.6398	6.6400	28.6494	76.8073	146.7322	232.1183	137.6228	24.7259	655.3973	98%
63	0.1964	0.2650	1.6398	6.6400	28.6494	76.9917	146.8198	232.2568	137.7050	24.7406	655.9046	98%
64	0.1964	0.2650	1.6398	6.6400	28.6494	77.1803	146.9030	232.3884	137.7830	24.7546	656.4000	98%
65	0.1964	0.2650	1.6398	6.6400	28.6494	77.3555	146.9821	232.5135	137.8572	24.7680	656.8668	98%
66	0.1964	0.2650	1.6398	6.6400	28.6494	77.4852	147.1096	232.6325	137.9277	24.7806	657.3263	99%
67	0.1964	0.2650	1.6398	6.6400	28.6494	77.5702	147.2810	232.7458	137.9949	24.7927	657.7753	99%
68	0.1964	0.2650	1.6398	6.6400	28.6494	77.6163	147.4928	232.8538	138.0589	24.8042	658.2166	99%
69	0.1964	0.2650	1.6398	6.6400	28.6494	77.6277	147.7406	232.9567	138.1200	24.8152	658.6509	99%
70	0.1964	0.2650	1.6398	6.6400	28.6494	77.6316	147.9811	233.0550	138.1782	24.8257	659.0623	99%
71	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	148.2331	233.1488	138.2339	24.8357	659.4744	99%
72	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	148.4879	233.2385	138.2871	24.8452	659.8816	99%
73	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	148.7479	233.3243	138.3379	24.8544	660.2875	99%
74	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.0128	233.4064	138.3866	24.8631	660.6919	99%
75	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.2656	233.4851	138.4332	24.8715	661.0783	99%
76	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.4568	233.6350	138.4779	24.8795	661.4722	99%
77	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.5874	233.8498	138.5207	24.8872	661.8680	99%
78	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6605	234.1268	138.5618	24.8946	662.2666	99%
79	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6786	234.4609	138.6012	24.9017	662.6654	99%
80	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6851	234.7894	138.6391	24.9085	663.0450	99%
81	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	235.1201	138.6756	24.9150	663.4197	99%
82	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	235.4434	138.7106	24.9213	663.7843	100%
83	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	235.7565	138.7443	24.9274	664.1372	100%
84	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.0605	138.7768	24.9332	664.4796	100%
85	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.3412	138.8081	24.9388	664.7971	100%
86	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.5486	138.8937	24.9442	665.0956	100%
87	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.6882	139.0257	24.9494	665.3724	100%
88	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7642	139.1983	24.9545	665.6260	100%
89	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7832	139.4058	24.9593	665.8575	100%
90	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7899	139.5998	24.9640	666.0629	100%
91	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	139.7746	24.9686	666.2432	100%
92	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	139.9265	24.9729	666.3994	100%
93	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.0568	24.9772	666.5340	100%
94	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.1665	24.9813	666.6478	100%
95	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.2587	24.9852	666.7440	100%
96	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3232	25.0010	666.8242	100%
97	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3641	25.0260	666.8901	100%
98	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3857	25.0582	666.9439	100%
99	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3911	25.0957	666.9868	100%
100	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3929	25.1277	667.0207	100%

Exhibit E.39b Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Surface Water Systems

HAA5 - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.00	0.01	0.00	0.03	0.02	0.00	0.06	0.14	0.01	0.37	0.41	0.02	1.06	2.77	0.19	8.12	2.41	0.17	7.07	10.67	0.73	31.29	9.08	0.62	26.63
2011	0.00	0.00	0.01	0.03	0.00	0.08	0.06	0.01	0.13	0.37	0.05	0.86	1.06	0.14	2.47	7.08	1.02	18.90	6.17	0.89	16.47	27.30	3.92	72.87	23.23	3.34	62.02
2012	0.01	0.00	0.01	0.06	0.01	0.13	0.10	0.02	0.22	0.67	0.14	1.43	1.91	0.41	4.10	12.68	2.59	31.87	11.05	2.26	27.77	48.89	10.00	122.85	41.61	8.51	104.55
2013	0.01	0.00	0.02	0.09	0.03	0.18	0.16	0.04	0.32	1.02	0.29	2.08	2.93	0.82	5.94	19.45	4.85	46.53	16.95	4.22	40.55	74.99	18.68	179.39	63.82	15.90	152.67
2014	0.01	0.00	0.03	0.13	0.04	0.24	0.22	0.07	0.43	1.44	0.48	2.78	4.11	1.37	7.96	27.38	7.58	62.85	22.66	6.52	51.23	94.89	28.48	210.99	80.76	24.24	179.57
2015	0.02	0.01	0.03	0.17	0.06	0.31	0.30	0.11	0.55	1.90	0.70	3.57	5.44	1.99	10.20	35.01	10.53	77.17	27.42	8.73	59.01	113.00	37.02	240.27	96.17	31.50	204.49
2016	0.02	0.01	0.04	0.21	0.08	0.37	0.36	0.14	0.66	2.34	0.93	4.23	6.69	2.67	12.10	41.31	13.35	87.56	31.68	10.58	65.95	129.36	43.78	266.78	110.09	37.26	227.04
2017	0.03	0.01	0.04	0.24	0.10	0.41	0.42	0.18	0.73	2.70	1.17	4.70	7.71	3.34	13.43	46.88	15.73	96.73	35.46	12.04	72.25	143.81	48.92	291.35	122.39	41.63	247.96
2018	0.03	0.01	0.05	0.26	0.12	0.45	0.47	0.21	0.79	3.01	1.38	5.10	8.60	3.94	14.58	51.77	17.64	105.00	38.71	13.20	78.00	155.95	53.12	313.60	132.72	45.21	266.89
2019	0.03	0.01	0.05	0.29	0.14	0.48	0.51	0.24	0.85	3.28	1.55	5.46	9.37	4.43	15.61	55.97	19.13	112.53	41.39	14.16	82.94	165.74	56.77	331.47	141.06	48.32	282.10
2020	0.03	0.02	0.05	0.31	0.15	0.51	0.54	0.26	0.90	3.51	1.68	5.79	10.03	4.80	16.55	59.45	20.38	118.95	43.59	14.98	87.00	173.86	59.85	346.64	147.96	50.93	295.01
2021	0.03	0.02	0.06	0.33	0.16	0.53	0.57	0.28	0.94	3.70	1.79	6.06	10.58	5.11	17.34	62.32	21.47	124.03	45.43	15.69	90.27	180.70	62.51	358.79	153.78	53.20	305.35
2022	0.04	0.02	0.06	0.34	0.16	0.55	0.60	0.29	0.97	3.86	1.87	6.28	11.04	5.36	17.96	64.72	22.41	128.21	46.99	16.30	92.94	186.52	64.75	368.56	158.74	55.10	313.67
2023	0.04	0.02	0.06	0.35	0.17	0.57	0.62	0.30	1.00	4.00	1.95	6.46	11.43	5.57	18.49	66.77	23.17	131.78	48.33	16.78	95.18	191.53	66.56	376.71	163.00	56.65	320.60
2024	0.04	0.02	0.06	0.36	0.18	0.58	0.64	0.31	1.03	4.11	2.01	6.63	11.77	5.75	18.96	68.53	23.76	134.81	49.48	17.17	97.09	195.86	68.00	383.68	166.69	57.87	326.53
2025	0.04	0.02	0.06	0.37	0.18	0.60	0.65	0.32	1.05	4.22	2.06	6.78	12.06	5.90	19.38	70.06	24.29	137.44	50.49	17.50	98.87	199.64	69.18	390.75	169.91	58.88	332.55
2026	0.04	0.02	0.07	0.38	0.19	0.61	0.67	0.33	1.07	4.30	2.11	6.90	12.31	6.02	19.74	71.39	24.75	139.83	51.37	17.79	100.58	202.97	70.19	397.49	172.74	59.74	338.29
2027	0.04	0.02	0.07	0.39	0.19	0.62	0.68	0.33	1.09	4.38	2.14	7.02	12.53	6.13	20.07	72.56	25.15	142.14	52.14	18.05	102.18	205.91	71.27	403.60	175.24	60.65	343.49
2028	0.04	0.02	0.07	0.39	0.19	0.63	0.69	0.34	1.11	4.45	2.17	7.13	12.73	6.22	20.39	73.59	25.52	144.32	52.83	18.34	103.67	208.52	72.44	409.29	177.46	61.65	348.33
2029	0.04	0.02	0.07	0.40	0.19	0.64	0.70	0.34	1.12	4.51	2.20	7.23	12.90	6.29	20.68	74.51	25.88	146.24	53.45	18.60	104.94	210.85	73.44	414.09	179.45	62.50	352.41
Total	**0.55**	**0.25**	**0.92**	**5.10**	**2.35**	**8.53**	**8.98**	**4.14**	**15.02**	**57.90**	**26.67**	**96.84**	**165.64**	**76.28**	**277.03**	**984.21**	**329.37**	**1,995.02**	**728.00**	**243.97**	**1,473.97**	**2,920.94**	**979.61**	**5,910.45**	**2,485.89**	**833.71**	**5,030.14**
Avg.	**0.02**	**0.01**	**0.04**	**0.20**	**0.09**	**0.34**	**0.36**	**0.17**	**0.60**	**2.32**	**1.07**	**3.87**	**6.63**	**3.05**	**11.08**	**39.37**	**13.17**	**79.80**	**29.12**	**9.76**	**58.96**	**116.84**	**39.18**	**236.42**	**99.44**	**33.35**	**201.21**

Avg. - All Size Categories		**294.29**	**99.85**	**592.32**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.39c Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Ground Water Systems

HAA5 - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.01	0.03	0.00	0.08	0.03	0.00	0.09	0.11	0.01	0.27	0.17	0.01	0.43	0.62	0.03	1.59	0.26	0.01	0.67	0.72	0.04	1.85	0.12	0.01	0.31
2011	0.01	0.00	0.03	0.08	0.01	0.20	0.09	0.01	0.21	0.27	0.04	0.63	0.43	0.06	0.99	1.59	0.21	3.69	0.67	0.09	1.54	1.84	0.24	4.28	0.31	0.04	0.71
2012	0.02	0.00	0.04	0.15	0.03	0.32	0.16	0.03	0.35	0.49	0.10	1.04	0.77	0.16	1.65	2.85	0.61	6.12	1.19	0.25	2.56	3.31	0.70	7.11	0.55	0.12	1.18
2013	0.03	0.01	0.06	0.23	0.07	0.47	0.25	0.07	0.50	0.74	0.21	1.51	1.18	0.33	2.39	4.37	1.23	8.87	1.83	0.51	3.71	5.07	1.43	10.30	0.84	0.24	1.71
2014	0.04	0.01	0.09	0.33	0.11	0.63	0.35	0.12	0.67	1.05	0.35	2.03	1.65	0.55	3.20	6.14	2.04	11.89	2.44	0.85	4.64	6.41	2.33	11.95	1.07	0.39	1.99
2015	0.06	0.02	0.11	0.43	0.16	0.81	0.46	0.17	0.86	1.38	0.51	2.60	2.19	0.80	4.11	7.82	2.96	14.44	2.94	1.19	5.27	7.59	3.21	13.41	1.26	0.53	2.23
2016	0.07	0.03	0.13	0.53	0.21	0.96	0.56	0.22	1.02	1.70	0.68	3.08	2.69	1.07	4.87	9.20	3.88	16.24	3.38	1.50	5.85	8.65	3.94	14.80	1.44	0.66	2.46
2017	0.08	0.04	0.14	0.61	0.26	1.06	0.65	0.28	1.13	1.96	0.85	3.42	3.10	1.34	5.41	10.40	4.70	17.79	3.77	1.76	6.36	9.57	4.50	16.05	1.59	0.75	2.67
2018	0.09	0.04	0.16	0.68	0.31	1.16	0.72	0.33	1.23	2.19	1.00	3.71	3.46	1.58	5.87	11.45	5.37	19.18	4.11	1.95	6.82	10.35	4.93	17.16	1.72	0.82	2.86
2019	0.10	0.05	0.17	0.74	0.35	1.24	0.79	0.37	1.32	2.38	1.12	3.97	3.77	1.78	6.29	12.35	5.89	20.44	4.38	2.10	7.22	10.99	5.28	18.08	1.83	0.88	3.01
2020	0.11	0.05	0.18	0.79	0.38	1.31	0.85	0.40	1.40	2.55	1.22	4.21	4.04	1.93	6.66	13.09	6.30	21.53	4.61	2.23	7.55	11.52	5.58	18.83	1.92	0.93	3.14
2021	0.11	0.05	0.19	0.84	0.40	1.37	0.89	0.43	1.46	2.69	1.30	4.41	4.26	2.05	6.98	13.72	6.64	22.39	4.80	2.33	7.81	11.97	5.82	19.44	1.99	0.97	3.24
2022	0.12	0.06	0.19	0.87	0.42	1.42	0.93	0.45	1.51	2.81	1.36	4.57	4.44	2.16	7.23	14.24	6.93	23.09	4.97	2.42	8.04	12.36	6.03	19.97	2.06	1.00	3.33
2023	0.12	0.06	0.20	0.91	0.44	1.47	0.96	0.47	1.56	2.91	1.42	4.71	4.60	2.24	7.45	14.69	7.17	23.72	5.11	2.50	8.23	12.69	6.21	20.42	2.11	1.03	3.40
2024	0.13	0.06	0.20	0.93	0.45	1.50	0.99	0.48	1.60	2.99	1.46	4.83	4.74	2.31	7.64	15.08	7.37	24.26	5.23	2.56	8.40	12.98	6.35	20.79	2.16	1.06	3.46
2025	0.13	0.06	0.21	0.96	0.47	1.54	1.02	0.50	1.63	3.07	1.50	4.93	4.85	2.37	7.81	15.42	7.54	24.74	5.34	2.61	8.55	13.23	6.48	21.18	2.20	1.08	3.53
2026	0.13	0.06	0.21	0.98	0.48	1.56	1.04	0.51	1.66	3.13	1.53	5.03	4.95	2.42	7.95	15.72	7.69	25.17	5.43	2.66	8.70	13.46	6.58	21.54	2.24	1.10	3.59
2027	0.13	0.07	0.22	0.99	0.49	1.59	1.06	0.52	1.69	3.19	1.56	5.11	5.04	2.47	8.08	15.98	7.81	25.58	5.52	2.70	8.84	13.65	6.67	21.87	2.27	1.11	3.64
2028	0.14	0.07	0.22	1.01	0.49	1.62	1.07	0.52	1.72	3.24	1.58	5.19	5.12	2.50	8.21	16.21	7.91	25.98	5.59	2.73	8.97	13.83	6.74	22.18	2.30	1.12	3.69
2029	0.14	0.07	0.22	1.02	0.50	1.64	1.09	0.53	1.74	3.28	1.60	5.26	5.19	2.53	8.33	16.41	7.99	26.32	5.66	2.75	9.08	13.99	6.80	22.44	2.33	1.13	3.74
Total	**1.78**	**0.82**	**2.97**	**13.12**	**6.04**	**21.96**	**13.96**	**6.42**	**23.36**	**42.13**	**19.39**	**70.52**	**66.65**	**30.67**	**111.56**	**217.33**	**100.28**	**363.02**	**77.24**	**35.71**	**128.83**	**194.18**	**89.88**	**323.64**	**32.34**	**14.97**	**53.90**
Avg.	**0.07**	**0.03**	**0.12**	**0.52**	**0.24**	**0.88**	**0.56**	**0.26**	**0.93**	**1.69**	**0.78**	**2.82**	**2.67**	**1.23**	**4.46**	**8.69**	**4.01**	**14.52**	**3.09**	**1.43**	**5.15**	**7.77**	**3.60**	**12.95**	**1.29**	**0.60**	**2.16**

Avg. - All Size Categories	**26.35**	**12.17**	**43.99**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.39d Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - All Water Systems

HAA5 - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.01	0.05	0.00	0.12	0.06	0.00	0.15	0.25	0.01	0.64	0.58	0.03	1.49	3.38	0.22	9.71	2.67	0.18	7.74	11.38	0.77	33.13	9.20	0.63	26.93
2011	0.01	0.00	0.03	0.12	0.02	0.27	0.15	0.02	0.34	0.64	0.09	1.49	1.49	0.20	3.46	8.67	1.23	22.59	6.84	0.98	18.02	29.14	4.17	77.15	23.54	3.38	62.73
2012	0.03	0.01	0.06	0.21	0.04	0.45	0.26	0.06	0.57	1.15	0.25	2.48	2.68	0.57	5.75	15.53	3.20	37.99	12.24	2.52	30.33	52.20	10.71	129.96	42.16	8.63	105.74
2013	0.04	0.01	0.08	0.32	0.09	0.65	0.41	0.11	0.82	1.77	0.50	3.59	4.10	1.16	8.33	23.82	6.08	55.40	18.78	4.74	44.26	80.06	20.11	189.68	64.66	16.14	154.38
2014	0.06	0.02	0.11	0.45	0.15	0.88	0.57	0.19	1.10	2.48	0.83	4.81	5.76	1.92	11.16	33.52	9.62	74.73	25.10	7.37	55.87	101.30	30.81	222.94	81.83	24.63	181.56
2015	0.08	0.03	0.14	0.60	0.22	1.12	0.75	0.28	1.41	3.29	1.20	6.16	7.64	2.79	14.31	42.83	13.48	91.61	30.36	9.92	64.29	120.59	40.22	253.68	97.43	32.04	206.72
2016	0.09	0.04	0.17	0.74	0.29	1.33	0.93	0.37	1.68	4.04	1.61	7.31	9.39	3.74	16.98	50.51	17.22	103.80	35.07	12.09	71.80	138.01	47.71	281.58	111.53	37.91	229.51
2017	0.11	0.05	0.19	0.85	0.37	1.48	1.07	0.46	1.86	4.66	2.02	8.11	10.82	4.69	18.84	57.28	20.43	114.52	39.23	13.79	78.61	153.39	53.42	307.40	123.99	42.38	250.63
2018	0.12	0.06	0.20	0.95	0.43	1.60	1.19	0.55	2.02	5.19	2.38	8.81	12.06	5.52	20.45	63.22	23.01	124.17	42.81	15.15	84.82	166.31	58.05	330.76	134.45	46.03	269.75
2019	0.13	0.06	0.22	1.03	0.49	1.72	1.30	0.61	2.16	5.66	2.67	9.43	13.14	6.20	21.90	68.32	25.02	132.96	45.77	16.26	90.16	176.73	62.05	349.55	142.89	49.20	285.11
2020	0.14	0.07	0.23	1.10	0.53	1.82	1.39	0.66	2.29	6.06	2.90	10.00	14.07	6.74	23.21	72.55	26.68	140.48	48.20	17.21	94.55	185.38	65.43	365.46	149.88	51.86	298.14
2021	0.15	0.07	0.24	1.16	0.56	1.91	1.47	0.71	2.40	6.39	3.08	10.47	14.84	7.16	24.32	76.03	28.11	146.43	50.23	18.03	98.09	192.67	68.33	378.23	155.78	54.17	308.59
2022	0.15	0.08	0.25	1.21	0.59	1.98	1.53	0.74	2.49	6.67	3.24	10.85	15.49	7.52	25.20	78.97	29.34	151.31	51.96	18.72	100.97	198.88	70.78	388.53	160.80	56.11	316.99
2023	0.16	0.08	0.26	1.26	0.61	2.03	1.58	0.77	2.56	6.91	3.36	11.17	16.03	7.81	25.94	81.47	30.34	155.50	53.44	19.28	103.42	204.21	72.77	397.12	165.11	57.68	324.00
2024	0.17	0.08	0.27	1.29	0.63	2.09	1.63	0.80	2.63	7.11	3.47	11.46	16.50	8.06	26.60	83.61	31.14	159.08	54.71	19.73	105.48	208.84	74.35	404.47	168.85	58.93	329.99
2025	0.17	0.08	0.27	1.33	0.65	2.13	1.67	0.82	2.69	7.28	3.56	11.71	16.91	8.27	27.19	85.48	31.83	162.18	55.83	20.11	107.42	212.87	75.66	411.93	172.11	59.96	336.08
2026	0.17	0.08	0.28	1.35	0.66	2.17	1.71	0.83	2.74	7.44	3.64	11.93	17.27	8.45	27.69	87.10	32.44	165.00	56.80	20.44	109.28	216.42	76.78	419.03	174.98	60.84	341.88
2027	0.18	0.09	0.28	1.38	0.67	2.21	1.74	0.85	2.78	7.57	3.70	12.13	17.58	8.59	28.15	88.53	32.96	167.72	57.66	20.75	111.02	219.56	77.94	425.47	177.51	61.76	347.13
2028	0.18	0.09	0.29	1.40	0.68	2.24	1.76	0.86	2.82	7.69	3.75	12.32	17.85	8.72	28.60	89.80	33.43	170.30	58.42	21.06	112.63	222.35	79.18	431.47	179.76	62.77	352.03
2029	0.18	0.09	0.29	1.42	0.69	2.28	1.79	0.87	2.86	7.79	3.80	12.49	18.10	8.82	29.01	90.92	33.88	172.56	59.10	21.35	114.02	224.84	80.24	436.53	181.77	63.63	356.15
Total	**2.32**	**1.07**	**3.89**	**18.22**	**8.38**	**30.48**	**22.94**	**10.56**	**38.38**	**100.04**	**46.06**	**167.37**	**232.29**	**106.95**	**388.58**	**1,201.54**	**429.65**	**2,358.05**	**805.23**	**279.68**	**1,602.81**	**3,115.13**	**1,069.49**	**6,234.09**	**2,518.23**	**848.67**	**5,084.03**
Avg.	**0.09**	**0.04**	**0.16**	**0.73**	**0.34**	**1.22**	**0.92**	**0.42**	**1.54**	**4.00**	**1.84**	**6.69**	**9.29**	**4.28**	**15.54**	**48.06**	**17.19**	**94.32**	**32.21**	**11.19**	**64.11**	**124.61**	**42.78**	**249.36**	**100.73**	**33.95**	**203.36**

Avg. - All Size Categories		**320.64**	**112.02**	**636.31**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.39e Cases avoided by Age Group per year following rule promulgation

(Smoking/Bladder Cancer model - HAA5 - Preferred Alternative)

Years	Age Group											
After the	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0128	0.0105	0.0652	0.2639	1.1387	3.0856	5.9495	9.4117	5.5802	1.0026	26.5207	4%
7	0.0324	0.0247	0.1526	0.6179	2.6661	7.2244	13.9297	22.0356	13.0649	2.3473	62.0955	9%
8	0.0580	0.0416	0.2572	1.0415	4.4938	12.1771	23.4792	37.1421	22.0216	3.9565	104.6685	16%
9	0.0887	0.0608	0.3764	1.5240	6.5756	17.8180	34.3557	54.3479	32.2228	5.7893	153.1592	23%
10	0.1139	0.0737	0.4561	1.8469	7.9689	21.5935	41.6354	65.8638	39.0506	7.0160	185.6189	28%
11	0.1346	0.0845	0.5225	2.1158	9.1291	24.7376	47.6975	75.4536	44.7364	8.0375	212.6492	32%
12	0.1511	0.0935	0.5784	2.3420	10.1050	27.3820	52.7964	83.5196	49.5187	8.8967	235.3836	35%
13	0.1640	0.1015	0.6278	2.5420	10.9676	29.7194	57.3032	90.6490	53.7458	9.6562	255.4765	38%
14	0.1739	0.1087	0.6726	2.7236	11.7512	31.8426	61.3970	97.1249	57.5854	10.3460	273.7258	41%
15	0.1827	0.1154	0.7138	2.8904	12.4710	33.7932	65.1581	103.0747	61.1130	10.9798	290.4920	44%
16	0.1890	0.1228	0.7520	3.0448	13.1374	35.5990	68.6399	108.5826	64.3786	11.5665	306.0126	46%
17	0.1933	0.1309	0.7875	3.1886	13.7577	37.2799	71.8808	113.7095	67.4183	12.1127	320.4592	48%
18	0.1956	0.1397	0.8206	3.3230	14.3375	38.8510	74.9102	118.5018	70.2596	12.6231	333.9623	50%
19	0.1962	0.1491	0.8518	3.4490	14.8813	40.3244	77.7511	122.9959	72.9242	13.1019	346.6249	52%
20	0.1964	0.1581	0.8810	3.5675	15.3926	41.7098	80.4225	127.2217	75.4297	13.5520	358.5312	54%
21	0.1964	0.1696	0.9086	3.6792	15.8744	43.0154	82.9399	131.2040	77.7908	13.9762	369.7544	56%
22	0.1964	0.1835	0.9347	3.7846	16.3293	44.2481	85.3165	134.9637	80.0199	14.3767	380.3534	57%
23	0.1964	0.1996	0.9593	3.8843	16.7594	45.4137	87.5640	138.5190	82.1279	14.7554	390.3791	59%
24	0.1964	0.2178	0.9826	3.9787	17.1668	46.5175	89.6922	141.8856	84.1240	15.1140	399.8757	60%
25	0.1964	0.2356	1.0047	4.0682	17.5530	47.5640	91.7100	145.0776	86.0165	15.4541	408.8801	61%
26	0.1964	0.2490	1.0347	4.1532	17.9195	48.5572	93.6252	148.1073	87.8128	15.7768	417.4321	63%
27	0.1964	0.2582	1.0716	4.2339	18.2678	49.5009	95.4447	150.9856	89.5193	16.0834	425.5619	64%
28	0.1964	0.2633	1.1149	4.3106	18.5989	50.3982	97.1749	153.7227	91.1422	16.3750	433.2971	65%
29	0.1964	0.2645	1.1639	4.3837	18.9141	51.2522	98.8215	156.3275	92.6865	16.6524	440.6629	66%
30	0.1964	0.2650	1.2111	4.4533	19.2143	52.0656	100.3898	158.8084	94.1574	16.9167	447.6780	67%
31	0.1964	0.2650	1.2644	4.5196	19.5003	52.8408	101.8845	161.1728	95.5593	17.1686	454.3716	68%
32	0.1964	0.2650	1.3223	4.5828	19.7732	53.5801	103.3099	163.4277	96.8963	17.4088	460.7625	69%
33	0.1964	0.2650	1.3854	4.6431	20.0335	54.2855	104.6702	165.5796	98.1721	17.6380	466.8690	70%
34	0.1964	0.2650	1.4541	4.7008	20.2821	54.9592	105.9691	167.6343	99.3904	17.8569	472.7083	71%
35	0.1964	0.2650	1.5226	4.7558	20.5196	55.6028	107.2100	169.5973	100.5542	18.0660	478.2898	72%
36	0.1964	0.2650	1.5753	4.8313	20.7466	56.2180	108.3962	171.4738	101.6668	18.2659	483.6352	73%
37	0.1964	0.2650	1.6120	4.9248	20.9638	56.8063	109.5306	173.2683	102.7308	18.4570	488.7549	73%
38	0.1964	0.2650	1.6328	5.0351	21.1715	57.3692	110.6160	174.9854	103.7488	18.6399	493.6603	74%
39	0.1964	0.2650	1.6378	5.1617	21.3704	57.9082	111.6551	176.6292	104.7234	18.8150	498.3622	75%
40	0.1964	0.2650	1.6396	5.2861	21.5609	58.4243	112.6503	178.2034	105.6567	18.9827	502.8655	75%
41	0.1964	0.2650	1.6398	5.4391	21.7434	58.9188	113.6038	179.7118	106.5511	19.1434	507.2127	76%
42	0.1964	0.2650	1.6398	5.6177	21.9183	59.3929	114.5178	181.1577	107.4083	19.2974	511.4115	77%
43	0.1964	0.2650	1.6398	5.8204	22.0861	59.8475	115.3944	182.5444	108.2304	19.4451	515.4695	77%
44	0.1964	0.2650	1.6398	6.0458	22.2470	60.2836	116.2353	183.8746	109.0192	19.5868	519.3936	78%
45	0.1964	0.2650	1.6398	6.2680	22.4015	60.7022	117.0424	185.1514	109.7762	19.7228	523.1658	79%
46	0.1964	0.2650	1.6398	6.4373	22.6508	61.1041	117.8173	186.3773	110.5030	19.8534	526.8446	79%
47	0.1964	0.2650	1.6398	6.5535	22.9856	61.4901	118.5617	187.5548	111.2012	19.9788	530.4272	80%
48	0.1964	0.2650	1.6398	6.6184	23.4037	61.8611	119.2770	188.6863	111.8720	20.0994	533.9193	80%
49	0.1964	0.2650	1.6398	6.6339	23.8987	62.2177	119.9645	189.7740	112.5169	20.2152	537.3223	81%
50	0.1964	0.2650	1.6398	6.6392	24.3848	62.5606	120.6257	190.8199	113.1370	20.3267	540.5952	81%
51	0.1964	0.2650	1.6398	6.6400	24.9423	62.8905	121.2618	191.8261	113.7336	20.4338	543.8293	82%
52	0.1964	0.2650	1.6398	6.6400	25.5502	63.2079	121.8739	192.7943	114.3077	20.5370	547.0123	82%
53	0.1964	0.2650	1.6398	6.6400	26.2052	63.5136	122.4631	193.7265	114.8604	20.6363	550.1464	83%
54	0.1964	0.2650	1.6398	6.6400	26.9024	63.8079	123.0306	194.6242	115.3926	20.7319	553.2309	83%
55	0.1964	0.2650	1.6398	6.6400	27.5667	64.0914	123.5773	195.4890	115.9054	20.8240	556.1953	83%
56	0.1964	0.2650	1.6398	6.6400	28.0659	64.6285	124.1042	196.3226	116.3996	20.9128	559.1749	84%
57	0.1964	0.2650	1.6398	6.6400	28.4030	65.3964	124.6121	197.1261	116.8760	20.9984	562.1534	84%
58	0.1964	0.2650	1.6398	6.6400	28.5883	66.3925	125.1020	197.9010	117.3355	21.0810	565.1416	85%
59	0.1964	0.2650	1.6398	6.6400	28.6322	67.6036	125.5746	198.6487	117.7787	21.1606	568.1397	85%
60	0.1964	0.2650	1.6398	6.6400	28.6472	68.7585	126.0307	199.3702	118.2065	21.2375	570.9919	86%
61	0.1964	0.2650	1.6398	6.6400	28.6494	70.0020	126.4710	200.0667	118.6194	21.3117	573.8615	86%
62	0.1964	0.2650	1.6398	6.6400	28.6494	71.3064	126.8962	200.7393	119.0183	21.3833	576.7342	87%
63	0.1964	0.2650	1.6398	6.6400	28.6494	72.6733	127.3070	201.3891	119.4036	21.4525	579.6162	87%
64	0.1964	0.2650	1.6398	6.6400	28.6494	74.1068	127.7040	202.0171	119.7759	21.5194	582.5138	87%
65	0.1964	0.2650	1.6398	6.6400	28.6494	75.4649	128.0877	202.6241	120.1358	21.5841	585.2872	88%
66	0.1964	0.2650	1.6398	6.6400	28.6494	76.4798	128.8913	203.2111	120.4838	21.6466	588.1033	88%
67	0.1964	0.2650	1.6398	6.6400	28.6494	77.1499	130.0829	203.7789	120.8205	21.7071	590.9300	89%
68	0.1964	0.2650	1.6398	6.6400	28.6494	77.5135	131.6412	204.3284	121.1463	21.7656	593.7856	89%
69	0.1964	0.2650	1.6398	6.6400	28.6494	77.5993	133.5335	204.8602	121.4616	21.8223	596.6676	90%
70	0.1964	0.2650	1.6398	6.6400	28.6494	77.6282	135.4015	205.3751	121.7669	21.8771	599.4395	90%
71	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	137.4074	205.8740	122.0626	21.9303	602.2972	90%
72	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	139.4795	206.3572	122.3492	21.9817	605.1905	91%
73	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	141.6387	206.8256	122.6268	22.0316	608.1457	91%
74	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	143.8802	207.2796	122.8961	22.0800	611.1588	92%
75	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	146.0539	207.7199	123.1571	22.1269	614.0807	92%
76	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	147.7089	208.8214	123.4103	22.1724	617.1361	93%
77	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	148.8436	210.5348	123.6561	22.2166	620.2740	93%
78	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.4793	212.8444	123.8946	22.2594	623.5007	94%
79	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6279	215.7112	124.1263	22.3010	626.7894	94%
80	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6789	218.5643	124.3512	22.3414	629.9588	95%
81	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	221.4799	124.5698	22.3807	633.1395	95%
82	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	224.3702	124.7822	22.4189	636.2803	96%
83	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	227.2086	124.9887	22.4560	639.3623	96%
84	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	230.0020	125.1894	22.4920	642.3926	96%
85	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	232.6107	125.3847	22.5271	645.2315	97%
86	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	234.5464	126.1130	22.5613	647.9297	97%
87	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	235.8530	127.3019	22.5945	650.4584	98%
88	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.5610	128.9009	22.6268	652.7978	98%
89	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7274	130.8582	22.6583	654.9530	98%
90	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7833	132.6995	22.6890	656.8809	99%
91	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	134.3678	22.7189	658.5867	99%
92	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	135.8283	22.7480	660.0763	99%
93	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	137.0912	22.7764	661.3676	99%
94	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	138.1628	22.8041	662.4669	99%
95	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	139.0709	22.8311	663.4020	100%
96	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	139.7081	22.9795	664.1877	100%
97	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.1129	23.2241	664.8371	100%
98	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3251	23.5454	665.3705	100%
99	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3748	23.9240	665.7988	100%
100	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3911	24.2473	666.1384	100%

Exhibit E.39f Yearly Cancer Cases Avoided by System Size

Smoking/Bladder Cancer Model - Surface Water Systems

HAA5 - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.00	0.01	0.00	0.03	0.02	0.00	0.06	0.12	0.02	0.38	0.35	0.06	1.10	2.70	0.26	9.12	2.35	0.23	7.95	10.40	1.02	35.17	8.85	0.87	29.93
2011	0.00	0.00	0.01	0.03	0.01	0.07	0.04	0.01	0.13	0.29	0.06	0.84	0.82	0.16	2.40	6.31	0.78	19.93	5.50	0.68	17.36	24.32	3.03	76.82	20.70	2.57	65.38
2012	0.00	0.00	0.01	0.04	0.01	0.12	0.08	0.02	0.21	0.49	0.11	1.34	1.40	0.33	3.83	10.62	1.55	31.81	9.26	1.35	27.72	40.95	5.97	122.62	34.85	5.08	104.36
2013	0.01	0.00	0.02	0.06	0.02	0.16	0.11	0.03	0.29	0.72	0.19	1.87	2.07	0.54	5.35	15.53	2.54	44.40	13.53	2.22	38.69	59.86	9.81	171.16	50.95	8.34	145.67
2014	0.01	0.00	0.02	0.09	0.02	0.21	0.15	0.04	0.38	0.99	0.28	2.43	2.82	0.79	6.95	20.96	3.76	57.69	17.09	3.16	46.30	70.39	13.48	187.24	59.90	11.47	159.35
2015	0.01	0.00	0.03	0.11	0.03	0.27	0.20	0.06	0.47	1.27	0.38	3.02	3.65	1.10	8.64	25.50	5.06	67.13	19.48	4.06	49.81	79.20	16.98	199.54	67.40	14.45	169.82
2016	0.01	0.00	0.03	0.13	0.04	0.30	0.24	0.08	0.53	1.53	0.49	3.44	4.36	1.41	9.85	28.67	6.30	71.77	21.53	4.93	52.66	86.93	20.35	210.06	73.99	17.32	178.77
2017	0.02	0.01	0.03	0.15	0.05	0.32	0.27	0.09	0.57	1.71	0.60	3.66	4.90	1.72	10.46	31.42	7.50	75.48	23.36	5.77	55.11	93.89	23.61	219.53	79.91	20.10	186.84
2018	0.02	0.01	0.04	0.17	0.06	0.34	0.29	0.11	0.59	1.88	0.70	3.83	5.38	2.01	10.95	33.89	8.64	78.66	25.02	6.57	57.27	100.24	26.72	227.71	85.31	22.74	193.80
2019	0.02	0.01	0.04	0.18	0.07	0.35	0.32	0.12	0.62	2.03	0.80	3.98	5.82	2.29	11.39	36.13	9.73	81.54	26.55	7.33	59.16	106.09	29.66	234.74	90.29	25.24	199.78
2020	0.02	0.01	0.04	0.19	0.08	0.36	0.34	0.14	0.64	2.18	0.89	4.12	6.22	2.55	11.79	38.19	10.75	84.18	27.96	8.03	60.89	111.51	32.38	241.19	94.90	27.56	205.27
2021	0.02	0.01	0.04	0.20	0.09	0.37	0.36	0.15	0.66	2.31	0.98	4.25	6.60	2.80	12.16	40.11	11.72	86.59	29.27	8.70	62.53	116.55	34.93	247.63	99.19	29.73	210.74
2022	0.02	0.01	0.04	0.21	0.09	0.38	0.38	0.16	0.68	2.43	1.06	4.37	6.95	3.04	12.49	41.89	12.64	88.81	30.50	9.33	64.12	121.28	37.38	253.93	103.21	31.82	216.11
2023	0.02	0.01	0.04	0.22	0.10	0.39	0.39	0.18	0.69	2.54	1.14	4.48	7.28	3.26	12.80	43.56	13.51	91.00	31.64	9.94	65.69	125.71	39.74	260.12	106.98	33.82	221.38
2024	0.03	0.01	0.04	0.23	0.11	0.40	0.41	0.19	0.71	2.65	1.21	4.58	7.58	3.47	13.11	45.12	14.35	93.15	32.72	10.53	67.18	129.87	42.04	265.82	110.53	35.78	226.23
2025	0.03	0.01	0.04	0.24	0.11	0.41	0.43	0.20	0.73	2.75	1.28	4.69	7.87	3.67	13.42	46.59	15.16	95.24	33.74	11.09	68.61	133.80	44.26	271.30	113.87	37.66	230.89
2026	0.03	0.01	0.05	0.25	0.12	0.42	0.44	0.21	0.74	2.85	1.35	4.80	8.15	3.85	13.72	47.98	15.94	97.20	34.70	11.64	69.99	137.51	46.37	276.74	117.03	39.47	235.52
2027	0.03	0.01	0.05	0.26	0.12	0.43	0.46	0.22	0.76	2.94	1.40	4.90	8.41	4.01	14.01	49.29	16.69	99.08	35.61	12.16	71.32	141.02	48.40	281.91	120.02	41.19	239.92
2028	0.03	0.01	0.05	0.27	0.13	0.44	0.47	0.23	0.78	3.02	1.46	5.00	8.65	4.17	14.30	50.53	17.40	100.92	36.47	12.66	72.61	144.35	50.34	286.99	122.85	42.85	244.24
2029	0.03	0.01	0.05	0.27	0.13	0.45	0.48	0.23	0.79	3.11	1.51	5.10	8.88	4.31	14.58	51.71	18.09	102.58	37.28	13.14	73.75	147.50	52.19	291.29	125.53	44.42	247.91
Total	**0.36**	**0.15**	**0.67**	**3.33**	**1.40**	**6.26**	**5.86**	**2.47**	**11.02**	**37.82**	**15.91**	**71.08**	**108.18**	**45.52**	**203.31**	**666.71**	**192.39**	**1,476.28**	**493.56**	**143.53**	**1,088.72**	**1,981.37**	**578.66**	**4,361.49**	**1,686.27**	**492.47**	**3,711.89**
Avg.	**0.01**	**0.01**	**0.03**	**0.13**	**0.06**	**0.25**	**0.23**	**0.10**	**0.44**	**1.51**	**0.64**	**2.84**	**4.33**	**1.82**	**8.13**	**26.67**	**7.70**	**59.05**	**19.74**	**5.74**	**43.55**	**79.25**	**23.15**	**174.46**	**67.45**	**19.70**	**148.48**

Avg. - All Size Categories	**199.34**	**58.90**	**437.23**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.39g Yearly Cancer Cases Avoided by System Size

Smoking/Bladder Cancer Model - Ground Water Systems

HAA5 - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.01	0.03	0.00	0.09	0.03	0.00	0.09	0.09	0.01	0.28	0.14	0.02	0.44	0.52	0.08	1.64	0.22	0.03	0.69	0.60	0.10	1.91	0.10	0.02	0.32
2011	0.01	0.00	0.03	0.07	0.01	0.19	0.07	0.01	0.20	0.21	0.04	0.61	0.33	0.07	0.97	1.23	0.25	3.59	0.51	0.10	1.50	1.43	0.29	4.16	0.24	0.05	0.69
2012	0.02	0.00	0.04	0.11	0.03	0.30	0.12	0.03	0.32	0.36	0.08	0.98	0.56	0.13	1.54	2.10	0.49	5.73	0.88	0.20	2.40	2.43	0.56	6.65	0.41	0.09	1.11
2013	0.02	0.01	0.06	0.16	0.04	0.42	0.17	0.05	0.45	0.53	0.14	1.36	0.83	0.22	2.15	3.10	0.80	7.99	1.30	0.33	3.35	3.59	0.93	9.28	0.60	0.15	1.54
2014	0.03	0.01	0.07	0.22	0.06	0.55	0.24	0.07	0.59	0.72	0.20	1.77	1.14	0.32	2.80	4.22	1.18	10.38	1.66	0.48	4.00	4.29	1.28	10.15	0.72	0.21	1.69
2015	0.04	0.01	0.09	0.29	0.09	0.68	0.31	0.09	0.73	0.93	0.28	2.20	1.47	0.44	3.48	5.19	1.59	12.08	1.91	0.62	4.31	4.89	1.61	10.81	0.81	0.27	1.80
2016	0.05	0.02	0.11	0.35	0.11	0.78	0.37	0.12	0.83	1.11	0.36	2.51	1.76	0.57	3.97	5.90	1.99	12.92	2.14	0.75	4.55	5.43	1.94	11.38	0.90	0.32	1.90
2017	0.05	0.02	0.11	0.39	0.14	0.83	0.41	0.14	0.88	1.25	0.44	2.66	1.97	0.69	4.21	6.53	2.36	13.59	2.34	0.87	4.77	5.92	2.24	11.90	0.99	0.37	1.98
2018	0.06	0.02	0.12	0.43	0.16	0.87	0.45	0.17	0.92	1.37	0.51	2.79	2.17	0.81	4.41	7.10	2.72	14.16	2.53	0.99	4.95	6.37	2.53	12.34	1.06	0.42	2.06
2019	0.06	0.02	0.12	0.46	0.18	0.90	0.49	0.19	0.96	1.48	0.58	2.90	2.34	0.92	4.59	7.63	3.06	14.68	2.70	1.11	5.12	6.78	2.81	12.72	1.13	0.47	2.12
2020	0.07	0.03	0.13	0.49	0.20	0.93	0.52	0.21	0.99	1.58	0.65	3.00	2.50	1.02	4.75	8.12	3.39	15.15	2.86	1.22	5.27	7.17	3.07	13.07	1.19	0.51	2.18
2021	0.07	0.03	0.13	0.52	0.22	0.96	0.56	0.24	1.03	1.68	0.71	3.10	2.66	1.13	4.90	8.57	3.69	15.58	3.01	1.32	5.41	7.53	3.32	13.42	1.25	0.55	2.23
2022	0.07	0.03	0.13	0.55	0.24	0.99	0.59	0.26	1.05	1.77	0.77	3.18	2.80	1.22	5.03	9.00	3.98	15.98	3.16	1.41	5.55	7.87	3.55	13.76	1.31	0.59	2.29
2023	0.08	0.03	0.14	0.58	0.26	1.01	0.61	0.27	1.08	1.85	0.83	3.26	2.93	1.31	5.16	9.40	4.26	16.38	3.29	1.51	5.68	8.19	3.78	14.10	1.36	0.63	2.35
2024	0.08	0.04	0.14	0.60	0.27	1.04	0.64	0.29	1.11	1.93	0.88	3.34	3.05	1.40	5.28	9.78	4.52	16.77	3.41	1.59	5.81	8.50	3.98	14.41	1.41	0.66	2.40
2025	0.08	0.04	0.14	0.62	0.29	1.06	0.66	0.31	1.13	2.00	0.93	3.42	3.17	1.47	5.40	10.13	4.76	17.15	3.53	1.67	5.94	8.78	4.17	14.71	1.46	0.69	2.45
2026	0.09	0.04	0.15	0.65	0.30	1.09	0.69	0.32	1.16	2.07	0.98	3.49	3.28	1.55	5.52	10.47	4.98	17.52	3.64	1.74	6.06	9.05	4.35	15.03	1.51	0.72	2.50
2027	0.09	0.04	0.15	0.67	0.32	1.11	0.71	0.34	1.18	2.14	1.02	3.57	3.38	1.61	5.64	10.78	5.18	17.89	3.75	1.81	6.19	9.31	4.50	15.34	1.55	0.75	2.55
2028	0.09	0.04	0.15	0.69	0.33	1.13	0.73	0.35	1.21	2.20	1.06	3.64	3.48	1.68	5.76	11.08	5.36	18.25	3.85	1.87	6.32	9.55	4.64	15.65	1.59	0.77	2.61
2029	0.10	0.05	0.16	0.70	0.34	1.16	0.75	0.36	1.23	2.26	1.10	3.71	3.57	1.73	5.87	11.37	5.53	18.61	3.94	1.92	6.44	9.78	4.78	15.95	1.63	0.80	2.66
Total	**1.16**	**0.49**	**2.18**	**8.57**	**3.60**	**16.11**	**9.12**	**3.83**	**17.15**	**27.52**	**11.57**	**51.76**	**43.53**	**18.30**	**81.87**	**142.21**	**60.17**	**266.05**	**50.65**	**21.55**	**94.30**	**127.48**	**54.41**	**236.74**	**21.23**	**9.06**	**39.42**
Avg.	**0.05**	**0.02**	**0.09**	**0.34**	**0.14**	**0.64**	**0.36**	**0.15**	**0.69**	**1.10**	**0.46**	**2.07**	**1.74**	**0.73**	**3.27**	**5.69**	**2.41**	**10.64**	**2.03**	**0.86**	**3.77**	**5.10**	**2.18**	**9.47**	**0.85**	**0.36**	**1.58**

Avg. - All Size Categories	**17.26**	**7.32**	**32.22**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.39h Yearly Cancer Cases Avoided by System Size

Smoking/Bladder Cancer Model - All Water Systems

HAA5 - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.02	0.04	0.01	0.12	0.05	0.01	0.15	0.21	0.03	0.66	0.49	0.08	1.54	3.22	0.35	10.76	2.57	0.26	8.64	11.00	1.11	37.07	8.95	0.88	30.25
2011	0.01	0.00	0.03	0.09	0.02	0.26	0.11	0.02	0.33	0.50	0.10	1.45	1.15	0.23	3.37	7.54	1.03	23.51	6.01	0.79	18.87	25.75	3.31	80.98	20.93	2.62	66.07
2012	0.02	0.00	0.05	0.15	0.04	0.42	0.19	0.04	0.53	0.85	0.20	2.32	1.97	0.46	5.38	12.72	2.03	37.53	10.13	1.55	30.12	43.38	6.53	129.27	35.25	5.17	105.46
2013	0.03	0.01	0.08	0.23	0.06	0.59	0.29	0.07	0.74	1.25	0.32	3.23	2.91	0.75	7.51	18.63	3.34	52.39	14.83	2.55	42.04	63.46	10.73	180.43	51.55	8.50	147.21
2014	0.04	0.01	0.10	0.31	0.09	0.77	0.39	0.11	0.96	1.71	0.48	4.20	3.96	1.11	9.75	25.17	4.94	68.08	18.74	3.64	50.30	74.68	14.75	197.38	60.62	11.68	161.04
2015	0.05	0.02	0.12	0.40	0.12	0.95	0.51	0.15	1.20	2.20	0.66	5.22	5.11	1.54	12.12	30.69	6.65	79.21	21.39	4.68	54.12	84.09	18.59	210.35	68.22	14.72	171.62
2016	0.06	0.02	0.14	0.48	0.16	1.08	0.60	0.20	1.36	2.64	0.85	5.95	6.12	1.98	13.82	34.57	8.29	84.69	23.67	5.68	57.22	92.36	22.29	221.44	74.89	17.64	180.67
2017	0.07	0.02	0.15	0.54	0.19	1.15	0.68	0.24	1.45	2.96	1.04	6.32	6.88	2.41	14.68	37.95	9.87	89.07	25.71	6.65	59.88	99.81	25.85	231.43	80.89	20.47	188.82
2018	0.08	0.03	0.15	0.59	0.22	1.21	0.75	0.28	1.52	3.25	1.21	6.62	7.55	2.82	15.37	40.99	11.37	92.82	27.56	7.56	62.22	106.61	29.25	240.05	86.37	23.16	195.85
2019	0.08	0.03	0.16	0.64	0.25	1.25	0.81	0.32	1.58	3.52	1.38	6.88	8.16	3.20	15.97	43.76	12.79	96.21	29.25	8.43	64.28	112.87	32.46	247.46	91.42	25.71	201.90
2020	0.09	0.04	0.17	0.68	0.28	1.30	0.86	0.35	1.63	3.76	1.54	7.12	8.73	3.57	16.54	46.31	14.14	99.33	30.82	9.25	66.15	118.68	35.45	254.26	96.09	28.07	207.45
2021	0.09	0.04	0.17	0.73	0.31	1.34	0.91	0.39	1.68	3.99	1.69	7.35	9.25	3.93	17.06	48.68	15.42	102.18	32.29	10.02	67.94	124.09	38.25	261.04	100.45	30.28	212.98
2022	0.10	0.04	0.18	0.76	0.33	1.37	0.96	0.42	1.73	4.20	1.83	7.55	9.74	4.26	17.52	50.89	16.62	104.80	33.65	10.75	69.66	129.15	40.94	267.69	104.52	32.41	218.40
2023	0.10	0.05	0.18	0.80	0.36	1.41	1.01	0.45	1.77	4.39	1.97	7.73	10.20	4.57	17.96	52.96	17.77	107.38	34.93	11.44	71.37	133.90	43.52	274.22	108.35	34.45	223.72
2024	0.11	0.05	0.18	0.83	0.38	1.44	1.05	0.48	1.82	4.58	2.10	7.92	10.64	4.87	18.39	54.90	18.87	109.92	36.14	12.12	73.00	138.37	46.03	280.23	111.94	36.44	228.63
2025	0.11	0.05	0.19	0.87	0.40	1.48	1.09	0.51	1.86	4.76	2.21	8.11	11.04	5.14	18.82	56.72	19.91	112.39	37.27	12.76	74.55	142.58	48.42	286.01	115.33	38.36	233.34
2026	0.11	0.05	0.19	0.90	0.42	1.51	1.13	0.53	1.90	4.92	2.32	8.29	11.43	5.40	19.24	58.45	20.92	114.72	38.34	13.38	76.05	146.56	50.72	291.77	118.54	40.19	238.02
2027	0.12	0.06	0.20	0.92	0.44	1.54	1.16	0.56	1.94	5.08	2.42	8.46	11.79	5.63	19.65	60.08	21.86	116.97	39.36	13.97	77.51	150.33	52.90	297.25	121.57	41.94	242.47
2028	0.12	0.06	0.20	0.95	0.46	1.57	1.20	0.58	1.98	5.22	2.52	8.64	12.13	5.84	20.06	61.62	22.76	119.17	40.32	14.53	78.93	153.90	54.98	302.63	124.44	43.62	246.85
2029	0.12	0.06	0.20	0.98	0.47	1.60	1.23	0.60	2.02	5.36	2.60	8.81	12.46	6.04	20.46	63.08	23.62	121.20	41.23	15.06	80.19	157.29	56.97	307.24	127.16	45.21	250.56
Total	**1.52**	**0.64**	**2.85**	**11.90**	**5.00**	**22.37**	**14.98**	**6.30**	**28.17**	**65.34**	**27.48**	**122.83**	**151.71**	**63.82**	**285.19**	**808.92**	**252.56**	**1,742.32**	**544.21**	**165.08**	**1,183.02**	**2,108.85**	**633.07**	**4,598.23**	**1,707.49**	**501.53**	**3,751.31**
Avg.	**0.06**	**0.03**	**0.11**	**0.48**	**0.20**	**0.89**	**0.60**	**0.25**	**1.13**	**2.61**	**1.10**	**4.91**	**6.07**	**2.55**	**11.41**	**32.36**	**10.10**	**69.69**	**21.77**	**6.60**	**47.32**	**84.35**	**25.32**	**183.93**	**68.30**	**20.06**	**150.05**

Avg. - All Size Categories		**216.60**	**66.22**	**469.45**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.39i Cases avoided by Age Group per year following rule promulgation

(Arsenic/Bladder Cancer model - HAA5 - Preferred Alternative)

Years	Age Group											
After the	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0193	0.0207	0.1280	0.5185	2.2371	6.0619	11.6881	18.4896	10.9625	1.9696	52.0953	8%
7	0.0473	0.0501	0.3097	1.2542	5.4115	14.6638	28.2738	44.7268	26.5185	4.7644	126.0202	19%
8	0.0811	0.0854	0.5287	2.1406	9.2361	25.0275	48.2566	76.3380	45.2608	8.1317	215.0867	32%
9	0.1191	0.1253	0.7753	3.1395	13.5460	36.7062	70.7747	111.9598	66.3809	11.9263	315.4533	47%
10	0.1447	0.1521	0.9413	3.8117	16.4460	44.5642	85.9261	135.9281	80.5917	14.4794	382.9853	57%
11	0.1627	0.1726	1.0676	4.3231	18.6526	50.5438	97.4555	154.1666	91.4053	16.4223	434.3721	65%
12	0.1747	0.1878	1.1622	4.7061	20.3052	55.0218	106.0898	167.8253	99.5035	17.8772	472.8537	71%
13	0.1826	0.1997	1.2354	5.0023	21.5833	58.4852	112.7678	178.3893	105.7669	19.0025	502.6151	75%
14	0.1878	0.2091	1.2935	5.2379	22.5996	61.2389	118.0772	186.7884	110.7467	19.8972	526.2763	79%
15	0.1915	0.2167	1.3405	5.4279	23.4194	63.4605	122.3608	193.5647	114.7644	20.6190	545.3654	82%
16	0.1940	0.2232	1.3788	5.5830	24.0886	65.2738	125.8571	199.0955	118.0436	21.2082	560.9457	84%
17	0.1954	0.2288	1.4104	5.7109	24.6403	66.7689	128.7398	203.6558	120.7474	21.6940	573.7917	86%
18	0.1962	0.2338	1.4366	5.8173	25.0995	68.0131	131.1388	207.4508	122.9975	22.0982	584.4819	88%
19	0.1964	0.2383	1.4587	5.9066	25.4850	69.0576	133.1529	210.6369	124.8866	22.4376	593.4565	89%
20	0.1964	0.2420	1.4774	5.9823	25.8113	69.9419	134.8579	213.3341	126.4857	22.7249	601.0539	90%
21	0.1964	0.2458	1.4933	6.0468	26.0898	70.6965	136.3129	215.6357	127.8503	22.9701	607.5377	91%
22	0.1964	0.2495	1.5070	6.1023	26.3293	71.3454	137.5640	217.6150	129.0238	23.1809	613.1137	92%
23	0.1964	0.2532	1.5189	6.1504	26.5367	71.9075	138.6478	219.3294	130.0403	23.3636	617.9442	93%
24	0.1964	0.2569	1.5293	6.1923	26.7176	72.3978	139.5932	220.8249	130.9270	23.5229	622.1582	93%
25	0.1964	0.2601	1.5384	6.2291	26.8765	72.8283	140.4232	222.1379	131.7055	23.6627	625.8581	94%
26	0.1964	0.2625	1.5476	6.2617	27.0168	73.2086	141.1564	223.2979	132.3932	23.7863	629.1275	94%
27	0.1964	0.2640	1.5571	6.2906	27.1416	73.5465	141.8080	224.3286	133.0044	23.8961	632.0331	95%
28	0.1964	0.2648	1.5666	6.3164	27.2530	73.8484	142.3900	225.2493	133.5503	23.9942	634.6293	95%
29	0.1964	0.2650	1.5762	6.3396	27.3530	74.1194	142.9125	226.0758	134.0403	24.0822	636.9603	95%
30	0.1964	0.2650	1.5848	6.3605	27.4431	74.3637	143.3837	226.8212	134.4823	24.1616	639.0624	96%
31	0.1964	0.2650	1.5934	6.3794	27.5248	74.5850	143.8104	227.4962	134.8824	24.2335	640.9666	96%
32	0.1964	0.2650	1.6019	6.3966	27.5990	74.7862	144.1983	228.1098	135.2462	24.2989	642.6983	96%
33	0.1964	0.2650	1.6104	6.4123	27.6667	74.9697	144.5521	228.6694	135.5780	24.3585	644.2785	97%
34	0.1964	0.2650	1.6190	6.4266	27.7287	75.1376	144.8758	229.1815	135.8817	24.4131	645.7254	97%
35	0.1964	0.2650	1.6270	6.4398	27.7856	75.2916	145.1729	229.6515	136.1603	24.4631	647.0533	97%
36	0.1964	0.2650	1.6330	6.4542	27.8379	75.4334	145.4463	230.0840	136.4167	24.5092	648.2760	97%
37	0.1964	0.2650	1.6369	6.4694	27.8862	75.5642	145.6984	230.4828	136.6532	24.5517	649.4042	97%
38	0.1964	0.2650	1.6391	6.4854	27.9308	75.6850	145.9314	230.8515	136.8718	24.5909	650.4474	98%
39	0.1964	0.2650	1.6396	6.5021	27.9721	75.7970	146.1473	231.1929	137.0742	24.6273	651.4139	98%
40	0.1964	0.2650	1.6398	6.5176	28.0104	75.9008	146.3476	231.5098	137.2621	24.6611	652.3106	98%
41	0.1964	0.2650	1.6398	6.5346	28.0460	75.9974	146.5337	231.8042	137.4367	24.6924	653.1463	98%
42	0.1964	0.2650	1.6398	6.5528	28.0792	76.0873	146.7070	232.0783	137.5992	24.7216	653.9266	98%
43	0.1964	0.2650	1.6398	6.5719	28.1101	76.1711	146.8685	232.3339	137.7507	24.7488	654.6563	98%
44	0.1964	0.2650	1.6398	6.5919	28.1390	76.2493	147.0193	232.5724	137.8922	24.7743	655.3396	98%
45	0.1964	0.2650	1.6398	6.6105	28.1660	76.3223	147.1603	232.7954	138.0244	24.7980	655.9782	98%
46	0.1964	0.2650	1.6398	6.6243	28.1984	76.3907	147.2922	233.0040	138.1480	24.8202	656.5792	98%
47	0.1964	0.2650	1.6398	6.6335	28.2354	76.4548	147.4157	233.1994	138.2639	24.8411	657.1451	99%
48	0.1964	0.2650	1.6398	6.6384	28.2766	76.5149	147.5316	233.3827	138.3726	24.8606	657.6786	99%
49	0.1964	0.2650	1.6398	6.6396	28.3212	76.5713	147.6403	233.5547	138.4745	24.8789	658.1818	99%
50	0.1964	0.2650	1.6398	6.6400	28.3631	76.6243	147.7424	233.7163	138.5703	24.8961	658.6538	99%
51	0.1964	0.2650	1.6398	6.6400	28.4071	76.6741	147.8384	233.8682	138.6604	24.9123	659.1018	99%
52	0.1964	0.2650	1.6398	6.6400	28.4521	76.7210	147.9288	234.0112	138.7452	24.9275	659.5270	99%
53	0.1964	0.2650	1.6398	6.6400	28.4976	76.7651	148.0140	234.1459	138.8250	24.9419	659.9307	99%
54	0.1964	0.2650	1.6398	6.6400	28.5434	76.8067	148.0942	234.2728	138.9003	24.9554	660.3141	99%
55	0.1964	0.2650	1.6398	6.6400	28.5850	76.8459	148.1699	234.3925	138.9712	24.9681	660.6740	99%
56	0.1964	0.2650	1.6398	6.6400	28.6154	76.8972	148.2413	234.5055	139.0382	24.9802	661.0190	99%
57	0.1964	0.2650	1.6398	6.6400	28.6353	76.9586	148.3087	234.6121	139.1014	24.9915	661.3491	99%
58	0.1964	0.2650	1.6398	6.6400	28.6460	77.0296	148.3725	234.7129	139.1612	25.0023	661.6658	99%
59	0.1964	0.2650	1.6398	6.6400	28.6484	77.1088	148.4328	234.8082	139.2178	25.0124	661.9697	99%
60	0.1964	0.2650	1.6398	6.6400	28.6493	77.1815	148.4898	234.8985	139.2713	25.0220	662.2536	99%
61	0.1964	0.2650	1.6398	6.6400	28.6494	77.2547	148.5437	234.9839	139.3219	25.0311	662.5260	99%
62	0.1964	0.2650	1.6398	6.6400	28.6494	77.3270	148.5949	235.0648	139.3698	25.0397	662.7869	99%
63	0.1964	0.2650	1.6398	6.6400	28.6494	77.3986	148.6433	235.1414	139.4153	25.0479	663.0372	99%
64	0.1964	0.2650	1.6398	6.6400	28.6494	77.4699	148.6892	235.2141	139.4583	25.0557	663.2779	99%
65	0.1964	0.2650	1.6398	6.6400	28.6494	77.5343	148.7328	235.2830	139.4992	25.0630	663.5030	99%
66	0.1964	0.2650	1.6398	6.6400	28.6494	77.5811	148.7919	235.3485	139.5380	25.0700	663.7202	99%
67	0.1964	0.2650	1.6398	6.6400	28.6494	77.6113	148.8645	235.4106	139.5748	25.0766	663.9285	100%
68	0.1964	0.2650	1.6398	6.6400	28.6494	77.6272	148.9489	235.4697	139.6099	25.0829	664.1292	100%
69	0.1964	0.2650	1.6398	6.6400	28.6494	77.6309	149.0433	235.5258	139.6431	25.0888	664.3226	100%
70	0.1964	0.2650	1.6398	6.6400	28.6494	77.6321	149.1324	235.5791	139.6747	25.0945	664.5036	100%
71	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.2222	235.6299	139.7048	25.0999	664.6798	100%
72	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.3099	235.6781	139.7335	25.1051	664.8495	100%
73	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.3964	235.7241	139.7608	25.1100	665.0141	100%
74	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.4817	235.7678	139.7867	25.1146	665.1738	100%
75	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.5605	235.8096	139.8114	25.1191	665.3235	100%
76	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6189	235.8705	139.8350	25.1233	665.4707	100%
77	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6579	235.9482	139.8575	25.1274	665.6139	100%
78	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6793	236.0412	139.8789	25.1312	665.7536	100%
79	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6842	236.1476	139.8993	25.1349	665.8890	100%
80	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6859	236.2487	139.9189	25.1384	666.0149	100%
81	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.3468	139.9375	25.1418	666.1351	100%
82	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.4393	139.9553	25.1450	666.2486	100%
83	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.5259	139.9724	25.1480	666.3554	100%
84	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.6073	139.9886	25.1509	666.4559	100%
85	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.6798	140.0041	25.1537	666.5467	100%
86	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7323	140.0320	25.1564	666.6298	100%
87	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7669	140.0698	25.1589	666.7047	100%
88	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7852	140.1159	25.1614	666.7715	100%
89	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7894	140.1687	25.1637	666.8309	100%
90	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7908	140.2165	25.1660	666.8823	100%
91	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.2582	25.1681	666.9264	100%
92	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.2934	25.1702	666.9636	100%
93	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3227	25.1721	666.9949	100%
94	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3467	25.1740	667.0207	100%
95	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3661	25.1758	667.0420	100%
96	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3795	25.1798	667.0593	100%
97	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3877	25.1854	667.0732	100%
98	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3919	25.1923	667.0843	100%
99	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3929	25.1999	667.0929	100%
100	0.1964	0.2650	1.6398	6.6400	28.6494	77.6322	149.6861	236.7910	140.3932	25.2062	667.0995	100%

Exhibit E.39j Yearly Cancer Cases Avoided by System Size

Arsenic/Bladder Cancer Model - Surface Water Systems

HAA5 - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.00	0.02	0.01	0.04	0.04	0.01	0.08	0.26	0.09	0.49	0.73	0.27	1.41	5.26	1.26	11.72	4.59	1.10	10.21	20.29	4.87	45.18	17.27	4.15	38.45
2011	0.01	0.00	0.01	0.06	0.02	0.10	0.10	0.04	0.18	0.63	0.26	1.15	1.80	0.74	3.28	12.71	3.51	27.24	11.08	3.06	23.74	48.99	13.52	105.02	41.70	11.51	89.37
2012	0.01	0.00	0.02	0.10	0.04	0.17	0.17	0.07	0.30	1.09	0.48	1.90	3.11	1.38	5.45	21.67	6.51	45.21	18.88	5.67	39.39	83.52	25.08	174.27	71.08	21.35	148.31
2013	0.02	0.01	0.03	0.14	0.07	0.24	0.25	0.11	0.42	1.61	0.74	2.74	4.60	2.12	7.83	31.75	10.09	64.94	27.67	8.79	56.59	122.39	38.90	250.35	104.16	33.11	213.06
2014	0.02	0.01	0.03	0.19	0.09	0.32	0.34	0.16	0.56	2.18	1.03	3.63	6.23	2.93	10.38	42.70	14.13	86.05	34.92	11.76	69.87	144.32	49.60	286.52	122.82	42.21	243.84
2015	0.03	0.01	0.04	0.25	0.12	0.40	0.43	0.21	0.71	2.79	1.33	4.57	7.97	3.81	13.07	51.71	17.89	102.38	39.52	14.06	77.34	160.47	57.87	312.24	136.57	49.25	265.73
2016	0.03	0.02	0.05	0.29	0.14	0.47	0.51	0.25	0.82	3.30	1.61	5.30	9.44	4.60	15.16	57.54	20.79	111.85	42.99	15.84	82.87	172.92	64.27	331.99	147.16	54.70	282.54
2017	0.03	0.02	0.05	0.32	0.16	0.51	0.57	0.28	0.89	3.65	1.81	5.74	10.43	5.19	16.42	61.96	23.04	118.94	45.70	17.21	87.22	182.74	69.23	347.80	155.52	58.92	296.00
2018	0.04	0.02	0.06	0.34	0.17	0.53	0.61	0.30	0.94	3.91	1.97	6.07	11.20	5.62	17.37	65.44	24.78	124.56	47.86	18.28	90.75	190.61	73.06	360.80	162.22	62.18	307.06
2019	0.04	0.02	0.06	0.36	0.18	0.56	0.64	0.32	0.98	4.12	2.08	6.34	11.79	5.95	18.14	68.22	26.13	129.17	49.60	19.10	93.69	197.01	76.03	371.70	167.67	64.70	316.34
2020	0.04	0.02	0.06	0.38	0.19	0.58	0.67	0.34	1.02	4.29	2.17	6.56	12.27	6.21	18.77	70.47	27.17	133.01	51.03	19.74	96.18	202.26	78.32	380.97	172.13	66.66	324.23
2021	0.04	0.02	0.06	0.39	0.20	0.59	0.69	0.35	1.05	4.42	2.24	6.75	12.65	6.41	19.30	72.32	27.98	136.28	52.21	20.23	98.31	206.61	80.10	388.95	175.83	68.17	331.02
2022	0.04	0.02	0.07	0.40	0.20	0.61	0.70	0.36	1.07	4.53	2.30	6.90	12.96	6.57	19.74	73.85	28.60	139.09	53.19	20.61	100.15	210.25	81.47	395.89	178.93	69.34	336.92
2023	0.04	0.02	0.07	0.41	0.21	0.62	0.72	0.36	1.09	4.62	2.34	7.03	13.22	6.71	20.12	75.13	29.09	141.53	54.01	20.91	101.77	213.32	82.54	401.96	181.54	70.24	342.09
2024	0.04	0.02	0.07	0.41	0.21	0.63	0.73	0.37	1.11	4.69	2.38	7.15	13.43	6.81	20.45	76.21	29.46	143.67	54.71	21.13	103.18	215.93	83.36	407.32	183.77	70.95	346.65
2025	0.04	0.02	0.07	0.42	0.21	0.64	0.74	0.37	1.12	4.76	2.41	7.25	13.60	6.89	20.74	77.13	29.75	145.55	55.31	21.31	104.44	218.17	84.00	412.08	185.67	71.49	350.70
2026	0.05	0.02	0.07	0.42	0.21	0.65	0.75	0.38	1.14	4.81	2.43	7.34	13.75	6.96	21.00	77.91	29.97	147.22	55.83	21.45	105.56	220.10	84.49	416.32	187.32	71.91	354.31
2027	0.05	0.02	0.07	0.43	0.22	0.65	0.75	0.38	1.15	4.85	2.45	7.42	13.87	7.02	21.22	78.59	30.15	148.71	56.27	21.55	106.56	221.78	84.87	420.12	188.75	72.23	357.54
2028	0.05	0.02	0.07	0.43	0.22	0.66	0.76	0.38	1.16	4.89	2.47	7.49	13.98	7.07	21.41	79.18	30.28	150.05	56.66	21.63	107.45	223.26	85.17	423.53	190.00	72.48	360.45
2029	0.05	0.02	0.07	0.43	0.22	0.66	0.76	0.39	1.17	4.92	2.49	7.55	14.07	7.11	21.59	79.70	30.38	151.25	57.01	21.70	108.26	224.55	85.40	426.62	191.11	72.68	363.08
Total	**0.67**	**0.33**	**1.03**	**6.19**	**3.09**	**9.63**	**10.90**	**5.44**	**16.96**	**70.31**	**35.09**	**109.37**	**201.13**	**100.37**	**312.85**	**1,179.45**	**440.97**	**2,258.42**	**869.03**	**325.12**	**1,663.55**	**3,479.48**	**1,302.16**	**6,659.62**	**2,961.24**	**1,108.21**	**5,667.73**
Avg.	**0.03**	**0.01**	**0.04**	**0.25**	**0.12**	**0.39**	**0.44**	**0.22**	**0.68**	**2.81**	**1.40**	**4.37**	**8.05**	**4.01**	**12.51**	**47.18**	**17.64**	**90.34**	**34.76**	**13.00**	**66.54**	**139.18**	**52.09**	**266.38**	**118.45**	**44.33**	**226.71**

Avg. - All Size Categories		**351.14**	**132.83**	**667.97**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.39k Yearly Cancer Cases Avoided by System Size

Arsenic/Bladder Cancer Model - Ground Water Systems

HAA5 - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.06	0.02	0.11	0.06	0.02	0.12	0.19	0.07	0.36	0.29	0.11	0.57	1.09	0.40	2.11	0.46	0.17	0.88	1.27	0.47	2.45	0.21	0.08	0.41
2011	0.02	0.01	0.04	0.14	0.06	0.26	0.15	0.06	0.28	0.46	0.19	0.84	0.73	0.30	1.32	2.69	1.11	4.90	1.13	0.46	2.05	3.12	1.29	5.69	0.52	0.21	0.95
2012	0.03	0.01	0.06	0.25	0.11	0.43	0.26	0.12	0.46	0.79	0.35	1.39	1.25	0.55	2.19	4.65	2.05	8.14	1.95	0.86	3.41	5.39	2.38	9.44	0.90	0.40	1.57
2013	0.05	0.02	0.08	0.36	0.17	0.62	0.39	0.18	0.66	1.17	0.54	1.99	1.85	0.85	3.15	6.87	3.16	11.69	2.88	1.32	4.90	7.98	3.67	13.57	1.33	0.61	2.26
2014	0.07	0.03	0.11	0.49	0.23	0.82	0.53	0.25	0.88	1.59	0.75	2.64	2.51	1.18	4.18	9.31	4.38	15.50	3.67	1.75	6.05	9.54	4.62	15.54	1.59	0.77	2.59
2015	0.09	0.04	0.14	0.63	0.30	1.04	0.67	0.32	1.10	2.03	0.97	3.33	3.21	1.53	5.26	11.36	5.49	18.46	4.19	2.06	6.70	10.70	5.31	16.96	1.78	0.88	2.82
2016	0.10	0.05	0.16	0.75	0.36	1.20	0.80	0.39	1.28	2.40	1.17	3.86	3.80	1.85	6.11	12.74	6.31	20.20	4.59	2.29	7.19	11.59	5.81	18.07	1.93	0.97	3.01
2017	0.11	0.06	0.18	0.83	0.41	1.30	0.88	0.44	1.38	2.65	1.32	4.18	4.20	2.09	6.61	13.80	6.92	21.51	4.90	2.47	7.58	12.30	6.19	18.96	2.05	1.03	3.16
2018	0.12	0.06	0.19	0.89	0.45	1.38	0.94	0.47	1.46	2.85	1.43	4.42	4.50	2.26	6.99	14.62	7.37	22.55	5.15	2.60	7.90	12.86	6.50	19.69	2.14	1.08	3.28
2019	0.13	0.06	0.19	0.93	0.47	1.44	0.99	0.50	1.53	3.00	1.51	4.62	4.75	2.39	7.30	15.28	7.72	23.41	5.34	2.70	8.16	13.30	6.74	20.30	2.22	1.12	3.38
2020	0.13	0.07	0.20	0.97	0.49	1.49	1.03	0.52	1.58	3.12	1.58	4.78	4.94	2.50	7.56	15.80	8.00	24.12	5.50	2.79	8.38	13.67	6.93	20.81	2.28	1.15	3.46
2021	0.14	0.07	0.21	1.00	0.51	1.53	1.07	0.54	1.63	3.22	1.63	4.91	5.09	2.58	7.77	16.23	8.23	24.72	5.63	2.86	8.57	13.97	7.09	21.24	2.33	1.18	3.54
2022	0.14	0.07	0.21	1.03	0.52	1.56	1.09	0.55	1.66	3.30	1.67	5.03	5.22	2.65	7.95	16.58	8.41	25.23	5.74	2.91	8.73	14.21	7.21	21.62	2.37	1.20	3.60
2023	0.14	0.07	0.22	1.05	0.53	1.59	1.11	0.57	1.70	3.36	1.71	5.12	5.32	2.70	8.10	16.86	8.56	25.67	5.82	2.96	8.87	14.41	7.32	21.95	2.40	1.22	3.66
2024	0.14	0.07	0.22	1.06	0.54	1.62	1.13	0.57	1.72	3.42	1.73	5.21	5.40	2.74	8.24	17.10	8.67	26.06	5.90	2.99	8.99	14.58	7.40	22.25	2.43	1.23	3.70
2025	0.15	0.07	0.22	1.08	0.55	1.64	1.15	0.58	1.75	3.46	1.75	5.28	5.47	2.77	8.35	17.30	8.77	26.40	5.96	3.02	9.10	14.73	7.46	22.51	2.45	1.24	3.75
2026	0.15	0.07	0.23	1.09	0.55	1.66	1.16	0.59	1.77	3.50	1.77	5.34	5.53	2.80	8.45	17.46	8.84	26.69	6.01	3.04	9.20	14.85	7.51	22.73	2.47	1.25	3.78
2027	0.15	0.08	0.23	1.10	0.56	1.68	1.17	0.59	1.79	3.53	1.79	5.40	5.58	2.82	8.54	17.61	8.90	26.95	6.06	3.06	9.28	14.95	7.55	22.92	2.49	1.26	3.82
2028	0.15	0.08	0.23	1.11	0.56	1.70	1.18	0.60	1.81	3.56	1.80	5.45	5.63	2.84	8.62	17.73	8.96	27.18	6.09	3.08	9.35	15.04	7.60	23.09	2.51	1.26	3.85
2029	0.15	0.08	0.23	1.11	0.56	1.71	1.19	0.60	1.82	3.58	1.81	5.49	5.66	2.86	8.69	17.83	9.01	27.39	6.13	3.09	9.42	15.12	7.63	23.25	2.52	1.27	3.87
Total	**2.16**	**1.08**	**3.36**	**15.93**	**7.95**	**24.79**	**16.95**	**8.46**	**26.38**	**51.16**	**25.53**	**79.63**	**80.93**	**40.38**	**125.97**	**262.91**	**131.25**	**408.88**	**93.10**	**46.49**	**144.72**	**233.58**	**116.67**	**363.03**	**38.90**	**19.43**	**60.46**
Avg.	**0.09**	**0.04**	**0.13**	**0.64**	**0.32**	**0.99**	**0.68**	**0.34**	**1.06**	**2.05**	**1.02**	**3.19**	**3.24**	**1.62**	**5.04**	**10.52**	**5.25**	**16.36**	**3.72**	**1.86**	**5.79**	**9.34**	**4.67**	**14.52**	**1.56**	**0.78**	**2.42**

Avg. - All Size Categories	**31.82**	**15.89**	**49.49**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.39l Yearly Cancer Cases Avoided by System Size

Arsenic/Bladder Cancer Model - All Water Systems

HAA5 - Preferred Alternative

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.08	0.03	0.16	0.10	0.04	0.20	0.44	0.16	0.85	1.03	0.38	1.98	6.36	1.67	13.83	5.04	1.27	11.10	21.56	5.34	47.63	17.48	4.23	38.86
2011	0.03	0.01	0.05	0.20	0.08	0.36	0.25	0.10	0.45	1.09	0.45	1.98	2.53	1.04	4.60	15.40	4.62	32.14	12.20	3.52	25.79	52.12	14.81	110.71	42.22	11.72	90.32
2012	0.04	0.02	0.08	0.34	0.15	0.60	0.43	0.19	0.75	1.88	0.83	3.29	4.36	1.93	7.64	26.31	8.56	53.34	20.83	6.53	42.80	88.91	27.47	183.71	71.98	21.74	149.89
2013	0.06	0.03	0.11	0.51	0.23	0.86	0.64	0.29	1.08	2.78	1.28	4.73	6.46	2.97	10.98	38.62	13.25	76.63	30.54	10.12	61.49	130.37	42.57	263.92	105.49	33.72	215.32
2014	0.09	0.04	0.15	0.69	0.32	1.14	0.86	0.41	1.44	3.77	1.77	6.27	8.74	4.11	14.56	52.01	18.51	101.55	38.58	13.51	75.92	153.85	54.21	302.06	124.41	42.98	246.43
2015	0.11	0.05	0.18	0.88	0.42	1.44	1.10	0.53	1.81	4.82	2.30	7.89	11.18	5.34	18.33	63.07	23.37	120.84	43.71	16.12	84.05	171.17	63.18	329.20	138.35	50.14	268.56
2016	0.13	0.06	0.21	1.04	0.51	1.67	1.31	0.64	2.10	5.70	2.78	9.16	13.23	6.44	21.27	70.28	27.10	132.04	47.58	18.13	90.07	184.51	70.09	350.06	149.10	55.67	285.55
2017	0.15	0.07	0.23	1.15	0.57	1.81	1.44	0.72	2.27	6.30	3.13	9.92	14.63	7.27	23.03	75.76	29.96	140.45	50.60	19.68	94.80	195.04	75.42	366.76	157.57	59.95	299.16
2018	0.16	0.08	0.24	1.23	0.62	1.91	1.55	0.78	2.41	6.76	3.40	10.50	15.70	7.89	24.37	80.06	32.15	147.12	53.01	20.87	98.65	203.47	79.56	380.49	164.36	63.26	310.34
2019	0.17	0.08	0.25	1.30	0.65	2.00	1.63	0.82	2.51	7.12	3.59	10.96	16.54	8.35	25.44	83.50	33.85	152.57	54.95	21.80	101.86	210.31	82.77	392.00	169.88	65.83	319.72
2020	0.17	0.09	0.26	1.35	0.68	2.06	1.70	0.86	2.60	7.41	3.75	11.34	17.21	8.70	26.33	86.27	35.17	157.13	56.53	22.52	104.56	215.93	85.26	401.78	174.41	67.81	327.69
2021	0.18	0.09	0.27	1.39	0.70	2.12	1.75	0.89	2.67	7.64	3.87	11.66	17.75	8.99	27.07	88.55	36.21	161.00	57.84	23.09	106.88	220.57	87.19	410.20	178.16	69.35	334.56
2022	0.18	0.09	0.28	1.43	0.72	2.17	1.80	0.91	2.73	7.83	3.97	11.93	18.18	9.22	27.69	90.42	37.02	164.32	58.92	23.52	108.88	224.46	88.69	417.51	181.30	70.54	340.52
2023	0.19	0.09	0.28	1.45	0.74	2.21	1.83	0.93	2.79	7.98	4.05	12.16	18.54	9.41	28.22	91.99	37.64	167.20	59.84	23.86	110.63	227.73	89.85	423.92	183.94	71.46	345.75
2024	0.19	0.10	0.29	1.48	0.75	2.25	1.86	0.94	2.83	8.11	4.11	12.36	18.83	9.55	28.69	93.31	38.13	169.73	60.61	24.13	112.18	230.51	90.76	429.57	186.20	72.18	350.36
2025	0.19	0.10	0.29	1.50	0.76	2.28	1.88	0.95	2.87	8.22	4.16	12.53	19.08	9.67	29.10	94.42	38.51	171.95	61.27	24.33	113.54	232.89	91.46	434.58	188.12	72.73	354.45
2026	0.19	0.10	0.29	1.51	0.77	2.31	1.90	0.96	2.91	8.30	4.20	12.68	19.28	9.76	29.45	95.38	38.81	173.92	61.84	24.49	114.75	234.95	92.00	439.04	189.79	73.16	358.09
2027	0.19	0.10	0.30	1.53	0.77	2.33	1.92	0.97	2.94	8.38	4.24	12.82	19.46	9.84	29.76	96.20	39.05	175.67	62.33	24.61	115.83	236.74	92.42	443.04	191.24	73.49	361.36
2028	0.20	0.10	0.30	1.54	0.78	2.36	1.94	0.98	2.97	8.44	4.27	12.94	19.61	9.91	30.03	96.91	39.24	177.23	62.76	24.71	116.80	238.30	92.76	446.63	192.51	73.75	364.30
2029	0.20	0.10	0.30	1.55	0.78	2.37	1.95	0.98	2.99	8.50	4.29	13.04	19.73	9.97	30.28	97.54	39.39	178.64	63.14	24.79	117.68	239.68	93.03	449.86	193.63	73.95	366.95
Total	**2.82**	**1.41**	**4.39**	**22.12**	**11.04**	**34.42**	**27.85**	**13.90**	**43.34**	**121.47**	**60.62**	**189.00**	**282.06**	**140.75**	**438.82**	**1,442.36**	**572.22**	**2,667.30**	**962.13**	**371.61**	**1,808.27**	**3,713.06**	**1,418.83**	**7,022.66**	**3,000.14**	**1,127.64**	**5,728.18**
Avg.	**0.11**	**0.06**	**0.18**	**0.88**	**0.44**	**1.38**	**1.11**	**0.56**	**1.73**	**4.86**	**2.42**	**7.56**	**11.28**	**5.63**	**17.55**	**57.69**	**22.89**	**106.69**	**38.49**	**14.86**	**72.33**	**148.52**	**56.75**	**280.91**	**120.01**	**45.11**	**229.13**

Avg. - All Size Categories	**382.96**	**148.72**	**717.46**

Note: Detail may not add to totals due to independent rounding.

Section E.7.3
Projection of Cases - Stage 2 Alternative 1
TTHM as Indicator
Smoking/Lung Cancer Model

Exhibit E.40a Cases avoided by Age Group per year following rule promulgation
(Smoking/Lung Cancer model - TTHM - Alternative 1)

Years After the Rule	Age Group											
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0104	0.0089	0.0550	0.2229	0.9617	2.6060	5.0247	7.9487	4.7128	0.8467	22.3978	4%
7	0.0277	0.0235	0.1452	0.5880	2.5371	6.8749	13.2559	20.9697	12.4329	2.2337	59.0886	11%
8	0.0502	0.0424	0.2624	1.0624	4.5838	12.4209	23.9492	37.8857	22.4624	4.0357	106.7550	20%
9	0.0768	0.0649	0.4013	1.6248	7.0102	18.9959	36.6268	57.9405	34.3529	6.1720	163.2659	31%
10	0.0985	0.0832	0.5147	2.0842	8.9925	24.3672	46.9835	74.3240	44.0667	7.9172	209.4316	40%
11	0.1152	0.0986	0.6100	2.4698	10.6565	28.8764	55.6777	88.0775	52.2211	9.3823	248.1851	47%
12	0.1276	0.1113	0.6887	2.7886	12.0318	32.6030	62.8631	99.4442	58.9605	10.5931	280.2118	53%
13	0.1365	0.1219	0.7542	3.0539	13.1766	35.7050	68.8443	108.9060	64.5703	11.6010	306.8697	58%
14	0.1427	0.1309	0.8098	3.2789	14.1472	38.3351	73.9154	116.9282	69.3266	12.4555	329.4702	63%
15	0.1476	0.1386	0.8574	3.4718	14.9795	40.5905	78.2643	123.8076	73.4055	13.1883	348.8511	66%
16	0.1509	0.1457	0.8986	3.6386	15.6995	42.5414	82.0258	129.7581	76.9335	13.8222	365.6144	70%
17	0.1530	0.1524	0.9345	3.7840	16.3265	44.2405	85.3020	134.9407	80.0063	14.3743	380.2142	72%
18	0.1541	0.1587	0.9659	3.9113	16.8758	45.7290	88.1719	139.4807	82.6981	14.8579	393.0034	75%
19	0.1544	0.1647	0.9936	4.0234	17.3594	47.0393	90.6985	143.4775	85.0678	15.2836	404.2622	77%
20	0.1545	0.1700	1.0181	4.1225	17.7869	48.1979	92.9324	147.0115	87.1630	15.6601	414.2169	79%
21	0.1545	0.1756	1.0398	4.2104	18.1665	49.2264	94.9154	150.1482	89.0229	15.9942	423.0538	81%
22	0.1545	0.1815	1.0592	4.2888	18.5045	50.1424	96.6816	152.9423	90.6795	16.2918	430.9261	82%
23	0.1545	0.1876	1.0764	4.3588	18.8066	50.9610	98.2599	155.4391	92.1598	16.5578	437.9615	83%
24	0.1545	0.1938	1.0919	4.4215	19.0773	51.6946	99.6745	157.6767	93.4865	16.7962	444.2677	85%
25	0.1545	0.1995	1.1059	4.4779	19.3207	52.3539	100.9457	159.6878	94.6789	17.0104	449.9352	86%
26	0.1545	0.2037	1.1208	4.5287	19.5399	52.9480	102.0912	161.4997	95.7532	17.2034	455.0430	87%
27	0.1545	0.2065	1.1364	4.5746	19.7379	53.4845	103.1257	163.1363	96.7235	17.3777	459.6576	88%
28	0.1545	0.2080	1.1526	4.6162	19.9171	53.9703	104.0623	164.6178	97.6019	17.5356	463.8362	88%
29	0.1545	0.2084	1.1692	4.6539	20.0798	54.4109	104.9120	165.9620	98.3989	17.6787	467.6284	89%
30	0.1545	0.2085	1.1844	4.6881	20.2276	54.8116	105.6846	167.1842	99.1235	17.8089	471.0761	90%
31	0.1545	0.2085	1.2001	4.7194	20.3624	55.1767	106.3885	168.2976	99.7836	17.9275	474.2188	90%
32	0.1545	0.2085	1.2158	4.7479	20.4853	55.5099	107.0309	169.3140	100.3863	18.0358	477.0890	91%
33	0.1545	0.2085	1.2319	4.7739	20.5978	55.8146	107.6185	170.2436	100.9374	18.1348	479.7156	91%
34	0.1545	0.2085	1.2484	4.7978	20.7008	56.0938	108.1569	171.0953	101.4423	18.2255	482.1239	92%
35	0.1545	0.2085	1.2641	4.8197	20.7954	56.3501	108.6510	171.8770	101.9057	18.3088	484.3349	92%
36	0.1545	0.2085	1.2759	4.8445	20.8824	56.5858	109.1054	172.5957	102.3319	18.3854	486.3698	93%
37	0.1545	0.2085	1.2839	4.8715	20.9625	56.8028	109.5238	173.2576	102.7243	18.4559	488.2453	93%
38	0.1545	0.2085	1.2885	4.9006	21.0363	57.0030	109.9098	173.8682	103.0864	18.5209	489.9768	93%
39	0.1545	0.2085	1.2896	4.9316	21.1046	57.1880	110.2665	174.4325	103.4209	18.5810	491.5779	94%
40	0.1545	0.2085	1.2901	4.9610	21.1678	57.3592	110.5966	174.9547	103.7306	18.6366	493.0596	94%
41	0.1545	0.2085	1.2902	4.9944	21.2264	57.5179	110.9026	175.4387	104.0175	18.6882	494.4390	94%
42	0.1545	0.2085	1.2902	5.0314	21.2807	57.6652	111.1866	175.8880	104.2840	18.7361	495.7252	94%
43	0.1545	0.2085	1.2902	5.0714	21.3313	57.8021	111.4507	176.3058	104.5316	18.7806	496.9267	95%
44	0.1545	0.2085	1.2902	5.1144	21.3783	57.9296	111.6966	176.6947	104.7622	18.8220	498.0511	95%
45	0.1545	0.2085	1.2902	5.1556	21.4222	58.0485	111.9258	177.0573	104.9772	18.8606	499.1005	95%
46	0.1545	0.2085	1.2902	5.1867	21.4805	58.1595	112.1398	177.3959	105.1779	18.8967	500.0902	95%
47	0.1545	0.2085	1.2902	5.2079	21.5513	58.2633	112.3399	177.7124	105.3656	18.9304	501.0240	95%
48	0.1545	0.2085	1.2902	5.2197	21.6342	58.3605	112.5272	178.0087	105.5413	18.9620	501.9068	96%
49	0.1545	0.2085	1.2902	5.2228	21.7281	58.4515	112.7028	178.2865	105.7060	18.9916	502.7425	96%
50	0.1545	0.2085	1.2902	5.2240	21.8182	58.5370	112.8676	178.5472	105.8606	19.0193	503.5272	96%
51	0.1545	0.2085	1.2902	5.2242	21.9181	58.6173	113.0225	178.7923	106.0059	19.0454	504.2790	96%
52	0.1545	0.2085	1.2902	5.2242	22.0242	58.6929	113.1683	179.0229	106.1426	19.0700	504.9983	96%
53	0.1545	0.2085	1.2902	5.2242	22.1357	58.7641	113.3056	179.2401	106.2713	19.0932	505.6875	96%
54	0.1545	0.2085	1.2902	5.2242	22.2521	58.8313	113.4351	179.4449	106.3928	19.1150	506.3487	96%
55	0.1545	0.2085	1.2902	5.2242	22.3615	58.8948	113.5574	179.6384	106.5075	19.1356	506.9726	97%
56	0.1545	0.2085	1.2902	5.2242	22.4433	58.9961	113.6730	179.8213	106.6160	19.1551	507.5822	97%
57	0.1545	0.2085	1.2902	5.2242	22.4986	59.1313	113.7824	179.9944	106.7187	19.1735	508.1764	97%
58	0.1545	0.2085	1.2902	5.2242	22.5291	59.2999	113.8861	180.1585	106.8159	19.1910	508.7580	97%
59	0.1545	0.2085	1.2902	5.2242	22.5371	59.4995	113.9844	180.3140	106.9081	19.2075	509.3282	97%
60	0.1545	0.2085	1.2902	5.2242	22.5401	59.6882	114.0778	180.4617	106.9957	19.2233	509.8642	97%
61	0.1545	0.2085	1.2902	5.2242	22.5407	59.8884	114.1665	180.6020	107.0789	19.2382	510.3923	97%
62	0.1545	0.2085	1.2902	5.2242	22.5407	60.0958	114.2510	180.7356	107.1581	19.2524	510.9110	97%
63	0.1545	0.2085	1.2902	5.2242	22.5407	60.3102	114.3314	180.8627	107.2334	19.2660	511.4218	97%
64	0.1545	0.2085	1.2902	5.2242	22.5407	60.5325	114.4080	180.9839	107.3053	19.2789	511.9267	98%
65	0.1545	0.2085	1.2902	5.2242	22.5407	60.7414	114.4810	181.0994	107.3739	19.2912	512.4051	98%
66	0.1545	0.2085	1.2902	5.2242	22.5407	60.8975	114.6153	181.2099	107.4393	19.3030	512.8831	98%
67	0.1545	0.2085	1.2902	5.2242	22.5407	61.0010	114.8057	181.3153	107.5019	19.3142	513.3563	98%
68	0.1545	0.2085	1.2902	5.2242	22.5407	61.0578	115.0488	181.4163	107.5617	19.3250	513.8277	98%
69	0.1545	0.2085	1.2902	5.2242	22.5407	61.0726	115.3396	181.5128	107.6189	19.3353	514.2973	98%
70	0.1545	0.2085	1.2902	5.2242	22.5407	61.0782	115.6252	181.6054	107.6738	19.3451	514.7458	98%
71	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	115.9299	181.6942	107.7264	19.3546	515.2024	98%
72	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	116.2429	181.7793	107.7768	19.3636	515.6600	98%
73	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	116.5665	181.8610	107.8253	19.3723	516.1226	98%
74	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	116.9002	181.9396	107.8719	19.3807	516.5897	98%
75	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.2224	182.0151	107.9167	19.3887	517.0403	99%
76	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.4682	182.1855	107.9598	19.3965	517.5073	99%
77	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.6374	182.4436	108.0013	19.4039	517.9836	99%
78	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7333	182.7866	108.0412	19.4111	518.4696	99%
79	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7581	183.2087	108.0798	19.4180	518.9620	99%
80	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7677	183.6283	108.1169	19.4247	519.4350	99%
81	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	184.0567	108.1528	19.4312	519.9077	99%
82	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	184.4810	108.1875	19.4374	520.3728	99%
83	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	184.8960	108.2210	19.4434	520.8273	99%
84	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	185.3030	108.2533	19.4492	521.2725	99%
85	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	185.6824	108.2847	19.4549	521.6889	99%
86	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	185.9647	108.3919	19.4603	522.0839	99%
87	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.1563	108.5644	19.4656	522.4533	100%
88	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.2616	108.7951	19.4707	522.7943	100%
89	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.2891	109.0763	19.4757	523.1080	100%
90	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.2995	109.3413	19.4805	523.3882	100%
91	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.3015	109.5825	19.4851	523.6361	100%
92	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.3015	109.7942	19.4896	523.8523	100%
93	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.3015	109.9770	19.4940	524.0396	100%
94	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.3015	110.1321	19.4983	524.1989	100%
95	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.3015	110.2634	19.5025	524.3343	100%
96	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.3015	110.3558	19.5238	524.4480	100%
97	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.3015	110.4148	19.5587	524.5420	100%
98	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.3015	110.4463	19.6043	524.6191	100%
99	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.3015	110.4545	19.6581	524.6810	100%
100	0.1545	0.2085	1.2902	5.2242	22.5407	61.0793	117.7696	186.3015	110.4575	19.7041	524.7302	100%

Exhibit E.40b Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Surface Water Systems

TTHM - Alternative 1

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.00	0.01	0.01	0.04	0.03	0.01	0.06	0.17	0.06	0.41	0.49	0.18	1.18	2.29	0.85	5.53	1.99	0.74	4.82	8.82	3.27	21.32	7.51	2.78	18.15
2011	0.00	0.00	0.01	0.04	0.02	0.09	0.07	0.03	0.15	0.45	0.18	0.97	1.28	0.52	2.78	6.04	2.43	13.09	5.26	2.12	11.40	23.27	9.36	50.44	19.80	7.97	42.93
2012	0.01	0.00	0.02	0.07	0.03	0.14	0.13	0.05	0.25	0.81	0.35	1.63	2.32	0.99	4.66	10.91	4.65	21.93	9.50	4.05	19.11	42.04	17.92	84.52	35.78	15.25	71.93
2013	0.01	0.01	0.02	0.11	0.05	0.21	0.19	0.09	0.37	1.24	0.55	2.37	3.55	1.57	6.78	16.68	7.39	31.92	14.54	6.44	27.82	64.30	28.49	123.06	54.72	24.25	104.73
2014	0.02	0.01	0.03	0.15	0.07	0.28	0.27	0.12	0.49	1.72	0.79	3.17	4.93	2.25	9.06	23.20	10.58	42.61	19.22	8.85	34.72	80.62	37.52	142.95	68.61	31.93	121.66
2015	0.02	0.01	0.04	0.20	0.09	0.35	0.35	0.16	0.62	2.25	1.05	4.01	6.45	3.01	11.47	29.21	13.74	51.20	22.82	10.92	38.91	93.73	45.25	157.59	79.77	38.51	134.12
2016	0.03	0.01	0.04	0.24	0.12	0.41	0.43	0.20	0.73	2.74	1.31	4.70	7.84	3.75	13.46	33.87	16.42	56.77	25.76	12.65	42.33	104.58	51.68	170.23	89.00	43.98	144.87
2017	0.03	0.01	0.05	0.27	0.13	0.45	0.48	0.24	0.80	3.12	1.53	5.16	8.93	4.38	14.77	37.71	18.70	61.32	28.22	14.13	45.23	113.72	57.22	180.81	96.78	48.70	153.88
2018	0.03	0.02	0.05	0.30	0.15	0.49	0.53	0.27	0.86	3.44	1.72	5.54	9.83	4.91	15.84	40.93	20.61	65.13	30.31	15.37	47.74	121.52	61.86	190.60	103.42	52.65	162.21
2019	0.04	0.02	0.06	0.33	0.16	0.52	0.57	0.29	0.91	3.70	1.87	5.86	10.59	5.36	16.75	43.67	22.24	68.49	32.10	16.43	50.07	128.23	65.76	199.64	109.13	55.96	169.90
2020	0.04	0.02	0.06	0.35	0.18	0.54	0.61	0.31	0.95	3.93	2.01	6.14	11.24	5.74	17.55	46.03	23.64	71.56	33.65	17.34	52.13	134.05	69.23	207.26	114.09	58.92	176.39
2021	0.04	0.02	0.06	0.36	0.19	0.56	0.64	0.33	0.99	4.12	2.12	6.40	11.80	6.08	18.29	48.08	24.85	74.34	35.00	18.14	53.95	139.14	72.20	214.11	118.42	61.44	182.22
2022	0.04	0.02	0.06	0.38	0.20	0.58	0.67	0.34	1.03	4.29	2.22	6.63	12.28	6.36	18.97	49.87	25.90	76.83	36.18	18.84	55.63	143.60	74.86	220.62	122.21	63.71	187.76
2023	0.04	0.02	0.06	0.39	0.20	0.60	0.69	0.36	1.06	4.44	2.31	6.84	12.71	6.61	19.57	51.44	26.79	79.10	37.22	19.43	57.19	147.54	77.09	226.61	125.56	65.61	192.86
2024	0.04	0.02	0.07	0.40	0.21	0.62	0.71	0.37	1.09	4.57	2.38	7.03	13.08	6.81	20.10	52.82	27.57	81.10	38.15	19.93	58.56	151.02	78.96	231.88	128.53	67.20	197.34
2025	0.04	0.02	0.07	0.41	0.22	0.63	0.73	0.38	1.11	4.69	2.45	7.19	13.41	7.00	20.56	54.04	28.22	82.85	38.96	20.35	59.72	154.12	80.49	236.23	131.17	68.50	201.04
2026	0.05	0.02	0.07	0.42	0.22	0.65	0.74	0.39	1.14	4.79	2.50	7.33	13.70	7.15	20.97	55.13	28.79	84.35	39.69	20.72	60.67	156.88	81.84	239.66	133.52	69.65	203.96
2027	0.05	0.02	0.07	0.43	0.22	0.66	0.76	0.40	1.16	4.88	2.55	7.46	13.96	7.29	21.33	56.10	29.27	85.65	40.34	21.03	61.49	159.36	83.08	242.64	135.62	70.70	206.50
2028	0.05	0.02	0.07	0.44	0.23	0.67	0.77	0.40	1.17	4.96	2.59	7.57	14.19	7.40	21.65	56.97	29.70	86.80	40.92	21.33	62.26	161.57	84.18	245.60	137.51	71.64	209.02
2029	0.05	0.02	0.07	0.44	0.23	0.67	0.78	0.41	1.19	5.03	2.62	7.67	14.40	7.51	21.93	57.75	30.11	87.83	41.45	21.61	62.98	163.57	85.28	248.46	139.21	72.58	211.45
Total	**0.62**	**0.31**	**0.98**	**5.75**	**2.92**	**9.16**	**10.14**	**5.14**	**16.14**	**65.36**	**33.16**	**104.07**	**186.96**	**94.85**	**297.69**	**772.73**	**392.44**	**1,228.39**	**571.30**	**290.41**	**906.75**	**2,291.69**	**1,165.54**	**3,634.21**	**1,950.36**	**991.94**	**3,092.92**
Avg.	**0.02**	**0.01**	**0.04**	**0.23**	**0.12**	**0.37**	**0.41**	**0.21**	**0.65**	**2.61**	**1.33**	**4.16**	**7.48**	**3.79**	**11.91**	**30.91**	**15.70**	**49.14**	**22.85**	**11.62**	**36.27**	**91.67**	**46.62**	**145.37**	**78.01**	**39.68**	**123.72**

Avg. - All Size Categories	**234.20**	**119.07**	**371.61**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.40c Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Ground Water Systems

TTHM - Alternative 1

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.05	0.02	0.11	0.05	0.02	0.12	0.15	0.06	0.37	0.24	0.09	0.58	0.21	0.08	0.52	0.09	0.03	0.22	0.25	0.09	0.60	0.04	0.02	0.10
2011	0.02	0.01	0.04	0.12	0.05	0.27	0.13	0.05	0.29	0.40	0.16	0.87	0.63	0.25	1.37	0.57	0.23	1.23	0.24	0.10	0.51	0.66	0.26	1.42	0.11	0.04	0.24
2012	0.03	0.01	0.06	0.22	0.10	0.45	0.24	0.10	0.48	0.72	0.31	1.45	1.14	0.49	2.29	1.02	0.44	2.06	0.43	0.18	0.86	1.19	0.51	2.39	0.20	0.08	0.40
2013	0.05	0.02	0.09	0.34	0.15	0.66	0.37	0.16	0.70	1.10	0.49	2.11	1.74	0.77	3.34	1.56	0.69	2.99	0.65	0.29	1.25	1.81	0.80	3.47	0.30	0.13	0.58
2014	0.06	0.03	0.12	0.48	0.22	0.88	0.51	0.23	0.93	1.53	0.70	2.82	2.43	1.11	4.46	2.17	0.99	3.99	0.87	0.40	1.56	2.28	1.06	4.03	0.38	0.18	0.67
2015	0.08	0.04	0.15	0.62	0.29	1.11	0.66	0.31	1.18	2.01	0.94	3.57	3.17	1.48	5.64	2.74	1.29	4.80	1.03	0.49	1.75	2.65	1.28	4.45	0.44	0.21	0.74
2016	0.10	0.05	0.18	0.76	0.36	1.30	0.81	0.39	1.39	2.44	1.17	4.19	3.86	1.84	6.62	3.18	1.54	5.32	1.16	0.57	1.91	2.95	1.46	4.80	0.49	0.24	0.80
2017	0.12	0.06	0.19	0.86	0.42	1.43	0.92	0.45	1.52	2.78	1.36	4.60	4.39	2.15	7.27	3.53	1.75	5.75	1.27	0.64	2.04	3.21	1.62	5.10	0.53	0.27	0.85
2018	0.13	0.06	0.21	0.95	0.48	1.53	1.01	0.51	1.63	3.06	1.53	4.93	4.84	2.41	7.80	3.84	1.93	6.11	1.37	0.69	2.15	3.43	1.75	5.38	0.57	0.29	0.90
2019	0.14	0.07	0.22	1.03	0.52	1.62	1.09	0.55	1.73	3.29	1.67	5.21	5.21	2.64	8.24	4.09	2.08	6.42	1.45	0.74	2.26	3.62	1.86	5.63	0.60	0.31	0.94
2020	0.15	0.08	0.23	1.09	0.56	1.70	1.16	0.59	1.81	3.50	1.79	5.46	5.53	2.83	8.64	4.32	2.22	6.71	1.52	0.78	2.35	3.78	1.95	5.85	0.63	0.33	0.97
2021	0.15	0.08	0.24	1.14	0.59	1.77	1.22	0.63	1.89	3.67	1.89	5.69	5.80	2.99	9.00	4.51	2.33	6.97	1.58	0.82	2.43	3.93	2.04	6.04	0.65	0.34	1.01
2022	0.16	0.08	0.25	1.19	0.62	1.84	1.27	0.66	1.95	3.82	1.98	5.90	6.04	3.13	9.33	4.67	2.43	7.20	1.63	0.85	2.51	4.05	2.11	6.23	0.67	0.35	1.04
2023	0.17	0.09	0.26	1.23	0.64	1.90	1.31	0.68	2.02	3.95	2.05	6.09	6.25	3.25	9.63	4.82	2.51	7.41	1.68	0.88	2.58	4.16	2.18	6.40	0.69	0.36	1.07
2024	0.17	0.09	0.26	1.27	0.66	1.95	1.35	0.70	2.07	4.07	2.12	6.25	6.43	3.35	9.89	4.95	2.58	7.60	1.72	0.90	2.64	4.26	2.23	6.54	0.71	0.37	1.09
2025	0.18	0.09	0.27	1.30	0.68	1.99	1.38	0.72	2.12	4.17	2.18	6.40	6.60	3.44	10.12	5.07	2.65	7.77	1.76	0.92	2.69	4.35	2.27	6.67	0.72	0.38	1.11
2026	0.18	0.09	0.27	1.33	0.69	2.03	1.41	0.74	2.16	4.26	2.23	6.52	6.74	3.52	10.32	5.17	2.70	7.91	1.79	0.93	2.73	4.43	2.31	6.76	0.74	0.38	1.13
2027	0.18	0.10	0.28	1.35	0.71	2.07	1.44	0.75	2.20	4.34	2.27	6.64	6.87	3.59	10.50	5.26	2.74	8.03	1.82	0.95	2.77	4.50	2.34	6.85	0.75	0.39	1.14
2028	0.19	0.10	0.28	1.37	0.72	2.10	1.46	0.76	2.23	4.41	2.30	6.74	6.98	3.64	10.65	5.34	2.78	8.14	1.84	0.96	2.80	4.56	2.38	6.93	0.76	0.40	1.15
2029	0.19	0.10	0.29	1.39	0.73	2.12	1.48	0.77	2.26	4.48	2.34	6.82	7.09	3.69	10.79	5.41	2.82	8.23	1.87	0.97	2.84	4.62	2.41	7.01	0.77	0.40	1.17
Total	**2.45**	**1.24**	**3.90**	**18.11**	**9.19**	**28.83**	**19.26**	**9.77**	**30.67**	**58.15**	**29.50**	**92.60**	**91.99**	**46.67**	**146.47**	**72.44**	**36.79**	**115.15**	**25.73**	**13.08**	**40.84**	**64.68**	**32.90**	**102.58**	**10.77**	**5.48**	**17.08**
Avg.	**0.10**	**0.05**	**0.16**	**0.72**	**0.37**	**1.15**	**0.77**	**0.39**	**1.23**	**2.33**	**1.18**	**3.70**	**3.68**	**1.87**	**5.86**	**2.90**	**1.47**	**4.61**	**1.03**	**0.52**	**1.63**	**2.59**	**1.32**	**4.10**	**0.43**	**0.22**	**0.68**

Avg. - All Size Categories	**14.54**	**7.38**	**23.12**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.40d Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - All Water Systems

TTHM - Alternative 1

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.06	0.02	0.15	0.08	0.03	0.18	0.32	0.12	0.78	0.73	0.27	1.75	2.50	0.93	6.05	2.08	0.77	5.04	9.07	3.36	21.92	7.55	2.79	18.25
2011	0.02	0.01	0.05	0.16	0.07	0.35	0.20	0.08	0.44	0.85	0.34	1.84	1.91	0.77	4.15	6.60	2.66	14.31	5.50	2.21	11.92	23.93	9.63	51.87	19.91	8.01	43.17
2012	0.04	0.02	0.08	0.30	0.13	0.59	0.36	0.16	0.73	1.53	0.65	3.08	3.46	1.47	6.95	11.93	5.08	23.98	9.93	4.23	19.97	43.23	18.42	86.91	35.98	15.33	72.33
2013	0.06	0.03	0.11	0.45	0.20	0.87	0.56	0.25	1.07	2.34	1.04	4.48	5.29	2.34	10.12	18.24	8.08	34.91	15.19	6.73	29.07	66.12	29.30	126.53	55.03	24.38	105.31
2014	0.08	0.04	0.15	0.63	0.29	1.16	0.78	0.35	1.42	3.26	1.49	5.98	7.36	3.36	13.51	25.38	11.57	46.61	20.09	9.25	36.29	82.89	38.58	146.98	68.99	32.11	122.33
2015	0.11	0.05	0.19	0.82	0.38	1.46	1.01	0.47	1.80	4.26	1.99	7.58	9.62	4.49	17.11	31.94	15.03	56.00	23.85	11.41	40.67	96.37	46.53	162.04	80.21	38.72	134.86
2016	0.13	0.06	0.22	1.00	0.48	1.72	1.23	0.59	2.12	5.18	2.48	8.89	11.70	5.59	20.08	37.05	17.95	62.10	26.92	13.22	44.24	107.53	53.14	175.03	89.49	44.22	145.67
2017	0.15	0.07	0.24	1.14	0.56	1.89	1.40	0.69	2.32	5.90	2.89	9.76	13.32	6.53	22.04	41.24	20.45	67.07	29.49	14.77	47.26	116.93	58.84	185.91	97.32	48.97	154.73
2018	0.16	0.08	0.26	1.25	0.63	2.02	1.55	0.77	2.49	6.49	3.24	10.47	14.67	7.32	23.64	44.77	22.54	71.24	31.67	16.07	49.89	124.95	63.61	195.97	103.99	52.94	163.10
2019	0.17	0.09	0.28	1.35	0.68	2.14	1.67	0.84	2.63	7.00	3.54	11.07	15.80	7.99	25.00	47.77	24.32	74.91	33.55	17.17	52.33	131.85	67.61	205.27	109.73	56.27	170.84
2020	0.18	0.09	0.29	1.43	0.73	2.24	1.77	0.90	2.76	7.42	3.79	11.60	16.77	8.57	26.19	50.35	25.85	78.27	35.17	18.12	54.48	137.84	71.19	213.11	114.72	59.25	177.37
2021	0.19	0.10	0.30	1.51	0.78	2.33	1.85	0.96	2.88	7.79	4.01	12.09	17.60	9.07	27.30	52.59	27.18	81.31	36.58	18.96	56.38	143.07	74.23	220.16	119.07	61.78	183.23
2022	0.20	0.10	0.31	1.57	0.81	2.42	1.93	1.00	2.98	8.11	4.20	12.53	18.32	9.49	28.31	54.54	28.33	84.03	37.81	19.68	58.14	147.66	76.97	226.84	122.89	64.06	188.79
2023	0.21	0.11	0.32	1.62	0.84	2.50	2.00	1.04	3.08	8.39	4.36	12.93	18.96	9.86	29.20	56.26	29.30	86.51	38.90	20.30	59.77	151.70	79.26	233.00	126.26	65.97	193.92
2024	0.21	0.11	0.33	1.67	0.87	2.56	2.06	1.07	3.16	8.64	4.50	13.28	19.51	10.17	29.99	57.77	30.15	88.70	39.86	20.83	61.20	155.29	81.19	238.42	129.24	67.57	198.43
2025	0.22	0.11	0.34	1.71	0.89	2.62	2.11	1.10	3.23	8.86	4.62	13.58	20.00	10.44	30.68	59.11	30.87	90.61	40.72	21.27	62.41	158.47	82.76	242.89	131.89	68.88	202.15
2026	0.22	0.12	0.34	1.75	0.91	2.68	2.15	1.12	3.30	9.05	4.73	13.85	20.44	10.67	31.28	60.30	31.49	92.25	41.48	21.65	63.41	161.31	84.15	246.42	134.26	70.04	205.09
2027	0.23	0.12	0.35	1.78	0.93	2.72	2.20	1.15	3.35	9.22	4.81	14.09	20.83	10.87	31.83	61.36	32.01	93.68	42.16	21.98	64.26	163.85	85.42	249.49	136.37	71.09	207.64
2028	0.23	0.12	0.36	1.81	0.94	2.76	2.23	1.16	3.41	9.38	4.89	14.31	21.18	11.04	32.31	62.31	32.48	94.94	42.77	22.29	65.06	166.13	86.56	252.54	138.27	72.04	210.18
2029	0.24	0.12	0.36	1.84	0.96	2.80	2.26	1.18	3.45	9.51	4.96	14.49	21.49	11.20	32.72	63.16	32.93	96.06	43.32	22.58	65.82	168.19	87.68	255.47	139.98	72.98	212.62
Total	**3.07**	**1.56**	**4.89**	**23.86**	**12.10**	**37.99**	**29.40**	**14.92**	**46.81**	**123.51**	**62.66**	**196.66**	**278.95**	**141.53**	**444.16**	**845.16**	**429.23**	**1,343.54**	**597.03**	**303.50**	**947.60**	**2,356.37**	**1,198.43**	**3,736.78**	**1,961.13**	**997.42**	**3,110.00**
Avg.	**0.12**	**0.06**	**0.20**	**0.95**	**0.48**	**1.52**	**1.18**	**0.60**	**1.87**	**4.94**	**2.51**	**7.87**	**11.16**	**5.66**	**17.77**	**33.81**	**17.17**	**53.74**	**23.88**	**12.14**	**37.90**	**94.25**	**47.94**	**149.47**	**78.45**	**39.90**	**124.40**

Avg. - All Size Categories		**248.74**	**126.45**	**394.74**

Note: Detail may not add to totals due to independent rounding.

Section E.7.4
Projection of Cases - Stage 2
Alternative 2
TTHM as Indicator
Smoking/Lung Cancer Model

Exhibit E.41a Cases avoided by Age Group per year following rule promulgation
(Smoking/Lung Cancer model - TTHM - Alternative 2)

Years After the Rule	Age Group 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0389	0.0333	0.2062	0.8348	3.6018	9.7600	18.8186	29.7695	17.6503	3.1711	83.8845	4%
7	0.1037	0.0879	0.5438	2.2018	9.5000	25.7426	49.6354	78.5191	46.5539	8.3641	221.2522	11%
8	0.1879	0.1588	0.9823	3.9775	17.1613	46.5027	89.6638	141.8406	84.0973	15.1093	399.6814	20%
9	0.2874	0.2428	1.5021	6.0824	26.2432	71.1123	137.1145	216.9037	128.6022	23.1052	611.1958	31%
10	0.3684	0.3113	1.9260	7.7989	33.6493	91.1809	175.8096	278.1161	164.8950	29.6257	783.6812	40%
11	0.4306	0.3685	2.2800	9.2321	39.8334	107.9382	208.1201	329.2288	195.1996	35.0704	927.7018	47%
12	0.4764	0.4156	2.5714	10.4121	44.9245	121.7337	234.7198	371.3072	220.1479	39.5527	1046.2613	54%
13	0.5093	0.4549	2.8143	11.3958	49.1687	133.2343	256.8945	406.3858	240.9460	43.2893	1145.0929	59%
14	0.5321	0.4882	3.0204	12.2302	52.7691	142.9905	275.7057	436.1437	258.5895	46.4593	1228.9287	63%
15	0.5501	0.5168	3.1972	12.9461	55.8577	151.3598	291.8432	461.6717	273.7250	49.1786	1300.8461	67%
16	0.5624	0.5433	3.3501	13.5654	58.5299	158.6007	305.8047	483.7577	286.8196	51.5312	1363.0652	70%
17	0.5701	0.5682	3.4834	14.1049	60.8577	164.9084	317.9669	502.9971	298.2267	53.5806	1417.2640	73%
18	0.5742	0.5917	3.6001	14.5776	62.8971	170.4348	328.6224	519.8534	308.2208	55.3762	1464.7483	75%
19	0.5752	0.6139	3.7029	14.9938	64.6928	175.3005	338.0043	534.6946	317.0203	56.9572	1506.5554	77%
20	0.5756	0.6335	3.7938	15.3618	66.2807	179.6033	346.3006	547.8187	324.8015	58.3551	1543.5244	79%
21	0.5756	0.6544	3.8744	15.6885	67.6902	183.4229	353.6652	559.4690	331.7090	59.5962	1576.3454	81%
22	0.5756	0.6762	3.9463	15.9795	68.9459	186.8253	360.2258	569.8472	337.8623	60.7017	1605.5859	82%
23	0.5756	0.6989	4.0105	16.2396	70.0680	189.8660	366.0886	579.1218	343.3611	61.6897	1631.7199	83%
24	0.5756	0.7223	4.0681	16.4727	71.0738	192.5915	371.3435	587.4346	348.2897	62.5752	1655.1470	85%
25	0.5756	0.7435	4.1198	16.6822	71.9777	195.0409	376.0663	594.9058	352.7195	63.3710	1676.2024	86%
26	0.5756	0.7590	4.1752	16.8710	72.7923	197.2480	380.3220	601.6379	356.7109	64.0882	1695.1800	87%
27	0.5756	0.7692	4.2334	17.0415	73.5280	199.2416	384.1660	607.7185	360.3163	64.7359	1712.3259	88%
28	0.5756	0.7748	4.2937	17.1959	74.1941	201.0465	387.6461	613.2239	363.5803	65.3223	1727.8530	88%
29	0.5756	0.7761	4.3558	17.3359	74.7984	202.6841	390.8036	618.2191	366.5419	65.8544	1741.9450	89%
30	0.5756	0.7766	4.4124	17.4633	75.3479	204.1731	393.6746	622.7607	369.2348	66.3382	1754.7573	90%
31	0.5756	0.7767	4.4706	17.5793	75.8486	205.5298	396.2904	626.8986	371.6882	66.7790	1766.4368	90%
32	0.5756	0.7767	4.5294	17.6852	76.3056	206.7683	398.6782	630.6760	373.9278	67.1814	1777.1041	91%
33	0.5756	0.7767	4.5892	17.7821	76.7236	207.9009	400.8622	634.1309	375.9762	67.5494	1786.8669	91%
34	0.5756	0.7767	4.6507	17.8709	77.1066	208.9388	402.8633	637.2964	377.8530	67.8866	1795.8186	92%
35	0.5756	0.7767	4.7091	17.9524	77.4582	209.8914	404.7001	640.2022	379.5758	68.1961	1804.0375	92%
36	0.5756	0.7767	4.7529	18.0444	77.7814	210.7673	406.3891	642.8740	381.1598	68.4807	1811.6020	93%
37	0.5756	0.7767	4.7828	18.1451	78.0792	211.5741	407.9447	645.3348	382.6188	68.7428	1818.5747	93%
38	0.5756	0.7767	4.7996	18.2537	78.3538	212.3184	409.3798	647.6051	383.9648	68.9847	1825.0121	93%
39	0.5756	0.7767	4.8037	18.3695	78.6076	213.0061	410.7060	649.7029	385.2086	69.2081	1830.9649	94%
40	0.5756	0.7767	4.8052	18.4790	78.8426	213.6427	411.9333	651.6446	386.3599	69.4149	1836.4745	94%
41	0.5756	0.7767	4.8054	18.6037	79.0603	214.2327	413.0710	653.4442	387.4269	69.6067	1841.6031	94%
42	0.5756	0.7767	4.8054	18.7413	79.2625	214.7805	414.1273	655.1149	388.4174	69.7846	1846.3863	94%
43	0.5756	0.7767	4.8054	18.8908	79.4504	215.2898	415.1092	656.6685	389.3385	69.9501	1850.8551	95%
44	0.5756	0.7767	4.8054	19.0512	79.6254	215.7640	416.0235	658.1149	390.1960	70.1042	1855.0370	95%
45	0.5756	0.7767	4.8054	19.2051	79.7886	216.2061	416.8760	659.4633	390.9956	70.2478	1858.9403	95%
46	0.5756	0.7767	4.8054	19.3207	80.0057	216.6190	417.6720	660.7225	391.7420	70.3820	1862.6216	95%
47	0.5756	0.7767	4.8054	19.3993	80.2701	217.0049	418.4162	661.8999	392.4401	70.5074	1866.0955	95%
48	0.5756	0.7767	4.8054	19.4429	80.5798	217.3663	419.1129	663.0021	393.0936	70.6248	1869.3800	96%
49	0.5756	0.7767	4.8054	19.4537	80.9304	217.7050	419.7661	664.0352	393.7062	70.7348	1872.4891	96%
50	0.5756	0.7767	4.8054	19.4575	81.2672	218.0230	420.3791	665.0052	394.2813	70.8382	1875.4091	96%
51	0.5756	0.7767	4.8054	19.4582	81.6398	218.3219	420.9554	665.9167	394.8217	70.9353	1878.2066	96%
52	0.5756	0.7767	4.8054	19.4582	82.0352	218.6031	421.4976	666.7745	395.3302	71.0266	1880.8831	96%
53	0.5756	0.7767	4.8054	19.4582	82.4513	218.8680	422.0084	667.5826	395.8093	71.1128	1883.4482	96%
54	0.5756	0.7767	4.8054	19.4582	82.8858	219.1179	422.4903	668.3448	396.2613	71.1939	1885.9099	96%
55	0.5756	0.7767	4.8054	19.4582	83.2937	219.3539	422.9453	669.0645	396.6882	71.2706	1888.2321	97%
56	0.5756	0.7767	4.8054	19.4582	83.5984	219.7319	423.3756	669.7453	397.0917	71.3431	1890.5018	97%
57	0.5756	0.7767	4.8054	19.4582	83.8032	220.2373	423.7827	670.3893	397.4735	71.4117	1892.7137	97%
58	0.5756	0.7767	4.8054	19.4582	83.9157	220.8676	424.1686	670.9998	397.8354	71.4767	1894.8796	97%
59	0.5756	0.7767	4.8054	19.4582	83.9437	221.6143	424.5345	671.5786	398.1787	71.5384	1897.0041	97%
60	0.5756	0.7767	4.8054	19.4582	83.9536	222.3195	424.8820	672.1282	398.5045	71.5969	1899.0006	97%
61	0.5756	0.7767	4.8054	19.4582	83.9552	223.0668	425.2123	672.6505	398.8142	71.6526	1900.9674	97%
62	0.5756	0.7767	4.8054	19.4582	83.9552	223.8399	425.5264	673.1474	399.1088	71.7055	1902.8990	97%
63	0.5756	0.7767	4.8054	19.4582	83.9552	224.6396	425.8255	673.6207	399.3894	71.7559	1904.8021	97%
64	0.5756	0.7767	4.8054	19.4582	83.9552	225.4694	426.1106	674.0717	399.6568	71.8040	1906.6835	98%
65	0.5756	0.7767	4.8054	19.4582	83.9552	226.2491	426.3826	674.5020	399.9120	71.8498	1908.4665	98%
66	0.5756	0.7767	4.8054	19.4582	83.9552	226.8305	426.8839	674.9129	400.1555	71.8936	1910.2475	98%
67	0.5756	0.7767	4.8054	19.4582	83.9552	227.2143	427.5958	675.3056	400.3885	71.9354	1912.0107	98%
68	0.5756	0.7767	4.8054	19.4582	83.9552	227.4235	428.5054	675.6812	400.6112	71.9754	1913.7678	98%
69	0.5756	0.7767	4.8054	19.4582	83.9552	227.4754	429.5937	676.0407	400.8244	72.0137	1915.5189	98%
70	0.5756	0.7767	4.8054	19.4582	83.9552	227.4936	430.6621	676.3853	401.0287	72.0504	1917.1910	98%
71	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	431.8001	676.7154	401.2244	72.0856	1918.8931	98%
72	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	432.9674	677.0325	401.4123	72.1194	1920.5991	98%
73	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	434.1750	677.3367	401.5927	72.1518	1922.3239	98%
74	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	435.4209	677.6291	401.7662	72.1829	1924.0666	98%
75	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	436.6238	677.9102	401.9329	72.2129	1925.7473	99%
76	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	437.5394	678.5475	402.0933	72.2417	1927.4894	99%
77	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.1678	679.5130	402.2478	72.2694	1929.2655	99%
78	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.5217	680.7971	402.3966	72.2962	1931.0792	99%
79	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6091	682.3784	402.5401	72.3220	1932.9171	99%
80	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6406	683.9485	402.6786	72.3468	1934.6821	99%
81	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	685.5493	402.8122	72.3709	1936.4456	99%
82	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	687.1315	402.9413	72.3941	1938.1802	99%
83	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	688.6797	403.0660	72.4165	1939.8755	99%
84	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	690.1986	403.1867	72.4381	1941.5367	99%
85	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	691.6139	403.3034	72.4591	1943.0897	99%
86	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	692.6648	403.7045	72.4794	1944.5620	99%
87	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.3760	404.3509	72.4990	1945.9392	100%
88	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.7640	405.2150	72.5181	1947.2103	100%
89	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.8607	406.2688	72.5365	1948.3793	100%
90	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.8948	407.2610	72.5544	1949.4236	100%
91	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.9004	408.1613	72.5718	1950.3467	100%
92	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.9004	408.9496	72.5887	1951.1520	100%
93	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.9004	409.6303	72.6051	1951.8490	100%
94	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.9004	410.2074	72.6210	1952.4421	100%
95	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.9004	410.6959	72.6364	1952.9460	100%
96	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.9004	411.0391	72.7162	1953.3690	100%
97	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.9004	411.2577	72.8469	1953.7184	100%
98	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.9004	411.3734	73.0182	1954.0052	100%
99	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.9004	411.4022	73.2196	1954.2354	100%
100	0.5756	0.7767	4.8054	19.4582	83.9552	227.4965	438.6458	693.9004	411.4120	73.3921	1954.4178	100%

Exhibit E.41b Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer - Surface Water Systems

TTHM - Alternative 2

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.01	0.05	0.02	0.13	0.10	0.04	0.23	0.62	0.24	1.51	1.78	0.67	4.31	8.39	3.18	20.28	7.31	2.77	17.67	32.36	12.25	78.19	27.54	10.42	66.54
2011	0.02	0.01	0.03	0.14	0.06	0.31	0.25	0.10	0.55	1.64	0.67	3.55	4.70	1.92	10.16	22.14	9.04	47.84	19.29	7.88	41.69	85.35	34.85	184.43	72.63	29.66	156.96
2012	0.03	0.01	0.06	0.26	0.11	0.52	0.46	0.20	0.92	2.97	1.27	5.95	8.49	3.65	17.02	39.99	17.18	80.15	34.85	14.97	69.84	154.18	66.21	308.97	131.21	56.35	262.96
2013	0.04	0.02	0.08	0.40	0.18	0.76	0.70	0.31	1.34	4.54	2.03	8.62	12.99	5.80	24.67	61.16	27.33	116.18	53.30	23.81	101.24	235.77	105.35	447.88	200.65	89.66	381.17
2014	0.06	0.03	0.11	0.56	0.26	1.01	0.98	0.45	1.78	6.31	2.91	11.51	18.06	8.33	32.92	85.06	39.21	155.05	70.47	32.78	126.28	295.56	138.91	519.53	251.54	118.22	442.15
2015	0.08	0.04	0.14	0.73	0.34	1.28	1.28	0.60	2.26	8.26	3.90	14.56	23.63	11.15	41.66	107.07	50.94	186.06	83.66	40.45	141.29	343.59	167.65	571.93	292.42	142.68	486.75
2016	0.09	0.05	0.16	0.88	0.43	1.50	1.56	0.75	2.64	10.04	4.84	17.04	28.71	13.85	48.75	124.17	60.71	205.67	94.44	46.81	153.14	383.35	191.38	615.19	326.25	162.87	523.56
2017	0.11	0.05	0.18	1.01	0.50	1.64	1.77	0.88	2.90	11.43	5.65	18.68	32.70	16.15	53.43	138.22	69.06	221.72	103.45	52.21	163.43	416.84	211.42	653.54	354.75	179.93	556.20
2018	0.12	0.06	0.19	1.11	0.56	1.76	1.95	0.98	3.11	12.58	6.34	20.02	36.00	18.15	57.28	150.03	76.33	235.59	111.10	56.91	172.66	445.40	228.87	688.92	379.06	194.78	586.31
2019	0.13	0.07	0.20	1.19	0.61	1.86	2.10	1.08	3.28	13.55	6.93	21.13	38.77	19.83	60.46	160.08	82.40	247.29	117.66	60.82	180.62	469.99	243.39	719.72	399.99	207.14	612.53
2020	0.14	0.07	0.21	1.27	0.65	1.95	2.23	1.15	3.43	14.38	7.43	22.10	41.14	21.27	63.23	168.73	87.57	257.79	123.34	64.28	187.74	491.33	256.80	746.62	418.15	218.55	635.42
2021	0.14	0.07	0.22	1.33	0.69	2.03	2.34	1.22	3.57	15.10	7.86	23.01	43.19	22.47	65.81	176.22	92.05	267.61	128.28	67.29	194.19	509.96	268.11	770.44	434.01	228.18	655.69
2022	0.15	0.08	0.23	1.38	0.72	2.10	2.44	1.27	3.70	15.72	8.22	23.83	44.97	23.50	68.18	182.77	95.88	276.35	132.62	69.71	199.85	526.31	276.77	791.49	447.92	235.55	673.60
2023	0.15	0.08	0.23	1.43	0.75	2.16	2.52	1.32	3.81	16.26	8.53	24.57	46.52	24.40	70.29	188.51	99.06	284.04	136.43	71.73	205.17	540.73	284.38	812.90	460.19	242.03	691.83
2024	0.16	0.08	0.24	1.47	0.78	2.22	2.60	1.37	3.91	16.74	8.81	25.22	47.88	25.20	72.13	193.58	101.93	291.14	139.80	73.64	210.28	553.50	291.50	832.89	471.06	248.09	708.84
2025	0.16	0.09	0.24	1.51	0.80	2.27	2.66	1.40	4.00	17.16	9.05	25.80	49.09	25.88	73.79	198.06	104.47	297.73	142.80	75.33	214.71	564.84	297.99	849.32	480.71	253.61	722.82
2026	0.17	0.09	0.25	1.54	0.82	2.32	2.72	1.44	4.08	17.53	9.26	26.34	50.16	26.49	75.34	202.05	106.73	303.51	145.46	76.91	218.44	574.96	304.29	863.20	489.33	258.97	734.63
2027	0.17	0.09	0.25	1.57	0.83	2.36	2.77	1.47	4.16	17.87	9.45	26.82	51.11	27.02	76.72	205.60	108.81	308.53	147.84	78.39	221.71	584.02	310.03	875.36	497.03	263.85	744.98
2028	0.17	0.09	0.26	1.60	0.85	2.40	2.82	1.49	4.22	18.16	9.62	27.22	51.96	27.51	77.88	208.78	110.69	312.69	149.98	79.60	224.38	592.14	314.33	885.27	503.95	267.51	753.41
2029	0.17	0.09	0.26	1.62	0.86	2.43	2.86	1.51	4.27	18.43	9.77	27.56	52.72	27.94	78.84	211.64	112.25	316.13	151.90	80.57	226.63	599.45	317.93	893.79	510.17	270.58	760.67
Total	**2.26**	**1.16**	**3.55**	**21.07**	**10.81**	**33.02**	**37.11**	**19.04**	**58.16**	**239.32**	**122.77**	**375.05**	**684.58**	**351.19**	**1,072.86**	**2,832.26**	**1,454.82**	**4,431.35**	**2,093.97**	**1,076.87**	**3,270.98**	**8,399.62**	**4,322.41**	**13,109.58**	**7,148.57**	**3,678.63**	**11,157.02**
Avg.	**0.09**	**0.05**	**0.14**	**0.84**	**0.43**	**1.32**	**1.48**	**0.76**	**2.33**	**9.57**	**4.91**	**15.00**	**27.38**	**14.05**	**42.91**	**113.29**	**58.19**	**177.25**	**83.76**	**43.07**	**130.84**	**335.98**	**172.90**	**524.38**	**285.94**	**147.15**	**446.28**

Avg. - All Size Categories		**858.35**	**441.51**	**1,340.46**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.41c Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Ground Water Systems

TTHM - Alternative 2

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.07	0.02	0.16	0.07	0.03	0.17	0.21	0.08	0.51	0.33	0.13	0.80	1.82	0.69	4.39	0.76	0.29	1.84	2.11	0.80	5.09	0.35	0.13	0.85
2011	0.02	0.01	0.05	0.17	0.07	0.37	0.18	0.08	0.40	0.55	0.23	1.20	0.88	0.36	1.90	4.79	1.95	10.35	2.00	0.82	4.33	5.56	2.27	12.01	0.93	0.38	2.00
2012	0.04	0.02	0.08	0.31	0.13	0.62	0.33	0.14	0.66	1.00	0.43	2.01	1.58	0.68	3.18	8.65	3.71	17.33	3.62	1.56	7.26	10.04	4.31	20.12	1.67	0.72	3.35
2013	0.06	0.03	0.12	0.48	0.21	0.91	0.51	0.23	0.96	1.53	0.68	2.91	2.42	1.08	4.60	13.23	5.91	25.12	5.54	2.47	10.52	15.35	6.86	29.16	2.56	1.14	4.86
2014	0.09	0.04	0.16	0.66	0.31	1.21	0.71	0.33	1.29	2.13	0.98	3.88	3.37	1.55	6.14	18.39	8.48	33.53	7.32	3.41	13.12	19.24	9.04	33.83	3.20	1.51	5.63
2015	0.12	0.06	0.21	0.87	0.41	1.53	0.92	0.44	1.63	2.79	1.32	4.91	4.41	2.08	7.77	23.15	11.02	40.23	8.69	4.20	14.68	22.37	10.92	37.24	3.73	1.82	6.20
2016	0.14	0.07	0.24	1.05	0.51	1.79	1.12	0.54	1.90	3.39	1.63	5.75	5.36	2.58	9.10	26.85	13.13	44.47	9.81	4.86	15.91	24.96	12.46	40.05	4.16	2.08	6.67
2017	0.16	0.08	0.27	1.20	0.59	1.96	1.28	0.63	2.09	3.86	1.90	6.30	6.10	3.01	9.97	29.89	14.93	47.94	10.75	5.43	16.98	27.14	13.77	42.55	4.52	2.29	7.09
2018	0.18	0.09	0.28	1.32	0.67	2.10	1.41	0.71	2.24	4.25	2.14	6.76	6.72	3.39	10.69	32.44	16.51	50.94	11.54	5.91	17.94	29.00	14.90	44.85	4.83	2.48	7.47
2019	0.19	0.10	0.30	1.42	0.73	2.22	1.52	0.78	2.36	4.57	2.34	7.13	7.23	3.70	11.28	34.61	17.82	53.47	12.23	6.32	18.77	30.60	15.85	46.86	5.10	2.64	7.80
2020	0.20	0.11	0.31	1.51	0.78	2.32	1.61	0.83	2.47	4.85	2.51	7.46	7.68	3.97	11.80	36.48	18.94	55.74	12.82	6.68	19.51	31.99	16.72	48.61	5.33	2.78	8.10
2021	0.21	0.11	0.33	1.59	0.83	2.42	1.69	0.88	2.57	5.09	2.65	7.76	8.06	4.19	12.28	38.11	19.90	57.87	13.33	6.99	20.18	33.20	17.46	50.16	5.53	2.91	8.35
2022	0.22	0.12	0.34	1.65	0.86	2.50	1.76	0.92	2.66	5.30	2.77	8.04	8.39	4.39	12.72	39.52	20.73	59.76	13.78	7.24	20.77	34.27	18.02	51.53	5.71	3.00	8.58
2023	0.23	0.12	0.35	1.71	0.90	2.58	1.82	0.95	2.75	5.49	2.88	8.29	8.68	4.55	13.12	40.76	21.42	61.42	14.18	7.45	21.32	35.21	18.52	52.93	5.86	3.08	8.81
2024	0.24	0.13	0.36	1.76	0.93	2.65	1.87	0.98	2.82	5.65	2.97	8.51	8.93	4.70	13.46	41.86	22.04	62.96	14.53	7.65	21.85	36.04	18.98	54.23	6.00	3.16	9.03
2025	0.24	0.13	0.37	1.80	0.95	2.71	1.92	1.01	2.88	5.79	3.05	8.70	9.16	4.83	13.77	42.83	22.59	64.38	14.84	7.83	22.31	36.78	19.40	55.30	6.12	3.23	9.21
2026	0.25	0.13	0.37	1.84	0.97	2.77	1.96	1.04	2.94	5.92	3.12	8.89	9.36	4.94	14.06	43.69	23.08	65.63	15.11	7.99	22.70	37.44	19.81	56.20	6.23	3.30	9.36
2027	0.25	0.13	0.38	1.88	0.99	2.82	2.00	1.06	3.00	6.03	3.19	9.05	9.54	5.04	14.32	44.46	23.53	66.72	15.36	8.14	23.04	38.02	20.19	56.99	6.33	3.36	9.49
2028	0.26	0.14	0.39	1.91	1.01	2.86	2.03	1.07	3.04	6.13	3.24	9.19	9.70	5.13	14.53	45.15	23.93	67.61	15.58	8.27	23.31	38.55	20.47	57.64	6.42	3.41	9.60
2029	0.26	0.14	0.39	1.94	1.03	2.90	2.06	1.09	3.08	6.22	3.30	9.30	9.84	5.21	14.71	45.76	24.27	68.36	15.78	8.37	23.55	39.03	20.70	58.19	6.50	3.45	9.69
Total	**3.40**	**1.75**	**5.33**	**25.14**	**12.90**	**39.40**	**26.75**	**13.72**	**41.92**	**80.75**	**41.43**	**126.55**	**127.73**	**65.53**	**200.18**	**612.44**	**314.59**	**958.22**	**217.58**	**111.89**	**339.87**	**546.89**	**281.43**	**853.55**	**91.07**	**46.87**	**142.14**
Avg.	**0.14**	**0.07**	**0.21**	**1.01**	**0.52**	**1.58**	**1.07**	**0.55**	**1.68**	**3.23**	**1.66**	**5.06**	**5.11**	**2.62**	**8.01**	**24.50**	**12.58**	**38.33**	**8.70**	**4.48**	**13.59**	**21.88**	**11.26**	**34.14**	**3.64**	**1.87**	**5.69**

Avg. - All Size Categories		**69.27**	**35.60**	**108.29**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.41d Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - All Water Systems

TTHM - Alternative 2

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.01	0.04	0.12	0.05	0.29	0.17	0.06	0.40	0.83	0.32	2.01	2.11	0.80	5.11	10.21	3.86	24.67	8.07	3.06	19.51	34.46	13.05	83.28	27.89	10.56	67.39
2011	0.04	0.02	0.08	0.32	0.13	0.69	0.44	0.18	0.95	2.20	0.90	4.75	5.58	2.28	12.05	26.93	11.00	58.19	21.30	8.70	46.02	90.90	37.12	196.43	73.56	30.04	158.96
2012	0.07	0.03	0.14	0.57	0.25	1.15	0.79	0.34	1.59	3.97	1.71	7.96	10.08	4.33	20.19	48.64	20.89	97.48	38.47	16.52	77.10	164.21	70.53	329.09	132.88	57.07	266.31
2013	0.11	0.05	0.20	0.88	0.39	1.67	1.21	0.54	2.30	6.07	2.71	11.53	15.41	6.89	29.27	74.39	33.24	141.31	58.83	26.29	111.76	251.12	112.21	477.04	203.21	90.80	386.03
2014	0.15	0.07	0.27	1.22	0.56	2.22	1.68	0.78	3.07	8.44	3.89	15.39	21.43	9.88	39.06	103.46	47.69	188.58	77.79	36.19	139.40	314.80	147.95	553.35	254.74	119.73	447.78
2015	0.20	0.09	0.34	1.59	0.75	2.81	2.20	1.04	3.89	11.05	5.21	19.48	28.03	13.23	49.43	130.23	61.96	226.30	92.35	44.65	155.97	365.97	178.56	609.17	296.14	144.50	492.95
2016	0.24	0.11	0.40	1.94	0.93	3.29	2.68	1.29	4.55	13.43	6.48	22.79	34.07	16.43	57.84	151.02	73.84	250.15	104.25	51.67	169.05	408.31	203.84	655.25	330.41	164.95	530.23
2017	0.27	0.13	0.44	2.21	1.09	3.61	3.05	1.51	4.98	15.29	7.55	24.98	38.80	19.16	63.40	168.11	84.00	269.67	114.20	57.64	180.42	443.98	225.19	696.10	359.27	182.22	563.29
2018	0.30	0.15	0.47	2.43	1.22	3.87	3.36	1.69	5.34	16.83	8.48	26.78	42.71	21.53	67.96	182.47	92.83	286.54	122.64	62.83	190.60	474.40	243.77	733.77	383.89	197.26	593.78
2019	0.32	0.16	0.50	2.62	1.34	4.08	3.62	1.85	5.64	18.13	9.27	28.27	46.01	23.53	71.74	194.69	100.21	300.76	129.89	67.14	199.39	500.59	259.24	766.58	405.09	209.78	620.33
2020	0.34	0.18	0.52	2.78	1.44	4.27	3.84	1.98	5.90	19.24	9.94	29.56	48.82	25.24	75.03	205.21	106.50	313.53	136.15	70.96	207.25	523.32	273.52	795.23	423.48	221.34	643.51
2021	0.36	0.19	0.54	2.92	1.52	4.44	4.03	2.10	6.14	20.19	10.51	30.77	51.25	26.67	78.09	214.33	111.95	325.47	141.61	74.29	214.37	543.16	285.56	820.60	439.54	231.08	664.04
2022	0.37	0.19	0.56	3.04	1.59	4.60	4.19	2.19	6.36	21.02	10.99	31.88	53.36	27.89	80.90	222.29	116.61	336.11	146.40	76.96	220.61	560.58	294.79	843.02	453.63	238.55	682.19
2023	0.39	0.20	0.58	3.14	1.65	4.74	4.34	2.28	6.56	21.75	11.41	32.86	55.20	28.96	83.40	229.28	120.48	345.46	150.61	79.18	226.49	575.94	302.90	865.83	466.05	245.11	700.64
2024	0.40	0.21	0.60	3.23	1.70	4.87	4.47	2.35	6.73	22.39	11.78	33.72	56.82	29.90	85.59	235.43	123.97	354.09	154.33	81.29	232.13	589.53	310.48	887.12	477.06	251.25	717.87
2025	0.41	0.21	0.61	3.31	1.75	4.98	4.58	2.41	6.88	22.95	12.10	34.50	58.25	30.71	87.56	240.89	127.06	362.12	157.63	83.15	237.02	601.62	317.40	904.62	486.84	256.84	732.03
2026	0.42	0.22	0.62	3.39	1.79	5.09	4.68	2.47	7.03	23.45	12.38	35.22	59.52	31.43	89.40	245.74	129.81	369.13	160.58	84.90	241.14	612.40	324.10	919.40	495.56	262.27	743.99
2027	0.42	0.22	0.64	3.45	1.82	5.18	4.77	2.52	7.16	23.90	12.64	35.87	60.65	32.07	91.04	250.06	132.34	375.24	163.21	86.53	244.74	622.04	330.21	932.36	503.37	267.21	754.48
2028	0.43	0.23	0.64	3.51	1.86	5.26	4.85	2.57	7.27	24.29	12.86	36.41	61.66	32.64	92.41	253.93	134.62	380.30	165.56	87.87	247.69	630.70	334.80	942.90	510.37	270.92	763.01
2029	0.44	0.23	0.65	3.56	1.89	5.32	4.92	2.61	7.35	24.65	13.06	36.86	62.56	33.15	93.55	257.40	136.52	384.48	167.68	88.94	250.17	638.48	338.63	951.99	516.67	274.03	770.36
Total	**5.67**	**2.91**	**8.88**	**46.21**	**23.70**	**72.42**	**63.86**	**32.76**	**100.09**	**320.07**	**164.20**	**501.60**	**812.31**	**416.72**	**1,273.04**	**3,444.71**	**1,769.40**	**5,389.58**	**2,311.55**	**1,188.76**	**3,610.85**	**8,946.52**	**4,603.84**	**13,963.14**	**7,239.65**	**3,725.49**	**11,299.16**
Avg.	**0.23**	**0.12**	**0.36**	**1.85**	**0.95**	**2.90**	**2.55**	**1.31**	**4.00**	**12.80**	**6.57**	**20.06**	**32.49**	**16.67**	**50.92**	**137.79**	**70.78**	**215.58**	**92.46**	**47.55**	**144.43**	**357.86**	**184.15**	**558.53**	**289.59**	**149.02**	**451.97**

Avg. - All Size Categories	**927.62**	**477.11**	**1,448.75**

Note: Detail may not add to totals due to independent rounding.

Section E.7.5
Projection of Cases - Stage 2
Alternative 3
TTHM as Indicator
Smoking/Lung Cancer Model

Exhibit E.42a Cases avoided by Age Group per year following rule promulgation
(Smoking/Lung Cancer model - TTHM - Alternative 3)

Years After the Rule	Age Group 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0535	0.0459	0.2837	1.1487	4.9561	13.4298	25.8945	40.9630	24.2870	4.3635	115.4256	4%
7	0.1425	0.1209	0.7479	3.0284	13.0665	35.4067	68.2691	107.9961	64.0308	11.5040	304.3129	11%
8	0.2583	0.2183	1.3507	5.4691	23.5975	63.9429	123.2910	195.0361	115.6369	20.7758	549.5765	20%
9	0.3949	0.3338	2.0651	8.3619	36.0785	97.7633	188.5014	298.1937	176.7989	31.7644	840.2559	31%
10	0.5062	0.4279	2.6473	10.7196	46.2513	125.3290	241.6520	382.2735	226.6498	40.7208	1077.1773	40%
11	0.5915	0.5063	3.1327	12.6851	54.7317	148.3085	285.9599	452.3649	268.2070	48.1872	1274.6749	48%
12	0.6541	0.5708	3.5317	14.3008	61.7029	167.1987	322.3828	509.9830	302.3686	54.3248	1437.0184	54%
13	0.6991	0.6246	3.8645	15.6481	67.5162	182.9512	352.7558	558.0306	330.8559	59.4430	1572.3889	59%
14	0.7303	0.6702	4.1468	16.7912	72.4481	196.3153	378.5237	598.7933	355.0241	63.7851	1687.2282	63%
15	0.7550	0.7094	4.3889	17.7718	76.6791	207.7802	400.6297	633.7631	375.7577	67.5102	1785.7451	67%
16	0.7717	0.7458	4.5985	18.6202	80.3397	217.6995	419.7555	664.0185	393.6961	70.7330	1870.9785	70%
17	0.7823	0.7799	4.7810	19.3593	83.5286	226.3405	436.4165	690.3748	409.3229	73.5406	1945.2265	73%
18	0.7879	0.8121	4.9409	20.0068	86.3225	233.9113	451.0140	713.4669	423.0141	76.0004	2010.2769	75%
19	0.7892	0.8425	5.0817	20.5770	88.7824	240.5771	463.8667	733.7988	435.0690	78.1663	2067.5507	77%
20	0.7897	0.8693	5.2062	21.0812	90.9578	246.4717	475.2323	751.7784	445.7289	80.0815	2118.1971	79%
21	0.7898	0.8980	5.3168	21.5287	92.8889	251.7045	485.3218	767.7391	455.1920	81.7817	2163.1612	81%
22	0.7898	0.9279	5.4152	21.9274	94.6091	256.3659	494.3098	781.9573	463.6220	83.2962	2203.2208	82%
23	0.7898	0.9590	5.5032	22.2837	96.1465	260.5318	502.3422	794.6638	471.1557	84.6498	2239.0256	83%
24	0.7898	0.9912	5.5821	22.6031	97.5244	264.2657	509.5415	806.0526	477.9082	85.8630	2271.1215	85%
25	0.7898	1.0203	5.6530	22.8901	98.7629	267.6216	516.0123	816.2885	483.9771	86.9533	2299.9689	86%
26	0.7898	1.0416	5.7289	23.1488	99.8788	270.6456	521.8430	825.5122	489.4458	87.9358	2325.9703	87%
27	0.7898	1.0555	5.8086	23.3824	100.8869	273.3770	527.1096	833.8435	494.3856	88.8233	2349.4622	88%
28	0.7898	1.0631	5.8913	23.5939	101.7995	275.8500	531.8779	841.3865	498.8579	89.6268	2370.7368	88%
29	0.7898	1.0650	5.9765	23.7858	102.6276	278.0939	536.2043	848.2308	502.9158	90.3559	2390.0454	89%
30	0.7898	1.0656	6.0542	23.9604	103.3806	280.1343	540.1384	854.4540	506.6055	91.0188	2407.6015	90%
31	0.7898	1.0657	6.1341	24.1194	104.0666	281.9932	543.7227	860.1242	509.9673	91.6228	2423.6057	90%
32	0.7898	1.0657	6.2147	24.2645	104.6928	283.6902	546.9948	865.3004	513.0363	92.1742	2438.2232	91%
33	0.7898	1.0657	6.2968	24.3973	105.2656	285.2423	549.9875	870.0349	515.8432	92.6785	2451.6016	91%
34	0.7898	1.0657	6.3813	24.5189	105.7905	286.6645	552.7297	874.3728	518.4151	93.1406	2463.8688	92%
35	0.7898	1.0657	6.4614	24.6306	106.2723	287.9700	555.2468	878.3546	520.7761	93.5648	2475.1319	92%
36	0.7898	1.0657	6.5216	24.7568	106.7153	289.1705	557.5614	882.0162	522.9470	93.9548	2485.4990	93%
37	0.7898	1.0657	6.5626	24.8950	107.1233	290.2762	559.6934	885.3887	524.9466	94.3140	2495.0552	93%
38	0.7898	1.0657	6.5855	25.0439	107.4998	291.2963	561.6604	888.5002	526.7914	94.6455	2503.8785	93%
39	0.7898	1.0657	6.5911	25.2029	107.8477	292.2390	563.4781	891.3756	528.4963	94.9518	2512.0379	94%
40	0.7898	1.0657	6.5931	25.3533	108.1697	293.1115	565.1603	894.0369	530.0742	95.2353	2519.5897	94%
41	0.7898	1.0657	6.5934	25.5245	108.4682	293.9203	566.7198	896.5038	531.5370	95.4980	2526.6206	94%
42	0.7898	1.0657	6.5934	25.7136	108.7453	294.6712	568.1677	898.7943	532.8950	95.7420	2533.1778	94%
43	0.7898	1.0657	6.5934	25.9190	109.0029	295.3694	569.5139	900.9236	534.1575	95.9689	2539.3040	95%
44	0.7898	1.0657	6.5934	26.1395	109.2428	296.0194	570.7673	902.9064	535.3329	96.1801	2545.0373	95%
45	0.7898	1.0657	6.5934	26.3509	109.4665	296.6255	571.9360	904.7554	536.4292	96.3770	2550.3895	95%
46	0.7898	1.0657	6.5934	26.5098	109.7645	297.1915	573.0273	906.4820	537.4528	96.5609	2555.4377	95%
47	0.7898	1.0657	6.5934	26.6177	110.1276	297.7207	574.0477	908.0961	538.4097	96.7329	2560.2012	95%
48	0.7898	1.0657	6.5934	26.6775	110.5532	298.2162	575.0031	909.6075	539.3058	96.8939	2564.7059	96%
49	0.7898	1.0657	6.5934	26.6921	111.0352	298.6807	575.8987	911.0242	540.1459	97.0448	2568.9704	96%
50	0.7898	1.0657	6.5934	26.6972	111.4981	299.1167	576.7395	912.3541	540.9346	97.1864	2572.9755	96%
51	0.7898	1.0657	6.5934	26.6980	112.0103	299.5266	577.5295	913.6044	541.6755	97.3196	2576.8127	96%
52	0.7898	1.0657	6.5934	26.6980	112.5538	299.9123	578.2734	914.7806	542.3730	97.4449	2580.4849	96%
53	0.7898	1.0657	6.5934	26.6980	113.1261	300.2757	578.9740	915.8888	543.0301	97.5630	2584.0045	96%
54	0.7898	1.0657	6.5934	26.6980	113.7236	300.6185	579.6351	916.9344	543.6500	97.6744	2587.3828	96%
55	0.7898	1.0657	6.5934	26.6980	114.2848	300.9422	580.2592	917.9218	544.2355	97.7795	2590.5700	97%
56	0.7898	1.0657	6.5934	26.6980	114.7037	301.4614	580.8492	918.8555	544.7890	97.8790	2593.6846	97%
57	0.7898	1.0657	6.5934	26.6980	114.9850	302.1563	581.4077	919.7390	545.3129	97.9731	2596.7208	97%
58	0.7898	1.0657	6.5934	26.6980	115.1394	303.0232	581.9367	920.5761	545.8094	98.0623	2599.6940	97%
59	0.7898	1.0657	6.5934	26.6980	115.1773	304.0506	582.4388	921.3703	546.2802	98.1469	2602.6109	97%
60	0.7898	1.0657	6.5934	26.6980	115.1904	305.0212	582.9155	922.1244	546.7272	98.2272	2605.3528	97%
61	0.7898	1.0657	6.5934	26.6980	115.1924	306.0493	583.3687	922.8411	547.1521	98.3036	2608.0540	97%
62	0.7898	1.0657	6.5934	26.6980	115.1924	307.1128	583.7997	923.5229	547.5564	98.3762	2610.7072	97%
63	0.7898	1.0657	6.5934	26.6980	115.1924	308.2133	584.2103	924.1721	547.9414	98.4454	2613.3216	97%
64	0.7898	1.0657	6.5934	26.6980	115.1924	309.3551	584.6016	924.7910	548.3084	98.5113	2615.9065	98%
65	0.7898	1.0657	6.5934	26.6980	115.1924	310.4285	584.9749	925.3816	548.6585	98.5742	2618.3568	98%
66	0.7898	1.0657	6.5934	26.6980	115.1924	311.2285	585.6644	925.9455	548.9928	98.6343	2620.8046	98%
67	0.7898	1.0657	6.5934	26.6980	115.1924	311.7563	586.6439	926.4845	549.3123	98.6917	2623.2278	98%
68	0.7898	1.0657	6.5934	26.6980	115.1924	312.0433	587.8962	927.0002	549.6180	98.7466	2625.6435	98%
69	0.7898	1.0657	6.5934	26.6980	115.1924	312.1137	589.3950	927.4936	549.9105	98.7992	2628.0512	98%
70	0.7898	1.0657	6.5934	26.6980	115.1924	312.1380	590.8663	927.9664	550.1909	98.8495	2630.3503	98%
71	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	592.4332	928.4199	550.4597	98.8978	2632.6913	98%
72	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	594.0400	928.8548	550.7177	98.9442	2635.0374	98%
73	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	595.7025	929.2723	550.9655	98.9887	2637.4097	98%
74	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	597.4180	929.6739	551.2035	99.0314	2639.8075	98%
75	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	599.0747	930.0600	551.4324	99.0726	2642.1204	99%
76	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	600.3352	930.9372	551.6526	99.1121	2644.5178	99%
77	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.1995	932.2667	551.8647	99.1502	2646.9618	99%
78	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.6859	934.0361	552.0693	99.1869	2649.4589	99%
79	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8047	936.2149	552.2663	99.2224	2651.9890	99%
80	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8465	938.3788	552.4565	99.2565	2654.4190	99%
81	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	940.5839	552.6398	99.2895	2656.8466	99%
82	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	942.7630	552.8171	99.3213	2659.2348	99%
83	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	944.8954	552.9884	99.3521	2661.5694	99%
84	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	946.9879	553.1539	99.3819	2663.8571	99%
85	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	948.9378	553.3143	99.4107	2665.9961	99%
86	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	950.3854	553.8669	99.4385	2668.0242	99%
87	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	951.3641	554.7578	99.4655	2669.9208	100%
88	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	951.8975	555.9492	99.4917	2671.6718	100%
89	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	952.0292	557.4022	99.5170	2673.2819	100%
90	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	952.0745	558.7705	99.5416	2674.7200	100%
91	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	952.0811	560.0114	99.5655	2675.9913	100%
92	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	952.0811	561.0969	99.5886	2677.1000	100%
93	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	952.0811	562.0344	99.6111	2678.0600	100%
94	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	952.0811	562.8295	99.6330	2678.8770	100%
95	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	952.0811	563.5023	99.6542	2679.5709	100%
96	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	952.0811	563.9747	99.7643	2680.1534	100%
97	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	952.0811	564.2756	99.9446	2680.6346	100%
98	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	952.0811	564.4344	100.1808	2681.0297	100%
99	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	952.0811	564.4737	100.4586	2681.3468	100%
100	0.7898	1.0657	6.5934	26.6980	115.1924	312.1415	601.8527	952.0811	564.4868	100.6967	2681.5979	100%

Exhibit E.42b Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Surface Water Systems

TTHM - Alternative 3

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.07	0.03	0.18	0.13	0.05	0.32	0.85	0.32	2.06	2.43	0.91	5.89	11.42	4.26	27.71	9.95	3.71	24.15	44.03	16.43	106.83	37.47	13.99	90.91
2011	0.02	0.01	0.05	0.20	0.08	0.43	0.35	0.14	0.75	2.24	0.90	4.85	6.40	2.59	13.86	30.11	12.17	65.18	26.24	10.60	56.80	116.08	46.90	251.27	98.79	39.92	213.85
2012	0.04	0.02	0.08	0.36	0.15	0.72	0.63	0.27	1.26	4.04	1.73	8.14	11.56	4.94	23.28	54.38	23.26	109.48	47.39	20.27	95.40	209.63	89.65	422.02	178.41	76.30	359.17
2013	0.06	0.03	0.11	0.54	0.24	1.03	0.96	0.43	1.82	6.18	2.76	11.75	17.68	7.90	33.62	83.14	37.13	158.12	72.45	32.36	137.79	320.51	143.14	609.54	272.77	121.82	518.76
2014	0.08	0.04	0.15	0.76	0.35	1.38	1.33	0.61	2.43	8.59	3.95	15.66	24.58	11.30	44.79	115.62	53.16	210.67	95.78	44.47	171.51	401.69	188.50	705.30	341.86	160.42	600.25
2015	0.11	0.05	0.19	0.99	0.47	1.74	1.74	0.82	3.07	11.24	5.31	19.81	32.15	15.18	56.67	145.51	69.25	252.65	113.68	55.04	191.76	466.89	228.26	776.08	397.35	194.26	660.49
2016	0.13	0.06	0.22	1.20	0.58	2.04	2.12	1.03	3.59	13.66	6.63	23.14	39.08	18.96	66.21	168.72	83.10	278.78	128.31	64.14	207.30	520.84	262.36	831.69	443.26	223.28	707.82
2017	0.15	0.07	0.24	1.37	0.68	2.23	2.41	1.20	3.92	15.56	7.76	25.29	44.50	22.20	72.33	187.80	94.93	299.29	140.54	71.85	220.31	566.28	291.10	880.84	481.94	247.74	749.65
2018	0.16	0.08	0.26	1.51	0.77	2.37	2.66	1.36	4.18	17.12	8.74	26.98	48.97	25.01	77.17	203.81	105.16	316.47	150.92	78.61	231.68	605.04	316.85	923.64	514.93	269.66	786.07
2019	0.17	0.09	0.27	1.62	0.84	2.50	2.86	1.48	4.40	18.44	9.56	28.40	52.75	27.35	81.25	217.45	113.67	331.52	159.83	84.13	241.67	638.42	337.05	961.49	543.33	286.85	818.29
2020	0.19	0.10	0.28	1.72	0.90	2.61	3.03	1.59	4.60	19.57	10.26	29.67	55.97	29.34	84.88	229.19	120.84	345.02	167.53	88.68	250.74	667.37	353.88	996.05	567.97	301.18	847.69
2021	0.19	0.10	0.29	1.81	0.95	2.71	3.18	1.68	4.78	20.54	10.84	30.79	58.75	31.01	88.09	239.36	126.78	357.01	174.24	92.50	258.77	692.64	368.07	1,026.41	589.48	313.25	873.54
2022	0.20	0.11	0.30	1.88	1.00	2.80	3.32	1.76	4.93	21.38	11.33	31.79	61.16	32.41	90.93	248.24	131.77	367.61	180.12	95.64	265.85	714.83	379.32	1,053.39	608.36	322.82	896.50
2023	0.21	0.11	0.31	1.95	1.03	2.88	3.43	1.82	5.07	22.12	11.76	32.68	63.27	33.63	93.48	256.03	136.14	377.10	185.29	98.52	272.27	734.39	390.62	1,077.91	625.01	332.44	917.37
2024	0.22	0.11	0.32	2.00	1.07	2.95	3.53	1.88	5.19	22.77	12.13	33.50	65.13	34.70	95.81	262.90	140.12	385.97	189.87	101.29	278.24	751.71	401.25	1,100.43	639.75	341.49	936.53
2025	0.22	0.12	0.32	2.05	1.10	3.01	3.62	1.93	5.31	23.34	12.46	34.22	66.77	35.65	97.90	268.99	143.80	393.75	193.93	103.82	283.44	767.10	411.08	1,120.37	652.85	349.85	953.50
2026	0.23	0.12	0.33	2.10	1.12	3.07	3.70	1.98	5.41	23.85	12.77	34.88	68.22	36.54	99.76	274.40	147.20	400.71	197.55	106.21	288.22	780.84	420.44	1,138.85	664.54	357.82	969.23
2027	0.23	0.12	0.34	2.14	1.15	3.12	3.77	2.02	5.50	24.30	13.06	35.46	69.51	37.35	101.44	279.22	150.32	407.13	200.78	108.32	292.62	793.12	428.34	1,155.67	674.99	364.54	983.55
2028	0.23	0.13	0.34	2.17	1.17	3.17	3.83	2.06	5.58	24.70	13.30	36.01	70.67	38.05	103.01	283.54	152.96	413.13	203.68	110.00	296.59	804.14	434.46	1,170.35	684.37	369.75	996.04
2029	0.24	0.13	0.35	2.21	1.19	3.21	3.89	2.10	5.66	25.07	13.52	36.52	71.70	38.69	104.46	287.41	155.22	418.51	206.28	111.46	300.22	814.05	439.97	1,184.64	692.81	374.44	1,008.20
Total	**3.08**	**1.60**	**4.75**	**28.66**	**14.89**	**44.16**	**50.49**	**26.22**	**77.79**	**325.55**	**169.10**	**501.59**	**931.25**	**483.71**	**1,434.84**	**3,847.25**	**2,001.23**	**5,915.80**	**2,844.35**	**1,481.61**	**4,365.33**	**11,409.59**	**5,947.68**	**17,492.80**	**9,710.23**	**5,061.82**	**14,887.40**
Avg.	**0.12**	**0.06**	**0.19**	**1.15**	**0.60**	**1.77**	**2.02**	**1.05**	**3.11**	**13.02**	**6.76**	**20.06**	**37.25**	**19.35**	**57.39**	**153.89**	**80.05**	**236.63**	**113.77**	**59.26**	**174.61**	**456.38**	**237.91**	**699.71**	**388.41**	**202.47**	**595.50**

Avg. - All Size Categories	**1,166.02**	**607.51**	**1,788.98**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.42c Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Ground Water Systems

TTHM - Alternative 3

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.05	0.02	0.11	0.05	0.02	0.12	0.15	0.06	0.36	0.23	0.09	0.57	3.10	1.16	7.51	1.30	0.48	3.14	3.59	1.34	8.72	0.60	0.22	1.45
2011	0.02	0.01	0.04	0.12	0.05	0.26	0.13	0.05	0.28	0.39	0.16	0.84	0.62	0.25	1.34	8.16	3.30	17.67	3.42	1.38	7.40	9.47	3.83	20.50	1.58	0.64	3.41
2012	0.03	0.01	0.06	0.22	0.09	0.44	0.23	0.10	0.47	0.70	0.30	1.42	1.11	0.48	2.24	14.74	6.30	29.67	6.17	2.64	12.42	17.11	7.32	34.44	2.85	1.22	5.74
2013	0.05	0.02	0.09	0.34	0.15	0.64	0.36	0.16	0.68	1.08	0.48	2.05	1.70	0.76	3.24	22.53	10.06	42.85	9.44	4.21	17.94	26.15	11.68	49.74	4.36	1.95	8.28
2014	0.06	0.03	0.12	0.47	0.21	0.85	0.50	0.23	0.90	1.50	0.69	2.73	2.37	1.09	4.32	31.34	14.41	57.10	12.47	5.79	22.34	32.78	15.38	57.56	5.46	2.56	9.58
2015	0.08	0.04	0.15	0.61	0.29	1.08	0.65	0.31	1.14	1.96	0.93	3.45	3.10	1.46	5.46	39.44	18.77	68.47	14.80	7.17	24.97	38.10	18.63	63.33	6.34	3.10	10.55
2016	0.10	0.05	0.17	0.74	0.36	1.26	0.79	0.38	1.34	2.38	1.16	4.04	3.77	1.83	6.38	45.73	22.52	75.55	16.71	8.35	27.00	42.50	21.41	67.87	7.08	3.57	11.30
2017	0.11	0.06	0.19	0.84	0.42	1.37	0.90	0.45	1.46	2.71	1.35	4.41	4.29	2.14	6.97	50.90	25.73	81.11	18.30	9.36	28.69	46.21	23.75	71.88	7.70	3.96	11.97
2018	0.13	0.06	0.20	0.93	0.47	1.46	0.99	0.51	1.56	2.98	1.52	4.70	4.72	2.41	7.44	55.24	28.50	85.77	19.65	10.24	30.17	49.37	25.86	75.37	8.22	4.31	12.55
2019	0.14	0.07	0.21	1.00	0.52	1.54	1.06	0.55	1.64	3.21	1.67	4.95	5.09	2.64	7.83	58.93	30.81	89.85	20.81	10.96	31.47	52.10	27.50	78.46	8.68	4.58	13.07
2020	0.14	0.08	0.22	1.06	0.56	1.61	1.13	0.59	1.71	3.41	1.79	5.17	5.40	2.83	8.18	62.11	32.75	93.51	21.82	11.55	32.65	54.46	28.88	81.28	9.07	4.81	13.54
2021	0.15	0.08	0.23	1.11	0.59	1.67	1.19	0.63	1.78	3.58	1.89	5.37	5.66	2.99	8.49	64.87	34.36	96.76	22.69	12.05	33.70	56.52	30.04	83.76	9.41	5.00	13.95
2022	0.16	0.08	0.23	1.16	0.61	1.73	1.23	0.65	1.84	3.73	1.98	5.54	5.90	3.12	8.77	67.28	35.71	99.63	23.46	12.46	34.62	58.33	30.95	85.96	9.71	5.15	14.31
2023	0.16	0.09	0.24	1.20	0.64	1.77	1.28	0.68	1.89	3.86	2.05	5.70	6.10	3.24	9.01	69.39	36.90	102.20	24.13	12.83	35.46	59.93	31.88	87.96	9.98	5.31	14.65
2024	0.17	0.09	0.25	1.24	0.66	1.82	1.31	0.70	1.93	3.97	2.11	5.84	6.28	3.35	9.24	71.25	37.97	104.60	24.73	13.19	36.24	61.34	32.74	89.80	10.22	5.45	14.95
2025	0.17	0.09	0.25	1.27	0.68	1.86	1.35	0.72	1.98	4.07	2.17	5.97	6.44	3.44	9.44	72.90	38.97	106.71	25.26	13.52	36.91	62.60	33.55	91.43	10.42	5.59	15.23
2026	0.18	0.09	0.26	1.29	0.69	1.89	1.38	0.74	2.01	4.16	2.23	6.08	6.58	3.52	9.62	74.37	39.89	108.60	25.73	13.83	37.53	63.72	34.31	92.93	10.61	5.71	15.48
2027	0.18	0.10	0.26	1.32	0.71	1.92	1.40	0.75	2.05	4.24	2.28	6.18	6.70	3.60	9.78	75.67	40.74	110.34	26.15	14.11	38.11	64.72	34.95	94.31	10.78	5.82	15.70
2028	0.18	0.10	0.26	1.34	0.72	1.95	1.43	0.77	2.08	4.31	2.32	6.28	6.81	3.67	9.93	76.84	41.45	111.97	26.52	14.33	38.63	65.62	35.45	95.50	10.93	5.90	15.90
2029	0.18	0.10	0.27	1.36	0.73	1.98	1.45	0.78	2.11	4.37	2.36	6.37	6.91	3.73	10.07	77.89	42.07	113.42	26.86	14.52	39.10	66.43	35.90	96.67	11.06	5.98	16.10
Total	**2.39**	**1.24**	**3.69**	**17.67**	**9.18**	**27.23**	**18.80**	**9.77**	**28.97**	**56.76**	**29.48**	**87.45**	**89.78**	**46.63**	**138.33**	**1,042.67**	**542.37**	**1,603.29**	**370.42**	**192.95**	**568.49**	**931.06**	**485.35**	**1,427.47**	**155.05**	**80.82**	**237.72**
Avg.	**0.10**	**0.05**	**0.15**	**0.71**	**0.37**	**1.09**	**0.75**	**0.39**	**1.16**	**2.27**	**1.18**	**3.50**	**3.59**	**1.87**	**5.53**	**41.71**	**21.69**	**64.13**	**14.82**	**7.72**	**22.74**	**37.24**	**19.41**	**57.10**	**6.20**	**3.23**	**9.51**

Avg. - All Size Categories		**107.38**	**55.91**	**164.91**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.42d Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - All Water Systems

TTHM - Alternative 3

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.01	0.03	0.12	0.05	0.29	0.18	0.07	0.44	1.00	0.37	2.42	2.66	0.99	6.46	14.52	5.42	35.22	11.25	4.20	27.29	47.62	17.77	115.54	38.07	14.21	92.37
2011	0.04	0.02	0.08	0.32	0.13	0.69	0.48	0.19	1.03	2.63	1.06	5.69	7.02	2.84	15.20	38.27	15.46	82.85	29.66	11.98	64.20	125.55	50.73	271.77	100.36	40.55	217.26
2012	0.07	0.03	0.14	0.58	0.25	1.16	0.86	0.37	1.73	4.75	2.03	9.56	12.68	5.42	25.52	69.12	29.56	139.15	53.56	22.91	107.82	226.74	96.97	456.46	181.26	77.52	364.90
2013	0.10	0.05	0.20	0.88	0.39	1.67	1.32	0.59	2.50	7.26	3.24	13.80	19.38	8.66	36.86	105.68	47.19	200.97	81.89	36.57	155.73	346.66	154.82	659.28	277.13	123.77	527.04
2014	0.14	0.07	0.26	1.22	0.56	2.23	1.83	0.84	3.33	10.09	4.64	18.39	26.95	12.39	49.11	146.96	67.57	267.77	108.25	50.26	193.84	434.47	203.88	762.86	347.32	162.98	609.84
2015	0.19	0.09	0.33	1.60	0.76	2.82	2.39	1.13	4.22	13.20	6.23	23.26	35.25	16.64	62.13	184.95	88.01	321.12	128.49	62.21	216.73	504.99	246.88	839.41	403.69	197.36	671.04
2016	0.23	0.11	0.39	1.94	0.94	3.29	2.91	1.41	4.93	16.04	7.78	27.18	42.84	20.79	72.59	214.45	105.62	354.33	145.02	72.49	234.30	563.34	283.77	899.56	450.34	226.85	719.12
2017	0.26	0.13	0.43	2.21	1.10	3.60	3.31	1.65	5.38	18.27	9.12	29.69	48.79	24.35	79.30	238.69	120.66	380.40	158.84	81.20	249.00	612.50	314.85	952.72	489.64	251.70	761.62
2018	0.29	0.15	0.45	2.44	1.24	3.84	3.64	1.86	5.74	20.11	10.27	31.68	53.70	27.43	84.61	259.05	133.66	402.24	170.58	88.84	261.86	654.42	342.71	999.01	523.15	273.97	798.62
2019	0.31	0.16	0.48	2.62	1.36	4.04	3.92	2.03	6.05	21.65	11.23	33.36	57.83	29.98	89.08	276.39	144.47	421.37	180.64	95.08	273.14	690.51	364.56	1,039.95	552.00	291.43	831.35
2020	0.33	0.17	0.50	2.78	1.46	4.22	4.16	2.18	6.32	22.98	12.04	34.85	61.37	32.16	93.07	291.30	153.60	438.52	189.35	100.23	283.39	721.83	382.76	1,077.33	577.04	305.98	861.23
2021	0.35	0.18	0.52	2.92	1.54	4.38	4.37	2.31	6.55	24.12	12.73	36.16	64.41	34.00	96.58	304.23	161.14	453.77	196.93	104.54	292.47	749.16	398.10	1,110.17	598.89	318.25	887.49
2022	0.36	0.19	0.53	3.04	1.61	4.52	4.55	2.41	6.77	25.11	13.30	37.33	67.06	35.53	99.70	315.52	167.49	467.24	203.57	108.09	300.47	773.16	410.27	1,139.35	618.07	327.98	910.81
2023	0.37	0.20	0.55	3.15	1.67	4.65	4.71	2.50	6.95	25.98	13.81	38.37	69.37	36.87	102.49	325.42	173.04	479.30	209.42	111.35	307.72	794.32	422.50	1,165.88	634.99	337.75	932.02
2024	0.38	0.20	0.56	3.24	1.73	4.77	4.85	2.58	7.13	26.74	14.25	39.33	71.41	38.05	105.05	334.16	178.09	490.57	214.59	114.48	314.48	813.05	434.00	1,190.23	649.96	346.94	951.48
2025	0.39	0.21	0.58	3.32	1.77	4.87	4.97	2.65	7.28	27.41	14.64	40.19	73.20	39.09	107.33	341.89	182.77	500.46	219.18	117.34	320.35	829.70	444.63	1,211.80	663.28	355.44	968.73
2026	0.40	0.21	0.59	3.39	1.82	4.96	5.08	2.72	7.42	28.01	15.00	40.96	74.80	40.06	109.38	348.76	187.09	509.31	223.27	120.04	325.76	844.55	454.75	1,231.79	675.15	363.53	984.71
2027	0.41	0.22	0.60	3.46	1.86	5.05	5.17	2.78	7.55	28.54	15.33	41.65	76.21	40.95	111.22	354.89	191.06	517.47	226.93	122.43	330.72	857.84	463.30	1,249.98	685.77	370.36	999.25
2028	0.42	0.22	0.61	3.52	1.89	5.12	5.26	2.83	7.66	29.01	15.62	42.29	77.48	41.72	112.94	360.38	194.41	525.10	230.20	124.33	335.22	869.76	469.92	1,265.86	695.30	375.66	1,011.94
2029	0.42	0.23	0.61	3.57	1.92	5.20	5.33	2.88	7.77	29.44	15.88	42.88	78.61	42.42	114.53	365.30	197.29	531.94	233.15	125.98	339.32	880.48	475.87	1,281.32	703.87	380.42	1,024.30
Total	**5.47**	**2.84**	**8.43**	**46.33**	**24.06**	**71.38**	**69.29**	**35.99**	**106.76**	**382.31**	**198.58**	**589.04**	**1,021.03**	**530.34**	**1,573.17**	**4,889.92**	**2,543.60**	**7,519.09**	**3,214.77**	**1,674.56**	**4,933.82**	**12,340.65**	**6,433.03**	**18,920.27**	**9,865.28**	**5,142.65**	**15,125.11**
Avg.	**0.22**	**0.11**	**0.34**	**1.85**	**0.96**	**2.86**	**2.77**	**1.44**	**4.27**	**15.29**	**7.94**	**23.56**	**40.84**	**21.21**	**62.93**	**195.60**	**101.74**	**300.76**	**128.59**	**66.98**	**197.35**	**493.63**	**257.32**	**756.81**	**394.61**	**205.71**	**605.00**

Avg. - All Size Categories	**1,273.40**	**663.43**	**1,953.88**

Note: Detail may not add to totals due to independent rounding.

Section E.7.6
Projection of Cases - Stage 2
Colorectal Cancer Sensitivity Analysis
TTHM as Indicator
Smoking/Lung Cancer Model

Exhibit E.43a Cases avoided by Age Group per year following rule promulgation (Smoking/Lung Cancer model - TTHM - Sensitivity Analysis)

Years After the Rule	Age Group 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
7	0.0024	0.0629	0.4157	2.1062	7.5240	17.6191	29.5448	43.3817	29.5270	5.9469	136.1308	4%
8	0.0064	0.1595	1.0532	5.3362	19.0624	44.6389	74.8535	109.9101	74.8083	15.0669	344.8953	11%
9	0.0115	0.2844	1.8780	9.5148	33.9893	79.5937	133.4681	195.9759	133.3875	26.8651	614.9682	19%
10	0.0176	0.4350	2.8730	14.5559	51.9977	121.7647	204.1832	299.8093	204.0598	41.0990	940.7953	29%
11	0.0226	0.5617	3.7097	18.7953	67.1417	157.2278	263.6501	387.1267	263.4908	53.0688	1214.7954	38%
12	0.0261	0.6772	4.4721	22.6576	80.9392	189.5378	317.8297	466.6805	317.6376	63.9743	1464.4322	46%
13	0.0283	0.7795	5.1480	26.0822	93.1727	218.1855	365.8681	537.2169	365.6469	73.6437	1685.7718	53%
14	0.0294	0.8694	5.7418	29.0909	103.9205	243.3539	408.0722	599.1867	407.8256	82.1387	1880.2292	59%
15	0.0296	0.9460	6.2475	31.6528	113.0724	264.7851	444.0094	651.9546	443.7411	89.3724	2045.8108	64%
16	0.0297	1.0092	6.6652	33.7692	120.6326	282.4891	473.6966	695.5453	473.4103	95.3479	2182.5952	68%
17	0.0297	1.0663	7.0130	35.5313	126.9273	297.2296	498.4144	731.8394	498.1133	100.3232	2296.4874	72%
18	0.0297	1.1182	7.3052	37.0119	132.2163	309.6152	519.1835	762.3353	518.8698	104.5038	2392.1888	75%
19	0.0297	1.1660	7.5535	38.2698	136.7101	320.1383	536.8295	788.2454	536.5049	108.0556	2473.5029	77%
20	0.0297	1.2106	7.7665	39.3488	140.5644	329.1639	551.9642	810.4683	551.6306	111.1020	2543.2490	79%
21	0.0297	1.2491	7.9506	40.2818	143.8973	336.9688	565.0519	829.6854	564.7103	113.7364	2603.5613	81%
22	0.0297	1.2873	8.1111	41.0947	146.8013	343.7691	576.4551	846.4293	576.1068	116.0317	2656.1161	83%
23	0.0297	1.3248	8.2518	41.8079	149.3491	349.7355	586.4598	861.1196	586.1055	118.0455	2702.2293	84%
24	0.0297	1.3619	8.3761	42.4375	151.5981	355.0020	595.2912	874.0869	594.9315	119.8231	2742.9381	86%
25	0.0297	1.3987	8.4864	42.9961	153.5937	359.6752	603.1276	885.5934	602.7632	121.4005	2779.0646	87%
26	0.0297	1.4314	8.5847	43.4941	155.3727	363.8411	610.1132	895.8505	609.7444	122.8065	2811.2684	88%
27	0.0297	1.4549	8.6874	43.9399	156.9650	367.5699	616.3658	905.0316	615.9934	124.0651	2840.1026	89%
28	0.0297	1.4701	8.7927	44.3403	158.3956	370.9199	621.9832	913.2798	621.6075	125.1958	2866.0147	90%
29	0.0297	1.4782	8.9000	44.7013	159.6852	373.9398	627.0471	920.7153	626.6683	126.2151	2889.3800	90%
30	0.0297	1.4800	9.0088	45.0277	160.8512	376.6703	631.6259	927.4385	631.2443	127.1367	2910.5133	91%
31	0.0297	1.4806	9.1070	45.3237	161.9085	379.1463	635.7778	933.5349	635.3936	127.9724	2929.6747	92%
32	0.0297	1.4807	9.2082	45.5928	162.8697	381.3972	639.5521	939.0770	639.1658	128.7322	2947.1054	92%
33	0.0297	1.4807	9.3101	45.8380	163.7456	383.4483	642.9916	944.1273	642.6031	129.4245	2962.9989	93%
34	0.0297	1.4807	9.4136	46.0619	164.5456	385.3215	646.1328	948.7396	645.7424	130.0567	2977.5245	93%
35	0.0297	1.4807	9.5199	46.2668	165.2776	387.0357	649.0074	952.9605	648.6154	130.6353	2990.8291	93%
36	0.0297	1.4807	9.6194	46.4548	165.9488	388.6077	651.6433	956.8307	651.2496	131.1659	3003.0306	94%
37	0.0297	1.4807	9.6932	46.6685	166.5655	390.0516	654.0647	960.3861	653.6696	131.6533	3014.2629	94%
38	0.0297	1.4807	9.7429	46.9015	167.1329	391.3804	656.2928	963.6578	655.8964	132.1018	3024.6170	94%
39	0.0297	1.4807	9.7702	47.1517	167.6560	392.6053	658.3468	966.6736	657.9491	132.5152	3034.1783	95%
40	0.0297	1.4807	9.7764	47.4174	168.1389	393.7361	660.2430	969.4579	659.8442	132.8969	3043.0214	95%
41	0.0297	1.4807	9.7785	47.6663	168.5854	394.7818	661.9965	972.0325	661.5966	133.2499	3051.1978	95%
42	0.0297	1.4807	9.7787	47.9335	168.9990	395.7502	663.6202	974.4169	663.2193	133.5767	3058.8049	96%
43	0.0297	1.4807	9.7787	48.2138	169.3824	396.6483	665.1261	976.6281	664.7243	133.8798	3065.8919	96%
44	0.0297	1.4807	9.7787	48.5059	169.7386	397.4822	666.5248	978.6815	666.1219	134.1613	3072.5054	96%
45	0.0297	1.4807	9.7787	48.8083	170.0698	398.2578	667.8252	980.5911	667.4218	134.4231	3078.6862	96%
46	0.0297	1.4807	9.7787	49.0928	170.3782	398.9800	669.0363	982.3694	668.6321	134.6669	3084.4448	96%
47	0.0297	1.4807	9.7787	49.3027	170.7709	399.6533	670.1654	984.0274	669.7605	134.8941	3089.8634	97%
48	0.0297	1.4807	9.7787	49.4434	171.2326	400.2820	671.2196	985.5753	670.8140	135.1063	3094.9623	97%
49	0.0297	1.4807	9.7787	49.5200	171.7597	400.8695	672.2048	987.0220	671.7987	135.3047	3099.7687	97%
50	0.0297	1.4807	9.7787	49.5374	172.3443	401.4194	673.1268	988.3758	672.7201	135.4902	3104.3032	97%
51	0.0297	1.4807	9.7787	49.5431	172.8979	401.9345	673.9907	989.6444	673.5834	135.6641	3108.5473	97%
52	0.0297	1.4807	9.7787	49.5438	173.4966	402.4177	674.8010	990.8340	674.3932	135.8272	3112.6027	97%
53	0.0297	1.4807	9.7787	49.5438	174.1181	402.8715	675.5618	991.9512	675.1536	135.9803	3116.4695	97%
54	0.0297	1.4807	9.7787	49.5438	174.7603	403.2980	676.2770	993.0013	675.8683	136.1243	3120.1621	97%
55	0.0297	1.4807	9.7787	49.5438	175.4197	403.6994	676.9501	993.9896	676.5409	136.2598	3123.6924	98%
56	0.0297	1.4807	9.7787	49.5438	176.0295	404.0775	677.5841	994.9205	677.1746	136.3874	3127.0065	98%
57	0.0297	1.4807	9.7787	49.5438	176.4769	404.6493	678.1819	995.7983	677.7721	136.5078	3130.2193	98%
58	0.0297	1.4807	9.7787	49.5438	176.7739	405.3856	678.7462	996.6270	678.3361	136.6213	3133.3229	98%
59	0.0297	1.4807	9.7787	49.5438	176.9341	406.2811	679.2794	997.4098	678.8690	136.7286	3136.3348	98%
60	0.0297	1.4807	9.7787	49.5438	176.9705	407.3223	679.7836	998.1503	679.3729	136.8302	3139.2626	98%
61	0.0297	1.4807	9.7787	49.5438	176.9823	408.2916	680.2610	998.8511	679.8500	136.9262	3141.9952	98%
62	0.0297	1.4807	9.7787	49.5438	176.9838	409.2720	680.7133	999.5151	680.3019	137.0173	3144.6362	98%
63	0.0297	1.4807	9.7787	49.5438	176.9838	410.2423	681.1422	1000.1447	680.7306	137.1036	3147.1800	98%
64	0.0297	1.4807	9.7787	49.5438	176.9838	411.2066	681.5493	1000.7424	681.1373	137.1855	3149.6377	98%
65	0.0297	1.4807	9.7787	49.5438	176.9838	412.1745	681.9359	1001.3101	681.5238	137.2633	3152.0242	98%
66	0.0297	1.4807	9.7787	49.5438	176.9838	413.0685	682.3035	1001.8499	681.8911	137.3373	3154.2670	99%
67	0.0297	1.4807	9.7787	49.5438	176.9838	413.7234	682.9153	1002.3635	682.2407	137.4078	3156.4673	99%
68	0.0297	1.4807	9.7787	49.5438	176.9838	414.1498	683.7402	1002.8525	682.5735	137.4748	3158.6076	99%
69	0.0297	1.4807	9.7787	49.5438	176.9838	414.3778	684.7624	1003.3187	682.8907	137.5387	3160.7049	99%
70	0.0297	1.4807	9.7787	49.5438	176.9838	414.4297	685.9598	1003.7632	683.1932	137.5996	3162.7622	99%
71	0.0297	1.4807	9.7787	49.5438	176.9838	414.4464	687.1185	1004.1873	683.4820	137.6577	3164.7086	99%
72	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	688.3155	1004.5925	683.7578	137.7133	3166.6441	99%
73	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	689.5099	1004.9797	684.0213	137.7664	3168.5424	99%
74	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	690.7162	1005.3502	684.2734	137.8172	3170.4221	99%
75	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	691.9335	1005.7048	684.5148	137.8657	3172.2839	99%
76	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	693.0919	1006.0443	684.7458	137.9123	3174.0594	99%
77	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	693.9590	1006.6992	684.9672	137.9569	3175.8474	99%
78	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.5475	1007.6312	685.1796	137.9997	3177.6230	99%
79	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.8734	1008.8299	685.3833	138.0407	3179.3924	99%
80	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9472	1010.2734	685.5789	138.0801	3181.1447	99%
81	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9714	1011.6873	685.7668	138.1179	3182.8086	99%
82	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1013.1213	685.9476	138.1543	3184.4628	99%
83	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1014.5322	686.1212	138.1893	3186.0823	100%
84	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1015.9095	686.2885	138.2230	3187.6605	100%
85	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1017.2575	686.4494	138.2554	3189.2019	100%
86	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1018.5027	686.6046	138.2866	3190.6334	100%
87	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1019.4148	687.0235	138.3167	3191.9946	100%
88	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.0256	687.6591	138.3458	3193.2701	100%
89	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.3536	688.4853	138.3738	3194.4522	100%
90	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.4283	689.4753	138.4008	3195.5439	100%
91	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.4526	690.3965	138.4269	3196.5156	100%
92	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.4555	691.2507	138.4521	3197.3979	100%
93	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.4555	692.0184	138.4765	3198.1900	100%
94	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.4555	692.7033	138.5001	3198.8985	100%
95	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.4555	693.3065	138.5229	3199.5245	100%
96	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.4555	693.8185	138.5450	3200.0586	100%
97	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.4555	694.1755	138.6358	3200.5064	100%
98	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.4555	694.4012	138.7783	3200.8745	100%
99	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.4555	694.5184	138.9614	3201.1749	100%
100	0.0297	1.4807	9.7787	49.5438	176.9838	414.4484	694.9745	1020.4555	694.5451	139.1743	3201.4145	100%

Exhibit E.43b Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Surface Water Systems

TTHM - Sensitivity Analysis

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.03	0.09	0.01	0.24	0.16	0.01	0.42	1.00	0.07	2.68	2.86	0.20	7.66	13.50	0.93	36.23	11.77	0.81	31.58	52.06	3.59	139.69	44.30	3.06	118.88
2011	0.02	0.00	0.06	0.23	0.04	0.54	0.40	0.06	0.96	2.56	0.41	6.15	7.32	1.18	17.60	34.61	5.56	83.23	30.17	4.85	72.55	133.47	21.45	320.90	113.58	18.26	273.08
2012	0.04	0.01	0.10	0.40	0.11	0.89	0.71	0.19	1.58	4.59	1.22	10.15	13.12	3.50	29.04	62.04	16.56	137.31	54.08	14.43	119.69	239.21	63.84	529.44	203.56	54.33	450.54
2013	0.07	0.02	0.14	0.62	0.21	1.28	1.09	0.37	2.26	7.04	2.39	14.54	20.13	6.85	41.60	95.18	32.37	196.68	82.97	28.21	171.44	367.00	124.80	758.36	312.31	106.20	645.35
2014	0.10	0.04	0.19	0.87	0.34	1.71	1.54	0.60	3.02	9.90	3.84	19.43	28.32	10.99	55.58	133.90	51.98	262.78	110.83	44.90	213.27	464.23	196.82	873.53	395.05	167.49	743.36
2015	0.13	0.05	0.24	1.16	0.48	2.19	2.04	0.85	3.86	13.14	5.49	24.83	37.60	15.70	71.04	171.00	73.75	317.74	133.97	61.87	240.69	551.90	264.73	974.07	469.66	225.28	828.92
2016	0.16	0.07	0.28	1.43	0.64	2.58	2.51	1.13	4.55	16.18	7.26	29.31	46.30	20.77	83.84	201.59	95.39	354.78	154.56	76.34	265.20	630.83	316.49	1,068.81	536.82	269.32	909.54
2017	0.18	0.09	0.31	1.65	0.79	2.86	2.90	1.40	5.04	18.69	9.00	32.45	53.47	25.76	92.84	228.50	113.96	388.40	172.78	87.65	289.11	700.39	357.25	1,164.38	596.02	304.02	990.87
2018	0.20	0.10	0.34	1.84	0.92	3.12	3.24	1.63	5.49	20.88	10.49	35.36	59.74	30.02	101.16	252.14	128.53	421.52	188.46	96.59	312.74	758.99	389.47	1,255.95	645.89	331.43	1,068.79
2019	0.22	0.11	0.37	2.01	1.03	3.35	3.54	1.81	5.90	22.80	11.67	38.00	65.22	33.39	108.72	272.43	140.13	451.24	201.48	103.91	332.68	806.70	416.75	1,330.70	686.49	354.65	1,132.40
2020	0.24	0.12	0.39	2.15	1.11	3.56	3.80	1.96	6.28	24.44	12.62	40.42	69.93	36.11	115.64	289.33	149.78	477.12	212.22	110.23	349.76	846.39	440.50	1,395.50	720.27	374.86	1,187.55
2021	0.25	0.13	0.41	2.28	1.18	3.74	4.01	2.08	6.59	25.82	13.41	42.45	73.86	38.36	121.45	303.33	158.02	498.31	221.22	115.60	363.40	879.89	460.50	1,445.25	748.77	391.88	1,229.88
2022	0.26	0.14	0.43	2.38	1.24	3.89	4.19	2.19	6.85	26.96	14.07	44.10	77.13	40.27	126.16	315.12	164.97	515.03	228.87	120.11	373.10	908.46	477.38	1,477.15	773.08	406.24	1,257.03
2023	0.27	0.14	0.44	2.46	1.29	4.00	4.34	2.27	7.05	27.93	14.64	45.42	79.89	41.89	129.95	325.16	170.85	527.36	235.43	123.96	380.23	933.02	491.81	1,503.67	793.99	418.52	1,279.60
2024	0.28	0.15	0.45	2.53	1.33	4.09	4.46	2.35	7.21	28.75	15.13	46.42	82.25	43.27	132.79	333.80	175.94	536.64	241.10	127.26	385.88	954.31	503.96	1,522.85	812.10	428.86	1,295.92
2025	0.28	0.15	0.46	2.60	1.37	4.16	4.58	2.41	7.33	29.46	15.54	47.18	84.29	44.46	134.97	341.29	180.27	544.16	246.04	130.05	390.42	972.90	514.41	1,539.87	827.92	437.75	1,310.40
2026	0.29	0.15	0.46	2.65	1.40	4.21	4.67	2.47	7.43	30.08	15.89	47.82	86.06	45.47	136.80	347.82	183.89	550.49	250.36	132.44	394.78	989.24	523.48	1,557.12	841.83	445.47	1,325.09
2027	0.30	0.16	0.47	2.70	1.43	4.26	4.75	2.51	7.51	30.62	16.18	48.36	87.60	46.30	138.36	353.57	186.91	556.51	254.18	134.42	399.04	1,003.69	530.87	1,573.61	854.12	451.76	1,339.12
2028	0.30	0.16	0.47	2.74	1.45	4.30	4.83	2.55	7.58	31.10	16.43	48.84	88.97	47.00	139.73	358.64	189.48	561.86	257.57	136.06	402.69	1,016.53	536.82	1,587.65	865.05	456.83	1,351.07
2029	0.30	0.16	0.48	2.78	1.47	4.34	4.89	2.59	7.65	31.52	16.65	49.27	90.17	47.63	140.97	363.16	191.80	566.58	260.59	137.54	405.87	1,027.99	542.33	1,599.72	874.80	461.51	1,361.33
Total	**3.90**	**1.95**	**6.50**	**35.56**	**17.84**	**59.33**	**62.65**	**31.43**	**104.54**	**403.45**	**202.42**	**673.18**	**1,154.24**	**579.10**	**1,925.91**	**4,796.10**	**2,411.08**	**7,983.96**	**3,548.67**	**1,787.24**	**5,894.11**	**14,237.20**	**7,177.24**	**23,618.24**	**12,115.61**	**6,107.71**	**20,098.72**
Avg.	**0.16**	**0.08**	**0.26**	**1.42**	**0.71**	**2.37**	**2.51**	**1.26**	**4.18**	**16.14**	**8.10**	**26.93**	**46.17**	**23.16**	**77.04**	**191.84**	**96.44**	**319.36**	**141.95**	**71.49**	**235.76**	**569.49**	**287.09**	**944.73**	**484.62**	**244.31**	**803.95**

Avg. - All Size Categories		**1,454.29**	**732.64**	**2,414.58**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.43c Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Ground Water Systems

TTHM - Sensitivity Analysis

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.04	0.00	0.11	0.30	0.02	0.82	0.32	0.02	0.87	0.98	0.07	2.62	1.55	0.11	4.15	2.60	0.18	6.97	1.09	0.08	2.92	3.01	0.21	8.08	0.50	0.03	1.35
2011	0.11	0.02	0.25	0.78	0.13	1.88	0.83	0.13	2.00	2.51	0.40	6.03	3.97	0.64	9.53	6.66	1.07	16.00	2.79	0.45	6.70	7.72	1.24	18.57	1.29	0.21	3.09
2012	0.19	0.05	0.42	1.40	0.37	3.10	1.49	0.40	3.30	4.49	1.20	9.94	7.11	1.90	15.73	11.93	3.18	26.40	5.00	1.33	11.06	13.84	3.69	30.64	2.30	0.62	5.10
2013	0.29	0.10	0.60	2.15	0.73	4.43	2.28	0.78	4.72	6.89	2.34	14.24	10.90	3.71	22.53	18.30	6.22	37.82	7.66	2.61	15.84	21.24	7.22	43.89	3.54	1.20	7.31
2014	0.41	0.16	0.80	3.02	1.17	5.93	3.21	1.25	6.31	9.70	3.76	19.03	15.34	5.95	30.10	25.75	9.99	50.53	10.24	4.15	19.70	26.86	11.39	50.55	4.47	1.90	8.42
2015	0.54	0.23	1.02	4.01	1.67	7.57	4.27	1.78	8.06	12.87	5.38	24.32	20.36	8.50	38.47	32.88	14.18	61.09	12.38	5.72	22.24	31.94	15.32	56.37	5.32	2.55	9.38
2016	0.67	0.30	1.21	4.94	2.21	8.94	5.25	2.36	9.51	15.85	7.11	28.71	25.07	11.25	45.41	38.76	18.34	68.21	14.28	7.05	24.50	36.51	18.31	61.85	6.08	3.05	10.30
2017	0.77	0.37	1.34	5.70	2.75	9.90	6.07	2.92	10.53	18.31	8.82	31.79	28.96	13.95	50.28	43.93	21.91	74.68	15.96	8.10	26.71	40.53	20.67	67.38	6.75	3.44	11.22
2018	0.86	0.43	1.46	6.37	3.20	10.78	6.78	3.41	11.48	20.45	10.28	34.64	32.35	16.26	54.78	48.48	24.71	81.05	17.41	8.92	28.89	43.92	22.54	72.68	7.31	3.75	12.10
2019	0.94	0.48	1.57	6.95	3.56	11.59	7.40	3.79	12.33	22.33	11.43	37.23	35.32	18.08	58.88	52.38	26.94	86.76	18.61	9.60	30.73	46.68	24.12	77.01	7.77	4.01	12.82
2020	1.01	0.52	1.67	7.45	3.85	12.33	7.93	4.10	13.12	23.95	12.36	39.60	37.87	19.56	62.63	55.63	28.80	91.74	19.61	10.18	32.31	48.98	25.49	80.76	8.15	4.24	13.44
2021	1.06	0.55	1.75	7.87	4.09	12.95	8.38	4.35	13.78	25.29	13.13	41.59	40.00	20.77	65.77	58.32	30.38	95.81	20.44	10.68	33.57	50.92	26.65	83.63	8.48	4.44	13.92
2022	1.11	0.58	1.82	8.22	4.29	13.45	8.75	4.57	14.31	26.41	13.79	43.20	41.77	21.81	68.32	60.59	31.72	99.02	21.14	11.10	34.47	52.57	27.63	85.48	8.75	4.60	14.23
2023	1.15	0.60	1.87	8.52	4.47	13.85	9.06	4.75	14.74	27.36	14.34	44.50	43.27	22.68	70.38	62.52	32.85	101.40	21.75	11.45	35.13	53.99	28.46	87.02	8.99	4.74	14.49
2024	1.18	0.62	1.91	8.77	4.61	14.16	9.33	4.91	15.07	28.16	14.82	45.47	44.55	23.44	71.92	64.18	33.83	103.18	22.27	11.76	35.65	55.22	29.16	88.13	9.19	4.86	14.67
2025	1.21	0.64	1.94	8.99	4.74	14.39	9.56	5.04	15.31	28.86	15.23	46.22	45.65	24.08	73.10	65.62	34.66	104.63	22.73	12.01	36.07	56.30	29.77	89.11	9.37	4.96	14.84
2026	1.24	0.65	1.97	9.17	4.85	14.58	9.76	5.16	15.52	29.47	15.57	46.84	46.61	24.63	74.09	66.88	35.36	105.84	23.13	12.24	36.47	57.25	30.29	90.11	9.53	5.04	15.00
2027	1.26	0.67	1.99	9.34	4.94	14.75	9.94	5.25	15.70	30.00	15.85	47.37	47.44	25.07	74.93	67.98	35.94	107.00	23.48	12.42	36.86	58.08	30.72	91.06	9.67	5.11	15.16
2028	1.28	0.68	2.01	9.48	5.01	14.90	10.09	5.33	15.85	30.46	16.09	47.84	48.18	25.45	75.67	68.96	36.43	108.03	23.80	12.57	37.20	58.83	31.07	91.88	9.79	5.17	15.30
2029	1.30	0.69	2.03	9.61	5.08	15.03	10.23	5.40	15.99	30.88	16.31	48.27	48.83	25.80	76.35	69.82	36.88	108.94	24.07	12.71	37.50	59.49	31.38	92.57	9.90	5.22	15.41
Total	**16.63**	**8.34**	**27.74**	**123.04**	**61.73**	**205.30**	**130.95**	**65.70**	**218.50**	**395.22**	**198.29**	**659.45**	**625.10**	**313.62**	**1,043.02**	**922.15**	**463.58**	**1,535.08**	**327.84**	**165.11**	**544.53**	**823.89**	**415.34**	**1,366.76**	**137.16**	**69.15**	**227.54**
Avg.	**0.67**	**0.33**	**1.11**	**4.92**	**2.47**	**8.21**	**5.24**	**2.63**	**8.74**	**15.81**	**7.93**	**26.38**	**25.00**	**12.54**	**41.72**	**36.89**	**18.54**	**61.40**	**13.11**	**6.60**	**21.78**	**32.96**	**16.61**	**54.67**	**5.49**	**2.77**	**9.10**

Avg. - All Size Categories	**140.08**	**70.43**	**233.12**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.43d Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - All Water Systems

TTHM - Sensitivity Analysis

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.05	0.00	0.14	0.39	0.03	1.05	0.48	0.03	1.29	1.98	0.14	5.30	4.40	0.30	11.81	16.10	1.11	43.20	12.86	0.89	34.50	55.07	3.80	147.78	44.80	3.09	120.22
2011	0.13	0.02	0.31	1.01	0.16	2.42	1.23	0.20	2.95	5.07	0.81	12.18	11.29	1.81	27.14	41.27	6.63	99.23	32.96	5.30	79.25	141.19	22.69	339.47	114.86	18.46	276.17
2012	0.23	0.06	0.52	1.80	0.48	3.99	2.20	0.59	4.87	9.08	2.42	20.10	20.23	5.40	44.77	73.97	19.74	163.71	59.07	15.77	130.75	253.05	67.54	560.08	205.86	54.94	455.65
2013	0.36	0.12	0.74	2.77	0.94	5.72	3.38	1.15	6.98	13.93	4.74	28.79	31.04	10.55	64.13	113.48	38.59	234.50	90.63	30.82	187.28	388.24	132.02	802.25	315.85	107.40	652.66
2014	0.50	0.20	0.99	3.89	1.51	7.64	4.75	1.84	9.32	19.60	7.61	38.46	43.66	16.95	85.69	159.65	61.97	313.31	121.07	49.05	232.97	491.10	208.21	924.08	399.53	169.39	751.77
2015	0.67	0.28	1.26	5.17	2.16	9.76	6.31	2.63	11.92	26.02	10.86	49.16	57.96	24.20	109.51	203.88	87.94	378.83	146.35	67.58	262.93	583.84	280.05	1,030.44	474.98	227.83	838.30
2016	0.82	0.37	1.49	6.36	2.85	11.52	7.77	3.48	14.06	32.04	14.37	58.02	71.37	32.01	129.25	240.34	113.73	422.99	168.84	83.39	289.70	667.33	334.80	1,130.67	542.90	272.37	919.84
2017	0.95	0.46	1.65	7.35	3.54	12.76	8.97	4.32	15.57	37.00	17.82	64.24	82.42	39.71	143.13	272.44	135.87	463.07	188.74	95.75	315.82	740.92	377.93	1,231.77	602.77	307.46	1,002.09
2018	1.06	0.53	1.80	8.21	4.13	13.90	10.02	5.04	16.97	41.34	20.77	70.00	92.09	46.28	155.94	300.61	153.24	502.56	205.87	105.52	341.63	802.91	412.01	1,328.63	653.20	335.18	1,080.89
2019	1.16	0.59	1.93	8.96	4.59	14.94	10.94	5.60	18.23	45.13	23.10	75.23	100.55	51.47	167.59	324.81	167.08	538.00	220.10	113.51	363.41	853.38	440.87	1,407.70	694.26	358.66	1,145.22
2020	1.24	0.64	2.06	9.61	4.96	15.89	11.73	6.06	19.40	48.39	24.99	80.02	107.80	55.66	178.26	344.96	178.58	568.85	231.82	120.41	382.07	895.37	465.99	1,476.25	728.42	379.10	1,200.99
2021	1.31	0.68	2.16	10.15	5.27	16.69	12.39	6.43	20.37	51.11	26.54	84.04	113.86	59.13	187.22	361.65	188.40	594.12	241.66	126.28	396.98	930.81	487.15	1,528.88	757.25	396.32	1,243.80
2022	1.37	0.72	2.24	10.60	5.53	17.33	12.94	6.75	21.16	53.37	27.86	87.29	118.90	62.07	194.48	375.71	196.69	614.05	250.02	131.21	407.57	961.03	505.01	1,562.63	781.83	410.84	1,271.26
2023	1.42	0.74	2.31	10.98	5.76	17.86	13.40	7.03	21.80	55.28	28.98	89.92	123.16	64.57	200.33	387.68	203.70	628.75	257.18	135.41	415.36	987.01	520.27	1,590.69	802.97	423.26	1,294.09
2024	1.46	0.77	2.36	11.30	5.95	18.25	13.80	7.26	22.27	56.92	29.94	91.88	126.80	66.71	204.71	397.98	209.77	639.82	263.37	139.01	421.52	1,009.54	533.12	1,610.98	821.30	433.71	1,310.59
2025	1.50	0.79	2.40	11.58	6.11	18.55	14.14	7.46	22.64	58.32	30.77	93.40	129.94	68.55	208.07	406.91	214.93	648.78	268.77	142.06	426.49	1,029.20	544.17	1,628.98	837.29	442.71	1,325.24
2026	1.53	0.81	2.43	11.82	6.25	18.80	14.43	7.63	22.95	59.55	31.46	94.66	132.66	70.09	210.89	414.70	219.25	656.34	273.49	144.67	431.25	1,046.49	553.77	1,647.23	851.36	450.51	1,340.09
2027	1.56	0.82	2.46	12.04	6.36	19.01	14.69	7.77	23.21	60.62	32.03	95.73	135.05	71.37	213.28	421.55	222.85	663.51	277.67	146.84	435.90	1,061.77	561.59	1,664.67	863.79	456.87	1,354.28
2028	1.58	0.84	2.48	12.22	6.46	19.20	14.92	7.88	23.44	61.56	32.52	96.68	137.15	72.45	215.40	427.60	225.92	669.89	281.37	148.63	439.90	1,075.36	567.89	1,679.53	874.84	462.00	1,366.36
2029	1.60	0.85	2.51	12.39	6.55	19.37	15.12	7.99	23.65	62.39	32.96	97.54	139.01	73.43	217.32	432.98	228.67	675.52	284.67	150.25	443.37	1,087.48	573.71	1,692.29	884.71	466.74	1,376.74
Total	**20.52**	**10.30**	**34.24**	**158.60**	**79.57**	**264.64**	**193.60**	**97.13**	**323.04**	**798.68**	**400.71**	**1,332.63**	**1,779.34**	**892.72**	**2,968.93**	**5,718.26**	**2,874.66**	**9,519.04**	**3,876.51**	**1,952.35**	**6,438.63**	**15,061.09**	**7,592.58**	**24,985.01**	**12,252.77**	**6,176.86**	**20,326.26**
Avg.	**0.82**	**0.41**	**1.37**	**6.34**	**3.18**	**10.59**	**7.74**	**3.89**	**12.92**	**31.95**	**16.03**	**53.31**	**71.17**	**35.71**	**118.76**	**228.73**	**114.99**	**380.76**	**155.06**	**78.09**	**257.55**	**602.44**	**303.70**	**999.40**	**490.11**	**247.07**	**813.05**

Avg. - All Size Categories		**1,594.37**	**803.07**	**2,647.70**

Note: Detail may not add to totals due to independent rounding.

Section E.7.7
Projection of Cases - Stage 2
Preferred Alternative, 20% Safety Margin
TTHM as Indicator
Smoking/Lung Cancer Model

Exhibit E.44a Cases avoided by Age Group per year following rule promulgation
(Smoking/Lung Cancer model - TTHM - Preferred Alternative, 20% Safety Margin)

Years After	Age Group											
the Rule	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0091	0.0078	0.0482	0.1951	0.8419	2.2814	4.3990	6.9588	4.1259	0.7413	19.6085	4%
7	0.0243	0.0206	0.1272	0.5151	2.2227	6.0229	11.6129	18.3707	10.8920	1.9569	51.7652	11%
8	0.0441	0.0372	0.2299	0.9311	4.0174	10.8861	20.9900	33.2044	19.6869	3.5370	93.5640	20%
9	0.0674	0.0569	0.3518	1.4244	6.1459	16.6537	32.1107	50.7965	30.1172	5.4110	143.1354	31%
10	0.0865	0.0730	0.4516	1.8285	7.8895	21.3786	41.2209	65.2081	38.6619	6.9461	183.7447	40%
11	0.1012	0.0865	0.5355	2.1682	9.3549	25.3492	48.8769	77.3192	45.8425	8.2363	217.8703	47%
12	0.1122	0.0978	0.6048	2.4489	10.5661	28.6314	55.2054	87.3303	51.7781	9.3027	246.0775	53%
13	0.1200	0.1071	0.6625	2.6826	11.5745	31.3638	60.4738	95.6644	56.7194	10.1904	269.5584	58%
14	0.1254	0.1150	0.7114	2.8808	12.4294	33.6805	64.9408	102.7310	60.9092	10.9432	289.4667	63%
15	0.1298	0.1218	0.7534	3.0507	13.1627	35.6674	68.7717	108.7912	64.5023	11.5887	306.5396	66%
16	0.1327	0.1281	0.7897	3.1977	13.7969	37.3860	72.0854	114.0332	67.6102	12.1471	321.3069	70%
17	0.1345	0.1340	0.8213	3.3257	14.3493	38.8828	74.9715	118.5988	70.3172	12.6335	334.1686	72%
18	0.1355	0.1395	0.8490	3.4379	14.8332	40.1941	77.4999	122.5983	72.6885	13.0595	345.4354	75%
19	0.1358	0.1448	0.8734	3.5366	15.2592	41.3485	79.7257	126.1194	74.7761	13.4346	355.3540	77%
20	0.1359	0.1494	0.8950	3.6239	15.6359	42.3692	81.6937	129.2327	76.6220	13.7662	364.1239	79%
21	0.1359	0.1544	0.9141	3.7014	15.9702	43.2752	83.4406	131.9962	78.2605	14.0606	371.9090	81%
22	0.1359	0.1595	0.9311	3.7704	16.2681	44.0822	84.9966	134.4577	79.7199	14.3228	378.8442	82%
23	0.1359	0.1649	0.9464	3.8321	16.5342	44.8033	86.3871	136.6573	81.0240	14.5571	385.0422	83%
24	0.1359	0.1704	0.9600	3.8874	16.7727	45.4496	87.6332	138.6286	82.1928	14.7671	390.5977	85%
25	0.1359	0.1754	0.9723	3.9371	16.9870	46.0304	88.7531	140.4002	83.2432	14.9558	395.5904	86%
26	0.1359	0.1791	0.9854	3.9818	17.1802	46.5537	89.7622	141.9963	84.1896	15.1258	400.0901	87%
27	0.1359	0.1815	0.9991	4.0222	17.3546	47.0264	90.6735	143.4380	85.0443	15.2794	404.1551	88%
28	0.1359	0.1828	1.0134	4.0588	17.5125	47.4543	91.4986	144.7431	85.8182	15.4184	407.8360	88%
29	0.1359	0.1832	1.0280	4.0920	17.6558	47.8425	92.2470	145.9272	86.5202	15.5446	411.1764	89%
30	0.1359	0.1833	1.0414	4.1222	17.7860	48.1954	92.9276	147.0037	87.1585	15.6592	414.2132	90%
31	0.1359	0.1833	1.0552	4.1497	17.9047	48.5169	93.5475	147.9844	87.7400	15.7637	416.9813	90%
32	0.1359	0.1833	1.0690	4.1748	18.0130	48.8104	94.1134	148.8795	88.2707	15.8591	419.5092	91%
33	0.1359	0.1833	1.0832	4.1978	18.1120	49.0788	94.6309	149.6982	88.7561	15.9463	421.8225	91%
34	0.1359	0.1833	1.0977	4.2188	18.2028	49.3247	95.1051	150.4482	89.2008	16.0262	423.9435	92%
35	0.1359	0.1833	1.1114	4.2381	18.2861	49.5504	95.5402	151.1367	89.6089	16.0995	425.8906	92%
36	0.1359	0.1833	1.1218	4.2599	18.3626	49.7579	95.9403	151.7696	89.9842	16.1669	427.6825	93%
37	0.1359	0.1833	1.1289	4.2837	18.4332	49.9490	96.3088	152.3525	90.3298	16.2290	429.3340	93%
38	0.1359	0.1833	1.1329	4.3092	18.4982	50.1253	96.6487	152.8902	90.6486	16.2863	430.8587	93%
39	0.1359	0.1833	1.1339	4.3365	18.5583	50.2882	96.9628	153.3871	90.9431	16.3392	432.2684	94%
40	0.1359	0.1833	1.1343	4.3623	18.6140	50.4389	97.2534	153.8468	91.2157	16.3882	433.5729	94%
41	0.1359	0.1833	1.1344	4.3917	18.6655	50.5787	97.5228	154.2730	91.4684	16.4336	434.7872	94%
42	0.1359	0.1833	1.1344	4.4241	18.7134	50.7083	97.7728	154.6686	91.7029	16.4757	435.9195	94%
43	0.1359	0.1833	1.1344	4.4592	18.7579	50.8289	98.0053	155.0363	91.9209	16.5149	436.9770	95%
44	0.1359	0.1833	1.1344	4.4969	18.7993	50.9411	98.2217	155.3786	92.1239	16.5514	437.9665	95%
45	0.1359	0.1833	1.1344	4.5331	18.8379	51.0458	98.4235	155.6977	92.3131	16.5854	438.8900	95%
46	0.1359	0.1833	1.1344	4.5604	18.8891	51.1435	98.6118	155.9957	92.4898	16.6171	439.7609	95%
47	0.1359	0.1833	1.1344	4.5790	18.9513	51.2348	98.7879	156.2743	92.6550	16.6468	440.5826	95%
48	0.1359	0.1833	1.1344	4.5894	19.0240	51.3203	98.9528	156.5350	92.8096	16.6745	441.3592	96%
49	0.1359	0.1833	1.1344	4.5921	19.1063	51.4004	99.1073	156.7794	92.9545	16.7006	442.0942	96%
50	0.1359	0.1833	1.1344	4.5932	19.1854	51.4756	99.2523	157.0089	93.0905	16.7250	442.7845	96%
51	0.1359	0.1833	1.1344	4.5934	19.2730	51.5463	99.3886	157.2244	93.2183	16.7480	443.4455	96%
52	0.1359	0.1833	1.1344	4.5934	19.3660	51.6128	99.5168	157.4273	93.3386	16.7696	444.0779	96%
53	0.1359	0.1833	1.1344	4.5934	19.4637	51.6754	99.6376	157.6184	93.4519	16.7899	444.6839	96%
54	0.1359	0.1833	1.1344	4.5934	19.5657	51.7345	99.7515	157.7986	93.5587	16.8091	445.2651	97%
55	0.1359	0.1833	1.1344	4.5934	19.6615	51.7903	99.8590	157.9688	93.6596	16.8273	445.8134	97%
56	0.1359	0.1833	1.1344	4.5934	19.7332	51.8792	99.9607	158.1296	93.7550	16.8444	446.3491	97%
57	0.1359	0.1833	1.1344	4.5934	19.7817	51.9978	100.0570	158.2818	93.8453	16.8606	446.8711	97%
58	0.1359	0.1833	1.1344	4.5934	19.8085	52.1454	100.1481	158.4261	93.9308	16.8760	447.3819	97%
59	0.1359	0.1833	1.1344	4.5934	19.8156	52.3202	100.2346	158.5629	94.0119	16.8906	447.8826	97%
60	0.1359	0.1833	1.1344	4.5934	19.8183	52.4854	100.3167	158.6927	94.0889	16.9044	448.3533	97%
61	0.1359	0.1833	1.1344	4.5934	19.8188	52.6608	100.3947	158.8161	94.1620	16.9175	448.8169	97%
62	0.1359	0.1833	1.1344	4.5934	19.8188	52.8424	100.4689	158.9335	94.2316	16.9300	449.2721	97%
63	0.1359	0.1833	1.1344	4.5934	19.8188	53.0300	100.5395	159.0453	94.2979	16.9419	449.7204	97%
64	0.1359	0.1833	1.1344	4.5934	19.8188	53.2245	100.6069	159.1518	94.3610	16.9533	450.1633	98%
65	0.1359	0.1833	1.1344	4.5934	19.8188	53.4073	100.6711	159.2534	94.4213	16.9641	450.5831	98%
66	0.1359	0.1833	1.1344	4.5934	19.8188	53.5441	100.7888	159.3504	94.4788	16.9744	451.0023	98%
67	0.1359	0.1833	1.1344	4.5934	19.8188	53.6348	100.9555	159.4431	94.5338	16.9843	451.4173	98%
68	0.1359	0.1833	1.1344	4.5934	19.8188	53.6847	101.1681	159.5318	94.5864	16.9938	451.8304	98%
69	0.1359	0.1833	1.1344	4.5934	19.8188	53.6978	101.4224	159.6167	94.6367	17.0028	452.2421	98%
70	0.1359	0.1833	1.1344	4.5934	19.8188	53.7027	101.6723	159.6979	94.6849	17.0115	452.6350	98%
71	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	101.9389	159.7758	94.7311	17.0198	453.0350	98%
72	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	102.2127	159.8507	94.7754	17.0277	453.4359	98%
73	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	102.4956	159.9225	94.8180	17.0354	453.8409	98%
74	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	102.7873	159.9915	94.8589	17.0427	454.2499	98%
75	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.0691	160.0578	94.8983	17.0498	454.6443	99%
76	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.2840	160.2070	94.9361	17.0566	455.0531	99%
77	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.4321	160.4325	94.9725	17.0631	455.4697	99%
78	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5162	160.7322	95.0076	17.0695	455.8949	99%
79	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5382	161.1009	95.0415	17.0755	456.3255	99%
80	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5466	161.4676	95.0741	17.0814	456.7391	99%
81	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	161.8422	95.1056	17.0871	457.1525	99%
82	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	162.2129	95.1360	17.0925	457.5592	99%
83	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	162.5756	95.1655	17.0978	457.9566	99%
84	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	162.9313	95.1939	17.1029	458.3458	99%
85	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.2628	95.2214	17.1079	458.7097	99%
86	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.5095	95.3150	17.1126	459.0549	99%
87	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.6771	95.4657	17.1173	459.3777	100%
88	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.7694	95.6669	17.1218	459.6758	100%
89	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.7937	95.9123	17.1261	459.9498	100%
90	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.8029	96.1437	17.1303	460.1947	100%
91	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.8047	96.3545	17.1344	460.4113	100%
92	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.8047	96.5394	17.1384	460.6002	100%
93	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.8047	96.6992	17.1422	460.7638	100%
94	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.8047	96.8347	17.1460	460.9031	100%
95	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.8047	96.9494	17.1496	461.0214	100%
96	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.8047	97.0301	17.1682	461.1208	100%
97	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.8047	97.0818	17.1987	461.2028	100%
98	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.8047	97.1093	17.2385	461.2702	100%
99	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.8047	97.1166	17.2853	461.3243	100%
100	0.1359	0.1833	1.1344	4.5934	19.8188	53.7037	103.5483	163.8047	97.1193	17.3255	461.3672	100%

Exhibit E.44b Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Surface Water Systems

TTHM - Preferred Alternative, 20% Safety Factor

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.00	0.01	0.00	0.03	0.02	0.01	0.05	0.15	0.05	0.35	0.42	0.15	0.99	1.98	0.70	4.65	1.72	0.61	4.05	7.62	2.68	17.92	6.49	2.28	15.25
2011	0.00	0.00	0.01	0.03	0.01	0.07	0.06	0.02	0.13	0.39	0.15	0.84	1.11	0.42	2.40	5.22	1.98	11.32	4.55	1.72	9.86	20.12	7.63	43.62	17.13	6.49	37.12
2012	0.01	0.00	0.01	0.06	0.02	0.13	0.11	0.04	0.22	0.70	0.28	1.43	2.00	0.80	4.10	9.43	3.77	19.29	8.22	3.28	16.81	36.37	14.52	74.34	30.95	12.35	63.27
2013	0.01	0.00	0.02	0.09	0.04	0.18	0.17	0.07	0.32	1.07	0.44	2.10	3.07	1.27	5.99	14.43	5.97	28.22	12.58	5.20	24.59	55.64	23.01	108.79	47.35	19.59	92.59
2014	0.01	0.01	0.03	0.13	0.06	0.25	0.23	0.10	0.44	1.49	0.63	2.82	4.26	1.80	8.07	20.08	8.49	37.99	16.64	7.10	31.08	69.79	30.06	128.53	59.39	25.58	109.39
2015	0.02	0.01	0.03	0.17	0.07	0.32	0.30	0.13	0.56	1.95	0.84	3.60	5.58	2.40	10.29	25.28	10.97	46.13	19.76	8.70	35.27	81.16	36.00	143.18	69.07	30.64	121.86
2016	0.02	0.01	0.04	0.21	0.09	0.37	0.37	0.16	0.66	2.37	1.05	4.24	6.78	2.99	12.14	29.33	13.09	51.49	22.31	10.07	38.49	90.57	41.11	154.91	77.08	34.99	131.84
2017	0.03	0.01	0.04	0.24	0.11	0.41	0.42	0.19	0.73	2.70	1.22	4.68	7.73	3.49	13.39	32.66	14.92	55.73	24.45	11.26	41.19	98.51	45.57	165.01	83.83	38.79	140.44
2018	0.03	0.01	0.05	0.26	0.12	0.44	0.46	0.21	0.78	2.97	1.37	5.04	8.51	3.92	14.41	35.45	16.46	59.38	26.26	12.29	43.59	105.27	49.49	174.02	89.59	42.12	148.10
2019	0.03	0.01	0.05	0.28	0.13	0.47	0.50	0.23	0.83	3.20	1.50	5.35	9.17	4.28	15.31	37.84	17.79	62.71	27.81	13.17	45.83	111.10	52.83	182.58	94.55	44.96	155.39
2020	0.03	0.02	0.05	0.30	0.14	0.50	0.53	0.25	0.87	3.40	1.61	5.63	9.73	4.59	16.12	39.88	18.96	65.77	29.16	13.93	47.95	116.15	55.65	190.90	98.85	47.36	162.47
2021	0.03	0.02	0.06	0.31	0.15	0.52	0.55	0.26	0.91	3.57	1.70	5.89	10.21	4.87	16.85	41.66	19.94	68.58	30.33	14.56	49.93	120.57	57.93	198.59	102.61	49.30	169.01
2022	0.04	0.02	0.06	0.33	0.16	0.54	0.58	0.28	0.95	3.72	1.78	6.12	10.63	5.10	17.51	43.21	20.78	71.17	31.36	15.10	51.71	124.44	59.99	205.41	105.91	51.05	174.82
2023	0.04	0.02	0.06	0.34	0.16	0.56	0.60	0.29	0.98	3.85	1.85	6.33	11.00	5.30	18.12	44.57	21.51	73.49	32.26	15.59	53.24	127.86	61.86	211.05	108.81	52.64	179.62
2024	0.04	0.02	0.06	0.35	0.17	0.57	0.61	0.30	1.01	3.96	1.91	6.53	11.32	5.47	18.68	45.77	22.13	75.57	33.06	16.00	54.58	130.88	63.37	216.06	111.39	53.93	183.88
2025	0.04	0.02	0.06	0.36	0.17	0.59	0.63	0.30	1.04	4.06	1.96	6.70	11.61	5.61	19.17	46.83	22.65	77.33	33.77	16.34	55.74	133.57	64.67	220.49	113.68	55.04	187.65
2026	0.04	0.02	0.06	0.37	0.18	0.60	0.64	0.31	1.06	4.15	2.00	6.84	11.86	5.73	19.58	47.78	23.10	78.83	34.40	16.63	56.75	135.97	65.73	224.29	115.72	55.94	190.89
2027	0.04	0.02	0.07	0.37	0.18	0.61	0.66	0.32	1.08	4.23	2.04	6.97	12.09	5.84	19.95	48.62	23.48	80.23	34.96	16.87	57.71	138.12	66.56	228.00	117.54	56.65	194.04
2028	0.04	0.02	0.07	0.38	0.18	0.62	0.67	0.32	1.10	4.30	2.07	7.09	12.29	5.93	20.29	49.38	23.78	81.54	35.47	17.06	58.58	140.04	67.28	231.25	119.18	57.26	196.81
2029	0.04	0.02	0.07	0.38	0.18	0.63	0.68	0.33	1.12	4.36	2.10	7.20	12.47	6.00	20.60	50.05	24.05	82.70	35.92	17.24	59.36	141.77	67.98	234.25	120.66	57.86	199.36
Total	**0.54**	**0.25**	**0.91**	**4.98**	**2.34**	**8.43**	**8.77**	**4.12**	**14.85**	**56.58**	**26.56**	**95.77**	**161.85**	**75.97**	**273.94**	**669.48**	**314.51**	**1,132.11**	**494.97**	**232.72**	**836.30**	**1,985.52**	**933.92**	**3,353.21**	**1,689.80**	**794.82**	**2,853.78**
Avg.	**0.02**	**0.01**	**0.04**	**0.20**	**0.09**	**0.34**	**0.35**	**0.16**	**0.59**	**2.26**	**1.06**	**3.83**	**6.47**	**3.04**	**10.96**	**26.78**	**12.58**	**45.28**	**19.80**	**9.31**	**33.45**	**79.42**	**37.36**	**134.13**	**67.59**	**31.79**	**114.15**

Avg. - All Size Categories	**202.90**	**95.41**	**342.77**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.44c Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Ground Water Systems

TTHM - Preferred Alternative, 20% Safety Factor

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999		
	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.01	0.04	0.02	0.10	0.05	0.02	0.11	0.14	0.05	0.32	0.22	0.08	0.51
2011	0.02	0.01	0.03	0.11	0.04	0.24	0.12	0.05	0.26	0.36	0.14	0.79	0.57	0.22	1.24
2012	0.03	0.01	0.06	0.20	0.08	0.42	0.22	0.09	0.44	0.66	0.26	1.34	1.04	0.41	2.12
2013	0.04	0.02	0.08	0.31	0.13	0.61	0.33	0.14	0.65	1.00	0.41	1.96	1.59	0.66	3.10
2014	0.06	0.02	0.11	0.43	0.18	0.82	0.46	0.20	0.87	1.40	0.59	2.64	2.21	0.93	4.18
2015	0.08	0.03	0.14	0.57	0.24	1.05	0.60	0.26	1.12	1.83	0.79	3.37	2.89	1.24	5.33
2016	0.09	0.04	0.17	0.69	0.30	1.24	0.74	0.32	1.32	2.22	0.98	3.97	3.51	1.55	6.28
2017	0.11	0.05	0.18	0.79	0.36	1.36	0.84	0.38	1.45	2.53	1.14	4.38	4.00	1.81	6.93
2018	0.12	0.05	0.20	0.87	0.40	1.47	0.92	0.42	1.56	2.78	1.28	4.71	4.40	2.03	7.46
2019	0.13	0.06	0.21	0.93	0.44	1.56	0.99	0.46	1.66	3.00	1.40	5.01	4.74	2.22	7.92
2020	0.13	0.06	0.22	0.99	0.47	1.64	1.05	0.50	1.75	3.18	1.50	5.27	5.04	2.38	8.34
2021	0.14	0.07	0.23	1.04	0.50	1.72	1.11	0.53	1.83	3.34	1.59	5.51	5.29	2.52	8.72
2022	0.15	0.07	0.24	1.08	0.52	1.78	1.15	0.55	1.90	3.48	1.67	5.73	5.50	2.64	9.06
2023	0.15	0.07	0.25	1.12	0.54	1.85	1.19	0.57	1.96	3.60	1.73	5.93	5.70	2.74	9.38
2024	0.16	0.08	0.26	1.15	0.56	1.90	1.23	0.59	2.03	3.71	1.79	6.11	5.86	2.83	9.67
2025	0.16	0.08	0.26	1.18	0.57	1.95	1.26	0.61	2.08	3.80	1.84	6.27	6.01	2.90	9.92
2026	0.16	0.08	0.27	1.21	0.58	1.99	1.29	0.62	2.12	3.88	1.88	6.41	6.14	2.97	10.14
2027	0.17	0.08	0.28	1.23	0.59	2.03	1.31	0.63	2.16	3.96	1.91	6.53	6.26	3.02	10.33
2028	0.17	0.08	0.28	1.25	0.60	2.07	1.33	0.64	2.20	4.02	1.94	6.64	6.36	3.07	10.50
2029	0.17	0.08	0.28	1.27	0.61	2.10	1.35	0.65	2.23	4.08	1.96	6.74	6.46	3.11	10.67
Total	**2.23**	**1.05**	**3.78**	**16.49**	**7.74**	**27.91**	**17.55**	**8.24**	**29.70**	**52.97**	**24.86**	**89.65**	**83.79**	**39.33**	**141.81**
Avg.	**0.09**	**0.04**	**0.15**	**0.66**	**0.31**	**1.12**	**0.70**	**0.33**	**1.19**	**2.12**	**0.99**	**3.59**	**3.35**	**1.57**	**5.67**

Year	10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.27	0.09	0.63	0.11	0.04	0.27	0.31	0.11	0.73	0.05	0.02	0.12
2011	0.71	0.27	1.54	0.30	0.11	0.65	0.83	0.31	1.79	0.14	0.05	0.30
2012	1.29	0.51	2.63	0.54	0.21	1.10	1.49	0.60	3.05	0.25	0.10	0.51
2013	1.97	0.81	3.84	0.82	0.34	1.61	2.28	0.94	4.46	0.38	0.16	0.74
2014	2.74	1.16	5.18	1.09	0.46	2.03	2.86	1.23	5.27	0.48	0.21	0.88
2015	3.44	1.49	6.29	1.29	0.57	2.31	3.33	1.48	5.87	0.55	0.25	0.98
2016	4.00	1.78	7.01	1.46	0.66	2.52	3.72	1.69	6.35	0.62	0.28	1.06
2017	4.45	2.03	7.59	1.60	0.74	2.70	4.04	1.87	6.77	0.67	0.31	1.13
2018	4.83	2.24	8.09	1.72	0.80	2.85	4.32	2.03	7.14	0.72	0.34	1.19
2019	5.15	2.42	8.54	1.82	0.86	3.00	4.56	2.17	7.49	0.76	0.36	1.25
2020	5.43	2.58	8.96	1.91	0.91	3.14	4.76	2.28	7.83	0.79	0.38	1.30
2021	5.68	2.72	9.34	1.99	0.95	3.27	4.95	2.38	8.15	0.82	0.40	1.36
2022	5.89	2.83	9.70	2.05	0.99	3.38	5.10	2.46	8.43	0.85	0.41	1.40
2023	6.07	2.93	10.01	2.11	1.02	3.49	5.24	2.54	8.66	0.87	0.42	1.44
2024	6.24	3.01	10.29	2.16	1.05	3.57	5.37	2.60	8.86	0.89	0.43	1.48
2025	6.38	3.09	10.54	2.21	1.07	3.65	5.48	2.65	9.04	0.91	0.44	1.51
2026	6.51	3.15	10.74	2.25	1.09	3.71	5.58	2.70	9.20	0.93	0.45	1.53
2027	6.62	3.20	10.93	2.29	1.10	3.78	5.67	2.73	9.35	0.94	0.45	1.56
2028	6.73	3.24	11.11	2.32	1.12	3.83	5.74	2.76	9.49	0.96	0.46	1.58
2029	6.82	3.28	11.27	2.35	1.13	3.89	5.82	2.79	9.61	0.97	0.46	1.60
Total	**91.21**	**42.85**	**154.23**	**32.40**	**15.23**	**54.75**	**81.45**	**38.31**	**137.55**	**13.56**	**6.38**	**22.91**
Avg.	**3.65**	**1.71**	**6.17**	**1.30**	**0.61**	**2.19**	**3.26**	**1.53**	**5.50**	**0.54**	**0.26**	**0.92**

Avg. - All Size Categories	**15.67**	**7.36**	**26.49**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.44d Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - All Water Systems

TTHM - Preferred Alternative, 20% Safety Factor

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.06	0.02	0.13	0.07	0.02	0.16	0.28	0.10	0.67	0.64	0.22	1.50	2.25	0.79	5.28	1.84	0.65	4.32	7.93	2.79	18.65	6.54	2.30	15.37
2011	0.02	0.01	0.04	0.15	0.06	0.32	0.18	0.07	0.39	0.75	0.28	1.63	1.68	0.64	3.65	5.93	2.25	12.86	4.85	1.84	10.51	20.95	7.94	45.41	17.26	6.54	37.42
2012	0.03	0.01	0.07	0.27	0.11	0.54	0.33	0.13	0.67	1.36	0.54	2.77	3.04	1.21	6.22	10.72	4.28	21.91	8.76	3.50	17.91	37.86	15.11	77.39	31.20	12.45	63.78
2013	0.05	0.02	0.10	0.41	0.17	0.80	0.50	0.21	0.97	2.07	0.86	4.06	4.65	1.92	9.10	16.40	6.78	32.07	13.40	5.54	26.20	57.92	23.96	113.26	47.73	19.74	93.33
2014	0.07	0.03	0.14	0.57	0.24	1.07	0.69	0.29	1.31	2.89	1.22	5.46	6.47	2.74	12.24	22.82	9.65	43.16	17.73	7.56	33.11	72.65	31.29	133.80	59.87	25.79	110.26
2015	0.10	0.04	0.18	0.74	0.32	1.37	0.91	0.39	1.67	3.78	1.63	6.97	8.47	3.65	15.62	28.73	12.47	52.42	21.05	9.27	37.58	84.49	37.48	149.06	69.63	30.89	122.83
2016	0.12	0.05	0.21	0.90	0.40	1.61	1.10	0.49	1.97	4.59	2.02	8.21	10.30	4.54	18.42	33.33	14.88	58.50	23.77	10.73	41.01	94.29	42.80	161.27	77.70	35.27	132.90
2017	0.13	0.06	0.23	1.03	0.46	1.78	1.26	0.57	2.18	5.23	2.37	9.06	11.73	5.30	20.32	37.11	16.95	63.32	26.05	12.00	43.89	102.55	47.44	171.78	84.51	39.10	141.56
2018	0.15	0.07	0.25	1.13	0.52	1.91	1.38	0.64	2.34	5.76	2.65	9.75	12.91	5.95	21.86	40.28	18.71	67.47	27.98	13.09	46.45	109.59	51.52	181.16	90.31	42.45	149.29
2019	0.16	0.07	0.26	1.22	0.57	2.03	1.49	0.70	2.49	6.20	2.90	10.36	13.91	6.50	23.23	42.99	20.21	71.26	29.63	14.03	48.83	115.65	54.99	190.07	95.31	45.32	156.63
2020	0.17	0.08	0.28	1.29	0.61	2.14	1.58	0.75	2.62	6.58	3.11	10.91	14.76	6.97	24.46	45.32	21.54	74.73	31.07	14.85	51.09	120.92	57.93	198.73	99.65	47.74	163.77
2021	0.17	0.08	0.29	1.35	0.65	2.23	1.66	0.79	2.74	6.91	3.29	11.40	15.50	7.39	25.57	47.34	22.66	77.92	32.31	15.51	53.19	125.51	60.30	206.73	103.43	49.69	170.37
2022	0.18	0.09	0.30	1.41	0.68	2.32	1.73	0.83	2.85	7.20	3.45	11.85	16.14	7.74	26.58	49.10	23.61	80.86	33.41	16.09	55.09	129.55	62.45	213.84	106.76	51.46	176.22
2023	0.19	0.09	0.31	1.46	0.70	2.40	1.79	0.86	2.95	7.45	3.59	12.26	16.70	8.04	27.50	50.64	24.44	83.50	34.37	16.61	56.72	133.10	64.39	219.71	109.69	53.07	181.06
2024	0.19	0.09	0.32	1.50	0.73	2.48	1.84	0.89	3.04	7.67	3.70	12.64	17.19	8.30	28.35	52.01	25.14	85.86	35.22	17.05	58.15	136.25	65.97	224.93	112.28	54.36	185.36
2025	0.20	0.10	0.33	1.54	0.74	2.54	1.89	0.91	3.12	7.86	3.80	12.97	17.62	8.52	29.09	53.22	25.74	87.87	35.98	17.41	59.39	139.05	67.32	229.53	114.59	55.48	189.15
2026	0.20	0.10	0.33	1.57	0.76	2.60	1.93	0.93	3.18	8.03	3.88	13.25	18.01	8.70	29.72	54.29	26.25	89.57	36.65	17.72	60.46	141.55	68.43	233.49	116.65	56.39	192.42
2027	0.21	0.10	0.34	1.60	0.77	2.65	1.97	0.95	3.24	8.18	3.95	13.50	18.35	8.86	30.28	55.25	26.68	91.17	37.25	17.97	61.48	143.78	69.29	237.35	118.49	57.10	195.60
2028	0.21	0.10	0.35	1.63	0.79	2.69	2.00	0.96	3.30	8.32	4.01	13.73	18.65	8.99	30.80	56.10	27.02	92.64	37.79	18.17	62.41	145.79	70.04	240.74	120.14	57.72	198.39
2029	0.21	0.10	0.35	1.65	0.80	2.73	2.03	0.98	3.35	8.44	4.06	13.95	18.93	9.11	31.27	56.87	27.32	93.97	38.28	18.37	63.24	147.59	70.77	243.86	121.62	58.32	200.96
Total	**2.77**	**1.30**	**4.68**	**21.47**	**10.08**	**36.34**	**26.32**	**12.35**	**44.55**	**109.55**	**51.42**	**185.42**	**245.64**	**115.29**	**415.76**	**760.68**	**357.36**	**1,286.34**	**527.38**	**247.96**	**891.05**	**2,066.97**	**972.23**	**3,490.76**	**1,703.36**	**801.20**	**2,876.68**
Avg.	**0.11**	**0.05**	**0.19**	**0.86**	**0.40**	**1.45**	**1.05**	**0.49**	**1.78**	**4.38**	**2.06**	**7.42**	**9.83**	**4.61**	**16.63**	**30.43**	**14.29**	**51.45**	**21.10**	**9.92**	**35.64**	**82.68**	**38.89**	**139.63**	**68.13**	**32.05**	**115.07**

Avg. - All Size Categories	**218.57**	**102.77**	**369.26**

Note: Detail may not add to totals due to independent rounding.

Section E.7.8
Projection of Cases - Stage 2
Preferred Alternative, 25% Safety Factor
TTHM as Indicator
Smoking/Lung Cancer Model

Exhibit E.45a Cases avoided by Age Group per year following rule promulgation
(Smoking/Lung Cancer model - TTHM - Preferred Alternative, 25% Safety Margin)

Years After the Rule	Age Group 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0132	0.0109	0.0675	0.2732	1.1786	3.1936	6.1578	9.7411	5.7755	1.0376	27.4489	4%
7	0.0347	0.0277	0.1712	0.6932	2.9908	8.1044	15.6264	24.7196	14.6563	2.6332	69.6575	10%
8	0.0630	0.0495	0.3066	1.2413	5.3558	14.5129	27.9828	44.2665	26.2456	4.7154	124.7395	18%
9	0.0971	0.0763	0.4723	1.9124	8.2511	22.3584	43.1102	68.1968	40.4339	7.2645	192.1731	28%
10	0.1255	0.0994	0.6152	2.4910	10.7477	29.1235	56.1542	88.8313	52.6681	9.4626	250.3186	37%
11	0.1484	0.1216	0.7521	3.0453	13.1392	35.6038	68.6492	108.5973	64.3873	11.5681	306.0121	45%
12	0.1657	0.1419	0.8778	3.5543	15.3357	41.5558	80.1255	126.7518	75.1511	13.5020	357.1616	52%
13	0.1784	0.1600	0.9901	4.0092	17.2981	46.8733	90.3784	142.9711	84.7675	15.2297	402.8557	59%
14	0.1869	0.1754	1.0854	4.3952	18.9636	51.3865	99.0804	156.7369	92.9292	16.6960	441.6356	64%
15	0.1933	0.1879	1.1624	4.7068	20.3082	55.0299	106.1054	167.8499	99.5182	17.8798	472.9417	69%
16	0.1975	0.1986	1.2250	4.9603	21.4018	57.9934	111.8195	176.8891	104.8775	18.8427	498.4054	73%
17	0.2000	0.2079	1.2765	5.1690	22.3024	60.4336	116.5246	184.3323	109.2906	19.6356	519.3725	76%
18	0.2013	0.2162	1.3197	5.3437	23.0561	62.4761	120.4627	190.5621	112.9842	20.2992	536.9213	78%
19	0.2016	0.2238	1.3563	5.4919	23.6958	64.2094	123.8049	195.8492	116.1189	20.8624	551.8143	81%
20	0.2017	0.2302	1.3877	5.6192	24.2447	65.6967	126.6726	200.3857	118.8086	21.3456	564.5927	82%
21	0.2017	0.2368	1.4149	5.7293	24.7201	66.9849	129.1564	204.3148	121.1382	21.7642	575.6613	84%
22	0.2017	0.2435	1.4387	5.8256	25.1352	68.1099	131.3254	207.7461	123.1725	22.1297	585.3282	85%
23	0.2017	0.2502	1.4596	5.9102	25.5003	69.0993	133.2331	210.7638	124.9617	22.4511	593.8310	87%
24	0.2017	0.2570	1.4781	5.9851	25.8234	69.9747	134.9209	213.4338	126.5448	22.7356	601.3550	88%
25	0.2017	0.2630	1.4945	6.0516	26.1107	70.7532	136.4221	215.8086	127.9528	22.9885	608.0468	89%
26	0.2017	0.2674	1.5116	6.1111	26.3674	71.4488	137.7634	217.9304	129.2108	23.2145	614.0271	90%
27	0.2017	0.2702	1.5291	6.1645	26.5977	72.0729	138.9666	219.8336	130.3393	23.4173	619.3929	90%
28	0.2017	0.2717	1.5468	6.2126	26.8050	72.6347	140.0499	221.5472	131.3553	23.5998	624.2247	91%
29	0.2017	0.2720	1.5647	6.2560	26.9923	73.1421	141.0283	223.0951	132.2730	23.7647	628.5899	92%
30	0.2017	0.2721	1.5809	6.2953	27.1620	73.6018	141.9147	224.4973	133.1043	23.9141	632.5442	92%
31	0.2017	0.2722	1.5971	6.3310	27.3161	74.0194	142.7199	225.7710	133.8595	24.0497	636.1374	93%
32	0.2017	0.2722	1.6130	6.3635	27.4564	74.3996	143.4530	226.9307	134.5472	24.1733	639.4106	93%
33	0.2017	0.2722	1.6290	6.3932	27.5845	74.7466	144.1221	227.9891	135.1747	24.2860	642.3992	94%
34	0.2017	0.2722	1.6451	6.4204	27.7016	75.0640	144.7340	228.9571	135.7486	24.3891	645.1336	94%
35	0.2017	0.2722	1.6600	6.4452	27.8089	75.3547	145.2947	229.8440	136.2745	24.4836	647.6396	95%
36	0.2017	0.2722	1.6711	6.4722	27.9074	75.6217	145.8094	230.6582	136.7572	24.5704	649.9414	95%
37	0.2017	0.2722	1.6785	6.5007	27.9980	75.8671	146.2827	231.4069	137.2012	24.6501	652.0591	95%
38	0.2017	0.2722	1.6826	6.5306	28.0814	76.0932	146.7186	232.0965	137.6100	24.7236	654.0104	95%
39	0.2017	0.2722	1.6835	6.5617	28.1584	76.3018	147.1206	232.7327	137.9872	24.7913	655.8110	96%
40	0.2017	0.2722	1.6838	6.5906	28.2295	76.4945	147.4921	233.3203	138.3356	24.8539	657.4742	96%
41	0.2017	0.2722	1.6839	6.6221	28.2952	76.6727	147.8358	233.8640	138.6579	24.9118	659.0174	96%
42	0.2017	0.2722	1.6839	6.6558	28.3562	76.8378	148.1542	234.3677	138.9566	24.9655	660.4515	96%
43	0.2017	0.2722	1.6839	6.6914	28.4127	76.9910	148.4496	234.8349	139.2335	25.0153	661.7861	97%
44	0.2017	0.2722	1.6839	6.7286	28.4652	77.1333	148.7239	235.2688	139.4908	25.0615	663.0299	97%
45	0.2017	0.2722	1.6839	6.7633	28.5140	77.2656	148.9790	235.6723	139.7301	25.1045	664.1866	97%
46	0.2017	0.2722	1.6839	6.7890	28.5731	77.3887	149.2165	236.0481	139.9529	25.1445	665.2705	97%
47	0.2017	0.2722	1.6839	6.8061	28.6408	77.5036	149.4379	236.3983	140.1605	25.1818	666.2868	97%
48	0.2017	0.2722	1.6839	6.8154	28.7163	77.6107	149.6445	236.7252	140.3543	25.2166	667.2408	97%
49	0.2017	0.2722	1.6839	6.8175	28.7987	77.7108	149.8375	237.0305	140.5353	25.2491	668.1373	98%
50	0.2017	0.2722	1.6839	6.8182	28.8759	77.8045	150.0180	237.3161	140.7047	25.2796	668.9748	98%
51	0.2017	0.2722	1.6839	6.8184	28.9579	77.8921	150.1870	237.5835	140.8632	25.3080	669.7679	98%
52	0.2017	0.2722	1.6839	6.8184	29.0420	77.9743	150.3454	237.8341	141.0118	25.3347	670.5184	98%
53	0.2017	0.2722	1.6839	6.8184	29.1279	78.0514	150.4940	238.0691	141.1512	25.3598	671.2294	98%
54	0.2017	0.2722	1.6839	6.8184	29.2150	78.1237	150.6336	238.2899	141.2820	25.3833	671.9037	98%
55	0.2017	0.2722	1.6839	6.8184	29.2946	78.1918	150.7647	238.4974	141.4050	25.4054	672.5350	98%
56	0.2017	0.2722	1.6839	6.8184	29.3530	78.2838	150.8881	238.6926	141.5208	25.4262	673.1405	98%
57	0.2017	0.2722	1.6839	6.8184	29.3915	78.3966	151.0043	238.8763	141.6298	25.4458	673.7203	98%
58	0.2017	0.2722	1.6839	6.8184	29.4122	78.5290	151.1138	239.0496	141.7325	25.4642	674.2773	98%
59	0.2017	0.2722	1.6839	6.8184	29.4169	78.6790	151.2171	239.2130	141.8294	25.4816	674.8131	99%
60	0.2017	0.2722	1.6839	6.8184	29.4186	78.8173	151.3147	239.3673	141.9209	25.4981	675.3129	99%
61	0.2017	0.2722	1.6839	6.8184	29.4188	78.9585	151.4068	239.5132	142.0073	25.5136	675.7943	99%
62	0.2017	0.2722	1.6839	6.8184	29.4188	79.0999	151.4940	239.6510	142.0890	25.5283	676.2571	99%
63	0.2017	0.2722	1.6839	6.8184	29.4188	79.2417	151.5765	239.7815	142.1663	25.5422	676.7031	99%
64	0.2017	0.2722	1.6839	6.8184	29.4188	79.3848	151.6546	239.9051	142.2396	25.5553	677.1344	99%
65	0.2017	0.2722	1.6839	6.8184	29.4188	79.5157	151.7287	240.0222	142.3091	25.5678	677.5384	99%
66	0.2017	0.2722	1.6839	6.8184	29.4188	79.6116	151.8367	240.1334	142.3750	25.5797	677.9311	99%
67	0.2017	0.2722	1.6839	6.8184	29.4188	79.6736	151.9747	240.2388	142.4375	25.5909	678.3105	99%
68	0.2017	0.2722	1.6839	6.8184	29.4188	79.7066	152.1399	240.3390	142.4970	25.6016	678.6790	99%
69	0.2017	0.2722	1.6839	6.8184	29.4188	79.7142	152.3288	240.4343	142.5535	25.6117	679.0373	99%
70	0.2017	0.2722	1.6839	6.8184	29.4188	79.7168	152.5090	240.5249	142.6072	25.6214	679.3741	99%
71	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	152.6940	240.6112	142.6583	25.6306	679.7061	99%
72	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	152.8782	240.6933	142.7070	25.6393	680.0298	99%
73	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.0632	240.7716	142.7534	25.6477	680.3480	99%
74	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.2489	240.8463	142.7977	25.6556	680.6606	99%
75	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.4233	240.9176	142.8400	25.6632	680.9562	99%
76	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.5539	241.0354	142.8803	25.6705	681.2521	99%
77	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.6420	241.1946	142.9189	25.6774	681.5449	99%
78	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.6905	241.3929	142.9557	25.6840	681.8352	100%
79	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7016	241.6266	142.9909	25.6903	682.1215	100%
80	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7055	241.8522	143.0247	25.6964	682.3908	100%
81	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	242.0754	143.0570	25.7022	682.6528	100%
82	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	242.2903	143.0880	25.7078	682.9042	100%
83	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	242.4956	143.1177	25.7131	683.1445	100%
84	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	242.6922	143.1461	25.7182	683.3748	100%
85	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	242.8711	143.1734	25.7231	683.5858	100%
86	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.0019	143.2339	25.7278	683.7818	100%
87	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.0889	143.3221	25.7324	683.9615	100%
88	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1354	143.4342	25.7367	684.1244	100%
89	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1461	143.5663	25.7409	684.2715	100%
90	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1498	143.6878	25.7449	684.4006	100%
91	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1503	143.7956	25.7488	684.5128	100%
92	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1503	143.8882	25.7525	684.6092	100%
93	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1503	143.9668	25.7561	684.6913	100%
94	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1503	144.0322	25.7596	684.7601	100%
95	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1503	144.0864	25.7629	684.8177	100%
96	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1503	144.1240	25.7729	684.8653	100%
97	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1503	144.1475	25.7881	684.9041	100%
98	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1503	144.1597	25.8073	684.9354	100%
99	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1503	144.1625	25.8293	684.9602	100%
100	0.2017	0.2722	1.6839	6.8184	29.4188	79.7172	153.7061	243.1503	144.1635	25.8477	684.9797	100%

Exhibit E.45b Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Surface Water Systems

TTHM - Preferred Alternative, 25% Safety Margin

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th	mean	5th	95th
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.00	0.01	0.00	0.03	0.02	0.00	0.05	0.12	0.00	0.31	0.35	0.00	0.89	2.88	0.02	7.40	2.51	0.02	6.45	11.11	0.09	28.53	9.46	0.07	24.28
2011	0.00	0.00	0.01	0.03	0.00	0.06	0.05	0.00	0.11	0.31	0.01	0.72	0.88	0.03	2.06	7.32	0.29	17.15	6.38	0.25	14.95	28.21	1.11	66.13	24.00	0.95	56.28
2012	0.01	0.00	0.01	0.05	0.01	0.11	0.09	0.01	0.19	0.55	0.06	1.20	1.57	0.17	3.44	13.10	1.41	28.72	11.42	1.22	25.03	50.51	5.42	110.72	42.99	4.61	94.22
2013	0.01	0.00	0.02	0.07	0.01	0.15	0.13	0.02	0.27	0.85	0.16	1.75	2.42	0.46	5.01	20.19	3.81	41.79	17.59	3.32	36.42	77.82	14.68	161.11	66.23	12.49	137.11
2014	0.01	0.00	0.02	0.11	0.03	0.21	0.19	0.05	0.37	1.20	0.32	2.35	3.43	0.91	6.74	28.62	7.61	56.21	23.69	6.62	45.76	99.23	29.24	188.15	84.45	24.89	160.13
2015	0.02	0.00	0.03	0.14	0.04	0.27	0.25	0.08	0.47	1.61	0.51	3.04	4.60	1.46	8.68	36.91	12.15	68.76	28.98	10.46	52.45	119.65	45.78	213.21	101.83	38.96	181.45
2016	0.02	0.01	0.03	0.18	0.06	0.32	0.31	0.11	0.56	2.00	0.72	3.63	5.71	2.07	10.38	43.97	17.12	78.06	33.86	14.31	58.73	138.66	61.17	237.52	118.01	52.06	202.14
2017	0.02	0.01	0.04	0.20	0.08	0.36	0.36	0.15	0.63	2.32	0.95	4.07	6.65	2.72	11.63	50.35	21.98	86.42	38.27	17.62	64.57	155.65	73.30	260.45	132.47	62.38	221.66
2018	0.02	0.01	0.04	0.23	0.10	0.39	0.41	0.18	0.69	2.62	1.17	4.46	7.49	3.34	12.76	56.03	26.11	94.11	42.07	20.05	70.03	169.83	81.39	282.01	144.53	69.27	240.01
2019	0.03	0.01	0.05	0.25	0.12	0.42	0.45	0.21	0.74	2.88	1.35	4.80	8.23	3.86	13.74	60.90	29.12	100.91	45.16	21.73	74.57	181.01	87.36	298.56	154.05	74.35	254.09
2020	0.03	0.01	0.05	0.27	0.13	0.45	0.48	0.23	0.79	3.10	1.49	5.10	8.87	4.25	14.60	64.89	31.30	106.47	47.63	23.06	77.91	190.06	92.19	310.21	161.76	78.46	264.01
2021	0.03	0.02	0.05	0.29	0.14	0.47	0.51	0.25	0.83	3.28	1.59	5.35	9.39	4.54	15.31	68.10	33.05	110.66	49.67	24.15	80.36	197.57	96.15	318.82	168.14	81.83	271.33
2022	0.03	0.02	0.05	0.30	0.15	0.49	0.53	0.26	0.86	3.43	1.67	5.55	9.81	4.77	15.86	70.75	34.47	113.90	51.37	25.05	82.25	203.89	99.46	325.30	173.52	84.65	276.85
2023	0.03	0.02	0.05	0.31	0.15	0.50	0.55	0.27	0.88	3.55	1.74	5.69	10.16	4.96	16.28	72.98	35.69	116.33	52.81	25.87	83.70	209.28	102.68	330.67	178.11	87.39	281.42
2024	0.03	0.02	0.05	0.32	0.16	0.51	0.57	0.28	0.90	3.66	1.79	5.81	10.46	5.13	16.62	74.87	36.80	118.40	54.05	26.63	85.12	213.92	105.56	336.26	182.06	89.84	286.18
2025	0.04	0.02	0.06	0.33	0.16	0.52	0.58	0.29	0.92	3.74	1.84	5.91	10.71	5.27	16.91	76.51	37.75	120.36	55.12	27.26	86.51	217.95	107.89	341.75	185.49	91.82	290.85
2026	0.04	0.02	0.06	0.34	0.17	0.53	0.59	0.29	0.93	3.82	1.89	6.00	10.93	5.40	17.17	77.92	38.57	122.22	56.06	27.80	87.80	221.47	109.96	346.60	188.49	93.58	294.98
2027	0.04	0.02	0.06	0.34	0.17	0.54	0.60	0.30	0.95	3.89	1.93	6.10	11.12	5.51	17.44	79.17	39.33	124.05	56.88	28.30	89.09	224.58	111.83	351.84	191.13	95.17	299.43
2028	0.04	0.02	0.06	0.35	0.17	0.54	0.61	0.30	0.96	3.94	1.96	6.18	11.28	5.62	17.68	80.26	40.02	125.71	57.61	28.75	90.25	227.34	113.48	356.17	193.48	96.58	303.12
2029	0.04	0.02	0.06	0.35	0.18	0.55	0.62	0.31	0.97	4.00	2.00	6.26	11.43	5.72	17.89	81.23	40.66	127.17	58.25	29.20	91.20	229.79	115.35	359.72	195.57	98.17	306.15
Total	**0.48**	**0.22**	**0.80**	**4.48**	**2.04**	**7.42**	**7.89**	**3.59**	**13.07**	**50.85**	**23.14**	**84.28**	**145.46**	**66.19**	**241.10**	**1,066.96**	**487.24**	**1,764.81**	**789.37**	**361.70**	**1,303.13**	**3,167.52**	**1,454.08**	**5,223.74**	**2,695.74**	**1,237.51**	**4,445.71**
Avg.	**0.02**	**0.01**	**0.03**	**0.18**	**0.08**	**0.30**	**0.32**	**0.14**	**0.52**	**2.03**	**0.93**	**3.37**	**5.82**	**2.65**	**9.64**	**42.68**	**19.49**	**70.59**	**31.57**	**14.47**	**52.13**	**126.70**	**58.16**	**208.95**	**107.83**	**49.50**	**177.83**

Avg. - All Size Categories	**317.15**	**145.43**	**523.36**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.45c Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - Ground Water Systems

TTHM - Preferred Alternative, 25% Safety Margin

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.00	0.00	0.01	0.04	0.00	0.09	0.04	0.00	0.10	0.11	0.00	0.29	0.18	0.00	0.46	0.22	0.00	0.57	0.09	0.00	0.24	0.26	0.00	0.66	0.04	0.00	0.11
2011	0.01	0.00	0.03	0.09	0.00	0.21	0.10	0.00	0.22	0.29	0.01	0.67	0.45	0.02	1.07	0.56	0.02	1.32	0.23	0.01	0.55	0.65	0.03	1.53	0.11	0.00	0.25
2012	0.02	0.00	0.05	0.16	0.02	0.35	0.17	0.02	0.37	0.51	0.06	1.13	0.81	0.09	1.78	1.00	0.11	2.20	0.42	0.05	0.92	1.17	0.13	2.56	0.19	0.02	0.43
2013	0.03	0.01	0.07	0.25	0.05	0.51	0.26	0.05	0.54	0.79	0.15	1.64	1.25	0.24	2.60	1.55	0.29	3.20	0.65	0.12	1.34	1.80	0.34	3.72	0.30	0.06	0.62
2014	0.05	0.01	0.09	0.35	0.09	0.69	0.37	0.10	0.73	1.12	0.30	2.21	1.78	0.47	3.49	2.19	0.58	4.31	0.87	0.24	1.69	2.29	0.68	4.34	0.38	0.11	0.72
2015	0.06	0.02	0.12	0.47	0.15	0.89	0.50	0.16	0.94	1.51	0.48	2.85	2.38	0.76	4.50	2.83	0.93	5.27	1.07	0.39	1.93	2.76	1.06	4.92	0.46	0.18	0.82
2016	0.08	0.03	0.14	0.58	0.21	1.06	0.62	0.22	1.13	1.87	0.68	3.40	2.96	1.07	5.38	3.37	1.31	5.99	1.25	0.53	2.16	3.20	1.41	5.48	0.53	0.24	0.91
2017	0.09	0.04	0.16	0.68	0.28	1.19	0.72	0.29	1.26	2.18	0.89	3.81	3.45	1.41	6.03	3.86	1.69	6.63	1.41	0.65	2.38	3.59	1.69	6.01	0.60	0.28	1.00
2018	0.10	0.05	0.18	0.76	0.34	1.30	0.81	0.36	1.38	2.45	1.09	4.18	3.88	1.73	6.61	4.30	2.00	7.22	1.55	0.74	2.58	3.92	1.88	6.51	0.65	0.31	1.08
2019	0.11	0.05	0.19	0.84	0.39	1.40	0.89	0.42	1.49	2.70	1.27	4.50	4.27	2.00	7.12	4.67	2.23	7.74	1.66	0.80	2.75	4.18	2.02	6.89	0.70	0.34	1.15
2020	0.12	0.06	0.20	0.90	0.43	1.49	0.96	0.46	1.58	2.91	1.39	4.78	4.60	2.20	7.57	4.98	2.40	8.16	1.76	0.85	2.87	4.39	2.13	7.16	0.73	0.35	1.19
2021	0.13	0.06	0.21	0.96	0.46	1.56	1.02	0.49	1.66	3.08	1.49	5.02	4.87	2.35	7.94	5.22	2.53	8.49	1.83	0.89	2.96	4.56	2.22	7.36	0.76	0.37	1.23
2022	0.14	0.07	0.22	1.00	0.49	1.62	1.07	0.52	1.72	3.22	1.56	5.20	5.09	2.47	8.22	5.42	2.64	8.73	1.89	0.92	3.03	4.71	2.30	7.51	0.78	0.38	1.25
2023	0.14	0.07	0.22	1.04	0.51	1.66	1.10	0.54	1.77	3.33	1.63	5.34	5.27	2.57	8.44	5.60	2.74	8.92	1.95	0.95	3.08	4.83	2.37	7.63	0.80	0.39	1.27
2024	0.14	0.07	0.23	1.07	0.52	1.70	1.14	0.56	1.80	3.43	1.68	5.45	5.42	2.66	8.62	5.74	2.82	9.08	1.99	0.98	3.14	4.94	2.44	7.76	0.82	0.41	1.29
2025	0.15	0.07	0.23	1.09	0.54	1.73	1.16	0.57	1.84	3.51	1.73	5.54	5.55	2.73	8.77	5.87	2.89	9.23	2.03	1.00	3.19	5.03	2.49	7.89	0.84	0.41	1.31
2026	0.15	0.07	0.24	1.11	0.55	1.75	1.19	0.59	1.86	3.58	1.77	5.63	5.66	2.80	8.90	5.98	2.96	9.37	2.07	1.02	3.23	5.11	2.54	8.00	0.85	0.42	1.33
2027	0.15	0.08	0.24	1.13	0.56	1.78	1.21	0.60	1.89	3.64	1.81	5.72	5.76	2.86	9.04	6.07	3.02	9.51	2.10	1.04	3.28	5.19	2.58	8.12	0.86	0.43	1.35
2028	0.16	0.08	0.24	1.15	0.57	1.80	1.23	0.61	1.92	3.70	1.84	5.79	5.85	2.91	9.17	6.15	3.07	9.64	2.12	1.06	3.33	5.25	2.62	8.22	0.87	0.44	1.37
2029	0.16	0.08	0.25	1.17	0.58	1.83	1.24	0.62	1.94	3.75	1.87	5.86	5.93	2.96	9.28	6.23	3.12	9.75	2.15	1.08	3.36	5.31	2.66	8.31	0.88	0.44	1.38
Total	**2.01**	**0.91**	**3.33**	**14.84**	**6.75**	**24.60**	**15.79**	**7.19**	**26.17**	**47.67**	**21.69**	**79.01**	**75.41**	**34.31**	**124.99**	**81.81**	**37.36**	**135.32**	**29.08**	**13.33**	**48.01**	**73.13**	**33.57**	**120.60**	**12.18**	**5.59**	**20.08**
Avg.	**0.08**	**0.04**	**0.13**	**0.59**	**0.27**	**0.98**	**0.63**	**0.29**	**1.05**	**1.91**	**0.87**	**3.16**	**3.02**	**1.37**	**5.00**	**3.27**	**1.49**	**5.41**	**1.16**	**0.53**	**1.92**	**2.93**	**1.34**	**4.82**	**0.49**	**0.22**	**0.80**

Avg. - All Size Categories		**14.08**	**6.43**	**23.29**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.45d Yearly Cancer Cases Avoided by System Size

Smoking/Lung Cancer Model - All Water Systems

TTHM - Preferred Alternative, 25% Safety Margin

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			≥1,000,000		
Year	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**	**mean**	**5th**	**95th**
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	0.01	0.00	0.02	0.05	0.00	0.12	0.06	0.00	0.14	0.23	0.00	0.60	0.52	0.00	1.35	3.10	0.02	7.97	2.60	0.02	6.69	11.37	0.09	29.19	9.50	0.07	24.39
2011	0.02	0.00	0.04	0.12	0.00	0.27	0.14	0.01	0.33	0.59	0.02	1.39	1.33	0.05	3.12	7.88	0.31	18.47	6.61	0.26	15.50	28.86	1.14	67.66	24.11	0.95	56.54
2012	0.03	0.00	0.06	0.21	0.02	0.46	0.26	0.03	0.56	1.06	0.11	2.33	2.38	0.26	5.23	14.11	1.51	30.92	11.84	1.27	25.95	51.68	5.54	113.27	43.18	4.63	94.65
2013	0.04	0.01	0.09	0.32	0.06	0.67	0.39	0.07	0.82	1.64	0.31	3.39	3.67	0.69	7.61	21.73	4.10	45.00	18.24	3.44	37.76	79.61	15.02	164.83	66.53	12.55	137.73
2014	0.06	0.02	0.12	0.46	0.12	0.89	0.56	0.15	1.10	2.32	0.62	4.56	5.21	1.38	10.23	30.82	8.19	60.52	24.56	6.86	47.44	101.52	29.92	192.49	84.83	25.00	160.85
2015	0.08	0.02	0.15	0.61	0.19	1.15	0.75	0.24	1.41	3.11	0.99	5.88	6.98	2.21	13.19	39.74	13.08	74.03	30.05	10.85	54.38	122.41	46.83	218.13	102.29	39.14	182.27
2016	0.10	0.04	0.18	0.76	0.27	1.38	0.93	0.34	1.69	3.87	1.40	7.03	8.67	3.14	15.77	47.34	18.43	84.04	35.11	14.84	60.89	141.86	62.58	243.00	118.54	52.29	203.06
2017	0.11	0.05	0.20	0.88	0.36	1.55	1.08	0.44	1.89	4.50	1.84	7.88	10.09	4.13	17.67	54.21	23.66	93.05	39.68	18.27	66.95	159.24	75.00	266.47	133.06	62.67	222.66
2018	0.13	0.06	0.22	0.99	0.44	1.69	1.22	0.54	2.08	5.07	2.26	8.64	11.37	5.07	19.37	60.33	28.12	101.32	43.62	20.79	72.61	173.75	83.27	288.52	145.18	69.58	241.09
2019	0.14	0.07	0.24	1.09	0.51	1.82	1.34	0.63	2.24	5.57	2.62	9.31	12.50	5.86	20.86	65.57	31.35	108.65	46.82	22.53	77.32	185.18	89.37	305.45	154.74	74.68	255.24
2020	0.15	0.07	0.25	1.18	0.56	1.94	1.44	0.69	2.38	6.00	2.88	9.89	13.46	6.46	22.17	69.86	33.70	114.63	49.39	23.91	80.78	194.45	94.31	317.38	162.49	78.81	265.20
2021	0.16	0.08	0.26	1.25	0.60	2.03	1.53	0.74	2.49	6.36	3.07	10.37	14.25	6.89	23.24	73.32	35.58	119.15	51.50	25.04	83.32	202.13	98.37	326.18	168.90	82.20	272.56
2022	0.17	0.08	0.27	1.30	0.63	2.11	1.60	0.78	2.58	6.64	3.23	10.74	14.90	7.24	24.08	76.18	37.12	122.64	53.26	25.98	85.28	208.60	101.76	332.81	174.31	85.03	278.10
2023	0.17	0.08	0.28	1.35	0.66	2.16	1.65	0.81	2.65	6.88	3.36	11.03	15.43	7.54	24.72	78.57	38.43	125.25	54.76	26.82	86.78	214.11	105.06	338.31	178.91	87.79	282.69
2024	0.18	0.09	0.28	1.39	0.68	2.21	1.70	0.83	2.71	7.08	3.47	11.26	15.88	7.79	25.24	80.62	39.62	127.48	56.04	27.62	88.25	218.86	108.00	344.03	182.88	90.24	287.47
2025	0.18	0.09	0.29	1.42	0.70	2.25	1.74	0.86	2.75	7.25	3.57	11.45	16.26	8.00	25.67	82.37	40.64	129.58	57.15	28.26	89.70	222.98	110.39	349.65	186.32	92.24	292.17
2026	0.19	0.09	0.29	1.45	0.72	2.28	1.78	0.88	2.80	7.40	3.66	11.63	16.59	8.20	26.08	83.90	41.53	131.60	58.12	28.82	91.03	226.59	112.50	354.60	189.34	94.00	296.31
2027	0.19	0.09	0.30	1.48	0.73	2.32	1.81	0.90	2.84	7.53	3.73	11.81	16.88	8.37	26.48	85.24	42.34	133.57	58.98	29.34	92.38	229.77	114.41	359.96	192.00	95.60	300.79
2028	0.19	0.10	0.30	1.50	0.75	2.35	1.84	0.91	2.88	7.64	3.80	11.98	17.13	8.53	26.85	86.41	43.08	135.35	59.73	29.81	93.57	232.59	116.10	364.40	194.35	97.01	304.49
2029	0.20	0.10	0.31	1.52	0.76	2.38	1.86	0.93	2.91	7.74	3.87	12.12	17.36	8.68	27.17	87.46	43.78	136.92	60.40	30.28	94.56	235.10	118.01	368.03	196.45	98.61	307.53
Total	**2.49**	**1.13**	**4.13**	**19.32**	**8.79**	**32.02**	**23.68**	**10.77**	**39.25**	**98.52**	**44.83**	**163.30**	**220.87**	**100.50**	**366.09**	**1,148.77**	**524.60**	**1,900.13**	**818.45**	**375.03**	**1,351.15**	**3,240.65**	**1,487.65**	**5,344.34**	**2,707.92**	**1,243.10**	**4,465.79**
Avg.	**0.10**	**0.05**	**0.17**	**0.77**	**0.35**	**1.28**	**0.95**	**0.43**	**1.57**	**3.94**	**1.79**	**6.53**	**8.83**	**4.02**	**14.64**	**45.95**	**20.98**	**76.01**	**32.74**	**15.00**	**54.05**	**129.63**	**59.51**	**213.77**	**108.32**	**49.72**	**178.63**

Avg. - All Size Categories		**331.23**	**151.86**	**546.65**

Note: Detail may not add to totals due to independent rounding.

Exhibit E.38a Mean Number of Cases Avoided by Age Group per year following rule promulgation
(Smoking/Lung Cancer model - TTHM - Preferred Alternative)

Years After the Rule	Age Group 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0	0	0	0	0	0	0	0	0	0	0	0%
2	0	0	0	0	0	0	0	0	0	0	0	0%
3	0	0	0	0	0	0	0	0	0	0	0	0%
4	0	0	0	0	0	0	0	0	0	0	0	0%
5	0	0	0	0	0	0	0	0	0	0	0	0%
6	0.0024	0.0006	0.0039	0.0156	0.0673	0.1823	0.3515	0.5561	0.3297	0.0592	1.5687	1%
7	0.0081	0.0035	0.0216	0.0877	0.3782	1.0249	1.9762	3.1262	1.8535	0.3330	8.8129	4%
8	0.0167	0.0091	0.0561	0.2271	0.9800	2.6556	5.1204	8.1000	4.8025	0.8628	22.8304	10%
9	0.0277	0.0173	0.1070	0.4334	1.8698	5.0668	9.7695	15.4545	9.1629	1.6463	43.5551	19%
10	0.0385	0.0269	0.1664	0.6736	2.9065	7.8757	15.1855	24.0222	14.2428	2.5589	67.6970	30%
11	0.0473	0.0359	0.2222	0.8998	3.8821	10.5195	20.2831	32.0862	19.0239	3.4179	90.4179	40%
12	0.0539	0.0435	0.2693	1.0905	4.7050	12.7493	24.5824	38.8874	23.0563	4.1424	109.5800	48%
13	0.0585	0.0496	0.3068	1.2423	5.3599	14.5240	28.0043	44.3006	26.2658	4.7190	124.8308	55%
14	0.0616	0.0544	0.3365	1.3627	5.8796	15.9321	30.7193	48.5954	28.8122	5.1765	136.9303	60%
15	0.0639	0.0584	0.3611	1.4622	6.3088	17.0953	32.9622	52.1435	30.9159	5.5545	146.9257	64%
16	0.0655	0.0619	0.3815	1.5450	6.6659	18.0629	34.8278	55.0948	32.6657	5.8688	155.2398	68%
17	0.0664	0.0651	0.3989	1.6151	6.9686	18.8831	36.4093	57.5964	34.1489	6.1353	162.2871	71%
18	0.0669	0.0681	0.4142	1.6773	7.2368	19.6097	37.8104	59.8129	35.4630	6.3714	168.5308	74%
19	0.0671	0.0709	0.4271	1.7293	7.4614	20.2184	38.9840	61.6695	36.5638	6.5692	173.7607	76%
20	0.0671	0.0733	0.4380	1.7737	7.6529	20.7375	39.9848	63.2526	37.5024	6.7378	178.2202	78%
21	0.0671	0.0757	0.4472	1.8108	7.8129	21.1709	40.8206	64.5748	38.2863	6.8787	181.9451	80%
22	0.0671	0.0783	0.4550	1.8423	7.9489	21.5394	41.5311	65.6987	38.9528	6.9984	185.1121	81%
23	0.0671	0.0810	0.4622	1.8717	8.0757	21.8830	42.1934	66.7465	39.5740	7.1100	188.0646	83%
24	0.0671	0.0838	0.4692	1.8997	8.1967	22.2110	42.8259	67.7471	40.1672	7.2166	190.8845	84%
25	0.0671	0.0865	0.4751	1.9237	8.2999	22.4905	43.3648	68.5996	40.6727	7.3074	193.2872	85%
26	0.0671	0.0884	0.4812	1.9441	8.3880	22.7293	43.8252	69.3279	41.1045	7.3850	195.3406	86%
27	0.0671	0.0897	0.4875	1.9609	8.4607	22.9262	44.2050	69.9287	41.4607	7.4490	197.0355	86%
28	0.0671	0.0903	0.4941	1.9754	8.5230	23.0951	44.5307	70.4439	41.7662	7.5039	198.4897	87%
29	0.0671	0.0905	0.5012	1.9889	8.5812	23.2528	44.8347	70.9248	42.0513	7.5551	199.8475	88%
30	0.0671	0.0906	0.5078	2.0012	8.6345	23.3972	45.1131	71.3651	42.3124	7.6020	201.0909	88%
31	0.0671	0.0906	0.5149	2.0125	8.6832	23.5293	45.3678	71.7681	42.5513	7.6449	202.2297	89%
32	0.0671	0.0906	0.5223	2.0229	8.7281	23.6510	45.6024	72.1392	42.7713	7.6845	203.2794	89%
33	0.0671	0.0906	0.5302	2.0326	8.7698	23.7640	45.8203	72.4839	42.9757	7.7212	204.2553	90%
34	0.0671	0.0906	0.5385	2.0415	8.8085	23.8689	46.0225	72.8039	43.1654	7.7553	205.1623	90%
35	0.0671	0.0906	0.5467	2.0501	8.8453	23.9684	46.2144	73.1073	43.3453	7.7876	206.0226	90%
36	0.0671	0.0906	0.5529	2.0607	8.8798	24.0619	46.3947	73.3926	43.5145	7.8180	206.8327	91%
37	0.0671	0.0906	0.5572	2.0731	8.9123	24.1500	46.5646	73.6614	43.6738	7.8466	207.5968	91%
38	0.0671	0.0906	0.5596	2.0872	8.9429	24.2328	46.7243	73.9139	43.8235	7.8735	208.3154	91%
39	0.0671	0.0906	0.5602	2.1028	8.9714	24.3100	46.8732	74.1495	43.9632	7.8986	208.9866	92%
40	0.0671	0.0906	0.5604	2.1178	8.9981	24.3825	47.0129	74.3706	44.0943	7.9222	209.6165	92%
41	0.0671	0.0906	0.5604	2.1357	9.0232	24.4506	47.1443	74.5784	44.2175	7.9443	210.2122	92%
42	0.0671	0.0906	0.5604	2.1562	9.0469	24.5146	47.2677	74.7736	44.3332	7.9651	210.7755	92%
43	0.0671	0.0906	0.5604	2.1791	9.0692	24.5752	47.3844	74.9582	44.4427	7.9848	211.3117	93%
44	0.0671	0.0906	0.5604	2.2043	9.0904	24.6325	47.4949	75.1330	44.5464	8.0034	211.8230	93%
45	0.0671	0.0906	0.5604	2.2288	9.1105	24.6869	47.5999	75.2992	44.6448	8.0211	212.3093	93%
46	0.0671	0.0906	0.5604	2.2474	9.1406	24.7391	47.7004	75.4581	44.7391	8.0380	212.7807	93%
47	0.0671	0.0906	0.5604	2.2600	9.1798	24.7893	47.7972	75.6112	44.8299	8.0543	213.2398	94%
48	0.0671	0.0906	0.5604	2.2670	9.2277	24.8378	47.8907	75.7592	44.9176	8.0701	213.6881	94%
49	0.0671	0.0906	0.5604	2.2686	9.2836	24.8847	47.9812	75.9023	45.0024	8.0853	214.1263	94%
50	0.0671	0.0906	0.5604	2.2692	9.3380	24.9302	48.0689	76.0410	45.0846	8.1001	214.5501	94%
51	0.0671	0.0906	0.5604	2.2693	9.3994	24.9742	48.1537	76.1752	45.1642	8.1144	214.9684	94%
52	0.0671	0.0906	0.5604	2.2693	9.4655	25.0164	48.2351	76.3039	45.2406	8.1281	215.3769	94%
53	0.0671	0.0906	0.5604	2.2693	9.5359	25.0572	48.3137	76.4284	45.3144	8.1414	215.7783	95%
54	0.0671	0.0906	0.5604	2.2693	9.6099	25.0966	48.3899	76.5488	45.3858	8.1542	216.1725	95%
55	0.0671	0.0906	0.5604	2.2693	9.6796	25.1349	48.4635	76.6653	45.4548	8.1666	216.5522	95%
56	0.0671	0.0906	0.5604	2.2693	9.7316	25.1986	48.5347	76.7779	45.5216	8.1786	216.9303	95%
57	0.0671	0.0906	0.5604	2.2693	9.7663	25.2847	48.6021	76.8846	45.5849	8.1900	217.3000	95%
58	0.0671	0.0906	0.5604	2.2693	9.7852	25.3927	48.6662	76.9859	45.6449	8.2008	217.6631	96%
59	0.0671	0.0906	0.5604	2.2693	9.7895	25.5212	48.7274	77.0827	45.7023	8.2111	218.0215	96%
60	0.0671	0.0906	0.5604	2.2693	9.7909	25.6425	48.7859	77.1752	45.7572	8.2209	218.3600	96%
61	0.0671	0.0906	0.5604	2.2693	9.7911	25.7710	48.8416	77.2634	45.8094	8.2303	218.6942	96%
62	0.0671	0.0906	0.5604	2.2693	9.7911	25.9041	48.8950	77.3478	45.8595	8.2393	219.0242	96%
63	0.0671	0.0906	0.5604	2.2693	9.7911	26.0422	48.9467	77.4296	45.9080	8.2480	219.3531	96%
64	0.0671	0.0906	0.5604	2.2693	9.7911	26.1857	48.9971	77.5093	45.9553	8.2565	219.6824	96%
65	0.0671	0.0906	0.5604	2.2693	9.7911	26.3204	49.0462	77.5870	46.0013	8.2648	219.9981	97%
66	0.0671	0.0906	0.5604	2.2693	9.7911	26.4204	49.1359	77.6626	46.0462	8.2728	220.3164	97%
67	0.0671	0.0906	0.5604	2.2693	9.7911	26.4857	49.2622	77.7356	46.0894	8.2806	220.6321	97%
68	0.0671	0.0906	0.5604	2.2693	9.7911	26.5208	49.4226	77.8060	46.1312	8.2881	220.9472	97%
69	0.0671	0.0906	0.5604	2.2693	9.7911	26.5285	49.6139	77.8742	46.1716	8.2954	221.2621	97%
70	0.0671	0.0906	0.5604	2.2693	9.7911	26.5311	49.8002	77.9401	46.2107	8.3024	221.5630	97%
71	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	49.9971	78.0040	46.2486	8.3092	221.8689	97%
72	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	50.1982	78.0664	46.2855	8.3158	222.1758	97%
73	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	50.4053	78.1275	46.3218	8.3224	222.4869	98%
74	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	50.6181	78.1875	46.3574	8.3287	222.8017	98%
75	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	50.8220	78.2465	46.3923	8.3350	223.1058	98%
76	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	50.9760	78.3655	46.4266	8.3412	223.4192	98%
77	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.0807	78.5391	46.4600	8.3472	223.7370	98%
78	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1386	78.7649	46.4927	8.3531	224.0592	98%
79	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1514	79.0381	46.5242	8.3587	224.3824	98%
80	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1557	79.3057	46.5545	8.3642	224.6900	99%
81	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	79.5744	46.5836	8.3694	224.9937	99%
82	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	79.8370	46.6117	8.3745	225.2895	99%
83	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.0915	46.6389	8.3793	225.5760	99%
84	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.3387	46.6652	8.3841	225.8543	99%
85	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.5667	46.6908	8.3887	226.1124	99%
86	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.7344	46.7615	8.3932	226.3553	99%
87	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.8465	46.8706	8.3976	226.5811	99%
88	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9065	47.0133	8.4020	226.7882	100%
89	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9200	47.1847	8.4064	226.9774	100%
90	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9244	47.3437	8.4107	227.1451	100%
91	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.4860	8.4149	227.2923	100%
92	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.6091	8.4191	227.4196	100%
93	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.7143	8.4233	227.5289	100%
94	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.8023	8.4273	227.6210	100%
95	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.8758	8.4313	227.6985	100%
96	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9269	8.4446	227.7628	100%
97	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9589	8.4651	227.8154	100%
98	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9755	8.4913	227.8581	100%
99	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9791	8.5215	227.8920	100%
100	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9803	8.5469	227.9186	100%

Exhibit E.38a Mean Number of Cases Avoided by Age Group per year following rule promulgation
(Smoking/Lung Cancer model - TTHM - Preferred Alternative)

Years After the Rule	Age Group 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0	0	0	0	0	0	0	0	0	0	0	0%
2	0	0	0	0	0	0	0	0	0	0	0	0%
3	0	0	0	0	0	0	0	0	0	0	0	0%
4	0	0	0	0	0	0	0	0	0	0	0	0%
5	0	0	0	0	0	0	0	0	0	0	0	0%
6	0.0269	0.0267	0.1653	0.6692	2.8875	7.8244	15.0866	23.8657	14.1500	2.5422	67.2445	6%
7	0.0660	0.0626	0.3875	1.5692	6.7705	18.3462	35.3740	55.9588	33.1780	5.9609	157.6737	15%
8	0.1143	0.1053	0.6518	2.6393	11.3874	30.8570	59.4967	94.1188	55.8030	10.0258	265.1994	25%
9	0.1702	0.1537	0.9506	3.8494	16.6087	45.0052	86.7765	137.2731	81.3892	14.6227	386.7993	36%
10	0.2110	0.1862	1.1518	4.6640	20.1234	54.5291	105.1397	166.3223	98.6124	17.7171	468.6569	43%
11	0.2428	0.2153	1.3318	5.3928	23.2681	63.0504	121.5700	192.3136	114.0227	20.4858	541.8931	50%
12	0.2666	0.2414	1.4937	6.0482	26.0960	70.7134	136.3453	215.6871	127.8808	22.9756	607.7480	56%
13	0.2840	0.2648	1.6382	6.6336	28.6217	77.5574	149.5415	236.5624	140.2578	25.1993	666.5607	62%
14	0.2961	0.2855	1.7661	7.1514	30.8557	83.6108	161.2134	255.0263	151.2050	27.1661	718.5763	67%
15	0.3054	0.3022	1.8695	7.5702	32.6627	88.5073	170.6545	269.9612	160.0600	28.7570	760.6500	70%
16	0.3115	0.3168	1.9549	7.9159	34.1544	92.5495	178.4485	282.2906	167.3702	30.0704	795.3827	74%
17	0.3152	0.3294	2.0228	8.1908	35.3403	95.7630	184.6445	292.0922	173.1815	31.1145	822.9941	76%
18	0.3172	0.3412	2.0818	8.4297	36.3713	98.5565	190.0309	300.6131	178.2335	32.0222	846.9974	78%
19	0.3176	0.3519	2.1316	8.6315	37.2417	100.9153	194.5789	307.8077	182.4991	32.7885	867.2639	80%
20	0.3178	0.3611	2.1746	8.8053	37.9919	102.9480	198.4982	314.0078	186.1751	33.4490	884.7288	82%
21	0.3178	0.3714	2.2160	8.9732	38.7161	104.9104	202.2821	319.9935	189.7240	34.0866	901.5911	84%
22	0.3178	0.3819	2.2515	9.1169	39.3361	106.5904	205.5214	325.1179	192.7623	34.6324	916.0286	85%
23	0.3178	0.3929	2.2868	9.2596	39.9519	108.2591	208.7388	330.2078	195.7800	35.1746	930.3693	86%
24	0.3178	0.4040	2.3159	9.3778	40.4617	109.6407	211.4027	334.4217	198.2785	35.6235	942.2443	87%
25	0.3178	0.4138	2.3401	9.4756	40.8839	110.7847	213.6085	337.9112	200.3474	35.9952	952.0782	88%
26	0.3178	0.4210	2.3683	9.5740	41.3083	111.9348	215.8261	341.4192	202.4273	36.3689	961.9658	89%
27	0.3178	0.4256	2.3966	9.6604	41.6814	112.9456	217.7751	344.5023	204.2552	36.6973	970.6573	90%
28	0.3178	0.4280	2.4270	9.7453	42.0475	113.9378	219.6882	347.5288	206.0496	37.0197	979.1898	91%
29	0.3178	0.4286	2.4596	9.8311	42.4179	114.9413	221.6230	350.5894	207.8643	37.3457	987.8188	92%
30	0.3178	0.4288	2.4879	9.9054	42.7382	115.8092	223.2966	353.2368	209.4339	37.6277	995.2822	92%
31	0.3178	0.4288	2.5152	9.9705	43.0193	116.5710	224.7655	355.5605	210.8117	37.8753	1,001.8357	93%
32	0.3178	0.4288	2.5417	10.0300	43.2759	117.2663	226.1060	357.6811	212.0690	38.1012	1,007.8179	93%
33	0.3178	0.4288	2.5677	10.0845	43.5110	117.9035	227.3346	359.6246	213.2213	38.3082	1,013.3021	94%
34	0.3178	0.4288	2.5930	10.1250	43.6860	118.3775	228.2486	361.0704	214.0786	38.4622	1,017.3880	94%
35	0.3178	0.4288	2.6163	10.1557	43.8182	118.7359	228.9396	362.1634	214.7266	38.5787	1,020.4810	95%
36	0.3178	0.4288	2.6334	10.1851	43.9143	118.9964	229.4418	362.9579	215.1977	38.6633	1,022.7365	95%
37	0.3178	0.4288	2.6447	10.2124	43.9748	119.1601	229.7575	363.4573	215.4938	38.7165	1,024.1637	95%
38	0.3178	0.4288	2.6511	10.2519	44.0659	119.4069	230.2334	364.2102	215.9400	38.7967	1,026.3027	95%
39	0.3178	0.4288	2.6526	10.2963	44.1550	119.6485	230.6993	364.9471	216.3770	38.8752	1,028.3977	95%
40	0.3178	0.4288	2.6531	10.3385	44.2360	119.8680	231.1225	365.6166	216.7740	38.9465	1,030.3019	95%
41	0.3178	0.4288	2.6532	10.3897	44.3204	120.0967	231.5634	366.3141	217.1875	39.0208	1,032.2926	96%
42	0.3178	0.4288	2.6532	10.4449	44.3938	120.2956	231.9468	366.9207	217.5471	39.0854	1,034.0340	96%
43	0.3178	0.4288	2.6532	10.5073	44.4781	120.5241	232.3875	367.6178	217.9604	39.1597	1,036.0347	96%
44	0.3178	0.4288	2.6532	10.5758	44.5743	120.7846	232.8897	368.4124	218.4316	39.2443	1,038.3125	96%
45	0.3178	0.4288	2.6532	10.6409	44.6757	121.0595	233.4197	369.2508	218.9287	39.3336	1,040.7088	96%
46	0.3178	0.4288	2.6532	10.6890	44.7991	121.3270	233.9355	370.0668	219.4124	39.4205	1,043.0502	97%
47	0.3178	0.4288	2.6532	10.7209	44.9385	121.5828	234.4288	370.8471	219.8751	39.5037	1,045.2967	97%
48	0.3178	0.4288	2.6532	10.7380	45.0917	121.8269	234.8996	371.5918	220.3166	39.5830	1,047.4475	97%
49	0.3178	0.4288	2.6532	10.7419	45.2558	122.0601	235.3491	372.3029	220.7382	39.6587	1,049.5066	97%
50	0.3178	0.4288	2.6532	10.7431	45.4084	122.2831	235.7791	372.9832	221.1415	39.7312	1,051.4695	97%
51	0.3178	0.4288	2.6532	10.7433	45.5655	122.4969	236.1912	373.6349	221.5280	39.8006	1,053.3602	98%
52	0.3178	0.4288	2.6532	10.7433	45.7218	122.7022	236.5872	374.2613	221.8994	39.8673	1,055.1823	98%
53	0.3178	0.4288	2.6532	10.7433	45.8760	122.8996	236.9678	374.8636	222.2564	39.9315	1,056.9380	98%
54	0.3178	0.4288	2.6532	10.7433	46.0253	123.0637	237.2842	375.3641	222.5531	39.9848	1,058.4183	98%
55	0.3178	0.4288	2.6532	10.7433	46.1568	123.1874	237.5228	375.7415	222.7769	40.0250	1,059.5536	98%
56	0.3178	0.4288	2.6532	10.7433	46.2508	123.3190	237.6862	376.0001	222.9302	40.0526	1,060.3820	98%
57	0.3178	0.4288	2.6532	10.7433	46.3112	123.4557	237.7758	376.1418	223.0143	40.0677	1,060.9096	98%
58	0.3178	0.4288	2.6532	10.7433	46.3435	123.6204	237.8349	376.2352	223.0697	40.0776	1,061.3244	98%
59	0.3178	0.4288	2.6532	10.7433	46.3508	123.8217	237.8828	376.3110	223.1146	40.0857	1,061.7096	98%
60	0.3178	0.4288	2.6532	10.7433	46.3532	124.0139	237.9246	376.3771	223.1538	40.0927	1,062.0585	98%
61	0.3178	0.4288	2.6532	10.7433	46.3536	124.2253	237.9619	376.4362	223.1888	40.0990	1,062.4079	98%
62	0.3178	0.4288	2.6532	10.7433	46.3536	124.4533	238.0036	376.5021	223.2279	40.1060	1,062.7895	98%
63	0.3178	0.4288	2.6532	10.7433	46.3536	124.7010	238.0766	376.6176	223.2964	40.1183	1,063.3067	99%
64	0.3178	0.4288	2.6532	10.7433	46.3536	124.9638	238.1439	376.7241	223.3596	40.1297	1,063.8177	99%
65	0.3178	0.4288	2.6532	10.7433	46.3536	125.2152	238.2052	376.8210	223.4170	40.1400	1,064.2951	99%
66	0.3178	0.4288	2.6532	10.7433	46.3536	125.4029	238.3366	376.8973	223.4623	40.1481	1,064.7440	99%
67	0.3178	0.4288	2.6532	10.7433	46.3536	125.5237	238.5120	376.9175	223.4743	40.1503	1,065.0745	99%
68	0.3178	0.4288	2.6532	10.7433	46.3536	125.5885	238.7755	376.9634	223.5016	40.1552	1,065.4808	99%
69	0.3178	0.4288	2.6532	10.7433	46.3536	125.6016	239.1511	377.1094	223.5882	40.1707	1,066.1177	99%
70	0.3178	0.4288	2.6532	10.7433	46.3536	125.6056	239.5613	377.3591	223.7362	40.1973	1,066.9562	99%
71	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	240.0194	377.7078	223.9429	40.2345	1,068.0072	99%
72	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	240.4848	378.1201	224.1873	40.2784	1,069.1734	99%
73	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	240.9252	378.5305	224.4306	40.3221	1,070.3111	99%
74	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	241.3334	378.9287	224.6667	40.3645	1,071.3960	99%
75	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	241.6819	379.3055	224.8901	40.4047	1,072.3848	99%
76	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	241.9280	379.7003	225.0802	40.4388	1,073.2499	99%
77	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.0834	380.1031	225.2377	40.4671	1,073.9940	100%
78	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1633	380.5096	225.3642	40.4898	1,074.6295	100%
79	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1801	380.9183	225.4639	40.5078	1,075.1727	100%
80	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1854	381.2934	225.5559	40.5243	1,075.6616	100%
81	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	381.6463	225.6426	40.5399	1,076.1175	100%
82	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	381.9714	225.7253	40.5547	1,076.5401	100%
83	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	382.2681	225.8036	40.5688	1,076.9292	100%
84	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	382.5392	225.8780	40.5822	1,077.2880	100%
85	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	382.7738	225.9486	40.5948	1,077.6060	100%
86	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	382.9402	226.0542	40.6069	1,077.8900	100%
87	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.0475	226.1862	40.6183	1,078.1407	100%
88	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1026	226.3386	40.6290	1,078.3589	100%
89	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1143	226.5062	40.6390	1,078.5483	100%
90	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1178	226.6532	40.6484	1,078.7081	100%
91	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	226.7776	40.6572	1,078.8418	100%
92	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	226.8798	40.6655	1,078.9523	100%
93	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	226.9628	40.6736	1,079.0434	100%
94	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.0288	40.6814	1,079.1173	100%
95	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.0810	40.6888	1,079.1768	100%
96	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.1160	40.7014	1,079.2244	100%
97	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.1371	40.7175	1,079.2616	100%
98	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.1477	40.7359	1,079.2906	100%
99	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.1499	40.7556	1,079.3125	100%
100	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.1506	40.7713	1,079.3289	100%

Exhibit E.38e Cases avoided by Age Group per year following rule promulgation
(Smoking/Bladder Cancer model - TTHM - Preferred Alternative)

Years After the Rule	Age Group 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0027	0.0010	0.0061	0.0245	0.1058	0.2866	0.5526	0.8741	0.5183	0.0931	2.4645	1%
7	0.0078	0.0029	0.0180	0.0728	0.3143	0.8517	1.6421	2.5977	1.5402	0.2767	7.3242	3%
8	0.0151	0.0057	0.0355	0.1439	0.6207	1.6820	3.2430	5.1302	3.0417	0.5465	14.4644	6%
9	0.0246	0.0095	0.0585	0.2369	1.0221	2.7695	5.3400	8.4474	5.0085	0.8998	23.8167	10%
10	0.0338	0.0132	0.0820	0.3319	1.4319	3.8800	7.4812	11.8347	7.0168	1.2607	33.3661	15%
11	0.0419	0.0170	0.1052	0.4260	1.8382	4.9812	9.6044	15.1933	9.0081	1.6184	42.8338	19%
12	0.0485	0.0207	0.1278	0.5176	2.2334	6.0518	11.6687	18.4590	10.9443	1.9663	52.0381	23%
13	0.0538	0.0241	0.1494	0.6048	2.6095	7.0710	13.6338	21.5676	12.7874	2.2974	60.7988	27%
14	0.0579	0.0274	0.1696	0.6869	2.9636	8.0306	15.4841	24.4946	14.5228	2.6092	69.0468	30%
15	0.0615	0.0305	0.1886	0.7637	3.2951	8.9288	17.2159	27.2342	16.1471	2.9011	76.7665	34%
16	0.0641	0.0338	0.2063	0.8353	3.6039	9.7657	18.8297	29.7871	17.6607	3.1730	83.9597	37%
17	0.0658	0.0375	0.2229	0.9026	3.8942	10.5524	20.3465	32.1864	19.0833	3.4286	90.7201	40%
18	0.0668	0.0413	0.2389	0.9672	4.1730	11.3078	21.8031	34.4907	20.4495	3.6740	97.2124	43%
19	0.0670	0.0455	0.2541	1.0290	4.4396	12.0301	23.1957	36.6937	21.7557	3.9087	103.4190	45%
20	0.0671	0.0494	0.2687	1.0880	4.6942	12.7201	24.5262	38.7984	23.0035	4.1329	109.3485	48%
21	0.0671	0.0543	0.2829	1.1453	4.9417	13.3908	25.8193	40.8440	24.2164	4.3508	115.1127	51%
22	0.0671	0.0599	0.2964	1.2003	5.1787	14.0329	27.0575	42.8027	25.3777	4.5595	120.6327	53%
23	0.0671	0.0662	0.3094	1.2529	5.4057	14.6481	28.2436	44.6791	26.4902	4.7593	125.9218	55%
24	0.0671	0.0732	0.3219	1.3034	5.6238	15.2390	29.3829	46.4814	27.5588	4.9513	131.0028	57%
25	0.0671	0.0798	0.3338	1.3515	5.8314	15.8016	30.4677	48.1974	28.5763	5.1341	135.8408	60%
26	0.0671	0.0847	0.3482	1.3975	6.0298	16.3391	31.5040	49.8368	29.5482	5.3088	140.4642	62%
27	0.0671	0.0881	0.3646	1.4415	6.2197	16.8538	32.4965	51.4068	30.4791	5.4760	144.8933	64%
28	0.0671	0.0899	0.3828	1.4831	6.3993	17.3403	33.4346	52.8908	31.3589	5.6341	149.0810	65%
29	0.0671	0.0904	0.4024	1.5226	6.5693	17.8011	34.3230	54.2961	32.1922	5.7838	153.0478	67%
30	0.0671	0.0905	0.4207	1.5594	6.7282	18.2318	35.1534	55.6098	32.9711	5.9237	156.7558	69%
31	0.0671	0.0906	0.4402	1.5943	6.8787	18.6394	35.9393	56.8530	33.7082	6.0561	160.2668	70%
32	0.0671	0.0906	0.4604	1.6262	7.0166	19.0132	36.6602	57.9934	34.3843	6.1776	163.4896	72%
33	0.0671	0.0906	0.4814	1.6558	7.1443	19.3593	37.3274	59.0489	35.0101	6.2901	166.4751	73%
34	0.0671	0.0906	0.5034	1.6828	7.2608	19.6749	37.9361	60.0117	35.5809	6.3926	169.2010	74%
35	0.0671	0.0906	0.5245	1.7083	7.3709	19.9731	38.5109	60.9211	36.1201	6.4895	171.7761	75%
36	0.0671	0.0906	0.5406	1.7403	7.4812	20.2720	39.0872	61.8328	36.6606	6.5866	174.3589	77%
37	0.0671	0.0906	0.5517	1.7769	7.5887	20.5634	39.6491	62.7215	37.1876	6.6813	176.8778	78%
38	0.0671	0.0906	0.5580	1.8184	7.6962	20.8547	40.2108	63.6101	37.7144	6.7759	179.3961	79%
39	0.0671	0.0906	0.5597	1.8634	7.8007	21.1379	40.7568	64.4739	38.2266	6.8679	181.8447	80%
40	0.0671	0.0906	0.5603	1.9063	7.8998	21.4065	41.2747	65.2932	38.7123	6.9552	184.1660	81%
41	0.0671	0.0906	0.5604	1.9541	7.9909	21.6533	41.7506	66.0460	39.1586	7.0354	186.3069	82%
42	0.0671	0.0906	0.5604	2.0058	8.0723	21.8739	42.1759	66.7188	39.5576	7.1071	188.2296	83%
43	0.0671	0.0906	0.5604	2.0612	8.1471	22.0765	42.5665	67.3368	39.9239	7.1729	190.0030	83%
44	0.0671	0.0906	0.5604	2.1198	8.2153	22.2613	42.9228	67.9004	40.2581	7.2329	191.6288	84%
45	0.0671	0.0906	0.5604	2.1758	8.2803	22.4374	43.2625	68.4378	40.5767	7.2902	193.1789	85%
46	0.0671	0.0906	0.5604	2.2182	8.3676	22.6120	43.5991	68.9701	40.8923	7.3469	194.7243	85%
47	0.0671	0.0906	0.5604	2.2470	8.4715	22.7779	43.9189	69.4761	41.1924	7.4008	196.2027	86%
48	0.0671	0.0906	0.5604	2.2631	8.5910	22.9364	44.2246	69.9596	41.4790	7.4523	197.6241	87%
49	0.0671	0.0906	0.5604	2.2673	8.7241	23.0879	44.5167	70.4218	41.7530	7.5015	198.9905	87%
50	0.0671	0.0906	0.5604	2.2690	8.8516	23.2337	44.7979	70.8666	42.0168	7.5489	200.3026	88%
51	0.0671	0.0906	0.5604	2.2693	8.9888	23.3699	45.0605	71.2820	42.2631	7.5932	201.5449	88%
52	0.0671	0.0906	0.5604	2.2693	9.1293	23.4832	45.2789	71.6274	42.4679	7.6299	202.6039	89%
53	0.0671	0.0906	0.5604	2.2693	9.2733	23.5746	45.4551	71.9061	42.6331	7.6596	203.4893	89%
54	0.0671	0.0906	0.5604	2.2693	9.4213	23.6444	45.5898	72.1192	42.7595	7.6823	204.2039	90%
55	0.0671	0.0906	0.5604	2.2693	9.5600	23.7272	45.7494	72.3717	42.9092	7.7092	205.0140	90%
56	0.0671	0.0906	0.5604	2.2693	9.6646	23.8931	45.9748	72.7283	43.1206	7.7472	206.1159	90%
57	0.0671	0.0906	0.5604	2.2693	9.7359	24.1047	46.2033	73.0898	43.3349	7.7857	207.2416	91%
58	0.0671	0.0906	0.5604	2.2693	9.7758	24.3629	46.4392	73.4630	43.5562	7.8255	208.4099	91%
59	0.0671	0.0906	0.5604	2.2693	9.7863	24.6509	46.6681	73.8250	43.7708	7.8640	209.5526	92%
60	0.0671	0.0906	0.5604	2.2693	9.7904	24.8973	46.8418	74.0999	43.9338	7.8933	210.4439	92%
61	0.0671	0.0906	0.5604	2.2693	9.7911	25.1502	47.0034	74.3555	44.0853	7.9206	211.2935	93%
62	0.0671	0.0906	0.5604	2.2693	9.7911	25.4057	47.1543	74.5942	44.2268	7.9460	212.1056	93%
63	0.0671	0.0906	0.5604	2.2693	9.7911	25.6557	47.2686	74.7751	44.3341	7.9652	212.7773	93%
64	0.0671	0.0906	0.5604	2.2693	9.7911	25.9088	47.3645	74.9268	44.4240	7.9814	213.3841	94%
65	0.0671	0.0906	0.5604	2.2693	9.7911	26.1449	47.4493	75.0609	44.5036	7.9957	213.9330	94%
66	0.0671	0.0906	0.5604	2.2693	9.7911	26.3216	47.6005	75.1860	44.5777	8.0090	214.4734	94%
67	0.0671	0.0906	0.5604	2.2693	9.7911	26.4393	47.8133	75.3037	44.6475	8.0216	215.0040	94%
68	0.0671	0.0906	0.5604	2.2693	9.7911	26.5047	48.0843	75.4146	44.7133	8.0334	215.5287	95%
69	0.0671	0.0906	0.5604	2.2693	9.7911	26.5228	48.4080	75.5188	44.7751	8.0445	216.0478	95%
70	0.0671	0.0906	0.5604	2.2693	9.7911	26.5300	48.7264	75.6160	44.8327	8.0548	216.5385	95%
71	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	49.0675	75.7070	44.8866	8.0645	217.0356	95%
72	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	49.4186	75.7922	44.9372	8.0736	217.5315	95%
73	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	49.7849	75.8913	44.9959	8.0842	218.0662	96%
74	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	50.1646	76.0188	45.0715	8.0977	218.6626	96%
75	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	50.5301	76.1754	45.1643	8.1144	219.2942	96%
76	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	50.8107	76.4606	45.2742	8.1341	219.9896	97%
77	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.0032	76.8433	45.3906	8.1551	220.7020	97%
78	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1116	77.3009	45.5048	8.1756	221.4028	97%
79	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1417	77.8197	45.6153	8.1954	222.0821	97%
80	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1538	78.3108	45.7188	8.2140	222.7074	98%
81	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	78.7834	45.8131	8.2310	223.2938	98%
82	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	79.2233	45.8930	8.2453	223.8279	98%
83	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	79.6302	45.9587	8.2571	224.3124	98%
84	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.0121	46.0131	8.2669	224.7584	99%
85	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.3573	46.0589	8.2751	225.1576	99%
86	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.6128	46.1661	8.2826	225.5278	99%
87	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.7861	46.3250	8.2892	225.8666	99%
88	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.8827	46.5331	8.2961	226.1783	99%
89	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9111	46.7813	8.3027	226.4613	99%
90	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9226	47.0146	8.3090	226.7126	99%
91	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.2279	8.3156	226.9348	100%
92	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.4128	8.3218	227.1260	100%
93	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.5710	8.3282	227.2905	100%
94	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.7038	8.3347	227.4299	100%
95	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.8149	8.3414	227.5477	100%
96	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.8927	8.3614	227.6454	100%
97	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9423	8.3916	227.7252	100%
98	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9690	8.4295	227.7898	100%
99	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9767	8.4729	227.8410	100%
100	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9798	8.5099	227.8811	100%

Exhibit E.38e Cases avoided by Age Group per year following rule promulgation
(Smoking/Bladder Cancer model - TTHM - Preferred Alternative)

Years After the Rule	Age Group 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0291	0.0302	0.1867	0.7560	3.2618	8.8386	17.0420	26.9591	15.9840	2.8718	75.9592	7%
7	0.0681	0.0658	0.4073	1.6493	7.1162	19.2830	37.1804	58.8164	34.8722	6.2653	165.7241	15%
8	0.1148	0.1050	0.6499	2.6317	11.3549	30.7688	59.3266	93.8497	55.6435	9.9971	264.4421	25%
9	0.1682	0.1463	0.9049	3.6643	15.8102	42.8415	82.6045	130.6734	77.4762	13.9197	368.2093	34%
10	0.2046	0.1657	1.0253	4.1515	17.9124	48.5378	93.5877	148.0480	87.7776	15.7705	417.1810	39%
11	0.2332	0.1799	1.1130	4.5069	19.4459	52.6932	101.6000	160.7227	95.2924	17.1206	452.9079	42%
12	0.2553	0.1904	1.1782	4.7707	20.5837	55.7765	107.5450	170.1273	100.8684	18.1224	479.4179	45%
13	0.2729	0.1995	1.2346	4.9992	21.5698	58.4484	112.6968	178.2771	105.7004	18.9906	502.3893	47%
14	0.2863	0.2074	1.2830	5.1950	22.4145	60.7373	117.1102	185.2586	109.8397	19.7343	522.0661	48%
15	0.2985	0.2141	1.3249	5.3647	23.1469	62.7221	120.9371	191.3125	113.4291	20.3791	539.1290	50%
16	0.3074	0.2223	1.3638	5.5222	23.8265	64.5637	124.4879	196.9296	116.7595	20.9775	554.9604	52%
17	0.3134	0.2320	1.4018	5.6763	24.4914	66.3653	127.9618	202.4250	120.0177	21.5629	570.4477	53%
18	0.3167	0.2432	1.4391	5.8274	25.1432	68.1316	131.3674	207.8124	123.2119	22.1367	585.6297	54%
19	0.3175	0.2556	1.4744	5.9700	25.7586	69.7989	134.5822	212.8979	126.2271	22.6785	599.9607	56%
20	0.3178	0.2674	1.5068	6.1012	26.3246	71.3328	137.5397	217.5765	129.0010	23.1768	613.1447	57%
21	0.3178	0.2835	1.5369	6.2232	26.8509	72.7588	140.2892	221.9260	131.5798	23.6402	625.4062	58%
22	0.3178	0.3038	1.5683	6.3505	27.4001	74.2472	143.1590	226.4658	134.2715	24.1238	638.2078	59%
23	0.3178	0.3279	1.5977	6.4696	27.9142	75.6401	145.8448	230.7145	136.7906	24.5763	650.1936	60%
24	0.3178	0.3557	1.6253	6.5813	28.3960	76.9457	148.3621	234.6966	139.1515	25.0005	661.4326	61%
25	0.3178	0.3832	1.6535	6.6955	28.8887	78.2808	150.9363	238.7689	141.5660	25.4343	672.9250	62%
26	0.3178	0.4040	1.6930	6.7965	29.3244	79.4613	153.2126	242.3697	143.7009	25.8179	683.0981	63%
27	0.3178	0.4183	1.7475	6.9067	29.7998	80.7497	155.6967	246.2994	146.0308	26.2365	694.2032	64%
28	0.3178	0.4263	1.8134	7.0136	30.2613	82.0003	158.1081	250.1139	148.2924	26.6428	704.9899	65%
29	0.3178	0.4281	1.8898	7.1194	30.7178	83.2371	160.4929	253.8866	150.5292	27.0447	715.6634	66%
30	0.3178	0.4287	1.9636	7.2197	31.1505	84.4097	162.7538	257.4631	152.6498	27.4257	725.7825	67%
31	0.3178	0.4288	2.0457	7.3035	31.5121	85.3897	164.6433	260.4521	154.4219	27.7441	734.2589	68%
32	0.3178	0.4288	2.1369	7.3835	31.8573	86.3251	166.4469	263.3053	156.1135	28.0480	742.3632	69%
33	0.3178	0.4288	2.2364	7.4494	32.1415	87.0952	167.9318	265.6543	157.5063	28.2982	749.0597	70%
34	0.3178	0.4288	2.3468	7.5071	32.3907	87.7703	169.2334	267.7134	158.7272	28.5176	754.9531	70%
35	0.3178	0.4288	2.4591	7.5670	32.6491	88.4704	170.5835	269.8490	159.9933	28.7451	761.0631	71%
36	0.3178	0.4288	2.5462	7.6650	32.9003	89.1512	171.8961	271.9254	161.2244	28.9662	767.0214	71%
37	0.3178	0.4288	2.6074	7.7995	33.1543	89.8395	173.2232	274.0247	162.4692	29.1899	773.0543	72%
38	0.3178	0.4288	2.6422	7.9683	33.4080	90.5269	174.5486	276.1214	163.7123	29.4132	779.0876	72%
39	0.3178	0.4288	2.6501	8.1615	33.6162	91.0910	175.6364	277.8422	164.7326	29.5965	784.0732	73%
40	0.3178	0.4288	2.6528	8.3507	33.7939	91.5727	176.5651	279.3113	165.6036	29.7530	788.3498	73%
41	0.3178	0.4288	2.6532	8.5980	33.9724	92.0562	177.4973	280.7861	166.4780	29.9101	792.6979	74%
42	0.3178	0.4288	2.6532	8.8992	34.1559	92.5535	178.4561	282.3028	167.3772	30.0717	797.2161	74%
43	0.3178	0.4288	2.6532	9.2554	34.3680	93.1283	179.5646	284.0562	168.4169	30.2584	802.4477	74%
44	0.3178	0.4288	2.6532	9.6626	34.6007	93.7589	180.7805	285.9797	169.5573	30.4633	808.2030	75%
45	0.3178	0.4288	2.6532	10.0680	34.8306	94.3818	181.9816	287.8799	170.6839	30.6658	813.8914	76%
46	0.3178	0.4288	2.6532	10.3772	35.2319	94.9516	183.0801	289.6177	171.7142	30.8509	819.2235	76%
47	0.3178	0.4288	2.6532	10.5895	35.7868	95.4606	184.0614	291.1700	172.6346	31.0162	824.1189	77%
48	0.3178	0.4288	2.6532	10.7074	36.5033	95.9382	184.9824	292.6268	173.4983	31.1714	828.8276	77%
49	0.3178	0.4288	2.6532	10.7334	37.3810	96.4248	185.9206	294.1111	174.3783	31.3295	833.6785	77%
50	0.3178	0.4288	2.6532	10.7421	38.2639	96.9468	186.9271	295.7032	175.3223	31.4991	838.8043	78%
51	0.3178	0.4288	2.6532	10.7433	39.3032	97.4917	187.9777	297.3651	176.3077	31.6762	844.2645	78%
52	0.3178	0.4288	2.6532	10.7433	40.4454	97.9812	188.9216	298.8583	177.1930	31.8352	849.3778	79%
53	0.3178	0.4288	2.6532	10.7433	41.6790	98.3800	189.6905	300.0746	177.9142	31.9648	853.8462	79%
54	0.3178	0.4288	2.6532	10.7433	43.0005	98.6878	190.2840	301.0136	178.4708	32.0648	857.6645	80%
55	0.3178	0.4288	2.6532	10.7433	44.2710	98.9561	190.8013	301.8318	178.9560	32.1520	861.1112	80%
56	0.3178	0.4288	2.6532	10.7433	45.2322	99.7926	191.3853	302.7557	179.5038	32.2504	865.0630	80%
57	0.3178	0.4288	2.6532	10.7433	45.8857	101.1607	192.0491	303.8057	180.1263	32.3622	869.5328	81%
58	0.3178	0.4288	2.6532	10.7433	46.2450	103.0596	192.7977	304.9899	180.8284	32.4884	874.5522	81%
59	0.3178	0.4288	2.6532	10.7433	46.3239	105.4338	193.5716	306.2142	181.5544	32.6188	879.8597	82%
60	0.3178	0.4288	2.6532	10.7433	46.3501	107.7083	194.3363	307.4238	182.2715	32.7476	884.9808	82%
61	0.3178	0.4288	2.6532	10.7433	46.3536	110.1788	195.0848	308.6079	182.9736	32.8738	890.2155	83%
62	0.3178	0.4288	2.6532	10.7433	46.3536	112.7909	195.8143	309.7621	183.6578	32.9967	895.5185	83%
63	0.3178	0.4288	2.6532	10.7433	46.3536	115.5488	196.5252	310.8867	184.3246	33.1165	900.8985	84%
64	0.3178	0.4288	2.6532	10.7433	46.3536	118.4613	197.2187	311.9836	184.9750	33.2334	906.3685	84%
65	0.3178	0.4288	2.6532	10.7433	46.3536	121.2294	197.8943	313.0524	185.6086	33.3472	911.6287	85%
66	0.3178	0.4288	2.6532	10.7433	46.3536	123.2963	199.4517	314.0938	186.2261	33.4581	917.0227	85%
67	0.3178	0.4288	2.6532	10.7433	46.3536	124.6564	201.8278	315.1088	186.8279	33.5663	922.4838	86%
68	0.3178	0.4288	2.6532	10.7433	46.3536	125.3880	204.9809	316.0993	187.4151	33.6718	928.0518	86%
69	0.3178	0.4288	2.6532	10.7433	46.3536	125.5476	208.8459	317.0675	187.9892	33.7749	933.7218	87%
70	0.3178	0.4288	2.6532	10.7433	46.3536	125.5994	212.6640	318.0135	188.5501	33.8757	939.1994	87%
71	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	216.7799	318.9366	189.0975	33.9740	944.8907	88%
72	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	221.0329	319.7598	189.5855	34.0617	950.5426	88%
73	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	225.4800	320.4821	190.0138	34.1386	956.2173	89%
74	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	230.1207	321.1000	190.3800	34.2044	961.9078	89%
75	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	234.6451	321.6152	190.6856	34.2593	967.3079	90%
76	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	238.0999	323.5576	190.9684	34.3102	973.0386	90%
77	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	240.4723	326.8481	191.2333	34.3578	979.0142	91%
78	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	241.7958	331.4795	191.4848	34.4029	985.2657	91%
79	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.0804	337.3870	191.7247	34.4460	991.7407	92%
80	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1742	343.3253	191.9552	34.4874	998.0448	93%
81	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	349.4792	192.1760	34.5271	1004.4710	93%
82	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	355.6659	192.3867	34.5650	1010.9062	94%
83	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	361.8300	192.5872	34.6010	1017.3070	94%
84	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	367.9858	192.7784	34.6353	1023.6883	95%
85	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	373.8075	193.0288	34.6804	1029.8054	96%
86	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	378.1447	194.5628	34.7325	1035.7288	96%
87	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	381.0788	197.2145	34.7915	1041.3735	97%
88	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	382.6589	200.8757	34.8591	1046.6825	97%
89	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	382.9973	205.3695	34.9252	1051.5806	98%
90	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1054	209.5892	34.9917	1055.9750	98%
91	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	213.4089	35.0590	1059.8748	98%
92	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	216.7507	35.1254	1063.2831	99%
93	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	219.6409	35.1906	1066.2385	99%
94	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	222.0923	35.2546	1068.7540	99%
95	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	224.1690	35.3174	1070.8934	99%
96	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	225.6220	35.6616	1072.6906	100%
97	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	226.5397	36.2285	1074.1752	100%
98	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.0145	36.9726	1075.3941	100%
99	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.1157	37.8492	1076.3719	100%
100	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.1471	38.5924	1077.1465	100%

Exhibit E.38i Cases avoided by Age Group per year following rule promulgation
(Arsenic/Bladder Cancer model - TTHM - Preferred Alternative)

Years After	Age Group											
the Rule	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0051	0.0047	0.0294	0.1190	0.5134	1.3912	2.6825	4.2435	2.5159	0.4520	11.9568	5%
7	0.0137	0.0132	0.0815	0.3298	1.4230	3.8560	7.4350	11.7615	6.9734	1.2529	33.1399	15%
8	0.0249	0.0244	0.1509	0.6112	2.6371	7.1459	13.7783	21.7962	12.9229	2.3218	61.4137	27%
9	0.0377	0.0378	0.2338	0.9466	4.0843	11.0673	21.3393	33.7571	20.0146	3.5959	95.1143	42%
10	0.0477	0.0491	0.3038	1.2303	5.3082	14.3839	27.7343	43.8733	26.0125	4.6735	123.6167	54%
11	0.0549	0.0584	0.3611	1.4620	6.3079	17.0928	32.9574	52.1358	30.9113	5.5537	146.8952	64%
12	0.0597	0.0656	0.4059	1.6436	7.0916	19.2165	37.0521	58.6134	34.7519	6.2437	165.1440	72%
13	0.0628	0.0712	0.4405	1.7837	7.6959	20.8538	40.2091	63.6075	37.7129	6.7757	179.2131	79%
14	0.0646	0.0755	0.4672	1.8918	8.1625	22.1183	42.6472	67.4644	39.9996	7.1865	190.0777	83%
15	0.0658	0.0789	0.4879	1.9755	8.5237	23.0970	44.5344	70.4496	41.7696	7.5045	198.4868	87%
16	0.0665	0.0815	0.5039	2.0406	8.8043	23.8574	46.0005	72.7689	43.1447	7.7515	205.0199	90%
17	0.0669	0.0836	0.5164	2.0911	9.0223	24.4482	47.1395	74.5708	44.2130	7.9435	210.0952	92%
18	0.0671	0.0853	0.5261	2.1303	9.1914	24.9062	48.0227	75.9679	45.0414	8.0923	214.0305	94%
19	0.0671	0.0866	0.5336	2.1606	9.3224	25.2612	48.7072	77.0507	45.6833	8.2077	217.0803	95%
20	0.0671	0.0876	0.5394	2.1842	9.4239	25.5362	49.2374	77.8895	46.1807	8.2970	219.4429	96%
21	0.0671	0.0884	0.5439	2.2024	9.5024	25.7491	49.6480	78.5390	46.5658	8.3662	221.2723	97%
22	0.0671	0.0890	0.5474	2.2165	9.5632	25.9139	49.9656	79.0414	46.8636	8.4197	222.6874	98%
23	0.0671	0.0895	0.5501	2.2273	9.6102	26.0412	50.2111	79.4299	47.0940	8.4611	223.7816	98%
24	0.0671	0.0899	0.5522	2.2358	9.6468	26.1403	50.4022	79.7320	47.2731	8.4933	224.6327	99%
25	0.0671	0.0902	0.5538	2.2424	9.6752	26.2172	50.5505	79.9668	47.4123	8.5183	225.2938	99%
26	0.0671	0.0904	0.5551	2.2475	9.6972	26.2770	50.6657	80.1490	47.5203	8.5377	225.8070	99%
27	0.0671	0.0905	0.5562	2.2515	9.7144	26.3234	50.7552	80.2906	47.6043	8.5528	226.2059	99%
28	0.0671	0.0905	0.5570	2.2546	9.7276	26.3594	50.8246	80.4003	47.6694	8.5645	226.5151	99%
29	0.0671	0.0906	0.5577	2.2569	9.7379	26.3872	50.8783	80.4853	47.7197	8.5735	226.7543	99%
30	0.0671	0.0906	0.5583	2.2588	9.7458	26.4086	50.9195	80.5504	47.7583	8.5805	226.9378	100%
31	0.0671	0.0906	0.5587	2.2602	9.7519	26.4250	50.9511	80.6004	47.7879	8.5858	227.0786	100%
32	0.0671	0.0906	0.5591	2.2613	9.7568	26.4383	50.9767	80.6409	47.8120	8.5901	227.1928	100%
33	0.0671	0.0906	0.5594	2.2623	9.7609	26.4495	50.9983	80.6751	47.8322	8.5937	227.2892	100%
34	0.0671	0.0906	0.5597	2.2631	9.7644	26.4589	51.0165	80.7039	47.8493	8.5968	227.3704	100%
35	0.0671	0.0906	0.5599	2.2637	9.7672	26.4667	51.0315	80.7275	47.8633	8.5993	227.4369	100%
36	0.0671	0.0906	0.5601	2.2643	9.7696	26.4730	51.0438	80.7470	47.8749	8.6014	227.4919	100%
37	0.0671	0.0906	0.5603	2.2649	9.7715	26.4782	51.0537	80.7628	47.8842	8.6031	227.5364	100%
38	0.0671	0.0906	0.5603	2.2653	9.7729	26.4820	51.0609	80.7742	47.8910	8.6043	227.5686	100%
39	0.0671	0.0906	0.5604	2.2656	9.7738	26.4844	51.0656	80.7816	47.8954	8.6051	227.5896	100%
40	0.0671	0.0906	0.5604	2.2659	9.7744	26.4860	51.0688	80.7866	47.8983	8.6056	227.6037	100%
41	0.0671	0.0906	0.5604	2.2663	9.7748	26.4873	51.0712	80.7904	47.9006	8.6060	227.6147	100%
42	0.0671	0.0906	0.5604	2.2667	9.7752	26.4882	51.0731	80.7934	47.9023	8.6063	227.6234	100%
43	0.0671	0.0906	0.5604	2.2671	9.7755	26.4890	51.0745	80.7957	47.9037	8.6066	227.6302	100%
44	0.0671	0.0906	0.5604	2.2675	9.7757	26.4896	51.0757	80.7974	47.9048	8.6068	227.6356	100%
45	0.0671	0.0906	0.5604	2.2680	9.7759	26.4900	51.0765	80.7988	47.9056	8.6069	227.6399	100%
46	0.0671	0.0906	0.5604	2.2684	9.7762	26.4904	51.0772	80.7999	47.9062	8.6070	227.6435	100%
47	0.0671	0.0906	0.5604	2.2688	9.7767	26.4907	51.0777	80.8007	47.9067	8.6071	227.6465	100%
48	0.0671	0.0906	0.5604	2.2690	9.7773	26.4909	51.0781	80.8013	47.9071	8.6072	227.6490	100%
49	0.0671	0.0906	0.5604	2.2692	9.7781	26.4911	51.0787	80.8022	47.9076	8.6073	227.6523	100%
50	0.0671	0.0906	0.5604	2.2692	9.7791	26.4916	51.0795	80.8036	47.9084	8.6074	227.6570	100%
51	0.0671	0.0906	0.5604	2.2693	9.7804	26.4922	51.0808	80.8056	47.9096	8.6076	227.6637	100%
52	0.0671	0.0906	0.5604	2.2693	9.7819	26.4930	51.0823	80.8079	47.9110	8.6079	227.6715	100%
53	0.0671	0.0906	0.5604	2.2693	9.7835	26.4939	51.0840	80.8107	47.9126	8.6082	227.6803	100%
54	0.0671	0.0906	0.5604	2.2693	9.7852	26.4949	51.0860	80.8138	47.9145	8.6085	227.6904	100%
55	0.0671	0.0906	0.5604	2.2693	9.7869	26.4960	51.0881	80.8172	47.9165	8.6089	227.7011	100%
56	0.0671	0.0906	0.5604	2.2693	9.7884	26.4976	51.0902	80.8205	47.9184	8.6092	227.7118	100%
57	0.0671	0.0906	0.5604	2.2693	9.7895	26.4995	51.0921	80.8235	47.9202	8.6095	227.7218	100%
58	0.0671	0.0906	0.5604	2.2693	9.7903	26.5017	51.0936	80.8258	47.9216	8.6098	227.7302	100%
59	0.0671	0.0906	0.5604	2.2693	9.7908	26.5041	51.0948	80.8277	47.9228	8.6100	227.7377	100%
60	0.0671	0.0906	0.5604	2.2693	9.7911	26.5067	51.0960	80.8296	47.9239	8.6102	227.7448	100%
61	0.0671	0.0906	0.5604	2.2693	9.7911	26.5098	51.0972	80.8316	47.9250	8.6104	227.7526	100%
62	0.0671	0.0906	0.5604	2.2693	9.7911	26.5131	51.0987	80.8338	47.9264	8.6106	227.7611	100%
63	0.0671	0.0906	0.5604	2.2693	9.7911	26.5165	51.1002	80.8363	47.9278	8.6109	227.7704	100%
64	0.0671	0.0906	0.5604	2.2693	9.7911	26.5200	51.1019	80.8389	47.9294	8.6112	227.7800	100%
65	0.0671	0.0906	0.5604	2.2693	9.7911	26.5234	51.1037	80.8418	47.9311	8.6115	227.7901	100%
66	0.0671	0.0906	0.5604	2.2693	9.7911	26.5262	51.1064	80.8449	47.9329	8.6118	227.8008	100%
67	0.0671	0.0906	0.5604	2.2693	9.7911	26.5284	51.1097	80.8481	47.9348	8.6122	227.8117	100%
68	0.0671	0.0906	0.5604	2.2693	9.7911	26.5299	51.1137	80.8513	47.9367	8.6125	227.8228	100%
69	0.0671	0.0906	0.5604	2.2693	9.7911	26.5308	51.1181	80.8546	47.9387	8.6129	227.8336	100%
70	0.0671	0.0906	0.5604	2.2693	9.7911	26.5313	51.1227	80.8577	47.9405	8.6132	227.8440	100%
71	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1277	80.8607	47.9423	8.6135	227.8541	100%
72	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1326	80.8635	47.9440	8.6138	227.8639	100%
73	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1374	80.8662	47.9456	8.6141	227.8732	100%
74	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1419	80.8688	47.9471	8.6144	227.8821	100%
75	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1463	80.8713	47.9485	8.6146	227.8906	100%
76	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1498	80.8744	47.9499	8.6149	227.8990	100%
77	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1525	80.8782	47.9512	8.6151	227.9070	100%
78	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1544	80.8826	47.9525	8.6153	227.9147	100%
79	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1555	80.8874	47.9537	8.6155	227.9221	100%
80	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1561	80.8925	47.9548	8.6158	227.9292	100%
81	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.8978	47.9559	8.6159	227.9359	100%
82	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9030	47.9570	8.6161	227.9423	100%
83	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9078	47.9579	8.6163	227.9483	100%
84	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9122	47.9589	8.6165	227.9539	100%
85	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9162	47.9598	8.6167	227.9590	100%
86	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9194	47.9612	8.6168	227.9637	100%
87	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9218	47.9629	8.6170	227.9679	100%
88	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9235	47.9649	8.6171	227.9718	100%
89	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9244	47.9672	8.6172	227.9751	100%
90	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9249	47.9696	8.6174	227.9781	100%
91	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9719	8.6175	227.9807	100%
92	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9739	8.6176	227.9829	100%
93	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9757	8.6177	227.9847	100%
94	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9771	8.6178	227.9863	100%
95	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9783	8.6179	227.9875	100%
96	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9791	8.6181	227.9886	100%
97	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9797	8.6184	227.9894	100%
98	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9801	8.6187	227.9901	100%
99	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9803	8.6190	227.9906	100%
100	0.0671	0.0906	0.5604	2.2693	9.7911	26.5314	51.1563	80.9250	47.9804	8.6193	227.9910	100%

Exhibit E.38i Cases avoided by Age Group per year following rule promulgation
(Arsenic/Bladder Cancer model - TTHM - Preferred Alternative)

Years After	Age Group											
the Rule	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0346	0.0387	0.2394	0.9694	4.1825	11.3334	21.8525	34.5688	20.4958	3.6824	97.3974	9%
7	0.0821	0.0899	0.5564	2.2531	9.7215	26.3428	50.7927	80.3499	47.6394	8.5591	226.3870	21%
8	0.1378	0.1492	0.9234	3.7390	16.1324	43.7146	84.2880	133.3366	79.0552	14.2034	375.6797	35%
9	0.1997	0.2144	1.3266	5.3719	23.1778	62.8058	121.0984	191.5676	113.5804	20.4063	539.7488	50%
10	0.2381	0.2529	1.5645	6.3349	27.3328	74.0647	142.8073	225.9093	133.9416	24.0645	636.5105	59%
11	0.2648	0.2808	1.7371	7.0340	30.3491	82.2380	158.5666	250.8392	148.7226	26.7201	706.7523	65%
12	0.2827	0.3010	1.8626	7.5419	32.5407	88.1767	170.0172	268.9530	159.4623	28.6496	757.7877	70%
13	0.2948	0.3167	1.9596	7.9350	34.2367	92.7725	178.8786	282.9710	167.7736	30.1429	797.2814	74%
14	0.3029	0.3295	2.0386	8.2546	35.6158	96.5095	186.0839	294.3693	174.5315	31.3570	829.3926	77%
15	0.3092	0.3401	2.1043	8.5206	36.7635	99.6196	192.0806	303.8556	180.1559	32.3675	856.1169	79%
16	0.3134	0.3497	2.1598	8.7456	37.7343	102.2501	197.1527	311.8792	184.9131	33.2222	878.7203	81%
17	0.3160	0.3586	2.2074	8.9383	38.5656	104.5027	201.4960	318.7499	188.9867	33.9541	898.0753	83%
18	0.3174	0.3667	2.2485	9.1049	39.2843	106.4503	205.2511	324.6903	192.5088	34.5869	914.8093	85%
19	0.3177	0.3744	2.2844	9.2501	39.9107	108.1477	208.5240	329.8676	195.5784	35.1384	929.3934	86%
20	0.3178	0.3811	2.3159	9.3776	40.4609	109.6383	211.3982	334.4145	198.2742	35.6227	942.2012	87%
21	0.3178	0.3882	2.3437	9.4900	40.9460	110.9531	213.9333	338.4246	200.6518	36.0499	953.4984	88%
22	0.3178	0.3956	2.3683	9.5899	41.3771	112.1212	216.1855	341.9876	202.7643	36.4295	963.5369	89%
23	0.3178	0.4032	2.3904	9.6792	41.7623	113.1649	218.1978	345.1710	204.6518	36.7686	972.5069	90%
24	0.3178	0.4111	2.4101	9.7591	42.1069	114.0988	219.9985	348.0194	206.3406	37.0720	980.5343	91%
25	0.3178	0.4181	2.4278	9.8308	42.4163	114.9370	221.6147	350.5762	207.8565	37.3443	987.7395	92%
26	0.3178	0.4232	2.4467	9.8954	42.6952	115.6929	223.0722	352.8817	209.2235	37.5899	994.2385	92%
27	0.3178	0.4265	2.4664	9.9541	42.9485	116.3793	224.3957	354.9753	210.4648	37.8130	1000.1415	93%
28	0.3178	0.4283	2.4868	10.0074	43.1786	117.0027	225.5976	356.8768	211.5922	38.0155	1005.5037	93%
29	0.3178	0.4287	2.5078	10.0560	43.3881	117.5705	226.6925	358.6087	212.6190	38.2000	1010.3890	94%
30	0.3178	0.4288	2.5268	10.1004	43.5797	118.0897	227.6935	360.1923	213.5579	38.3687	1014.8555	94%
31	0.3178	0.4288	2.5461	10.1412	43.7557	118.5665	228.6129	361.6468	214.4202	38.5236	1018.9595	94%
32	0.3178	0.4288	2.5655	10.1788	43.9181	119.0065	229.4613	362.9889	215.2159	38.6666	1022.7482	95%
33	0.3178	0.4288	2.5850	10.2136	44.0681	119.4131	230.2453	364.2291	215.9513	38.7987	1026.2509	95%
34	0.3178	0.4288	2.6049	10.2458	44.2070	119.7893	230.9706	365.3764	216.6315	38.9209	1029.4929	95%
35	0.3178	0.4288	2.6234	10.2757	44.3358	120.1385	231.6440	366.4416	217.2631	39.0344	1032.5031	96%
36	0.3178	0.4288	2.6372	10.3086	44.4555	120.4628	232.2693	367.4309	217.8496	39.1398	1035.3005	96%
37	0.3178	0.4288	2.6465	10.3439	44.5668	120.7644	232.8508	368.3509	218.3950	39.2377	1037.9027	96%
38	0.3178	0.4288	2.6516	10.3812	44.6701	121.0443	233.3906	369.2047	218.9013	39.3287	1040.3191	96%
39	0.3178	0.4288	2.6527	10.4202	44.7662	121.3046	233.8925	369.9987	219.3720	39.4133	1042.5669	97%
40	0.3178	0.4288	2.6531	10.4565	44.8556	121.5470	234.3598	370.7379	219.8103	39.4920	1044.6589	97%
41	0.3178	0.4288	2.6532	10.4963	44.9390	121.7729	234.7953	371.4268	220.2189	39.5654	1046.6144	97%
42	0.3178	0.4288	2.6532	10.5389	45.0167	121.9836	235.2016	372.0695	220.5999	39.6339	1048.4440	97%
43	0.3178	0.4288	2.6532	10.5839	45.0894	122.1803	235.5810	372.6697	220.9557	39.6978	1050.1576	97%
44	0.3178	0.4288	2.6532	10.6308	45.1572	122.3643	235.9357	373.2307	221.2884	39.7576	1051.7646	97%
45	0.3178	0.4288	2.6532	10.6745	45.2208	122.5364	236.2675	373.7557	221.5997	39.8135	1053.2679	98%
46	0.3178	0.4288	2.6532	10.7067	45.2972	122.6977	236.5785	374.2474	221.8913	39.8659	1054.6845	98%
47	0.3178	0.4288	2.6532	10.7281	45.3844	122.8488	236.8699	374.7085	222.1646	39.9150	1056.0191	98%
48	0.3178	0.4288	2.6532	10.7397	45.4813	122.9907	237.1434	375.1412	222.4211	39.9611	1057.2782	98%
49	0.3178	0.4288	2.6532	10.7423	45.5864	123.1239	237.4002	375.5474	222.6620	40.0043	1058.4663	98%
50	0.3178	0.4288	2.6532	10.7432	45.6846	123.2487	237.6408	375.9282	222.8878	40.0449	1059.5779	98%
51	0.3178	0.4288	2.6532	10.7433	45.7878	123.3656	237.8662	376.2848	223.0991	40.0829	1060.6294	98%
52	0.3178	0.4288	2.6532	10.7433	45.8929	123.4748	238.0767	376.6180	223.2966	40.1184	1061.6205	98%
53	0.3178	0.4288	2.6532	10.7433	45.9994	123.5769	238.2737	376.9294	223.4813	40.1516	1062.5552	98%
54	0.3178	0.4288	2.6532	10.7433	46.1066	123.6727	238.4583	377.2214	223.6545	40.1827	1063.4393	99%
55	0.3178	0.4288	2.6532	10.7433	46.2037	123.7621	238.6308	377.4943	223.8163	40.2117	1064.2620	99%
56	0.3178	0.4288	2.6532	10.7433	46.2745	123.8797	238.7928	377.7504	223.9682	40.2390	1065.0478	99%
57	0.3178	0.4288	2.6532	10.7433	46.3209	124.0215	238.9455	377.9920	224.1114	40.2648	1065.7992	99%
58	0.3178	0.4288	2.6532	10.7433	46.3457	124.1859	239.0900	378.2206	224.2469	40.2891	1066.5213	99%
59	0.3178	0.4288	2.6532	10.7433	46.3513	124.3708	239.2274	378.4380	224.3757	40.3123	1067.2187	99%
60	0.3178	0.4288	2.6532	10.7433	46.3533	124.5408	239.3584	378.6454	224.4987	40.3344	1067.8741	99%
61	0.3178	0.4288	2.6532	10.7433	46.3536	124.7129	239.4838	378.8435	224.6162	40.3555	1068.5086	99%
62	0.3178	0.4288	2.6532	10.7433	46.3536	124.8836	239.6034	379.0328	224.7284	40.3756	1069.1205	99%
63	0.3178	0.4288	2.6532	10.7433	46.3536	125.0528	239.7174	379.2130	224.8353	40.3948	1069.7100	99%
64	0.3178	0.4288	2.6532	10.7433	46.3536	125.2216	239.8259	379.3847	224.9371	40.4131	1070.2790	99%
65	0.3178	0.4288	2.6532	10.7433	46.3536	125.3740	239.9290	379.5479	225.0339	40.4305	1070.8120	99%
66	0.3178	0.4288	2.6532	10.7433	46.3536	125.4849	240.0690	379.7029	225.1257	40.4470	1071.3262	99%
67	0.3178	0.4288	2.6532	10.7433	46.3536	125.5562	240.2408	379.8500	225.2129	40.4627	1071.8193	99%
68	0.3178	0.4288	2.6532	10.7433	46.3536	125.5939	240.4409	379.9897	225.2958	40.4775	1072.2946	99%
69	0.3178	0.4288	2.6532	10.7433	46.3536	125.6026	240.6645	380.1225	225.3746	40.4917	1072.7526	99%
70	0.3178	0.4288	2.6532	10.7433	46.3536	125.6056	240.8753	380.2489	225.4495	40.5052	1073.1810	99%
71	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	241.0877	380.3690	225.5207	40.5180	1073.5980	99%
72	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	241.2954	380.4834	225.5886	40.5302	1074.0002	100%
73	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	241.5004	380.5923	225.6531	40.5418	1074.3902	100%
74	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	241.7024	380.6960	225.7146	40.5528	1074.7684	100%
75	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	241.8889	380.7947	225.7731	40.5633	1075.1227	100%
76	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.0271	380.9391	225.8289	40.5733	1075.4711	100%
77	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1195	381.1231	225.8822	40.5829	1075.8103	100%
78	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1699	381.3433	225.9329	40.5920	1076.1408	100%
79	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1815	381.5954	225.9813	40.6007	1076.4616	100%
80	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1855	381.8347	226.0275	40.6090	1076.7594	100%
81	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	382.0666	226.0717	40.6170	1077.0440	100%
82	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	382.2857	226.1138	40.6245	1077.3128	100%
83	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	382.4909	226.1541	40.6318	1077.5655	100%
84	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	382.6836	226.1926	40.6387	1077.8036	100%
85	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	382.8553	226.2294	40.6453	1078.0187	100%
86	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	382.9794	226.2953	40.6516	1078.2151	100%
87	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.0612	226.3850	40.6576	1078.3925	100%
88	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1043	226.4943	40.6634	1078.5507	100%
89	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1143	226.6194	40.6690	1078.6914	100%
90	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1177	226.7324	40.6743	1078.8131	100%
91	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	226.8311	40.6793	1078.9174	100%
92	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	226.9144	40.6842	1079.0056	100%
93	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	226.9838	40.6888	1079.0797	100%
94	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.0404	40.6933	1079.1407	100%
95	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.0865	40.6976	1079.1911	100%
96	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.1180	40.7071	1079.2321	100%
97	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.1375	40.7205	1079.2650	100%
98	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.1475	40.7367	1079.2912	100%
99	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.1498	40.7547	1079.3116	100%
100	0.3178	0.4288	2.6532	10.7433	46.3536	125.6060	242.1861	383.1183	227.1506	40.7697	1079.3273	100%

Exhibit E.39a Cases avoided (mean) by Age Group per year following rule promulgation
(Smoking/Lung Cancer model - HAA5 - Preferred Alternative)

Years After	Age Group (years)											
the Rule	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0027	0.0007	0.0046	0.0185	0.0799	0.2165	0.4175	0.6604	0.3916	0.0704	1.8628	1%
7	0.0089	0.0040	0.0247	0.1002	0.4323	1.1715	2.2587	3.5731	2.1185	0.3806	10.0726	4%
8	0.0185	0.0103	0.0638	0.2585	1.1151	3.0217	5.8263	9.2167	5.4646	0.9818	25.9773	10%
9	0.0306	0.0194	0.1202	0.4868	2.1005	5.6919	10.9748	17.3613	10.2935	1.8494	48.9285	20%
10	0.0425	0.0300	0.1856	0.7515	3.2426	8.7866	16.9418	26.8005	15.8900	2.8549	75.5259	30%
11	0.0522	0.0398	0.2462	0.9969	4.3011	11.6548	22.4721	35.5490	21.0770	3.7868	100.1756	40%
12	0.0593	0.0481	0.2973	1.2039	5.1945	14.0757	27.1400	42.9333	25.4551	4.5734	120.9806	48%
13	0.0643	0.0547	0.3382	1.3694	5.9085	16.0104	30.8704	48.8343	28.9539	5.2020	137.6060	55%
14	0.0677	0.0600	0.3715	1.5043	6.4903	17.5871	33.9105	53.6436	31.8053	5.7143	151.1546	60%
15	0.0703	0.0646	0.3995	1.6177	6.9799	18.9138	36.4685	57.6901	34.2044	6.1453	162.5541	65%
16	0.0720	0.0686	0.4229	1.7123	7.3882	20.0200	38.6013	61.0641	36.2049	6.5047	172.0590	69%
17	0.0731	0.0723	0.4429	1.7935	7.7382	20.9685	40.4303	63.9573	37.9203	6.8129	180.2092	72%
18	0.0736	0.0756	0.4599	1.8621	8.0343	21.7709	41.9774	66.4047	39.3714	7.0736	187.1035	75%
19	0.0738	0.0785	0.4736	1.9178	8.2745	22.4217	43.2322	68.3898	40.5483	7.2851	192.6952	77%
20	0.0738	0.0810	0.4846	1.9622	8.4663	22.9414	44.2342	69.9749	41.4881	7.4539	197.1605	79%
21	0.0738	0.0835	0.4938	1.9997	8.6279	23.3792	45.0784	71.3103	42.2799	7.5962	200.9228	80%
22	0.0738	0.0862	0.5018	2.0317	8.7663	23.7543	45.8016	72.4544	42.9582	7.7180	204.1463	81%
23	0.0738	0.0891	0.5095	2.0631	8.9014	24.1204	46.5076	73.5712	43.6203	7.8370	207.2935	83%
24	0.0738	0.0923	0.5174	2.0952	9.0402	24.4966	47.2330	74.7186	44.3007	7.9592	210.5272	84%
25	0.0738	0.0951	0.5244	2.1234	9.1615	24.8254	47.8668	75.7213	44.8952	8.0660	213.3530	85%
26	0.0738	0.0972	0.5314	2.1467	9.2624	25.0986	48.3937	76.5547	45.3893	8.1548	215.7026	86%
27	0.0738	0.0986	0.5386	2.1672	9.3506	25.3376	48.8545	77.2837	45.8215	8.2325	217.7586	87%
28	0.0738	0.0993	0.5461	2.1850	9.4277	25.5466	49.2574	77.9211	46.1994	8.3004	219.5569	88%
29	0.0738	0.0995	0.5541	2.2023	9.5020	25.7479	49.6456	78.5352	46.5635	8.3658	221.2897	88%
30	0.0738	0.0996	0.5619	2.2195	9.5763	25.9492	50.0338	79.1493	46.9276	8.4312	223.0222	89%
31	0.0738	0.0996	0.5699	2.2352	9.6440	26.1327	50.3875	79.7089	47.2594	8.4908	224.6019	90%
32	0.0738	0.0996	0.5780	2.2491	9.7040	26.2953	50.7010	80.2047	47.5534	8.5436	226.0024	90%
33	0.0738	0.0996	0.5862	2.2618	9.7589	26.4440	50.9878	80.6584	47.8223	8.5920	227.2847	91%
34	0.0738	0.0996	0.5947	2.2742	9.8125	26.5892	51.2678	81.1014	48.0850	8.6391	228.5373	91%
35	0.0738	0.0996	0.6028	2.2855	9.8611	26.7210	51.5218	81.5033	48.3233	8.6820	229.6741	92%
36	0.0738	0.0996	0.6089	2.2982	9.9054	26.8409	51.7531	81.8691	48.5402	8.7209	230.7102	92%
37	0.0738	0.0996	0.6131	2.3115	9.9433	26.9437	51.9514	82.1827	48.7261	8.7543	231.5996	92%
38	0.0738	0.0996	0.6154	2.3249	9.9729	27.0240	52.1061	82.4275	48.8712	8.7804	232.2959	93%
39	0.0738	0.0996	0.6160	2.3394	9.9997	27.0966	52.2461	82.6489	49.0025	8.8040	232.9267	93%
40	0.0738	0.0996	0.6162	2.3535	10.0246	27.1640	52.3761	82.8547	49.1245	8.8259	233.5130	93%
41	0.0738	0.0996	0.6163	2.3704	10.0494	27.2311	52.5054	83.0592	49.2458	8.8477	234.0987	93%
42	0.0738	0.0996	0.6163	2.3898	10.0742	27.2983	52.6350	83.2642	49.3673	8.8695	234.6881	94%
43	0.0738	0.0996	0.6163	2.4114	10.0984	27.3639	52.7615	83.4642	49.4859	8.8908	235.2658	94%
44	0.0738	0.0996	0.6163	2.4351	10.1221	27.4282	52.8855	83.6605	49.6023	8.9117	235.8351	94%
45	0.0738	0.0996	0.6163	2.4579	10.1448	27.4897	53.0040	83.8480	49.7135	8.9317	236.3793	94%
46	0.0738	0.0996	0.6163	2.4751	10.1766	27.5496	53.1194	84.0306	49.8217	8.9512	236.9138	95%
47	0.0738	0.0996	0.6163	2.4867	10.2166	27.6089	53.2338	84.2116	49.9290	8.9704	237.4468	95%
48	0.0738	0.0996	0.6163	2.4932	10.2644	27.6677	53.3473	84.3911	50.0354	8.9896	237.9783	95%
49	0.0738	0.0996	0.6163	2.4947	10.3190	27.7262	53.4600	84.5693	50.1411	9.0086	238.5086	95%
50	0.0738	0.0996	0.6163	2.4953	10.3715	27.7827	53.5689	84.7416	50.2433	9.0269	239.0198	95%
51	0.0738	0.0996	0.6163	2.4953	10.4286	27.8362	53.6722	84.9049	50.3401	9.0443	239.5113	96%
52	0.0738	0.0996	0.6163	2.4953	10.4882	27.8871	53.7702	85.0601	50.4321	9.0608	239.9836	96%
53	0.0738	0.0996	0.6163	2.4953	10.5501	27.9356	53.8637	85.2080	50.5198	9.0766	240.4387	96%
54	0.0738	0.0996	0.6163	2.4953	10.6138	27.9819	53.9531	85.3493	50.6036	9.0916	240.8782	96%
55	0.0738	0.0996	0.6163	2.4953	10.6727	28.0263	54.0386	85.4846	50.6838	9.1060	241.2970	96%
56	0.0738	0.0996	0.6163	2.4953	10.7163	28.0899	54.1202	85.6136	50.7603	9.1198	241.7051	96%
57	0.0738	0.0996	0.6163	2.4953	10.7454	28.1701	54.1976	85.7362	50.8329	9.1328	242.1000	97%
58	0.0738	0.0996	0.6163	2.4953	10.7611	28.2658	54.2702	85.8510	50.9010	9.1451	242.4792	97%
59	0.0738	0.0996	0.6163	2.4953	10.7650	28.3756	54.3378	85.9578	50.9644	9.1565	242.8420	97%
60	0.0738	0.0996	0.6163	2.4953	10.7663	28.4775	54.4005	86.0570	51.0232	9.1670	243.1765	97%
61	0.0738	0.0996	0.6163	2.4953	10.7665	28.5826	54.4586	86.1490	51.0777	9.1768	243.4963	97%
62	0.0738	0.0996	0.6163	2.4953	10.7665	28.6893	54.5129	86.2349	51.1286	9.1860	243.8032	97%
63	0.0738	0.0996	0.6163	2.4953	10.7665	28.7977	54.5639	86.3156	51.1765	9.1946	244.0997	97%
64	0.0738	0.0996	0.6163	2.4953	10.7665	28.9087	54.6120	86.3916	51.2216	9.2027	244.3881	98%
65	0.0738	0.0996	0.6163	2.4953	10.7665	29.0118	54.6575	86.4637	51.2643	9.2103	244.6590	98%
66	0.0738	0.0996	0.6163	2.4953	10.7665	29.0880	54.7317	86.5320	51.3048	9.2176	244.9257	98%
67	0.0738	0.0996	0.6163	2.4953	10.7665	29.1380	54.8318	86.5970	51.3433	9.2246	245.1862	98%
68	0.0738	0.0996	0.6163	2.4953	10.7665	29.1651	54.9559	86.6588	51.3799	9.2311	245.4423	98%
69	0.0738	0.0996	0.6163	2.4953	10.7665	29.1717	55.1013	86.7175	51.4148	9.2374	245.6942	98%
70	0.0738	0.0996	0.6163	2.4953	10.7665	29.1740	55.2428	86.7742	51.4484	9.2434	245.9344	98%
71	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	55.3915	86.8290	51.4809	9.2493	246.1765	98%
72	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	55.5421	86.8821	51.5124	9.2549	246.4173	98%
73	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	55.6961	86.9335	51.5428	9.2604	246.6586	98%
74	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	55.8531	86.9850	51.5734	9.2659	246.9032	99%
75	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.0028	87.0384	51.6051	9.2716	247.1437	99%
76	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.1162	87.1367	51.6378	9.2775	247.3940	99%
77	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.1935	87.2751	51.6717	9.2836	247.6497	99%
78	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2369	87.4497	51.7058	9.2897	247.9080	99%
79	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2478	87.6552	51.7392	9.2957	248.1637	99%
80	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2517	87.8543	51.7717	9.3015	248.4052	99%
81	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.0508	51.8030	9.3071	248.6392	99%
82	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.2381	51.8307	9.3121	248.8591	99%
83	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.4154	51.8548	9.3165	249.0649	99%
84	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.5844	51.8755	9.3202	249.2583	99%
85	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.7383	51.8931	9.3233	249.4330	100%
86	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.8521	51.9399	9.3263	249.5965	100%
87	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9288	52.0117	9.3292	249.7479	100%
88	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9708	52.1056	9.3319	249.8866	100%
89	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9819	52.2186	9.3345	250.0132	100%
90	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9859	52.3244	9.3371	250.1255	100%
91	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.4200	9.3395	250.2243	100%
92	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.5032	9.3419	250.3099	100%
93	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.5746	9.3442	250.3836	100%
94	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.6348	9.3464	250.4460	100%
95	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.6854	9.3485	250.4987	100%
96	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7209	9.3571	250.5427	100%
97	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7435	9.3706	250.5789	100%
98	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7555	9.3882	250.6084	100%
99	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7587	9.4086	250.6321	100%
100	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7599	9.4261	250.6507	100%

Exhibit E.39a Cases avoided (mean) by Age Group per year following rule promulgation
(Smoking/Lung Cancer model - HAA5 - Preferred Alternative)

Years After the Rule	Age Group (years)											
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0319	0.0318	0.1965	0.7955	3.4322	9.3004	17.9326	28.3678	16.8193	3.0218	79.9298	6%
7	0.0778	0.0739	0.4574	1.8520	7.9907	21.6526	41.7493	66.0439	39.1574	7.0352	186.0901	15%
8	0.1348	0.1245	0.7701	3.1181	13.4537	36.4559	70.2921	111.1963	65.9282	11.8449	313.3185	25%
9	0.2006	0.1816	1.1237	4.5500	19.6315	53.1961	102.5696	162.2566	96.2019	17.2840	457.1955	36%
10	0.2486	0.2197	1.3595	5.5048	23.7514	64.3600	124.0951	196.3082	116.3911	20.9113	553.1495	44%
11	0.2860	0.2540	1.5715	6.3634	27.4560	74.3985	143.4508	226.9272	134.5451	24.1729	639.4255	50%
12	0.3138	0.2837	1.7551	7.1069	30.6637	83.0905	160.2102	253.4392	150.2640	26.9970	714.1241	56%
13	0.3342	0.3105	1.9210	7.7786	33.5619	90.9440	175.3528	277.3936	164.4665	29.5487	781.6118	62%
14	0.3484	0.3347	2.0708	8.3852	36.1791	98.0358	189.0269	299.0248	177.2918	31.8529	842.5505	66%
15	0.3594	0.3548	2.1953	8.8892	38.3536	103.9283	200.3885	316.9980	187.9480	33.7675	893.1826	70%
16	0.3666	0.3729	2.3009	9.3170	40.1994	108.9298	210.0321	332.2534	196.9930	35.3926	936.1577	74%
17	0.3711	0.3885	2.3857	9.6600	41.6796	112.9408	217.7659	344.4876	204.2467	36.6958	970.6217	76%
18	0.3734	0.4022	2.4542	9.9378	42.8780	116.1882	224.0271	354.3924	210.1192	37.7509	998.5234	79%
19	0.3739	0.4146	2.5118	10.1710	43.8844	118.9152	229.2853	362.7104	215.0508	38.6369	1021.9544	80%
20	0.3741	0.4253	2.5611	10.3707	44.7457	121.2492	233.7855	369.8294	219.2717	39.3953	1042.0080	82%
21	0.3741	0.4373	2.6092	10.5651	45.5846	123.5224	238.1686	376.7629	223.3826	40.1338	1061.5406	84%
22	0.3741	0.4499	2.6544	10.7481	46.3745	125.6627	242.2954	383.2913	227.2532	40.8292	1079.9328	85%
23	0.3741	0.4629	2.6959	10.9164	47.1005	127.6300	246.0887	389.2919	230.8110	41.4684	1096.8398	86%
24	0.3741	0.4760	2.7348	11.0737	47.7792	129.4692	249.6350	394.9019	234.1371	42.0660	1112.6470	88%
25	0.3741	0.4875	2.7679	11.2078	48.3578	131.0371	252.6580	399.6841	236.9725	42.5754	1126.1223	89%
26	0.3741	0.4958	2.8020	11.3279	48.8760	132.4411	255.3651	403.9665	239.5116	43.0316	1138.1918	90%
27	0.3741	0.5012	2.8365	11.4360	49.3425	133.7052	257.8025	407.8223	241.7976	43.4423	1149.0603	90%
28	0.3741	0.5039	2.8677	11.5163	49.6889	134.6439	259.6123	410.6852	243.4951	43.7473	1157.1347	91%
29	0.3741	0.5046	2.8988	11.5849	49.9849	135.4460	261.1589	413.1318	244.9457	44.0079	1164.0376	92%
30	0.3741	0.5048	2.9272	11.6489	50.2610	136.1941	262.6014	415.4137	246.2987	44.2510	1170.4750	92%
31	0.3741	0.5048	2.9555	11.7039	50.4984	136.8375	263.8420	417.3762	247.4622	44.4601	1176.0149	93%
32	0.3741	0.5048	2.9856	11.7619	50.7484	137.5149	265.1483	419.4427	248.6874	44.6802	1181.8483	93%
33	0.3741	0.5048	3.0166	11.8182	50.9914	138.1734	266.4179	421.4510	249.8782	44.8941	1187.5198	93%
34	0.3741	0.5048	3.0477	11.8674	51.2038	138.7488	267.5274	423.2062	250.9189	45.0811	1192.4802	94%
35	0.3741	0.5048	3.0767	11.9144	51.4065	139.2983	268.5868	424.8821	251.9125	45.2596	1197.2161	94%
36	0.3741	0.5048	3.0983	11.9712	51.6179	139.8710	269.6911	426.6291	252.9482	45.4457	1202.1516	95%
37	0.3741	0.5048	3.1129	12.0261	51.7899	140.3371	270.5898	428.0509	253.7912	45.5971	1206.1741	95%
38	0.3741	0.5048	3.1209	12.0872	51.9650	140.8115	271.5045	429.4977	254.6490	45.7513	1210.2659	95%
39	0.3741	0.5048	3.1227	12.1476	52.1130	141.2126	272.2778	430.7209	255.3743	45.8816	1213.7295	96%
40	0.3741	0.5048	3.1234	12.2016	52.2420	141.5623	272.9521	431.7876	256.0067	45.9952	1216.7498	96%
41	0.3741	0.5048	3.1234	12.2668	52.3935	141.9727	273.7435	433.0396	256.7491	46.1286	1220.2962	96%
42	0.3741	0.5048	3.1234	12.3351	52.5392	142.3675	274.5046	434.2437	257.4630	46.2568	1223.7124	96%
43	0.3741	0.5048	3.1234	12.4083	52.6948	142.7890	275.3175	435.5296	258.2253	46.3938	1227.3608	97%
44	0.3741	0.5048	3.1234	12.4818	52.8380	143.1772	276.0659	436.7136	258.9273	46.5199	1230.7263	97%
45	0.3741	0.5048	3.1234	12.5477	52.9526	143.4877	276.6646	437.6605	259.4888	46.6208	1233.4250	97%
46	0.3741	0.5048	3.1234	12.5951	53.0764	143.7584	277.1866	438.4864	259.9784	46.7088	1235.7926	97%
47	0.3741	0.5048	3.1234	12.6259	53.2092	144.0019	277.6559	439.2289	260.4186	46.7879	1237.9306	97%
48	0.3741	0.5048	3.1234	12.6423	53.3536	144.2321	278.0998	439.9310	260.8349	46.8627	1239.9588	98%
49	0.3741	0.5048	3.1234	12.6461	53.5203	144.4880	278.5932	440.7114	261.2976	46.9458	1242.2047	98%
50	0.3741	0.5048	3.1234	12.6473	53.6744	144.7295	279.0588	441.4479	261.7343	47.0242	1244.3190	98%
51	0.3741	0.5048	3.1234	12.6475	53.8277	144.9466	279.4774	442.1102	262.1270	47.0948	1246.2338	98%
52	0.3741	0.5048	3.1234	12.6475	53.9752	145.1360	279.8427	442.6881	262.4697	47.1564	1247.9180	98%
53	0.3741	0.5048	3.1234	12.6475	54.1172	145.2987	280.1563	443.1840	262.7636	47.2092	1249.3789	98%
54	0.3741	0.5048	3.1234	12.6475	54.2567	145.4468	280.4419	443.6358	263.0316	47.2573	1250.7200	98%
55	0.3741	0.5048	3.1234	12.6475	54.3808	145.5829	280.7043	444.0510	263.2777	47.3015	1251.9483	99%
56	0.3741	0.5048	3.1234	12.6475	54.4706	145.7490	280.9464	444.4339	263.5048	47.3423	1253.0970	99%
57	0.3741	0.5048	3.1234	12.6475	54.5291	145.9395	281.1688	444.7856	263.7133	47.3798	1254.1660	99%
58	0.3741	0.5048	3.1234	12.6475	54.5601	146.1529	281.3729	445.1087	263.9048	47.4142	1255.1635	99%
59	0.3741	0.5048	3.1234	12.6475	54.5671	146.3861	281.5606	445.4056	264.0808	47.4458	1256.0960	99%
60	0.3741	0.5048	3.1234	12.6475	54.5693	146.5971	281.7328	445.6779	264.2423	47.4748	1256.9442	99%
61	0.3741	0.5048	3.1234	12.6475	54.5696	146.8056	281.8862	445.9208	264.3864	47.5007	1257.7192	99%
62	0.3741	0.5048	3.1234	12.6475	54.5696	147.0092	282.0226	446.1365	264.5142	47.5237	1258.4258	99%
63	0.3741	0.5048	3.1234	12.6475	54.5696	147.2138	282.1767	446.3802	264.6587	47.5496	1259.1986	99%
64	0.3741	0.5048	3.1234	12.6475	54.5696	147.4181	282.3511	446.6560	264.8221	47.5790	1260.0459	99%
65	0.3741	0.5048	3.1234	12.6475	54.5696	147.6008	282.5469	446.9659	265.0059	47.6120	1260.9510	99%
66	0.3741	0.5048	3.1234	12.6475	54.5696	147.7337	282.8070	447.3105	265.2102	47.6487	1261.9298	99%
67	0.3741	0.5048	3.1234	12.6475	54.5696	147.8161	283.0939	447.6470	265.4097	47.6846	1262.8708	99%
68	0.3741	0.5048	3.1234	12.6475	54.5696	147.8576	283.3953	447.9683	265.6002	47.7188	1263.7597	99%
69	0.3741	0.5048	3.1234	12.6475	54.5696	147.8663	283.7016	448.2722	265.7804	47.7512	1264.5912	100%
70	0.3741	0.5048	3.1234	12.6475	54.5696	147.8690	283.9709	448.5525	265.9466	47.7811	1265.3395	100%
71	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.2017	448.7653	266.0728	47.8037	1265.9322	100%
72	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.3971	448.9135	266.1607	47.8195	1266.3796	100%
73	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.5667	448.9966	266.2100	47.8284	1266.6904	100%
74	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.7203	449.0241	266.2264	47.8313	1266.8910	100%
75	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.8675	449.0399	266.2357	47.8330	1267.0649	100%
76	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.9795	449.1084	266.2488	47.8354	1267.2609	100%
77	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.0564	449.2890	266.3131	47.8469	1267.5943	100%
78	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.0995	449.5105	266.3830	47.8595	1267.9413	100%
79	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1093	449.7673	266.4561	47.8726	1268.2940	100%
80	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1125	450.0100	266.5264	47.8852	1268.6230	100%
81	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.1882	266.5515	47.8897	1268.8313	100%
82	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.3521	266.5664	47.8924	1269.0127	100%
83	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.5079	266.5759	47.8941	1269.1797	100%
84	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.6600	266.5816	47.8951	1269.3386	100%
85	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.8021	266.5846	47.8956	1269.4841	100%
86	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.9069	266.6165	47.8958	1269.6209	100%
87	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.9773	266.6752	47.8958	1269.7502	100%
88	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0152	266.7623	47.8968	1269.8761	100%
89	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0229	266.8755	47.8994	1269.9997	100%
90	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0252	266.9853	47.9036	1270.1160	100%
91	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.0865	47.9093	1270.2230	100%
92	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.1737	47.9155	1270.3164	100%
93	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.2456	47.9215	1270.3943	100%
94	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.3036	47.9271	1270.4580	100%
95	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.3500	47.9325	1270.5097	100%
96	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.3813	47.9428	1270.5513	100%
97	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.4005	47.9566	1270.5842	100%
98	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.4100	47.9729	1270.6101	100%
99	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.4120	47.9909	1270.6301	100%
100	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.4126	48.0055	1270.6454	100%

Exhibit E.39e Cases avoided by Age Group per year following rule promulgation
(Smoking/Bladder Cancer model - HAA5 - Preferred Alternative)

Years After the Rule	Age Group 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0029	0.0011	0.0067	0.0272	0.1172	0.3176	0.6123	0.9686	0.5743	0.1032	2.7309	1%
7	0.0086	0.0032	0.0200	0.0808	0.3486	0.9445	1.8212	2.8809	1.7081	0.3069	8.1227	3%
8	0.0167	0.0064	0.0394	0.1594	0.6879	1.8639	3.5939	5.6853	3.3708	0.6056	16.0293	6%
9	0.0270	0.0105	0.0647	0.2619	1.1302	3.0625	5.9049	9.3411	5.5384	0.9950	26.3363	11%
10	0.0372	0.0146	0.0904	0.3661	1.5797	4.2806	8.2536	13.0565	7.7412	1.3908	36.8107	15%
11	0.0460	0.0187	0.1157	0.4687	2.0222	5.4797	10.5657	16.7140	9.9097	1.7804	47.1210	19%
12	0.0533	0.0227	0.1403	0.5681	2.4511	6.6418	12.8063	20.2585	12.0112	2.1580	57.1112	23%
13	0.0592	0.0265	0.1639	0.6638	2.8640	7.7608	14.9639	23.6716	14.0349	2.5216	66.7302	27%
14	0.0637	0.0301	0.1865	0.7550	3.2576	8.8271	17.0200	26.9242	15.9633	2.8680	75.8954	30%
15	0.0676	0.0336	0.2078	0.8414	3.6303	9.8372	18.9675	30.0049	17.7899	3.1962	84.5764	34%
16	0.0705	0.0373	0.2277	0.9220	3.9783	10.7801	20.7856	32.8810	19.4951	3.5026	92.6803	37%
17	0.0724	0.0414	0.2465	0.9980	4.3060	11.6682	22.4980	35.5899	21.1012	3.7911	100.3128	40%
18	0.0734	0.0457	0.2644	1.0704	4.6186	12.5151	24.1308	38.1730	22.6327	4.0663	107.5903	43%
19	0.0737	0.0503	0.2815	1.1399	4.9183	13.3273	25.6968	40.6503	24.1015	4.3302	114.5697	46%
20	0.0738	0.0547	0.2981	1.2071	5.2083	14.1131	27.2120	43.0472	25.5226	4.5855	121.3223	48%
21	0.0738	0.0600	0.3139	1.2712	5.4849	14.8627	28.6575	45.3337	26.8783	4.8291	127.7653	51%
22	0.0738	0.0662	0.3291	1.3325	5.7495	15.5796	30.0396	47.5202	28.1747	5.0620	133.9272	53%
23	0.0738	0.0731	0.3435	1.3907	6.0006	16.2599	31.3514	49.5954	29.4051	5.2830	139.7765	56%
24	0.0738	0.0807	0.3571	1.4461	6.2392	16.9067	32.5985	51.5681	30.5747	5.4932	145.3380	58%
25	0.0738	0.0878	0.3701	1.4987	6.4662	17.5217	33.7844	53.4441	31.6870	5.6930	150.6269	60%
26	0.0738	0.0932	0.3855	1.5476	6.6774	18.0941	34.8880	55.1899	32.7221	5.8790	155.5508	62%
27	0.0738	0.0968	0.4030	1.5938	6.8768	18.6344	35.9298	56.8380	33.6992	6.0545	160.2004	64%
28	0.0738	0.0989	0.4226	1.6385	7.0694	19.1562	36.9359	58.4295	34.6428	6.2241	164.6915	66%
29	0.0738	0.0994	0.4437	1.6805	7.2509	19.6482	37.8845	59.9301	35.5325	6.3839	168.9275	67%
30	0.0738	0.0996	0.4638	1.7216	7.4281	20.1283	38.8102	61.3945	36.4007	6.5399	173.0605	69%
31	0.0738	0.0996	0.4854	1.7610	7.5982	20.5890	39.6986	62.7999	37.2340	6.6896	177.0291	71%
32	0.0738	0.0996	0.5074	1.7971	7.7540	21.0113	40.5127	64.0877	37.9976	6.8268	180.6681	72%
33	0.0738	0.0996	0.5305	1.8325	7.9066	21.4248	41.3100	65.3490	38.7454	6.9612	184.2334	74%
34	0.0738	0.0996	0.5545	1.8644	8.0444	21.7983	42.0301	66.4882	39.4208	7.0825	187.4567	75%
35	0.0738	0.0996	0.5774	1.8932	8.1687	22.1350	42.6793	67.5151	40.0297	7.1919	190.3638	76%
36	0.0738	0.0996	0.5949	1.9293	8.2948	22.4768	43.3385	68.5579	40.6479	7.3030	193.3165	77%
37	0.0738	0.0996	0.6068	1.9691	8.4132	22.7975	43.9569	69.5362	41.2280	7.4072	196.0884	78%
38	0.0738	0.0996	0.6136	2.0140	8.5312	23.1172	44.5733	70.5113	41.8061	7.5110	198.8511	79%
39	0.0738	0.0996	0.6154	2.0634	8.6495	23.4379	45.1915	71.4892	42.3859	7.6152	201.6214	80%
40	0.0738	0.0996	0.6161	2.1085	8.7521	23.7159	45.7276	72.3374	42.8888	7.7056	204.0255	81%
41	0.0738	0.0996	0.6163	2.1592	8.8473	23.9739	46.2251	73.1242	43.3554	7.7894	206.2641	82%
42	0.0738	0.0996	0.6163	2.2145	8.9392	24.2229	46.7052	73.8838	43.8057	7.8703	208.4314	83%
43	0.0738	0.0996	0.6163	2.2735	9.0240	24.4528	47.1484	74.5849	44.2214	7.9450	210.4397	84%
44	0.0738	0.0996	0.6163	2.3365	9.1075	24.6789	47.5845	75.2747	44.6304	8.0185	212.4206	85%
45	0.0738	0.0996	0.6163	2.3963	9.1869	24.8940	47.9992	75.9308	45.0193	8.0884	214.3046	86%
46	0.0738	0.0996	0.6163	2.4410	9.2830	25.0908	48.3785	76.5308	45.3751	8.1523	216.0411	86%
47	0.0738	0.0996	0.6163	2.4714	9.3901	25.2605	48.7057	77.0485	45.6820	8.2074	217.5553	87%
48	0.0738	0.0996	0.6163	2.4884	9.5078	25.4033	48.9811	77.4841	45.9403	8.2538	218.8485	87%
49	0.0738	0.0996	0.6163	2.4932	9.6348	25.5198	49.2057	77.8394	46.1509	8.2917	219.9251	88%
50	0.0738	0.0996	0.6163	2.4950	9.7523	25.6104	49.3805	78.1158	46.3148	8.3211	220.7796	88%
51	0.0738	0.0996	0.6163	2.4953	9.8848	25.6911	49.5361	78.3620	46.4608	8.3473	221.5671	88%
52	0.0738	0.0996	0.6163	2.4953	10.0281	25.7643	49.6772	78.5851	46.5931	8.3711	222.3038	89%
53	0.0738	0.0996	0.6163	2.4953	10.1851	25.8689	49.8788	78.9042	46.7823	8.4051	223.3093	89%
54	0.0738	0.0996	0.6163	2.4953	10.3521	26.0138	50.1583	79.3462	47.0444	8.4522	224.6519	90%
55	0.0738	0.0996	0.6163	2.4953	10.5089	26.1842	50.4868	79.8660	47.3525	8.5075	226.1909	90%
56	0.0738	0.0996	0.6163	2.4953	10.6279	26.4050	50.8118	80.3801	47.6573	8.5623	227.7296	91%
57	0.0738	0.0996	0.6163	2.4953	10.7067	26.6415	51.0753	80.7969	47.9045	8.6067	229.0166	91%
58	0.0738	0.0996	0.6163	2.4953	10.7492	26.8818	51.2555	81.0821	48.0735	8.6371	229.9643	92%
59	0.0738	0.0996	0.6163	2.4953	10.7612	27.1323	51.3701	81.2632	48.1809	8.6564	230.6492	92%
60	0.0738	0.0996	0.6163	2.4953	10.7657	27.3753	51.4959	81.4623	48.2989	8.6776	231.3607	92%
61	0.0738	0.0996	0.6163	2.4953	10.7665	27.6372	51.6302	81.6747	48.4249	8.7002	232.1186	93%
62	0.0738	0.0996	0.6163	2.4953	10.7665	27.9094	51.7659	81.8894	48.5522	8.7231	232.8914	93%
63	0.0738	0.0996	0.6163	2.4953	10.7665	28.1911	51.9032	82.1066	48.6809	8.7462	233.6795	93%
64	0.0738	0.0996	0.6163	2.4953	10.7665	28.4753	52.0176	82.2876	48.7883	8.7655	234.3857	94%
65	0.0738	0.0996	0.6163	2.4953	10.7665	28.7394	52.1160	82.4432	48.8805	8.7821	235.0126	94%
66	0.0738	0.0996	0.6163	2.4953	10.7665	28.9373	52.2865	82.5865	48.9655	8.7973	235.6248	94%
67	0.0738	0.0996	0.6163	2.4953	10.7665	29.0696	52.5247	82.7206	49.0450	8.8116	236.2229	94%
68	0.0738	0.0996	0.6163	2.4953	10.7665	29.1434	52.8269	82.8467	49.1198	8.8251	236.8134	94%
69	0.0738	0.0996	0.6163	2.4953	10.7665	29.1647	53.1929	82.9786	49.1980	8.8391	237.4247	95%
70	0.0738	0.0996	0.6163	2.4953	10.7665	29.1728	53.5638	83.1313	49.2885	8.8554	238.0634	95%
71	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	53.9643	83.3045	49.3912	8.8738	238.7597	95%
72	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	54.3762	83.4975	49.5057	8.8944	239.4997	96%
73	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	54.7938	83.6990	49.6251	8.9159	240.2597	96%
74	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	55.2094	83.8948	49.7412	8.9367	241.0080	96%
75	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	55.5976	84.0960	49.8605	8.9581	241.7381	96%
76	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	55.8897	84.4118	49.9884	8.9811	242.4969	97%
77	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.0888	84.8255	50.1249	9.0056	243.2707	97%
78	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2024	85.3258	50.2699	9.0317	244.0557	97%
79	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2362	85.8887	50.4170	9.0581	244.8259	98%
80	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2496	86.4197	50.5611	9.0840	245.5403	98%
81	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	86.9235	50.7011	9.1092	246.2120	98%
82	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	87.3848	50.8363	9.1335	246.8328	98%
83	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	87.7998	50.9670	9.1569	247.4019	99%
84	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.1701	51.0849	9.1781	247.9112	99%
85	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.4865	51.1849	9.1961	248.3456	99%
86	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.7125	51.3150	9.2107	248.7164	99%
87	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.8609	51.4653	9.2216	249.0259	99%
88	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9439	51.6383	9.2302	249.2906	99%
89	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9723	51.8352	9.2378	249.5236	100%
90	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9840	52.0186	9.2448	249.7256	100%
91	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.1838	9.2515	249.9000	100%
92	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.3265	9.2578	250.0491	100%
93	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.4474	9.2640	250.1761	100%
94	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.5480	9.2698	250.2826	100%
95	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.6314	9.2766	250.3727	100%
96	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.6900	9.2930	250.4478	100%
97	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7279	9.3167	250.5094	100%
98	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7490	9.3457	250.5595	100%
99	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7564	9.3770	250.5982	100%
100	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7594	9.4036	250.6277	100%

Exhibit E.39e Cases avoided by Age Group per year following rule promulgation
(Smoking/Bladder Cancer model - HAA5 - Preferred Alternative)

Years After the Rule	Age Group											
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0342	0.0354	0.2193	0.8879	3.8310	10.3810	20.0161	31.6638	18.7735	3.3729	89.2153	7%
7	0.0801	0.0774	0.4790	1.9394	8.3680	22.6750	43.7207	69.1625	41.0064	7.3674	194.8759	15%
8	0.1351	0.1236	0.7645	3.0958	13.3571	36.1942	69.7876	110.3982	65.4550	11.7599	311.0709	25%
9	0.1980	0.1725	1.0671	4.3210	18.6438	50.5197	97.4091	154.0932	91.3618	16.4144	434.2007	34%
10	0.2411	0.1957	1.2105	4.9017	21.1492	57.3087	110.4993	174.8007	103.6393	18.6203	492.5664	39%
11	0.2748	0.2125	1.3145	5.3227	22.9657	62.2310	119.9902	189.8145	112.5410	20.2196	534.8865	42%
12	0.3008	0.2250	1.3918	5.6357	24.3161	65.8903	127.0458	200.9759	119.1586	21.4085	566.3485	45%
13	0.3213	0.2355	1.4571	5.9000	25.4563	68.9800	133.0032	210.4000	124.7461	22.4124	592.9119	47%
14	0.3372	0.2446	1.5132	6.1274	26.4375	71.6387	138.1297	218.5097	129.5543	23.2763	615.7686	49%
15	0.3514	0.2525	1.5621	6.3252	27.2910	73.9516	142.5891	225.5642	133.7369	24.0277	635.6519	50%
16	0.3619	0.2619	1.6069	6.5069	28.0748	76.0755	146.6843	232.0425	137.5778	24.7178	653.9104	52%
17	0.3689	0.2732	1.6507	6.6839	28.8385	78.1448	150.6743	238.3542	141.3202	25.3902	671.6989	53%
18	0.3729	0.2862	1.6928	6.8547	29.5756	80.1420	154.5252	244.4461	144.9320	26.0391	688.8664	54%
19	0.3738	0.3007	1.7342	7.0223	30.2990	82.1022	158.3047	250.4249	148.4769	26.6760	705.7147	56%
20	0.3741	0.3147	1.7730	7.1794	30.9767	83.9387	161.8457	256.0266	151.7981	27.2726	721.4997	57%
21	0.3741	0.3339	1.8104	7.3307	31.6293	85.7071	165.2553	261.4202	154.9960	27.8472	736.7040	58%
22	0.3741	0.3578	1.8471	7.4794	32.2710	87.4459	168.6081	266.7240	158.1407	28.4122	751.6603	59%
23	0.3741	0.3861	1.8822	7.6215	32.8841	89.1074	171.8117	271.7918	161.1454	28.9520	765.9565	60%
24	0.3741	0.4189	1.9167	7.7610	33.4860	90.7383	174.9562	276.7661	164.0946	29.4819	779.9937	62%
25	0.3741	0.4511	1.9467	7.8828	34.0113	92.1618	177.7009	281.1081	166.6689	29.9444	792.2502	62%
26	0.3741	0.4757	1.9934	8.0024	34.5275	93.5604	180.3978	285.3743	169.1983	30.3989	804.3028	63%
27	0.3741	0.4925	2.0546	8.1183	35.0274	94.9152	183.0100	289.5066	171.6484	30.8390	815.9862	64%
28	0.3741	0.5019	2.1294	8.2325	35.5205	96.2514	185.5862	293.5821	174.0647	31.2732	827.5160	65%
29	0.3741	0.5040	2.2174	8.3455	36.0077	97.5716	188.1317	297.6089	176.4522	31.7021	838.9152	66%
30	0.3741	0.5047	2.3030	8.4542	36.4770	98.8432	190.5836	301.4874	178.7518	32.1153	849.8944	67%
31	0.3741	0.5048	2.4019	8.5623	36.9432	100.1064	193.0193	305.3404	181.0362	32.5257	860.8143	68%
32	0.3741	0.5048	2.5102	8.6623	37.3748	101.2760	195.2745	308.9079	183.1515	32.9057	870.9419	69%
33	0.3741	0.5048	2.6302	8.7568	37.7823	102.3802	197.4036	312.2760	185.1484	33.2645	880.5209	69%
34	0.3741	0.5048	2.7625	8.8474	38.1734	103.4398	199.4467	315.5080	187.0647	33.6088	889.7302	70%
35	0.3741	0.5048	2.8953	8.9291	38.5258	104.3948	201.2880	318.4209	188.7917	33.9191	898.0437	71%
36	0.3741	0.5048	2.9979	9.0561	38.8749	105.3408	203.1119	321.3062	190.5024	34.2264	906.2955	71%
37	0.3741	0.5048	3.0698	9.2255	39.2295	106.3018	204.9649	324.2375	192.2404	34.5387	914.6872	72%
38	0.3741	0.5048	3.1106	9.4242	39.5368	107.1344	206.5703	326.7772	193.7460	34.8092	921.9878	73%
39	0.3741	0.5048	3.1199	9.6522	39.7959	107.8364	207.9238	328.9182	195.0155	35.0373	928.1782	73%
40	0.3741	0.5048	3.1230	9.8739	40.0151	108.4305	209.0694	330.7303	196.0899	35.2303	933.4414	74%
41	0.3741	0.5048	3.1234	10.1602	40.2244	108.9976	210.1627	332.4599	197.1154	35.4145	938.5370	74%
42	0.3741	0.5048	3.1234	10.5097	40.4398	109.5814	211.2884	334.2407	198.1712	35.6042	943.8379	74%
43	0.3741	0.5048	3.1234	10.9209	40.6554	110.1654	212.4144	336.0220	199.2273	35.7940	949.2018	75%
44	0.3741	0.5048	3.1234	11.3899	40.8826	110.7813	213.6019	337.9006	200.3412	35.9941	954.8939	75%
45	0.3741	0.5048	3.1234	11.8580	41.1061	111.3867	214.7693	339.7472	201.4361	36.1908	960.4966	76%
46	0.3741	0.5048	3.1234	12.2167	41.5572	112.0079	215.9671	341.6420	202.5595	36.3926	966.3455	76%
47	0.3741	0.5048	3.1234	12.4653	42.2313	112.6854	217.2733	343.7083	203.7846	36.6128	972.7634	77%
48	0.3741	0.5048	3.1234	12.6040	43.0974	113.3435	218.5423	345.7158	204.9749	36.8266	979.1069	77%
49	0.3741	0.5048	3.1234	12.6356	44.1350	113.9566	219.7244	347.5858	206.0835	37.0258	985.1492	78%
50	0.3741	0.5048	3.1234	12.6461	45.1536	114.5190	220.8088	349.3013	207.1006	37.2085	990.7404	78%
51	0.3741	0.5048	3.1234	12.6475	46.3364	115.0266	221.7875	350.8495	208.0186	37.3734	996.0419	79%
52	0.3741	0.5048	3.1234	12.6475	47.6450	115.4968	222.6941	352.2835	208.8689	37.5262	1001.1643	79%
53	0.3741	0.5048	3.1234	12.6475	49.0789	115.9491	223.5662	353.6633	209.6869	37.6732	1006.2676	79%
54	0.3741	0.5048	3.1234	12.6475	50.6291	116.3879	224.4123	355.0018	210.4805	37.8158	1011.3774	80%
55	0.3741	0.5048	3.1234	12.6475	52.1249	116.8325	225.2696	356.3578	211.2845	37.9602	1016.4795	80%
56	0.3741	0.5048	3.1234	12.6475	53.2540	117.8962	226.1317	357.7215	212.0930	38.1055	1021.8519	81%
57	0.3741	0.5048	3.1234	12.6475	54.0195	119.5287	226.9949	359.0872	212.9026	38.2510	1027.4338	81%
58	0.3741	0.5048	3.1234	12.6475	54.4397	121.7235	227.8493	360.4387	213.7040	38.3950	1033.2002	81%
59	0.3741	0.5048	3.1234	12.6475	54.5345	124.4402	228.6674	361.7328	214.4713	38.5328	1039.0288	82%
60	0.3741	0.5048	3.1234	12.6475	54.5657	127.0417	229.4480	362.9676	215.2034	38.6643	1044.5407	82%
61	0.3741	0.5048	3.1234	12.6475	54.5696	129.8765	230.1919	364.1445	215.9012	38.7897	1050.1233	83%
62	0.3741	0.5048	3.1234	12.6475	54.5696	132.8853	230.9002	365.2650	216.5655	38.9090	1055.7445	83%
63	0.3741	0.5048	3.1234	12.6475	54.5696	136.0819	231.6184	366.4011	217.2391	39.0301	1061.5902	84%
64	0.3741	0.5048	3.1234	12.6475	54.5696	139.4751	232.3772	367.6015	217.9509	39.1579	1067.7822	84%
65	0.3741	0.5048	3.1234	12.6475	54.5696	142.7138	233.1780	368.8683	218.7019	39.2929	1073.9744	85%
66	0.3741	0.5048	3.1234	12.6475	54.5696	145.1417	235.0487	370.1690	219.4731	39.4314	1080.4835	85%
67	0.3741	0.5048	3.1234	12.6475	54.5696	146.7428	237.8314	371.3555	220.1765	39.5578	1086.8836	86%
68	0.3741	0.5048	3.1234	12.6475	54.5696	147.6059	241.4606	372.3885	220.7890	39.6679	1093.1313	86%
69	0.3741	0.5048	3.1234	12.6475	54.5696	147.7991	245.8660	373.2662	221.3094	39.7613	1099.2217	87%
70	0.3741	0.5048	3.1234	12.6475	54.5696	147.8615	250.1998	374.0223	221.7577	39.8419	1104.9028	87%
71	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	254.9257	374.7431	222.1851	39.9187	1110.8614	88%
72	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	259.8795	375.4412	222.5990	39.9930	1117.0015	88%
73	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	265.1207	376.1220	223.0027	40.0655	1123.3998	89%
74	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	270.6377	376.7863	223.3965	40.1363	1130.0455	89%
75	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	276.0502	377.4345	223.7809	40.2054	1136.5598	90%
76	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	280.1890	379.8110	224.1560	40.2728	1143.5176	90%
77	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	283.0353	383.8074	224.5224	40.3386	1150.7925	91%
78	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.6282	389.4011	224.8803	40.4029	1158.4013	91%
79	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.9818	396.5064	225.2299	40.4657	1166.2727	92%
80	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.0986	403.6457	225.5716	40.5271	1173.9319	93%
81	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	411.0269	225.9057	40.5871	1181.7215	93%
82	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	418.4290	226.2396	40.6471	1189.5175	94%
83	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	425.7966	226.6232	40.7160	1197.3376	94%
84	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	433.1246	227.0555	40.7937	1205.1756	95%
85	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	440.0157	227.5362	40.8801	1212.6337	96%
86	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	445.1439	229.4946	40.9744	1219.8146	96%
87	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	448.5978	232.6515	41.0590	1226.5101	97%
88	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.4571	236.8638	41.1284	1232.6511	97%
89	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.8741	242.0034	41.1817	1238.2609	98%
90	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0090	246.8157	41.2226	1243.2491	98%
91	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	251.2061	41.2687	1247.7020	98%
92	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	255.0900	41.3245	1251.6417	99%
93	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	258.4863	41.3919	1255.1053	99%
94	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	261.3891	41.4681	1258.0845	99%
95	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	263.8512	41.5455	1260.6239	99%
96	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	265.5770	41.9548	1262.7590	100%
97	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	266.6698	42.6260	1264.5231	100%
98	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.2391	43.5051	1265.9714	100%
99	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.3671	44.5387	1267.1330	100%
100	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.4077	45.4177	1268.0526	100%

Exhibit E.39i Cases avoided by Age Group per year following rule promulgation

(Arsenic/Bladder Cancer model - HAA5 - Preferred Alternative)

Years After	Age Group											
the Rule	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0056	0.0052	0.0322	0.1305	0.5629	1.5252	2.9408	4.6521	2.7582	0.4956	13.1083	5%
7	0.0151	0.0144	0.0893	0.3617	1.5608	4.2293	8.1546	12.9000	7.6484	1.3741	36.3478	14%
8	0.0273	0.0268	0.1657	0.6709	2.8949	7.8444	15.1252	23.9268	14.1862	2.5487	67.4170	27%
9	0.0414	0.0415	0.2567	1.0396	4.4856	12.1547	23.4360	37.0738	21.9811	3.9492	104.4596	42%
10	0.0524	0.0540	0.3339	1.3521	5.8339	15.8084	30.4808	48.2181	28.5885	5.1363	135.8583	54%
11	0.0604	0.0641	0.3968	1.6068	6.9328	18.7861	36.2222	57.3005	33.9735	6.1038	161.4470	64%
12	0.0657	0.0721	0.4459	1.8054	7.7896	21.1079	40.6990	64.3824	38.1723	6.8582	181.3983	72%
13	0.0690	0.0782	0.4836	1.9583	8.4494	22.8957	44.1462	69.8356	41.4055	7.4391	196.7607	78%
14	0.0710	0.0829	0.5127	2.0762	8.9579	24.2735	46.8027	74.0380	43.8971	7.8867	208.5985	83%
15	0.0723	0.0865	0.5352	2.1671	9.3503	25.3369	48.8532	77.2816	45.8203	8.2323	217.7357	87%
16	0.0731	0.0894	0.5526	2.2377	9.6551	26.1628	50.4456	79.8007	47.3138	8.5006	224.8315	90%
17	0.0735	0.0917	0.5662	2.2927	9.8922	26.8054	51.6845	81.7607	48.4759	8.7094	230.3522	92%
18	0.0737	0.0935	0.5768	2.3356	10.0774	27.3072	52.6521	83.2912	49.3833	8.8724	234.6632	94%
19	0.0738	0.0949	0.5851	2.3690	10.2216	27.6978	53.4053	84.4827	50.0898	8.9993	238.0192	95%
20	0.0738	0.0960	0.5915	2.3950	10.3336	28.0014	53.9907	85.4088	50.6389	9.0980	240.6278	96%
21	0.0738	0.0969	0.5965	2.4152	10.4207	28.2375	54.4458	86.1288	51.0657	9.1747	242.6556	97%
22	0.0738	0.0977	0.6003	2.4309	10.4883	28.4206	54.7990	86.6875	51.3970	9.2342	244.2293	97%
23	0.0738	0.0983	0.6034	2.4433	10.5420	28.5660	55.0793	87.1309	51.6598	9.2814	245.4781	98%
24	0.0738	0.0987	0.6059	2.4533	10.5849	28.6824	55.3037	87.4859	51.8704	9.3192	246.4783	98%
25	0.0738	0.0991	0.6078	2.4611	10.6188	28.7741	55.4804	87.7655	52.0361	9.3490	247.2657	99%
26	0.0738	0.0993	0.6094	2.4673	10.6455	28.8465	55.6202	87.9865	52.1672	9.3726	247.8882	99%
27	0.0738	0.0995	0.6107	2.4721	10.6663	28.9029	55.7289	88.1584	52.2691	9.3909	248.3726	99%
28	0.0738	0.0996	0.6118	2.4759	10.6825	28.9468	55.8135	88.2924	52.3485	9.4051	248.7499	99%
29	0.0738	0.0996	0.6126	2.4787	10.6948	28.9802	55.8778	88.3941	52.4088	9.4160	249.0366	99%
30	0.0738	0.0996	0.6133	2.4809	10.7040	29.0050	55.9258	88.4701	52.4539	9.4241	249.2505	99%
31	0.0738	0.0996	0.6139	2.4825	10.7110	29.0241	55.9626	88.5283	52.4884	9.4303	249.4145	99%
32	0.0738	0.0996	0.6144	2.4838	10.7168	29.0396	55.9925	88.5754	52.5163	9.4353	249.5474	100%
33	0.0738	0.0996	0.6148	2.4849	10.7213	29.0518	56.0160	88.6128	52.5385	9.4393	249.6527	100%
34	0.0738	0.0996	0.6152	2.4858	10.7254	29.0631	56.0377	88.6470	52.5588	9.4429	249.7494	100%
35	0.0738	0.0996	0.6155	2.4868	10.7296	29.0743	56.0593	88.6812	52.5790	9.4466	249.8457	100%
36	0.0738	0.0996	0.6158	2.4878	10.7337	29.0855	56.0810	88.7155	52.5994	9.4502	249.9423	100%
37	0.0738	0.0996	0.6160	2.4889	10.7379	29.0969	56.1029	88.7502	52.6200	9.4539	250.0401	100%
38	0.0738	0.0996	0.6161	2.4899	10.7420	29.1081	56.1246	88.7844	52.6403	9.4576	250.1364	100%
39	0.0738	0.0996	0.6162	2.4910	10.7461	29.1190	56.1456	88.8177	52.6600	9.4611	250.2300	100%
40	0.0738	0.0996	0.6162	2.4920	10.7498	29.1293	56.1654	88.8489	52.6785	9.4644	250.3180	100%
41	0.0738	0.0996	0.6163	2.4928	10.7532	29.1382	56.1826	88.8763	52.6947	9.4673	250.3948	100%
42	0.0738	0.0996	0.6163	2.4935	10.7557	29.1452	56.1960	88.8974	52.7072	9.4696	250.4543	100%
43	0.0738	0.0996	0.6163	2.4940	10.7576	29.1503	56.2058	88.9130	52.7165	9.4713	250.4981	100%
44	0.0738	0.0996	0.6163	2.4944	10.7588	29.1536	56.2123	88.9232	52.7226	9.4724	250.5271	100%
45	0.0738	0.0996	0.6163	2.4948	10.7596	29.1556	56.2161	88.9292	52.7261	9.4730	250.5440	100%
46	0.0738	0.0996	0.6163	2.4950	10.7600	29.1566	56.2181	88.9324	52.7280	9.4733	250.5531	100%
47	0.0738	0.0996	0.6163	2.4952	10.7604	29.1571	56.2190	88.9338	52.7288	9.4735	250.5574	100%
48	0.0738	0.0996	0.6163	2.4953	10.7607	29.1573	56.2195	88.9345	52.7293	9.4736	250.5598	100%
49	0.0738	0.0996	0.6163	2.4953	10.7611	29.1575	56.2198	88.9351	52.7296	9.4736	250.5617	100%
50	0.0738	0.0996	0.6163	2.4953	10.7616	29.1577	56.2201	88.9355	52.7299	9.4737	250.5634	100%
51	0.0738	0.0996	0.6163	2.4953	10.7621	29.1579	56.2205	88.9362	52.7303	9.4737	250.5658	100%
52	0.0738	0.0996	0.6163	2.4953	10.7628	29.1585	56.2217	88.9382	52.7314	9.4739	250.5716	100%
53	0.0738	0.0996	0.6163	2.4953	10.7635	29.1595	56.2237	88.9412	52.7332	9.4743	250.5803	100%
54	0.0738	0.0996	0.6163	2.4953	10.7643	29.1606	56.2257	88.9444	52.7351	9.4746	250.5897	100%
55	0.0738	0.0996	0.6163	2.4953	10.7650	29.1616	56.2277	88.9476	52.7370	9.4749	250.5989	100%
56	0.0738	0.0996	0.6163	2.4953	10.7656	29.1626	56.2293	88.9500	52.7384	9.4752	250.6062	100%
57	0.0738	0.0996	0.6163	2.4953	10.7660	29.1635	56.2303	88.9515	52.7393	9.4754	250.6110	100%
58	0.0738	0.0996	0.6163	2.4953	10.7663	29.1643	56.2309	88.9526	52.7400	9.4755	250.6146	100%
59	0.0738	0.0996	0.6163	2.4953	10.7664	29.1653	56.2315	88.9535	52.7405	9.4756	250.6178	100%
60	0.0738	0.0996	0.6163	2.4953	10.7665	29.1664	56.2325	88.9551	52.7415	9.4757	250.6227	100%
61	0.0738	0.0996	0.6163	2.4953	10.7665	29.1677	56.2341	88.9576	52.7430	9.4760	250.6299	100%
62	0.0738	0.0996	0.6163	2.4953	10.7665	29.1692	56.2364	88.9613	52.7451	9.4764	250.6400	100%
63	0.0738	0.0996	0.6163	2.4953	10.7665	29.1707	56.2393	88.9660	52.7479	9.4769	250.6522	100%
64	0.0738	0.0996	0.6163	2.4953	10.7665	29.1720	56.2425	88.9709	52.7508	9.4774	250.6651	100%
65	0.0738	0.0996	0.6163	2.4953	10.7665	29.1729	56.2454	88.9755	52.7536	9.4779	250.6768	100%
66	0.0738	0.0996	0.6163	2.4953	10.7665	29.1736	56.2478	88.9794	52.7558	9.4783	250.6863	100%
67	0.0738	0.0996	0.6163	2.4953	10.7665	29.1740	56.2496	88.9823	52.7575	9.4786	250.6936	100%
68	0.0738	0.0996	0.6163	2.4953	10.7665	29.1742	56.2508	88.9841	52.7586	9.4788	250.6981	100%
69	0.0738	0.0996	0.6163	2.4953	10.7665	29.1743	56.2515	88.9852	52.7593	9.4789	250.7008	100%
70	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2519	88.9859	52.7597	9.4790	250.7024	100%
71	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2522	88.9863	52.7599	9.4791	250.7034	100%
72	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9865	52.7601	9.4791	250.7038	100%
73	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
74	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
75	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
76	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
77	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
78	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
79	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
80	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
81	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
82	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
83	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
84	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
85	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
86	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
87	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
88	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
89	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
90	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
91	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
92	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
93	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
94	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
95	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
96	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
97	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
98	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
99	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%
100	0.0738	0.0996	0.6163	2.4953	10.7665	29.1744	56.2523	88.9866	52.7601	9.4791	250.7039	100%

Exhibit E.39i Cases avoided by Age Group per year following rule promulgation
(Arsenic/Bladder Cancer model - HAA5 - Preferred Alternative)

Years After	Age Group											
the Rule	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100+	Total	%
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0%
6	0.0407	0.0455	0.2817	1.1407	4.9219	13.3371	25.7159	40.6804	24.1194	4.3334	114.6170	9%
7	0.0966	0.1058	0.6548	2.6515	11.4403	31.0002	59.7727	94.5555	56.0619	10.0723	266.4117	21%
8	0.1622	0.1756	1.0866	4.4000	18.9845	51.4430	99.1894	156.9094	93.0315	16.7144	442.0967	35%
9	0.2349	0.2523	1.5611	6.3211	27.2732	73.9031	142.4957	225.4163	133.6492	24.0120	635.1188	50%
10	0.2803	0.2977	1.8422	7.4593	32.1844	87.2113	168.1558	266.0085	157.7163	28.3360	749.4920	59%
11	0.3118	0.3306	2.0456	8.2831	35.7387	96.8424	186.7259	295.3849	175.1336	31.4652	832.2618	65%
12	0.3328	0.3544	2.1927	8.8786	38.3078	103.8043	200.1492	316.6196	187.7236	33.7272	892.0901	70%
13	0.3470	0.3728	2.3064	9.3393	40.2957	109.1909	210.5355	333.0497	197.4650	35.4774	938.3798	74%
14	0.3566	0.3877	2.3989	9.7136	41.9106	113.5667	218.9726	346.3966	205.3784	36.8991	975.9808	77%
15	0.3640	0.4002	2.4758	10.0249	43.2539	117.2067	225.9911	357.4992	211.9612	38.0818	1007.2586	79%
16	0.3689	0.4114	2.5408	10.2882	44.3899	120.2850	231.9264	366.8883	217.5280	39.0820	1033.7087	81%
17	0.3720	0.4218	2.5965	10.5137	45.3630	122.9220	237.0109	374.9315	222.2968	39.9388	1056.3670	83%
18	0.3736	0.4314	2.6447	10.7090	46.2055	125.2048	241.4125	381.8945	226.4251	40.6805	1075.9815	85%
19	0.3740	0.4404	2.6868	10.8795	46.9413	127.1986	245.2568	387.9760	230.0309	41.3283	1093.1125	86%
20	0.3741	0.4483	2.7239	11.0296	47.5888	128.9533	248.6401	393.3279	233.2041	41.8984	1108.1885	87%
21	0.3741	0.4567	2.7567	11.1625	48.1623	130.5073	251.6364	398.0680	236.0144	42.4033	1121.5417	88%
22	0.3741	0.4654	2.7858	11.2805	48.6714	131.8868	254.2964	402.2758	238.5093	42.8515	1133.3971	89%
23	0.3741	0.4744	2.8119	11.3859	49.1260	133.1186	256.6715	406.0330	240.7370	43.2518	1143.9842	90%
24	0.3741	0.4837	2.8352	11.4805	49.5342	134.2248	258.8043	409.4070	242.7373	43.6112	1153.4922	91%
25	0.3741	0.4921	2.8563	11.5657	49.9021	135.2217	260.7266	412.4479	244.5403	43.9351	1162.0620	91%
26	0.3741	0.4981	2.8788	11.6430	50.2355	136.1250	262.4682	415.2031	246.1738	44.2286	1169.8283	92%
27	0.3741	0.5021	2.9023	11.7132	50.5385	136.9460	264.0511	417.7072	247.6585	44.4953	1176.8883	93%
28	0.3741	0.5042	2.9267	11.7773	50.8147	137.6945	265.4945	419.9906	249.0122	44.7386	1183.3274	93%
29	0.3741	0.5047	2.9516	11.8358	51.0673	138.3790	266.8144	422.0784	250.2502	44.9609	1189.2165	94%
30	0.3741	0.5048	2.9743	11.8894	51.2986	139.0057	268.0228	423.9899	251.3835	45.1646	1194.6078	94%
31	0.3741	0.5048	2.9973	11.9385	51.5103	139.5792	269.1286	425.7392	252.4207	45.3509	1199.5436	94%
32	0.3741	0.5048	3.0202	11.9833	51.7037	140.1034	270.1392	427.3379	253.3685	45.5212	1204.0564	95%
33	0.3741	0.5048	3.0432	12.0245	51.8817	140.5857	271.0691	428.8091	254.2408	45.6779	1208.2110	95%
34	0.3741	0.5048	3.0666	12.0624	52.0451	141.0285	271.9229	430.1597	255.0415	45.8218	1212.0275	95%
35	0.3741	0.5048	3.0884	12.0974	52.1960	141.4375	272.7114	431.4070	255.7811	45.9547	1215.5525	96%
36	0.3741	0.5048	3.1046	12.1360	52.3360	141.8168	273.4428	432.5640	256.4671	46.0779	1218.8243	96%
37	0.3741	0.5048	3.1156	12.1773	52.4659	142.1689	274.1217	433.6381	257.1038	46.1923	1221.8626	96%
38	0.3741	0.5048	3.1216	12.2210	52.5870	142.4971	274.7544	434.6389	257.6973	46.2989	1224.6952	96%
39	0.3741	0.5048	3.1229	12.2666	52.6987	142.7998	275.3380	435.5622	258.2446	46.3973	1227.3092	97%
40	0.3741	0.5048	3.1234	12.3090	52.8018	143.0790	275.8764	436.4137	258.7495	46.4880	1229.7198	97%
41	0.3741	0.5048	3.1234	12.3557	52.8977	143.3390	276.3776	437.2068	259.2197	46.5725	1231.9713	97%
42	0.3741	0.5048	3.1234	12.4056	52.9871	143.5812	276.8446	437.9455	259.6577	46.6512	1234.0752	97%
43	0.3741	0.5048	3.1234	12.4584	53.0708	143.8081	277.2823	438.6378	260.0680	46.7249	1236.0527	97%
44	0.3741	0.5048	3.1234	12.5138	53.1496	144.0215	277.6938	439.2887	260.4540	46.7942	1237.9181	97%
45	0.3741	0.5048	3.1234	12.5655	53.2237	144.2223	278.0810	439.9012	260.8172	46.8595	1239.6729	98%
46	0.3741	0.5048	3.1234	12.6037	53.3137	144.4116	278.4459	440.4784	261.1595	46.9210	1241.3360	98%
47	0.3741	0.5048	3.1234	12.6293	53.4166	144.5894	278.7889	441.0210	261.4812	46.9788	1242.9075	98%
48	0.3741	0.5048	3.1234	12.6431	53.5311	144.7564	279.1108	441.5300	261.7831	47.0330	1244.3899	98%
49	0.3741	0.5048	3.1234	12.6463	53.6554	144.9132	279.4131	442.0082	262.0666	47.0839	1245.7891	98%
50	0.3741	0.5048	3.1234	12.6474	53.7718	145.0605	279.6971	442.4576	262.3331	47.1318	1247.1018	98%
51	0.3741	0.5048	3.1234	12.6475	53.8946	145.1991	279.9644	442.8804	262.5837	47.1768	1248.3491	98%
52	0.3741	0.5048	3.1234	12.6475	54.0197	145.3296	280.2160	443.2785	262.8196	47.2192	1249.5325	98%
53	0.3741	0.5048	3.1234	12.6475	54.1465	145.4524	280.4529	443.6534	263.0420	47.2592	1250.6563	98%
54	0.3741	0.5048	3.1234	12.6475	54.2743	145.5683	280.6763	444.0067	263.2515	47.2968	1251.7239	99%
55	0.3741	0.5048	3.1234	12.6475	54.3902	145.6777	280.8871	444.3401	263.4491	47.3323	1252.7264	99%
56	0.3741	0.5048	3.1234	12.6475	54.4748	145.8205	281.0859	444.6548	263.6357	47.3658	1253.6875	99%
57	0.3741	0.5048	3.1234	12.6475	54.5304	145.9917	281.2738	444.9520	263.8119	47.3975	1254.6073	99%
58	0.3741	0.5048	3.1234	12.6475	54.5601	146.1893	281.4514	445.2329	263.9785	47.4274	1255.4897	99%
59	0.3741	0.5048	3.1234	12.6475	54.5670	146.4101	281.6194	445.4986	264.1360	47.4557	1256.3368	99%
60	0.3741	0.5048	3.1234	12.6475	54.5693	146.6127	281.7782	445.7499	264.2851	47.4825	1257.1276	99%
61	0.3741	0.5048	3.1234	12.6475	54.5696	146.8168	281.9287	445.9879	264.4261	47.5079	1257.8868	99%
62	0.3741	0.5048	3.1234	12.6475	54.5696	147.0183	282.0712	446.2133	264.5598	47.5319	1258.6141	99%
63	0.3741	0.5048	3.1234	12.6475	54.5696	147.2178	282.2063	446.4270	264.6864	47.5546	1259.3117	99%
64	0.3741	0.5048	3.1234	12.6475	54.5696	147.4166	282.3344	446.6295	264.8065	47.5762	1259.9827	99%
65	0.3741	0.5048	3.1234	12.6475	54.5696	147.5961	282.4558	446.8217	264.9204	47.5967	1260.6103	99%
66	0.3741	0.5048	3.1234	12.6475	54.5696	147.7267	282.6206	447.0042	265.0286	47.6161	1261.2157	99%
67	0.3741	0.5048	3.1234	12.6475	54.5696	147.8107	282.8228	447.1773	265.1313	47.6346	1261.7963	99%
68	0.3741	0.5048	3.1234	12.6475	54.5696	147.8551	283.0581	447.3419	265.2288	47.6521	1262.3557	99%
69	0.3741	0.5048	3.1234	12.6475	54.5696	147.8654	283.3213	447.4983	265.3216	47.6688	1262.8949	99%
70	0.3741	0.5048	3.1234	12.6475	54.5696	147.8688	283.5696	447.6469	265.4098	47.6846	1263.3993	99%
71	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	283.8198	447.7884	265.4937	47.6997	1263.8903	99%
72	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.0642	447.9231	265.5735	47.7140	1264.3636	100%
73	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.3055	448.0512	265.6494	47.7276	1264.8225	100%
74	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.5432	448.1733	265.7218	47.7407	1265.2677	100%
75	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.7628	448.2896	265.7907	47.7530	1265.6850	100%
76	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	284.9257	448.4595	265.8564	47.7648	1266.0953	100%
77	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.0345	448.6760	265.9191	47.7761	1266.4945	100%
78	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.0939	448.9352	265.9788	47.7868	1266.8835	100%
79	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1077	449.2317	266.0358	47.7971	1267.2611	100%
80	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1124	449.5136	266.0902	47.8069	1267.6119	100%
81	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	449.7869	266.1422	47.8162	1267.9471	100%
82	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.0448	266.1919	47.8251	1268.2636	100%
83	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.2864	266.2393	47.8336	1268.5611	100%
84	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.5132	266.2846	47.8418	1268.8414	100%
85	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.7155	266.3279	47.8495	1269.0947	100%
86	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.8618	266.4055	47.8570	1269.3261	100%
87	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	450.9581	266.5110	47.8641	1269.5350	100%
88	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0091	266.6396	47.8709	1269.7214	100%
89	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0210	266.7869	47.8774	1269.8871	100%
90	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0249	266.9200	47.8837	1270.0304	100%
91	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.0364	47.8896	1270.1532	100%
92	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.1345	47.8954	1270.2571	100%
93	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.2162	47.9009	1270.3442	100%
94	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.2828	47.9061	1270.4162	100%
95	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.3371	47.9112	1270.4754	100%
96	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.3742	47.9223	1270.5237	100%
97	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.3972	47.9381	1270.5625	100%
98	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.4089	47.9571	1270.5933	100%
99	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.4117	47.9784	1270.6173	100%
100	0.3741	0.5048	3.1234	12.6475	54.5696	147.8692	285.1130	451.0254	267.4126	47.9960	1270.6358	100%

Appendix F
Valuation of Stage 2 DBPR Benefits

Matrix of Appendix F Contents

Applicable Rule Alternative(s)	Applicable DBP(s)	Non-fatal Case Valuation	Exhibit Description	Applicable Source Water Type(s)	Applicable System Size	Exhibit Number
All Alternatives	TTHM & HAA5	All	Valuation Inputs	All	All	F.1a
		All	CPI Projections	All	All	F.1b
		All	Income Elasticity Inputs	All	All	F.1c
		All	Population, GDP, & Income Projections	All	All	F.1d
		All	Income Elasticity Factors	All	All	F.1e
		All	Valuation Factors	All	All	F.1f
Preferred Alternative	TTHM	Non-Fatal Lymphoma	Valuation of Cases Avoided	Surface	<100	F.2a
					101-500	F.2b
					501-1,000	F.2c
					1,001-3,300	F.2d
					3,301-10K	F.2e
					10,001-50K	F.2f
					50,001-100K	F.2g
					100,001-1M	F.2h
					>1 Million	F.2i
					All	F.2j
				Ground	<100	F.2k
					101-500	F.2l
					501-1,000	F.2m
					1,001-3,300	F.2n
					3,301-10K	F.2o
					10,001-50K	F.2p
					50,001-100K	F.2q
					100,001-1M	F.2r
					>1 Million	F.2s
					All	F.2t
				All	All	F.2u
			Present Value of Benefits at 3% Discount Rate	All	All	F.2v
			Present Value of Benefits at 7% Discount Rate	All	All	F.2w
			Present Value of Benefits at 3% Discount Rate by Small and Large Size Categroies	Surface	All	F.2x
			Present Value of Benefits at 7% Discount Rate by Small and Large Size Categroies		All	F.2y
			Present Value of Benefits at 3% Discount Rate by Small and Large Size Categroies	Ground	All	F.2z
			Present Value of Benefits at 7% Discount Rate by Small and Large Size Categroies		All	F.2aa
			Present Value of Benefits at 3% by System Size	All	All	F.2ab
			Present Value of Benefits at 7% by System Size	All	All	F.2ac
		Chronic Bronchitis	Valuation of Cases Avoided	Surface	<100	F.3a
					101-500	F.3b
					501-1,000	F.3c
					1,001-3,300	F.3d
					3,301-10K	F.3e
					10,001-50K	F.3f
					50,001-100K	F.3g
					100,001-1M	F.3h
					>1 Million	F.3i
					All	F.3j
				Ground	<100	F.3k
					101-500	F.3l
					501-1,000	F.3m
					1,001-3,300	F.3n
					3,301-10K	F.3o
					10,001-50K	F.3p
					50,001-100K	F.3q
					100,001-1M	F.3r
					>1 Million	F.3s
					All	F.3t
				All	All	F.3u
			Present Value of Benefits at 3% Discount Rate	All	All	F.3v
			Present Value of Benefits at 7% Discount Rate	All	All	F.3w
			Present Value of Benefits at 3% Discount Rate by Small and Large Size Categroies	Surface	All	F.3x
			Present Value of Benefits at 7% Discount Rate by Small and Large Size Categroies		All	F.3y
			Present Value of Benefits at 3% Discount Rate by Small and Large Size Categroies	Ground	All	F.3z
			Present Value of Benefits at 7% Discount Rate by Small and Large Size Categroies		All	F.3aa
			Present Value of Benefits at 3% by System Size	All	All	F.3ab
			Present Value of Benefits at 7% by System Size	All	All	F.3ac

Matrix of Appendix F Contents (cont.)

Applicable Rule Alternative(s)	Applicable DBP(s)	Non-fatal Case Valuation	Exhibit Description	Applicable Source Water Type(s)	Applicable System Size	Exhibit Number
Preferred Alternative	HAA5	Non-Fatal Lymphoma	Valuation of Cases Avoided	Surface	All	F.4a
				Ground	All	F.4b
				All	All	F.4c
			Present Value of Benefits at 3% Discount Rate	All	All	F.4d
			Present Value of Benefits at 7% Discount Rate	All	All	F.4e
			Present Value of Benefits at 3% by System Size	All	All	F.4f
			Present Value of Benefits at 7% by System Size	All	All	F.4g
		Chronic Bronchitis	Valuation of Cases Avoided	Surface	All	F.5a
				Ground	All	F.5b
				All	All	F.5c
			Present Value of Benefits at 3% Discount Rate	All	All	F.5d
			Present Value of Benefits at 7% Discount Rate	All	All	F.5e
			Present Value of Benefits at 3% by System Size	All	All	F.5f
			Present Value of Benefits at 7% by System Size	All	All	F.5g
Alternative 1	TTHM	Non-Fatal Lymphoma	Valuation of Cases Avoided	Surface, Ground, & All	All	F.6a
			Present Value of Benefits at 3% & 7% Discount Rate	All	All	F.6b
			Present Value of Benefits at 3% by System Size	All	All	F.6c
			Present Value of Benefits at 7% by System Size	All	All	F.6d
		Chronic Bronchitis	Valuation of Cases Avoided	Surface, Ground, & All	All	F.7a
			Present Value of Benefits at 3% & 7% Discount Rate	All	All	F.7b
			Present Value of Benefits at 3% by System Size	All	All	F.7c
			Present Value of Benefits at 7% by System Size	All	All	F.7d
Alternative 2	TTHM	Non-Fatal Lymphoma	Valuation of Cases Avoided	Surface, Ground, & All	All	F.8a
			Present Value of Benefits at 3% & 7% Discount Rate	All	All	F.8b
			Present Value of Benefits at 3% by System Size	All	All	F.8c
			Present Value of Benefits at 7% by System Size	All	All	F.8d
		Chronic Bronchitis	Valuation of Cases Avoided	Surface, Ground, & All	All	F.9a
			Present Value of Benefits at 3% & 7% Discount Rate	All	All	F.9b
			Present Value of Benefits at 3% by System Size	All	All	F.9c
			Present Value of Benefits at 7% by System Size	All	All	F.9d
Alternative 3	TTHM	Non-Fatal Lymphoma	Valuation of Cases Avoided	Surface, Ground, & All	All	F.10a
			Present Value of Benefits at 3% & 7% Discount Rate	All	All	F.10b
			Present Value of Benefits at 3% by System Size	All	All	F.10c
			Present Value of Benefits at 7% by System Size	All	All	F.10d
		Chronic Bronchitis	Valuation of Cases Avoided	Surface, Ground, & All	All	F.11a
			Present Value of Benefits at 3% & 7% Discount Rate	All	All	F.11b
			Present Value of Benefits at 3% by System Size	All	All	F.11c
			Present Value of Benefits at 7% by System Size	All	All	F.11d
Colorectal Cancer Sensitivity Analysis	TTHM	Non-Fatal Lymphoma	Valuation of Cases Avoided	Surface, Ground, & All	All	F.12a
			Present Value of Benefits at 3% & 7% Discount Rate	All	All	F.12b
			Present Value of Benefits at 3% by System Size	All	All	F.12c
			Present Value of Benefits at 7% by System Size	All	All	F.12d
		Chronic Bronchitis	Valuation of Cases Avoided	Surface, Ground, & All	All	F.13a
			Present Value of Benefits at 3% & 7% Discount Rate	All	All	F.13b
			Present Value of Benefits at 3% by System Size	All	All	F.13c
			Present Value of Benefits at 7% by System Size	All	All	F.13d
Preferred Alternative, 20% Safety Factor	TTHM	Non-Fatal Lymphoma	Valuation of Cases Avoided	Surface, Ground, & All	All	F.14a
			Present Value of Benefits at 3% & 7% Discount Rate	All	All	F.14b
			Present Value of Benefits at 3% by System Size	All	All	F.14c
			Present Value of Benefits at 7% by System Size	All	All	F.14d
		Chronic Bronchitis	Valuation of Cases Avoided	Surface, Ground, & All	All	F.15a
			Present Value of Benefits at 3% & 7% Discount Rate	All	All	F.15b
			Present Value of Benefits at 3% by System Size	All	All	F.15c
			Present Value of Benefits at 7% by System Size	All	All	F.15d
Preferred Alternative, 25% Safety Margin	TTHM	Non-Fatal Lymphoma	Valuation of Cases Avoided	Surface, Ground, & All	All	F.16a
			Present Value of Benefits at 3% & 7% Discount Rate	All	All	F.16b
			Present Value of Benefits at 3% by System Size	All	All	F.16c
			Present Value of Benefits at 7% by System Size	All	All	F.16d
		Chronic Bronchitis	Valuation of Cases Avoided	Surface, Ground, & All	All	F.17a
			Present Value of Benefits at 3% & 7% Discount Rate	All	All	F.17b
			Present Value of Benefits at 3% by System Size	All	All	F.17c
			Present Value of Benefits at 7% by System Size	All	All	F.17d

Note: To minimize the size of this appendix, only summary spreadsheets are presented to outline the computational approach used for the Stage 2 DBPR benefits analysis. More detailed spreadsheets (as presented for the preferred alternative - TTHM) are available from EPA for all alternatives and both TTHM and HAA5 as an indicator.

Section F.1
Input Parameters

Exhibit F.1a Description of Valuation Parameters

VSL

Dist. Type	Weibull	
Parameters	Loc:	0
	Scale:	5.32
	Shape:	1.509588
Simulation Mean	$ 4.80	Million (1990$)

Source: Distribution adapted from *The Benefits and Costs of the Clean Air Act, 1970-1990* (USEPA, 1997b), as derived from Viscusi et al. (1991)

WTP: Non-Fatal Cases - Non-Fatal Lymphoma

Percent of VSL	58.3%	
Simulation Mean	$ 2.80	Million (1990$)

Note: Value derived as a forecast based on the VSL distribution above.

Source: Percent of VSL derived as ratio of median risk tradeoff values reported in Magat et al. (1996)

WTP: Non-Fatal Cases - Chronic Bronchitis

Dist. Type	Lognormal	
Parameters	Mean:	$ 587,500
	Median:	$ 535,600
	Std Dev:	$ 264,826
	Max:	$ 1,500,000
Simulation Mean	$ 0.58	Million (1998$)

Note: Distribution correlated to the VSL distribution in the Monte Carlo analysis.

Source: Stage 1 DBPR RIA (USEPA, 1998a), as derived from Viscusi et al. (1991)

Morbidity Increment

Point Estimate $ 93,927 (1996$)

Source: Cost of Illness Handbook (USEPA, 1999a)

Exhibit F.1b CPI Projections

	CPI - All Items				CPI - Medical Care		
Year	CPI (Annual Average)	Percent Change	Adjustment Factor (1990 base)	Adjustment Factor (1998 base)	CPI (Annual Average)	Percent Change	Adjustment Factor (1996 base)
1990	130.7	-	1.00	0.80	162.8	-	0.71
1991	136.2	4.2%	1.04	0.84	177.0	8.7%	0.78
1992	140.3	3.0%	1.07	0.86	190.1	7.4%	0.83
1993	144.5	3.0%	1.11	0.89	201.4	5.9%	0.88
1994	148.2	2.6%	1.13	0.91	211.0	4.8%	0.92
1995	152.4	2.8%	1.17	0.93	220.5	4.5%	0.97
1996	156.9	3.0%	1.20	0.96	228.2	3.5%	1.00
1997	160.5	2.3%	1.23	0.98	234.6	2.8%	1.03
1998	163.0	1.6%	1.25	1.00	242.1	3.2%	1.06
1999	166.6	2.2%	1.27	1.02	250.6	3.5%	1.10
2000	172.2	3.4%	1.32	1.06	260.8	4.1%	1.14
2001	177.1	2.9%	1.36	1.09	272.8	4.6%	1.20
2002	179.9	1.6%	1.38	1.11	285.6	4.7%	1.25
2003	184.0	2.3%	1.41	1.13	297.1	4.0%	1.30

Notes: 1990 base factors (all items) used to update VSL and non-fatal lymphoma WTP values.
1998 base factors (all items) used to update chronic bronchitis WTP values (used in sensitivity analysis only).
1996 base factors (medical care) used to update morbidity increment values.

Source: 1990-2003 CPI values from Bureau of Labor Statistics.

Exhibit F.1c Description of Elasticity Parameters

Income Elasticity - Fatal Cancer Cases

Central Estimate	0.40
Low End	0.08
High End	1.00
Dist. Type	Triangular
Distribution Mean	0.49

Income Elasticity - Non-Fatal Cancer Cases

Central Estimate	0.45
Low End	0.25
High End	0.60
Dist. Type	Triangular
Distribution Mean	0.43

Note: Distributions are correlated in the Monte Carlo analysis.
Source: Kleckner and Neumann (2000)

Exhibit F.1d Population, GDP, and Per Capita Income Projections

Year	Population		Real GDP		Income (Real GDP per Capita)	
	Estimates/ Projections (Thousands)	Percent Change	Projection (Billions Chained 2000$)	Percent Change	Projection (Thousands 2000$)	Percent Change
1990	249,439	-	7,112.5	-	28,514	-
1991	252,127	1.1%	7,100.5	-0.2%	28,162	-1.2%
1992	254,995	1.1%	7,336.6	3.3%	28,772	2.2%
1993	257,746	1.1%	7,532.7	2.7%	29,225	1.6%
1994	260,289	1.0%	7,835.5	4.0%	30,103	3.0%
1995	262,765	1.0%	8,031.7	2.5%	30,566	1.5%
1996	265,190	0.9%	8,328.9	3.7%	31,407	2.8%
1997	267,744	1.0%	8,703.5	4.5%	32,507	3.5%
1998	270,299	1.0%	9,066.9	4.2%	33,544	3.2%
1999	272,820	0.9%	9,470.3	4.4%	34,713	3.5%
2000	275,306	0.9%	9,817.0	3.7%	35,659	2.7%
2001	277,803	0.9%	9,866.6	0.5%	35,517	-0.4%
2002	280,306	0.9%	10,083.0	2.2%	35,971	1.3%
2003	282,798	0.9%	10,398.0	3.1%	36,768	2.2%
2004	285,266	0.9%	10,730.7	3.2%	37,617	2.3%
2005	287,716	0.9%	11,245.8	4.8%	39,086	3.9%
2006	290,153	0.8%	11,718.1	4.2%	40,386	3.3%
2007	292,583	0.8%	12,093.1	3.2%	41,332	2.3%
2008	295,009	0.8%	12,419.6	2.7%	42,099	1.9%
2009	297,436	0.8%	12,767.4	2.8%	42,925	2.0%
2010	299,862	0.8%	13,124.9	2.8%	43,770	2.0%
2011	302,300	0.8%	13,466.1	2.6%	44,546	1.8%
2012	304,764	0.8%	13,802.8	2.5%	45,290	1.7%
2013	307,250	0.8%	14,147.8	2.5%	46,047	1.7%
2014	309,753	0.8%	14,501.5	2.5%	46,816	1.7%
2015	312,268	0.8%	14,864.1	2.5%	47,600	1.7%
2016	314,793	0.8%	15,235.7	2.5%	48,399	1.7%
2017	317,325	0.8%	15,616.6	2.5%	49,213	1.7%
2018	319,860	0.8%	16,007.0	2.5%	50,044	1.7%
2019	322,395	0.8%	16,407.2	2.5%	50,891	1.7%
2020	324,927	0.8%	16,817.3	2.5%	51,757	1.7%
2021	327,468	0.8%	17,237.8	2.5%	52,640	1.7%
2022	330,028	0.8%	17,668.7	2.5%	53,537	1.7%
2023	332,607	0.8%	18,110.4	2.5%	54,450	1.7%
2024	335,202	0.8%	18,563.2	2.5%	55,379	1.7%
2025	337,815	0.8%	19,027.3	2.5%	56,325	1.7%
2026	340,441	0.8%	19,502.9	2.5%	57,287	1.7%
2027	343,078	0.8%	19,990.5	2.5%	58,268	1.7%
2028	345,735	0.8%	20,490.3	2.5%	59,266	1.7%
2029	348,391	0.8%	21,002.5	2.5%	60,284	1.7%

Source: Population projections from US Census Bureau (NP-T1: Middle Series).

1990-2000 real GDP from Bureau of Economic Analysis, all other years calculated based on percent change projections from Congressional Budget Office (January 23, 2002). Projections for years beyond 2012 based on percent change reported for 2012 due to lack of other data.

Income (Real GDP per Capita)=Real GDP/Population

Exhibit F.1e Factors for Incorporation of Income Elasticity into Yearly Benefits Estimates

Year	Factors for Fatal Cancer Cases			Factors for Non-Fatal Lymphoma Cases			Factors for Chronic Bronchitis Cases		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	1.160	1.062	1.280	1.138	1.096	1.177	1.063	1.045	1.081
2006	1.174	1.067	1.306	1.149	1.104	1.193	1.074	1.052	1.095
2007	1.188	1.072	1.332	1.161	1.112	1.208	1.085	1.060	1.109
2008	1.202	1.076	1.356	1.172	1.120	1.223	1.096	1.067	1.123
2009	1.215	1.081	1.381	1.183	1.127	1.238	1.106	1.075	1.137
2010	1.229	1.086	1.407	1.194	1.135	1.253	1.117	1.082	1.151
2011	1.242	1.090	1.433	1.206	1.142	1.268	1.128	1.090	1.165
2012	1.256	1.095	1.459	1.217	1.150	1.283	1.139	1.097	1.179
2013	1.270	1.100	1.486	1.229	1.158	1.298	1.150	1.104	1.193
2014	1.284	1.104	1.513	1.240	1.165	1.313	1.161	1.112	1.208
2015	1.299	1.109	1.541	1.252	1.173	1.329	1.172	1.119	1.222
2016	1.313	1.114	1.570	1.263	1.180	1.345	1.183	1.127	1.237
2017	1.328	1.119	1.598	1.275	1.188	1.361	1.194	1.135	1.252
2018	1.342	1.123	1.628	1.287	1.196	1.376	1.206	1.142	1.267
2019	1.357	1.128	1.658	1.299	1.204	1.393	1.217	1.150	1.283
2020	1.372	1.133	1.688	1.311	1.211	1.409	1.229	1.158	1.298
2021	1.388	1.137	1.719	1.323	1.219	1.425	1.240	1.165	1.314
2022	1.403	1.142	1.751	1.335	1.227	1.442	1.252	1.173	1.330
2023	1.419	1.147	1.783	1.347	1.235	1.459	1.264	1.181	1.345
2024	1.434	1.151	1.815	1.359	1.242	1.475	1.276	1.189	1.361
2025	1.450	1.156	1.848	1.371	1.250	1.492	1.288	1.196	1.378
2026	1.466	1.161	1.882	1.383	1.258	1.509	1.300	1.204	1.394
2027	1.482	1.165	1.916	1.396	1.266	1.526	1.312	1.212	1.410
2028	1.476	1.164	1.904	1.391	1.263	1.520	1.307	1.209	1.404
2029	1.488	1.167	1.930	1.400	1.269	1.533	1.316	1.215	1.417

Note: Income elasticity factors calculated as $[(eI_1 - eI_2 - I_2 - I_1) / (eI_2 - eI_1 - I_2 - I_1)]$; where e=income elasticity of WTP estimate, and I=income.
Source: Derived using elasticity distributions and per capita GDP projections from preceeding Exhibits F.1c and F.1d.

Exhibit F.1f Value of VSL, WTP, and Morbidity Increment by Year

Year	Fatal Cancer Cases				Non-Fatal Cancer Cases					
	Morbidity Increment	VSL			WTP - Non-Fatal Lymphoma			WTP - Chronic Bronchitis		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Point Estimate	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.1	$ 7.8	$ 1.2	$ 17.9	$ 4.4	$ 0.7	$ 10.1	$ 0.8	$ 0.4	$ 1.4
2006	$ 0.1	$ 7.9	$ 1.2	$ 18.1	$ 4.5	$ 0.7	$ 10.2	$ 0.8	$ 0.4	$ 1.5
2007	$ 0.1	$ 7.9	$ 1.2	$ 18.3	$ 4.5	$ 0.7	$ 10.4	$ 0.8	$ 0.4	$ 1.5
2008	$ 0.1	$ 8.0	$ 1.2	$ 18.6	$ 4.6	$ 0.7	$ 10.5	$ 0.8	$ 0.4	$ 1.5
2009	$ 0.1	$ 8.1	$ 1.2	$ 18.8	$ 4.6	$ 0.7	$ 10.6	$ 0.8	$ 0.4	$ 1.5
2010	$ 0.1	$ 8.2	$ 1.3	$ 19.0	$ 4.7	$ 0.7	$ 10.7	$ 0.8	$ 0.4	$ 1.5
2011	$ 0.1	$ 8.3	$ 1.3	$ 19.2	$ 4.7	$ 0.7	$ 10.8	$ 0.8	$ 0.4	$ 1.5
2012	$ 0.1	$ 8.4	$ 1.3	$ 19.4	$ 4.7	$ 0.7	$ 10.8	$ 0.9	$ 0.4	$ 1.6
2013	$ 0.1	$ 8.5	$ 1.3	$ 19.6	$ 4.8	$ 0.7	$ 11.0	$ 0.9	$ 0.4	$ 1.6
2014	$ 0.1	$ 8.6	$ 1.3	$ 19.9	$ 4.8	$ 0.7	$ 11.1	$ 0.9	$ 0.4	$ 1.6
2015	$ 0.1	$ 8.7	$ 1.3	$ 20.1	$ 4.9	$ 0.8	$ 11.2	$ 0.9	$ 0.4	$ 1.6
2016	$ 0.1	$ 8.8	$ 1.3	$ 20.3	$ 4.9	$ 0.8	$ 11.3	$ 0.9	$ 0.4	$ 1.6
2017	$ 0.1	$ 8.9	$ 1.3	$ 20.6	$ 5.0	$ 0.8	$ 11.4	$ 0.9	$ 0.4	$ 1.6
2018	$ 0.1	$ 9.0	$ 1.3	$ 20.9	$ 5.0	$ 0.8	$ 11.5	$ 0.9	$ 0.4	$ 1.6
2019	$ 0.1	$ 9.1	$ 1.4	$ 21.2	$ 5.1	$ 0.8	$ 11.6	$ 0.9	$ 0.4	$ 1.7
2020	$ 0.1	$ 9.2	$ 1.4	$ 21.4	$ 5.1	$ 0.8	$ 11.7	$ 0.9	$ 0.4	$ 1.7
2021	$ 0.1	$ 9.3	$ 1.4	$ 21.7	$ 5.2	$ 0.8	$ 11.8	$ 0.9	$ 0.4	$ 1.7
2022	$ 0.1	$ 9.4	$ 1.4	$ 22.0	$ 5.2	$ 0.8	$ 11.9	$ 0.9	$ 0.4	$ 1.7
2023	$ 0.1	$ 9.5	$ 1.4	$ 22.2	$ 5.2	$ 0.8	$ 12.1	$ 0.9	$ 0.4	$ 1.7
2024	$ 0.1	$ 9.6	$ 1.4	$ 22.4	$ 5.3	$ 0.8	$ 12.2	$ 1.0	$ 0.4	$ 1.7
2025	$ 0.1	$ 9.7	$ 1.4	$ 22.7	$ 5.3	$ 0.8	$ 12.3	$ 1.0	$ 0.4	$ 1.8
2026	$ 0.1	$ 9.8	$ 1.4	$ 23.0	$ 5.4	$ 0.8	$ 12.4	$ 1.0	$ 0.4	$ 1.8
2027	$ 0.1	$ 9.9	$ 1.5	$ 23.3	$ 5.4	$ 0.8	$ 12.5	$ 1.0	$ 0.4	$ 1.8
2028	$ 0.1	$ 9.9	$ 1.5	$ 23.2	$ 5.4	$ 0.8	$ 12.5	$ 1.0	$ 0.4	$ 1.8
2029	$ 0.1	$ 10.0	$ 1.5	$ 23.4	$ 5.5	$ 0.8	$ 12.6	$ 1.0	$ 0.4	$ 1.8

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Values derived based on valuation distributions and inflation (CPI) and income elasticity factors from Exhibits F.1a, F.1b, and F.1e.

Section F.2
Model Outputs - Preferred Alternative
TTHM as Indicator
Lymphoma for Non-Fatal Cases

Exhibit F.2a Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Surface Water Systems Serving <100 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2011	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.1
2012	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1
2013	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.2
2014	$ 0.1	$ 0.0	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.2
2015	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.3
2016	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.0	$ 0.4
2017	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.0	$ 0.4
2018	$ 0.2	$ 0.0	$ 0.4	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.0	$ 0.5
2019	$ 0.2	$ 0.0	$ 0.4	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.0	$ 0.5
2020	$ 0.2	$ 0.0	$ 0.4	$ 0.1	$ 0.0	$ 0.3	$ 0.2	$ 0.0	$ 0.5
2021	$ 0.2	$ 0.0	$ 0.5	$ 0.1	$ 0.0	$ 0.3	$ 0.2	$ 0.0	$ 0.5
2022	$ 0.2	$ 0.0	$ 0.5	$ 0.1	$ 0.0	$ 0.3	$ 0.2	$ 0.0	$ 0.6
2023	$ 0.2	$ 0.0	$ 0.5	$ 0.1	$ 0.0	$ 0.3	$ 0.3	$ 0.0	$ 0.6
2024	$ 0.2	$ 0.0	$ 0.5	$ 0.1	$ 0.0	$ 0.3	$ 0.3	$ 0.0	$ 0.6
2025	$ 0.2	$ 0.0	$ 0.5	$ 0.2	$ 0.0	$ 0.4	$ 0.3	$ 0.0	$ 0.6
2026	$ 0.2	$ 0.0	$ 0.6	$ 0.2	$ 0.0	$ 0.4	$ 0.3	$ 0.0	$ 0.6
2027	$ 0.2	$ 0.0	$ 0.6	$ 0.2	$ 0.0	$ 0.4	$ 0.3	$ 0.0	$ 0.6
2028	$ 0.2	$ 0.0	$ 0.6	$ 0.2	$ 0.0	$ 0.4	$ 0.3	$ 0.0	$ 0.6
2029	$ 0.3	$ 0.0	$ 0.6	$ 0.2	$ 0.0	$ 0.4	$ 0.3	$ 0.0	$ 0.6
Total	**$ 3.1**	**$ 0.5**	**$ 7.2**	**$ 2.0**	**$ 0.3**	**$ 4.7**	**$ 3.8**	**$ 0.6**	**$ 8.7**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.2b Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Surface Water Systems Serving 100-499 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.3
2011	$ 0.2	$ 0.0	$ 0.4	$ 0.1	$ 0.0	$ 0.3	$ 0.3	$ 0.0	$ 0.6
2012	$ 0.3	$ 0.0	$ 0.7	$ 0.2	$ 0.0	$ 0.5	$ 0.5	$ 0.1	$ 1.1
2013	$ 0.5	$ 0.1	$ 1.1	$ 0.3	$ 0.0	$ 0.7	$ 0.7	$ 0.1	$ 1.7
2014	$ 0.7	$ 0.1	$ 1.5	$ 0.4	$ 0.1	$ 1.0	$ 1.0	$ 0.2	$ 2.3
2015	$ 0.9	$ 0.1	$ 2.0	$ 0.6	$ 0.1	$ 1.3	$ 1.3	$ 0.2	$ 3.0
2016	$ 1.1	$ 0.2	$ 2.5	$ 0.7	$ 0.1	$ 1.6	$ 1.5	$ 0.2	$ 3.6
2017	$ 1.3	$ 0.2	$ 2.9	$ 0.8	$ 0.1	$ 1.9	$ 1.7	$ 0.3	$ 4.0
2018	$ 1.4	$ 0.2	$ 3.3	$ 0.9	$ 0.1	$ 2.1	$ 1.9	$ 0.3	$ 4.3
2019	$ 1.6	$ 0.2	$ 3.7	$ 1.0	$ 0.1	$ 2.3	$ 2.0	$ 0.3	$ 4.6
2020	$ 1.7	$ 0.3	$ 4.0	$ 1.1	$ 0.2	$ 2.4	$ 2.1	$ 0.3	$ 4.8
2021	$ 1.8	$ 0.3	$ 4.2	$ 1.1	$ 0.2	$ 2.6	$ 2.2	$ 0.3	$ 5.0
2022	$ 1.9	$ 0.3	$ 4.4	$ 1.2	$ 0.2	$ 2.8	$ 2.3	$ 0.3	$ 5.2
2023	$ 2.0	$ 0.3	$ 4.6	$ 1.3	$ 0.2	$ 2.9	$ 2.3	$ 0.4	$ 5.4
2024	$ 2.1	$ 0.3	$ 4.8	$ 1.3	$ 0.2	$ 3.1	$ 2.4	$ 0.4	$ 5.5
2025	$ 2.2	$ 0.3	$ 5.0	$ 1.4	$ 0.2	$ 3.3	$ 2.4	$ 0.4	$ 5.7
2026	$ 2.2	$ 0.3	$ 5.2	$ 1.5	$ 0.2	$ 3.4	$ 2.5	$ 0.4	$ 5.8
2027	$ 2.3	$ 0.3	$ 5.3	$ 1.5	$ 0.2	$ 3.6	$ 2.5	$ 0.4	$ 5.9
2028	$ 2.3	$ 0.4	$ 5.4	$ 1.6	$ 0.2	$ 3.6	$ 2.6	$ 0.4	$ 5.9
2029	$ 2.4	$ 0.4	$ 5.5	$ 1.6	$ 0.2	$ 3.8	$ 2.6	$ 0.4	$ 6.0
Total	**$ 28.9**	**$ 4.4**	**$ 66.7**	**$ 18.8**	**$ 2.9**	**$ 43.4**	**$ 35.0**	**$ 5.3**	**$ 80.8**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.2c Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Surface Water Systems Serving 500-999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.0	$ 0.5
2011	$ 0.3	$ 0.0	$ 0.7	$ 0.2	$ 0.0	$ 0.5	$ 0.5	$ 0.1	$ 1.1
2012	$ 0.5	$ 0.1	$ 1.2	$ 0.4	$ 0.1	$ 0.9	$ 0.9	$ 0.1	$ 2.0
2013	$ 0.8	$ 0.1	$ 1.9	$ 0.6	$ 0.1	$ 1.3	$ 1.3	$ 0.2	$ 3.0
2014	$ 1.2	$ 0.2	$ 2.7	$ 0.8	$ 0.1	$ 1.8	$ 1.8	$ 0.3	$ 4.1
2015	$ 1.6	$ 0.2	$ 3.6	$ 1.0	$ 0.2	$ 2.4	$ 2.3	$ 0.3	$ 5.2
2016	$ 1.9	$ 0.3	$ 4.5	$ 1.2	$ 0.2	$ 2.9	$ 2.7	$ 0.4	$ 6.3
2017	$ 2.3	$ 0.3	$ 5.2	$ 1.4	$ 0.2	$ 3.3	$ 3.0	$ 0.5	$ 7.0
2018	$ 2.5	$ 0.4	$ 5.8	$ 1.6	$ 0.2	$ 3.6	$ 3.3	$ 0.5	$ 7.6
2019	$ 2.8	$ 0.4	$ 6.4	$ 1.7	$ 0.3	$ 4.0	$ 3.5	$ 0.5	$ 8.1
2020	$ 3.0	$ 0.5	$ 7.0	$ 1.9	$ 0.3	$ 4.3	$ 3.7	$ 0.6	$ 8.5
2021	$ 3.2	$ 0.5	$ 7.4	$ 2.0	$ 0.3	$ 4.6	$ 3.9	$ 0.6	$ 8.9
2022	$ 3.4	$ 0.5	$ 7.8	$ 2.1	$ 0.3	$ 4.9	$ 4.0	$ 0.6	$ 9.2
2023	$ 3.5	$ 0.5	$ 8.2	$ 2.2	$ 0.3	$ 5.2	$ 4.1	$ 0.6	$ 9.5
2024	$ 3.7	$ 0.6	$ 8.5	$ 2.4	$ 0.4	$ 5.5	$ 4.2	$ 0.6	$ 9.7
2025	$ 3.8	$ 0.6	$ 8.8	$ 2.5	$ 0.4	$ 5.7	$ 4.3	$ 0.7	$ 10.0
2026	$ 3.9	$ 0.6	$ 9.1	$ 2.6	$ 0.4	$ 6.0	$ 4.4	$ 0.7	$ 10.2
2027	$ 4.0	$ 0.6	$ 9.4	$ 2.7	$ 0.4	$ 6.3	$ 4.5	$ 0.7	$ 10.4
2028	$ 4.1	$ 0.6	$ 9.5	$ 2.8	$ 0.4	$ 6.4	$ 4.5	$ 0.7	$ 10.4
2029	$ 4.2	$ 0.6	$ 9.7	$ 2.9	$ 0.4	$ 6.7	$ 4.6	$ 0.7	$ 10.6
Total	**$ 50.9**	**$ 7.7**	**$ 117.6**	**$ 33.0**	**$ 5.0**	**$ 76.4**	**$ 61.6**	**$ 9.4**	**$ 142.3**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.2d Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Surface Water Systems Serving 1,000-3,299 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.7	$ 0.1	$ 1.7	$ 0.6	$ 0.1	$ 1.4	$ 1.3	$ 0.2	$ 2.9
2011	$ 1.9	$ 0.3	$ 4.4	$ 1.4	$ 0.2	$ 3.3	$ 3.2	$ 0.5	$ 7.3
2012	$ 3.4	$ 0.5	$ 7.9	$ 2.5	$ 0.4	$ 5.7	$ 5.5	$ 0.8	$ 12.7
2013	$ 5.3	$ 0.8	$ 12.2	$ 3.7	$ 0.6	$ 8.5	$ 8.3	$ 1.3	$ 19.1
2014	$ 7.5	$ 1.2	$ 17.3	$ 5.1	$ 0.8	$ 11.7	$ 11.4	$ 1.7	$ 26.1
2015	$ 10.1	$ 1.5	$ 23.2	$ 6.6	$ 1.0	$ 15.3	$ 14.7	$ 2.2	$ 33.8
2016	$ 12.5	$ 1.9	$ 28.7	$ 8.0	$ 1.2	$ 18.5	$ 17.6	$ 2.7	$ 40.4
2017	$ 14.5	$ 2.2	$ 33.5	$ 9.1	$ 1.4	$ 21.0	$ 19.7	$ 3.0	$ 45.2
2018	$ 16.4	$ 2.5	$ 37.7	$ 10.1	$ 1.5	$ 23.4	$ 21.3	$ 3.3	$ 49.1
2019	$ 18.0	$ 2.7	$ 41.5	$ 11.1	$ 1.7	$ 25.6	$ 22.7	$ 3.5	$ 52.4
2020	$ 19.4	$ 3.0	$ 44.9	$ 12.0	$ 1.8	$ 27.7	$ 23.9	$ 3.6	$ 55.1
2021	$ 20.7	$ 3.2	$ 47.8	$ 12.9	$ 2.0	$ 29.7	$ 24.8	$ 3.8	$ 57.4
2022	$ 21.8	$ 3.3	$ 50.5	$ 13.7	$ 2.1	$ 31.6	$ 25.7	$ 3.9	$ 59.5
2023	$ 22.8	$ 3.5	$ 52.8	$ 14.5	$ 2.2	$ 33.5	$ 26.5	$ 4.0	$ 61.2
2024	$ 23.7	$ 3.6	$ 54.9	$ 15.2	$ 2.3	$ 35.3	$ 27.2	$ 4.1	$ 62.8
2025	$ 24.6	$ 3.7	$ 56.8	$ 16.0	$ 2.4	$ 37.0	$ 27.8	$ 4.2	$ 64.3
2026	$ 25.3	$ 3.8	$ 58.6	$ 16.7	$ 2.5	$ 38.7	$ 28.3	$ 4.3	$ 65.7
2027	$ 26.0	$ 3.9	$ 60.4	$ 17.4	$ 2.6	$ 40.4	$ 28.9	$ 4.4	$ 67.0
2028	$ 26.3	$ 4.0	$ 61.1	$ 17.9	$ 2.7	$ 41.5	$ 29.0	$ 4.4	$ 67.2
2029	$ 26.9	$ 4.1	$ 62.4	$ 18.5	$ 2.8	$ 42.9	$ 29.4	$ 4.4	$ 68.2
Total	**$ 328.0**	**$ 49.9**	**$ 758.2**	**$ 213.1**	**$ 32.4**	**$ 492.6**	**$ 397.0**	**$ 60.4**	**$ 917.5**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.2e Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Surface Water Systems Serving 3,300-9,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 2.1	$ 0.3	$ 4.8	$ 1.7	$ 0.3	$ 3.9	$ 3.6	$ 0.6	$ 8.4
2011	$ 5.4	$ 0.8	$ 12.4	$ 4.1	$ 0.6	$ 9.4	$ 9.1	$ 1.4	$ 20.9
2012	$ 9.8	$ 1.5	$ 22.5	$ 7.1	$ 1.1	$ 16.2	$ 15.9	$ 2.4	$ 36.5
2013	$ 15.2	$ 2.3	$ 34.9	$ 10.6	$ 1.6	$ 24.2	$ 23.7	$ 3.6	$ 54.5
2014	$ 21.5	$ 3.3	$ 49.5	$ 14.5	$ 2.2	$ 33.4	$ 32.5	$ 5.0	$ 74.8
2015	$ 28.8	$ 4.4	$ 66.2	$ 19.0	$ 2.9	$ 43.7	$ 42.0	$ 6.4	$ 96.7
2016	$ 35.7	$ 5.5	$ 82.2	$ 23.0	$ 3.5	$ 52.8	$ 50.3	$ 7.7	$ 115.7
2017	$ 41.6	$ 6.3	$ 95.7	$ 26.1	$ 4.0	$ 60.1	$ 56.2	$ 8.6	$ 129.4
2018	$ 46.8	$ 7.1	$ 107.8	$ 29.0	$ 4.4	$ 66.9	$ 61.0	$ 9.3	$ 140.5
2019	$ 51.5	$ 7.8	$ 118.8	$ 31.7	$ 4.8	$ 73.2	$ 64.9	$ 9.9	$ 149.8
2020	$ 55.6	$ 8.5	$ 128.4	$ 34.3	$ 5.2	$ 79.2	$ 68.2	$ 10.4	$ 157.5
2021	$ 59.3	$ 9.0	$ 136.8	$ 36.8	$ 5.6	$ 84.9	$ 71.1	$ 10.8	$ 164.1
2022	$ 62.5	$ 9.5	$ 144.4	$ 39.1	$ 6.0	$ 90.5	$ 73.5	$ 11.2	$ 170.1
2023	$ 65.3	$ 9.9	$ 151.1	$ 41.4	$ 6.3	$ 95.8	$ 75.7	$ 11.5	$ 175.2
2024	$ 67.9	$ 10.3	$ 157.1	$ 43.6	$ 6.6	$ 100.9	$ 77.7	$ 11.8	$ 179.8
2025	$ 70.2	$ 10.7	$ 162.5	$ 45.8	$ 6.9	$ 105.9	$ 79.5	$ 12.1	$ 183.9
2026	$ 72.4	$ 11.0	$ 167.7	$ 47.8	$ 7.2	$ 110.8	$ 81.1	$ 12.3	$ 187.8
2027	$ 74.4	$ 11.3	$ 172.7	$ 49.8	$ 7.5	$ 115.6	$ 82.6	$ 12.5	$ 191.6
2028	$ 75.3	$ 11.4	$ 174.7	$ 51.1	$ 7.8	$ 118.6	$ 82.9	$ 12.6	$ 192.3
2029	$ 76.9	$ 11.6	$ 178.5	$ 52.9	$ 8.0	$ 122.8	$ 84.1	$ 12.7	$ 195.1
Total	**$ 938.2**	**$ 142.6**	**$ 2,168.8**	**$ 609.5**	**$ 92.7**	**$ 1,409.0**	**$ 1,135.7**	**$ 172.7**	**$ 2,624.5**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.2f Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Surface Water Systems Serving 10,000-49,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 13.8	$ 2.1	$ 31.8	$ 13.2	$ 2.0	$ 30.4	$ 26.1	$ 4.0	$ 59.9
2011	$ 35.8	$ 5.5	$ 82.3	$ 31.3	$ 4.8	$ 72.0	$ 63.7	$ 9.8	$ 146.5
2012	$ 64.7	$ 9.9	$ 148.6	$ 53.3	$ 8.2	$ 122.5	$ 109.9	$ 16.8	$ 252.4
2013	$ 100.2	$ 15.3	$ 230.2	$ 78.9	$ 12.1	$ 181.1	$ 162.8	$ 24.9	$ 373.9
2014	$ 142.5	$ 21.8	$ 327.5	$ 107.6	$ 16.4	$ 247.3	$ 221.3	$ 33.8	$ 508.8
2015	$ 183.9	$ 28.1	$ 422.9	$ 132.4	$ 20.2	$ 304.5	$ 271.0	$ 41.4	$ 623.2
2016	$ 219.1	$ 33.5	$ 503.8	$ 150.6	$ 23.0	$ 346.2	$ 304.8	$ 46.6	$ 701.1
2017	$ 250.9	$ 38.3	$ 577.6	$ 166.8	$ 25.5	$ 384.0	$ 331.8	$ 50.7	$ 763.8
2018	$ 279.8	$ 42.7	$ 644.5	$ 181.9	$ 27.7	$ 419.1	$ 354.1	$ 54.0	$ 815.7
2019	$ 305.4	$ 46.5	$ 704.7	$ 196.1	$ 29.9	$ 452.5	$ 372.9	$ 56.8	$ 860.5
2020	$ 327.5	$ 49.9	$ 756.2	$ 209.5	$ 31.9	$ 483.7	$ 389.1	$ 59.2	$ 898.4
2021	$ 346.7	$ 52.7	$ 800.5	$ 222.3	$ 33.8	$ 513.3	$ 403.3	$ 61.3	$ 931.2
2022	$ 363.7	$ 55.3	$ 841.1	$ 234.7	$ 35.7	$ 542.7	$ 415.9	$ 63.2	$ 962.0
2023	$ 378.9	$ 57.6	$ 876.4	$ 246.5	$ 37.5	$ 570.3	$ 427.3	$ 65.0	$ 988.5
2024	$ 392.7	$ 59.7	$ 908.7	$ 258.0	$ 39.2	$ 597.1	$ 437.7	$ 66.5	$ 1,012.9
2025	$ 405.3	$ 61.5	$ 938.1	$ 269.1	$ 40.9	$ 622.9	$ 447.3	$ 67.9	$ 1,035.1
2026	$ 417.0	$ 63.2	$ 966.0	$ 280.0	$ 42.4	$ 648.5	$ 456.2	$ 69.1	$ 1,056.7
2027	$ 428.0	$ 64.8	$ 992.9	$ 290.5	$ 44.0	$ 674.0	$ 464.6	$ 70.3	$ 1,077.8
2028	$ 432.6	$ 65.6	$ 1,003.1	$ 296.9	$ 45.0	$ 688.4	$ 466.4	$ 70.7	$ 1,081.5
2029	$ 441.2	$ 66.8	$ 1,023.9	$ 306.1	$ 46.3	$ 710.4	$ 472.8	$ 71.6	$ 1,097.4
Total	**$ 5,529.5**	**$ 840.8**	**$ 12,780.7**	**$ 3,725.7**	**$ 566.5**	**$ 8,611.1**	**$ 6,599.0**	**$ 1,003.8**	**$ 15,247.3**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.2g Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Surface Water Systems Serving 50,000-99,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 12.0	$ 1.8	$ 27.7	$ 11.5	$ 1.8	$ 26.5	$ 22.7	$ 3.5	$ 52.2
2011	$ 31.2	$ 4.8	$ 71.7	$ 27.3	$ 4.2	$ 62.8	$ 55.5	$ 8.5	$ 127.7
2012	$ 56.4	$ 8.6	$ 129.5	$ 46.5	$ 7.1	$ 106.8	$ 95.7	$ 14.7	$ 219.9
2013	$ 87.3	$ 13.4	$ 200.6	$ 68.7	$ 10.5	$ 157.8	$ 141.9	$ 21.7	$ 325.8
2014	$ 117.9	$ 18.0	$ 271.0	$ 87.8	$ 13.4	$ 201.7	$ 181.1	$ 27.7	$ 416.2
2015	$ 144.0	$ 22.0	$ 331.2	$ 101.2	$ 15.5	$ 232.7	$ 207.2	$ 31.7	$ 476.6
2016	$ 168.0	$ 25.7	$ 386.2	$ 113.1	$ 17.3	$ 260.2	$ 227.9	$ 34.8	$ 524.1
2017	$ 189.8	$ 29.0	$ 436.8	$ 124.1	$ 19.0	$ 285.7	$ 244.8	$ 37.4	$ 563.5
2018	$ 209.1	$ 31.9	$ 481.8	$ 134.4	$ 20.5	$ 309.6	$ 259.0	$ 39.5	$ 596.7
2019	$ 225.8	$ 34.4	$ 521.1	$ 144.1	$ 22.0	$ 332.6	$ 271.2	$ 41.3	$ 625.8
2020	$ 240.1	$ 36.6	$ 554.4	$ 153.4	$ 23.4	$ 354.2	$ 281.8	$ 42.9	$ 650.6
2021	$ 252.7	$ 38.4	$ 583.6	$ 162.3	$ 24.7	$ 374.8	$ 291.2	$ 44.3	$ 672.3
2022	$ 264.0	$ 40.1	$ 610.6	$ 170.9	$ 26.0	$ 395.2	$ 299.6	$ 45.6	$ 692.8
2023	$ 274.2	$ 41.7	$ 634.3	$ 179.1	$ 27.2	$ 414.4	$ 307.2	$ 46.7	$ 710.7
2024	$ 283.5	$ 43.1	$ 656.1	$ 187.2	$ 28.5	$ 433.1	$ 314.2	$ 47.8	$ 727.2
2025	$ 292.1	$ 44.3	$ 676.0	$ 194.9	$ 29.6	$ 451.2	$ 320.7	$ 48.7	$ 742.3
2026	$ 300.1	$ 45.5	$ 695.1	$ 202.5	$ 30.7	$ 469.1	$ 326.9	$ 49.5	$ 757.1
2027	$ 307.6	$ 46.6	$ 713.6	$ 209.9	$ 31.8	$ 486.9	$ 332.6	$ 50.4	$ 771.7
2028	$ 310.6	$ 47.1	$ 720.1	$ 214.3	$ 32.5	$ 496.9	$ 333.8	$ 50.6	$ 773.9
2029	$ 316.5	$ 47.9	$ 734.5	$ 220.7	$ 33.4	$ 512.3	$ 338.2	$ 51.2	$ 784.9
Total	**$ 4,082.8**	**$ 620.9**	**$ 9,435.8**	**$ 2,754.0**	**$ 418.8**	**$ 6,364.5**	**$ 4,853.1**	**$ 738.3**	**$ 11,212.0**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.2h Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Surface Water Systems Serving 100,000-999,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 53.3	$ 8.2	$ 122.5	$ 51.0	$ 7.8	$ 117.3	$ 100.4	$ 15.4	$ 230.9
2011	$ 137.9	$ 21.1	$ 317.1	$ 120.7	$ 18.5	$ 277.6	$ 245.6	$ 37.6	$ 564.8
2012	$ 249.4	$ 38.2	$ 572.9	$ 205.6	$ 31.5	$ 472.3	$ 423.5	$ 64.8	$ 972.9
2013	$ 386.4	$ 59.1	$ 887.5	$ 304.0	$ 46.5	$ 698.2	$ 627.6	$ 96.1	$ 1,441.5
2014	$ 493.7	$ 75.5	$ 1,134.9	$ 361.7	$ 55.3	$ 831.4	$ 748.7	$ 114.5	$ 1,721.1
2015	$ 593.4	$ 90.7	$ 1,364.7	$ 411.6	$ 62.9	$ 946.6	$ 841.8	$ 128.7	$ 1,935.9
2016	$ 685.7	$ 104.7	$ 1,576.9	$ 456.9	$ 69.8	$ 1,050.8	$ 916.8	$ 140.1	$ 2,108.4
2017	$ 769.5	$ 117.5	$ 1,771.3	$ 499.0	$ 76.2	$ 1,148.6	$ 979.0	$ 149.5	$ 2,253.6
2018	$ 842.5	$ 128.5	$ 1,940.9	$ 538.5	$ 82.1	$ 1,240.6	$ 1,031.7	$ 157.3	$ 2,376.8
2019	$ 904.1	$ 137.7	$ 2,086.4	$ 576.1	$ 87.8	$ 1,329.4	$ 1,077.1	$ 164.1	$ 2,485.6
2020	$ 957.8	$ 145.8	$ 2,211.2	$ 612.0	$ 93.2	$ 1,412.8	$ 1,116.9	$ 170.1	$ 2,578.6
2021	$ 1,005.3	$ 152.9	$ 2,321.1	$ 646.4	$ 98.3	$ 1,492.5	$ 1,152.3	$ 175.3	$ 2,660.5
2022	$ 1,047.9	$ 159.4	$ 2,423.7	$ 679.6	$ 103.3	$ 1,571.8	$ 1,184.2	$ 180.1	$ 2,738.7
2023	$ 1,086.7	$ 165.3	$ 2,513.9	$ 711.7	$ 108.3	$ 1,646.5	$ 1,213.2	$ 184.5	$ 2,806.7
2024	$ 1,122.2	$ 170.6	$ 2,597.0	$ 742.9	$ 112.9	$ 1,719.2	$ 1,240.1	$ 188.5	$ 2,869.8
2025	$ 1,155.0	$ 175.3	$ 2,673.2	$ 773.1	$ 117.4	$ 1,789.3	$ 1,265.1	$ 192.0	$ 2,927.9
2026	$ 1,185.7	$ 179.7	$ 2,746.6	$ 802.6	$ 121.7	$ 1,859.1	$ 1,288.6	$ 195.3	$ 2,984.9
2027	$ 1,214.6	$ 183.9	$ 2,817.8	$ 831.3	$ 125.9	$ 1,928.7	$ 1,310.9	$ 198.5	$ 3,041.3
2028	$ 1,225.8	$ 185.8	$ 2,842.2	$ 848.3	$ 128.6	$ 1,966.9	$ 1,315.0	$ 199.3	$ 3,049.1
2029	$ 1,248.5	$ 188.9	$ 2,897.5	$ 873.3	$ 132.2	$ 2,026.9	$ 1,332.1	$ 201.6	$ 3,091.6
Total	**$ 16,365.2**	**$ 2,488.8**	**$ 37,819.2**	**$ 11,046.4**	**$ 1,680.0**	**$ 25,526.7**	**$ 19,410.5**	**$ 2,953.1**	**$ 44,840.6**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.2i Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Surface Water Systems Serving ≥1,000,000 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 45.4	$ 6.9	$ 104.3	$ 43.4	$ 6.6	$ 99.8	$ 85.5	$ 13.1	$ 196.5
2011	$ 117.3	$ 18.0	$ 269.8	$ 102.7	$ 15.7	$ 236.3	$ 209.0	$ 32.0	$ 480.7
2012	$ 212.3	$ 32.5	$ 487.6	$ 175.0	$ 26.8	$ 402.0	$ 360.4	$ 55.2	$ 828.0
2013	$ 328.8	$ 50.3	$ 755.3	$ 258.7	$ 39.6	$ 594.2	$ 534.1	$ 81.8	$ 1,226.8
2014	$ 420.2	$ 64.2	$ 965.9	$ 307.8	$ 47.1	$ 707.5	$ 637.2	$ 97.4	$ 1,464.7
2015	$ 505.0	$ 77.2	$ 1,161.4	$ 350.3	$ 53.6	$ 805.6	$ 716.4	$ 109.5	$ 1,647.6
2016	$ 583.6	$ 89.1	$ 1,342.0	$ 388.9	$ 59.4	$ 894.3	$ 780.2	$ 119.2	$ 1,794.3
2017	$ 654.9	$ 100.0	$ 1,507.5	$ 424.7	$ 64.8	$ 977.5	$ 833.2	$ 127.2	$ 1,917.9
2018	$ 717.0	$ 109.3	$ 1,651.8	$ 458.3	$ 69.9	$ 1,055.9	$ 878.0	$ 133.9	$ 2,022.8
2019	$ 769.5	$ 117.2	$ 1,775.7	$ 490.3	$ 74.7	$ 1,131.4	$ 916.7	$ 139.6	$ 2,115.4
2020	$ 815.1	$ 124.1	$ 1,881.9	$ 520.8	$ 79.3	$ 1,202.4	$ 950.5	$ 144.7	$ 2,194.6
2021	$ 855.6	$ 130.1	$ 1,975.4	$ 550.1	$ 83.7	$ 1,270.2	$ 980.7	$ 149.2	$ 2,264.3
2022	$ 891.9	$ 135.6	$ 2,062.7	$ 578.4	$ 88.0	$ 1,337.7	$ 1,007.8	$ 153.2	$ 2,330.8
2023	$ 924.8	$ 140.7	$ 2,139.4	$ 605.7	$ 92.1	$ 1,401.3	$ 1,032.5	$ 157.0	$ 2,388.7
2024	$ 955.0	$ 145.2	$ 2,210.2	$ 632.2	$ 96.1	$ 1,463.1	$ 1,055.4	$ 160.4	$ 2,442.4
2025	$ 983.0	$ 149.2	$ 2,275.1	$ 658.0	$ 99.9	$ 1,522.8	$ 1,076.7	$ 163.4	$ 2,491.8
2026	$ 1,009.1	$ 153.0	$ 2,337.5	$ 683.1	$ 103.5	$ 1,582.2	$ 1,096.7	$ 166.2	$ 2,540.3
2027	$ 1,033.7	$ 156.5	$ 2,398.1	$ 707.5	$ 107.1	$ 1,641.4	$ 1,115.7	$ 168.9	$ 2,588.3
2028	$ 1,043.2	$ 158.1	$ 2,418.9	$ 722.0	$ 109.4	$ 1,674.0	$ 1,119.2	$ 169.6	$ 2,594.9
2029	$ 1,062.5	$ 160.8	$ 2,466.0	$ 743.3	$ 112.5	$ 1,725.0	$ 1,133.7	$ 171.6	$ 2,631.1
Total	**$ 13,927.7**	**$ 2,118.1**	**$ 32,186.3**	**$ 9,401.1**	**$ 1,429.8**	**$ 21,724.7**	**$ 16,519.5**	**$ 2,513.3**	**$ 38,162.0**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.2j Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (All Surface Water Systems)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 127.5	$ 19.5	$ 293.1	$ 121.6	$ 18.6	$ 279.6	$ 239.9	$ 36.7	$ 551.5
2011	$ 329.9	$ 50.5	$ 758.7	$ 287.9	$ 44.1	$ 662.3	$ 586.8	$ 89.9	$ 1,349.7
2012	$ 596.8	$ 91.3	$ 1,371.1	$ 490.5	$ 75.1	$ 1,126.9	$ 1,012.4	$ 154.9	$ 2,325.6
2013	$ 924.6	$ 141.5	$ 2,123.7	$ 725.4	$ 111.0	$ 1,666.2	$ 1,500.5	$ 229.7	$ 3,446.4
2014	$ 1,205.1	$ 184.2	$ 2,770.3	$ 885.7	$ 135.4	$ 2,036.0	$ 1,835.0	$ 280.5	$ 4,218.3
2015	$ 1,467.7	$ 224.4	$ 3,375.5	$ 1,022.8	$ 156.4	$ 2,352.3	$ 2,096.8	$ 320.6	$ 4,822.3
2016	$ 1,707.6	$ 260.9	$ 3,927.1	$ 1,142.5	$ 174.5	$ 2,627.5	$ 2,302.1	$ 351.7	$ 5,294.2
2017	$ 1,924.8	$ 293.9	$ 4,430.8	$ 1,252.2	$ 191.2	$ 2,882.3	$ 2,469.6	$ 377.1	$ 5,684.9
2018	$ 2,115.6	$ 322.6	$ 4,874.0	$ 1,354.9	$ 206.6	$ 3,121.4	$ 2,610.5	$ 398.0	$ 6,014.0
2019	$ 2,278.8	$ 347.1	$ 5,258.7	$ 1,452.2	$ 221.2	$ 3,351.1	$ 2,731.2	$ 416.0	$ 6,302.7
2020	$ 2,420.6	$ 368.6	$ 5,588.4	$ 1,545.0	$ 235.3	$ 3,567.0	$ 2,836.4	$ 431.9	$ 6,548.6
2021	$ 2,545.5	$ 387.2	$ 5,877.3	$ 1,634.1	$ 248.5	$ 3,772.9	$ 2,929.6	$ 445.6	$ 6,764.2
2022	$ 2,657.3	$ 404.1	$ 6,145.7	$ 1,719.8	$ 261.5	$ 3,977.6	$ 3,013.2	$ 458.2	$ 6,968.9
2023	$ 2,758.4	$ 419.5	$ 6,381.3	$ 1,802.7	$ 274.2	$ 4,170.3	$ 3,089.2	$ 469.8	$ 7,146.4
2024	$ 2,851.0	$ 433.4	$ 6,597.8	$ 1,883.0	$ 286.2	$ 4,357.7	$ 3,159.0	$ 480.2	$ 7,310.8
2025	$ 2,936.4	$ 445.7	$ 6,796.0	$ 1,961.0	$ 297.7	$ 4,538.5	$ 3,224.0	$ 489.4	$ 7,461.5
2026	$ 3,016.1	$ 457.2	$ 6,986.4	$ 2,036.9	$ 308.8	$ 4,718.3	$ 3,284.9	$ 497.9	$ 7,609.1
2027	$ 3,090.8	$ 468.0	$ 7,170.6	$ 2,110.9	$ 319.6	$ 4,897.3	$ 3,342.6	$ 506.1	$ 7,754.7
2028	$ 3,120.5	$ 472.9	$ 7,235.5	$ 2,155.0	$ 326.6	$ 4,996.7	$ 3,353.7	$ 508.2	$ 7,776.0
2029	$ 3,179.2	$ 481.1	$ 7,378.5	$ 2,219.5	$ 335.9	$ 5,151.1	$ 3,397.7	$ 514.2	$ 7,885.6
Total	**$ 41,254.3**	**$ 6,273.7**	**$ 95,340.5**	**$ 27,803.6**	**$ 4,228.4**	**$ 64,252.9**	**$ 49,015.1**	**$ 7,456.8**	**$ 113,235.6**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.2k Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Ground Water Systems Serving <100 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1
2011	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.3
2012	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.0	$ 0.5
2013	$ 0.2	$ 0.0	$ 0.5	$ 0.1	$ 0.0	$ 0.3	$ 0.3	$ 0.1	$ 0.8
2014	$ 0.3	$ 0.0	$ 0.7	$ 0.2	$ 0.0	$ 0.5	$ 0.4	$ 0.1	$ 1.0
2015	$ 0.4	$ 0.1	$ 0.9	$ 0.3	$ 0.0	$ 0.6	$ 0.6	$ 0.1	$ 1.3
2016	$ 0.5	$ 0.1	$ 1.1	$ 0.3	$ 0.0	$ 0.7	$ 0.7	$ 0.1	$ 1.6
2017	$ 0.6	$ 0.1	$ 1.3	$ 0.4	$ 0.1	$ 0.8	$ 0.8	$ 0.1	$ 1.8
2018	$ 0.6	$ 0.1	$ 1.5	$ 0.4	$ 0.1	$ 0.9	$ 0.8	$ 0.1	$ 1.9
2019	$ 0.7	$ 0.1	$ 1.6	$ 0.4	$ 0.1	$ 1.0	$ 0.9	$ 0.1	$ 2.1
2020	$ 0.8	$ 0.1	$ 1.8	$ 0.5	$ 0.1	$ 1.1	$ 0.9	$ 0.1	$ 2.2
2021	$ 0.8	$ 0.1	$ 1.9	$ 0.5	$ 0.1	$ 1.2	$ 1.0	$ 0.1	$ 2.3
2022	$ 0.9	$ 0.1	$ 2.0	$ 0.5	$ 0.1	$ 1.2	$ 1.0	$ 0.2	$ 2.3
2023	$ 0.9	$ 0.1	$ 2.1	$ 0.6	$ 0.1	$ 1.3	$ 1.0	$ 0.2	$ 2.4
2024	$ 0.9	$ 0.1	$ 2.2	$ 0.6	$ 0.1	$ 1.4	$ 1.1	$ 0.2	$ 2.5
2025	$ 1.0	$ 0.1	$ 2.2	$ 0.6	$ 0.1	$ 1.5	$ 1.1	$ 0.2	$ 2.5
2026	$ 1.0	$ 0.2	$ 2.3	$ 0.7	$ 0.1	$ 1.5	$ 1.1	$ 0.2	$ 2.6
2027	$ 1.0	$ 0.2	$ 2.4	$ 0.7	$ 0.1	$ 1.6	$ 1.1	$ 0.2	$ 2.6
2028	$ 1.0	$ 0.2	$ 2.4	$ 0.7	$ 0.1	$ 1.6	$ 1.1	$ 0.2	$ 2.7
2029	$ 1.1	$ 0.2	$ 2.5	$ 0.7	$ 0.1	$ 1.7	$ 1.2	$ 0.2	$ 2.7
Total	**$ 13.0**	**$ 2.0**	**$ 29.9**	**$ 8.4**	**$ 1.3**	**$ 19.4**	**$ 15.7**	**$ 2.4**	**$ 36.2**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.2l Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Ground Water Systems Serving 100-499 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.2	$ 0.0	$ 0.5	$ 0.2	$ 0.0	$ 0.4	$ 0.4	$ 0.1	$ 0.9
2011	$ 0.6	$ 0.1	$ 1.3	$ 0.4	$ 0.1	$ 1.0	$ 0.9	$ 0.1	$ 2.1
2012	$ 1.0	$ 0.2	$ 2.3	$ 0.7	$ 0.1	$ 1.7	$ 1.6	$ 0.2	$ 3.7
2013	$ 1.5	$ 0.2	$ 3.6	$ 1.1	$ 0.2	$ 2.5	$ 2.4	$ 0.4	$ 5.6
2014	$ 2.2	$ 0.3	$ 5.0	$ 1.5	$ 0.2	$ 3.4	$ 3.3	$ 0.5	$ 7.6
2015	$ 2.9	$ 0.4	$ 6.8	$ 1.9	$ 0.3	$ 4.5	$ 4.3	$ 0.7	$ 9.9
2016	$ 3.6	$ 0.6	$ 8.4	$ 2.3	$ 0.4	$ 5.4	$ 5.1	$ 0.8	$ 11.8
2017	$ 4.2	$ 0.6	$ 9.8	$ 2.7	$ 0.4	$ 6.1	$ 5.7	$ 0.9	$ 13.2
2018	$ 4.8	$ 0.7	$ 11.0	$ 3.0	$ 0.5	$ 6.8	$ 6.2	$ 0.9	$ 14.3
2019	$ 5.2	$ 0.8	$ 12.1	$ 3.2	$ 0.5	$ 7.5	$ 6.6	$ 1.0	$ 15.3
2020	$ 5.7	$ 0.9	$ 13.1	$ 3.5	$ 0.5	$ 8.1	$ 7.0	$ 1.1	$ 16.1
2021	$ 6.0	$ 0.9	$ 14.0	$ 3.7	$ 0.6	$ 8.7	$ 7.2	$ 1.1	$ 16.7
2022	$ 6.4	$ 1.0	$ 14.7	$ 4.0	$ 0.6	$ 9.2	$ 7.5	$ 1.1	$ 17.3
2023	$ 6.7	$ 1.0	$ 15.4	$ 4.2	$ 0.6	$ 9.8	$ 7.7	$ 1.2	$ 17.9
2024	$ 6.9	$ 1.1	$ 16.0	$ 4.4	$ 0.7	$ 10.3	$ 7.9	$ 1.2	$ 18.3
2025	$ 7.2	$ 1.1	$ 16.6	$ 4.7	$ 0.7	$ 10.8	$ 8.1	$ 1.2	$ 18.8
2026	$ 7.4	$ 1.1	$ 17.1	$ 4.9	$ 0.7	$ 11.3	$ 8.3	$ 1.3	$ 19.2
2027	$ 7.6	$ 1.1	$ 17.6	$ 5.1	$ 0.8	$ 11.8	$ 8.4	$ 1.3	$ 19.5
2028	$ 7.7	$ 1.2	$ 17.8	$ 5.2	$ 0.8	$ 12.1	$ 8.5	$ 1.3	$ 19.6
2029	$ 7.8	$ 1.2	$ 18.2	$ 5.4	$ 0.8	$ 12.5	$ 8.6	$ 1.3	$ 19.9
Total	**$ 95.7**	**$ 14.5**	**$ 221.2**	**$ 62.2**	**$ 9.4**	**$ 143.7**	**$ 115.8**	**$ 17.6**	**$ 267.6**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.2m Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Ground Water Systems Serving 500-999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.2	$ 0.0	$ 0.5	$ 0.2	$ 0.0	$ 0.4	$ 0.4	$ 0.1	$ 0.9
2011	$ 0.6	$ 0.1	$ 1.4	$ 0.4	$ 0.1	$ 1.0	$ 1.0	$ 0.2	$ 2.3
2012	$ 1.1	$ 0.2	$ 2.4	$ 0.8	$ 0.1	$ 1.8	$ 1.7	$ 0.3	$ 4.0
2013	$ 1.6	$ 0.3	$ 3.8	$ 1.1	$ 0.2	$ 2.6	$ 2.6	$ 0.4	$ 5.9
2014	$ 2.3	$ 0.4	$ 5.4	$ 1.6	$ 0.2	$ 3.6	$ 3.5	$ 0.5	$ 8.1
2015	$ 3.1	$ 0.5	$ 7.2	$ 2.1	$ 0.3	$ 4.7	$ 4.6	$ 0.7	$ 10.5
2016	$ 3.9	$ 0.6	$ 8.9	$ 2.5	$ 0.4	$ 5.7	$ 5.5	$ 0.8	$ 12.6
2017	$ 4.5	$ 0.7	$ 10.4	$ 2.8	$ 0.4	$ 6.5	$ 6.1	$ 0.9	$ 14.0
2018	$ 5.1	$ 0.8	$ 11.7	$ 3.1	$ 0.5	$ 7.3	$ 6.6	$ 1.0	$ 15.2
2019	$ 5.6	$ 0.9	$ 12.9	$ 3.4	$ 0.5	$ 7.9	$ 7.0	$ 1.1	$ 16.3
2020	$ 6.0	$ 0.9	$ 13.9	$ 3.7	$ 0.6	$ 8.6	$ 7.4	$ 1.1	$ 17.1
2021	$ 6.4	$ 1.0	$ 14.8	$ 4.0	$ 0.6	$ 9.2	$ 7.7	$ 1.2	$ 17.8
2022	$ 6.8	$ 1.0	$ 15.7	$ 4.2	$ 0.6	$ 9.8	$ 8.0	$ 1.2	$ 18.5
2023	$ 7.1	$ 1.1	$ 16.4	$ 4.5	$ 0.7	$ 10.4	$ 8.2	$ 1.2	$ 19.0
2024	$ 7.4	$ 1.1	$ 17.0	$ 4.7	$ 0.7	$ 11.0	$ 8.4	$ 1.3	$ 19.5
2025	$ 7.6	$ 1.2	$ 17.6	$ 5.0	$ 0.8	$ 11.5	$ 8.6	$ 1.3	$ 20.0
2026	$ 7.9	$ 1.2	$ 18.2	$ 5.2	$ 0.8	$ 12.0	$ 8.8	$ 1.3	$ 20.4
2027	$ 8.1	$ 1.2	$ 18.7	$ 5.4	$ 0.8	$ 12.5	$ 9.0	$ 1.4	$ 20.8
2028	$ 8.2	$ 1.2	$ 19.0	$ 5.5	$ 0.8	$ 12.9	$ 9.0	$ 1.4	$ 20.9
2029	$ 8.3	$ 1.3	$ 19.4	$ 5.7	$ 0.9	$ 13.3	$ 9.1	$ 1.4	$ 21.2
Total	**$ 101.8**	**$ 15.5**	**$ 235.3**	**$ 66.1**	**$ 10.1**	**$ 152.9**	**$ 123.2**	**$ 18.7**	**$ 284.7**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.2n Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Ground Water Systems Serving 1,000-3,299 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.7	$ 0.1	$ 1.6	$ 0.6	$ 0.1	$ 1.3	$ 1.2	$ 0.2	$ 2.7
2011	$ 1.8	$ 0.3	$ 4.1	$ 1.3	$ 0.2	$ 3.1	$ 3.0	$ 0.5	$ 6.8
2012	$ 3.2	$ 0.5	$ 7.4	$ 2.3	$ 0.4	$ 5.3	$ 5.2	$ 0.8	$ 11.9
2013	$ 5.0	$ 0.8	$ 11.4	$ 3.5	$ 0.5	$ 7.9	$ 7.8	$ 1.2	$ 17.9
2014	$ 7.1	$ 1.1	$ 16.2	$ 4.8	$ 0.7	$ 10.9	$ 10.7	$ 1.6	$ 24.5
2015	$ 9.4	$ 1.4	$ 21.7	$ 6.2	$ 1.0	$ 14.3	$ 13.8	$ 2.1	$ 31.7
2016	$ 11.7	$ 1.8	$ 26.9	$ 7.5	$ 1.2	$ 17.3	$ 16.5	$ 2.5	$ 37.9
2017	$ 13.6	$ 2.1	$ 31.3	$ 8.6	$ 1.3	$ 19.7	$ 18.4	$ 2.8	$ 42.4
2018	$ 15.3	$ 2.3	$ 35.3	$ 9.5	$ 1.4	$ 21.9	$ 20.0	$ 3.0	$ 46.0
2019	$ 16.9	$ 2.6	$ 38.9	$ 10.4	$ 1.6	$ 24.0	$ 21.3	$ 3.2	$ 49.1
2020	$ 18.2	$ 2.8	$ 42.1	$ 11.2	$ 1.7	$ 25.9	$ 22.3	$ 3.4	$ 51.6
2021	$ 19.4	$ 3.0	$ 44.8	$ 12.0	$ 1.8	$ 27.8	$ 23.3	$ 3.5	$ 53.7
2022	$ 20.5	$ 3.1	$ 47.3	$ 12.8	$ 1.9	$ 29.6	$ 24.1	$ 3.7	$ 55.7
2023	$ 21.4	$ 3.3	$ 49.5	$ 13.6	$ 2.1	$ 31.4	$ 24.8	$ 3.8	$ 57.4
2024	$ 22.2	$ 3.4	$ 51.4	$ 14.3	$ 2.2	$ 33.1	$ 25.4	$ 3.9	$ 58.9
2025	$ 23.0	$ 3.5	$ 53.2	$ 15.0	$ 2.3	$ 34.7	$ 26.0	$ 3.9	$ 60.2
2026	$ 23.7	$ 3.6	$ 54.9	$ 15.7	$ 2.4	$ 36.3	$ 26.6	$ 4.0	$ 61.5
2027	$ 24.4	$ 3.7	$ 56.6	$ 16.3	$ 2.5	$ 37.9	$ 27.1	$ 4.1	$ 62.8
2028	$ 24.7	$ 3.7	$ 57.2	$ 16.8	$ 2.5	$ 38.8	$ 27.2	$ 4.1	$ 63.0
2029	$ 25.2	$ 3.8	$ 58.5	$ 17.3	$ 2.6	$ 40.2	$ 27.5	$ 4.2	$ 63.9
Total	**$ 307.3**	**$ 46.7**	**$ 710.3**	**$ 199.6**	**$ 30.4**	**$ 461.5**	**$ 372.0**	**$ 56.6**	**$ 859.6**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.2o Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Ground Water Systems Serving 3,300-9,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 1.1	$ 0.2	$ 2.5	$ 0.9	$ 0.1	$ 2.0	$ 1.9	$ 0.3	$ 4.3
2011	$ 2.8	$ 0.4	$ 6.4	$ 2.1	$ 0.3	$ 4.9	$ 4.7	$ 0.7	$ 10.8
2012	$ 5.1	$ 0.8	$ 11.7	$ 3.7	$ 0.6	$ 8.4	$ 8.2	$ 1.3	$ 18.9
2013	$ 7.9	$ 1.2	$ 18.1	$ 5.5	$ 0.8	$ 12.6	$ 12.3	$ 1.9	$ 28.3
2014	$ 11.2	$ 1.7	$ 25.6	$ 7.5	$ 1.2	$ 17.3	$ 16.8	$ 2.6	$ 38.7
2015	$ 14.9	$ 2.3	$ 34.3	$ 9.8	$ 1.5	$ 22.6	$ 21.8	$ 3.3	$ 50.1
2016	$ 18.5	$ 2.8	$ 42.6	$ 11.9	$ 1.8	$ 27.4	$ 26.1	$ 4.0	$ 59.9
2017	$ 21.5	$ 3.3	$ 49.6	$ 13.5	$ 2.1	$ 31.2	$ 29.1	$ 4.4	$ 67.1
2018	$ 24.2	$ 3.7	$ 55.8	$ 15.0	$ 2.3	$ 34.6	$ 31.6	$ 4.8	$ 72.8
2019	$ 26.7	$ 4.1	$ 61.5	$ 16.4	$ 2.5	$ 37.9	$ 33.6	$ 5.1	$ 77.6
2020	$ 28.8	$ 4.4	$ 66.5	$ 17.8	$ 2.7	$ 41.0	$ 35.3	$ 5.4	$ 81.6
2021	$ 30.7	$ 4.7	$ 70.9	$ 19.1	$ 2.9	$ 44.0	$ 36.8	$ 5.6	$ 85.0
2022	$ 32.4	$ 4.9	$ 74.8	$ 20.3	$ 3.1	$ 46.9	$ 38.1	$ 5.8	$ 88.1
2023	$ 33.8	$ 5.1	$ 78.3	$ 21.5	$ 3.3	$ 49.6	$ 39.2	$ 6.0	$ 90.8
2024	$ 35.2	$ 5.3	$ 81.4	$ 22.6	$ 3.4	$ 52.3	$ 40.2	$ 6.1	$ 93.1
2025	$ 36.4	$ 5.5	$ 84.2	$ 23.7	$ 3.6	$ 54.9	$ 41.2	$ 6.2	$ 95.3
2026	$ 37.5	$ 5.7	$ 86.9	$ 24.8	$ 3.8	$ 57.4	$ 42.0	$ 6.4	$ 97.3
2027	$ 38.6	$ 5.8	$ 89.5	$ 25.8	$ 3.9	$ 59.9	$ 42.8	$ 6.5	$ 99.3
2028	$ 39.0	$ 5.9	$ 90.5	$ 26.5	$ 4.0	$ 61.4	$ 43.0	$ 6.5	$ 99.6
2029	$ 39.8	$ 6.0	$ 92.5	$ 27.4	$ 4.1	$ 63.6	$ 43.6	$ 6.6	$ 101.1
Total	**$ 486.1**	**$ 73.9**	**$ 1,123.6**	**$ 315.8**	**$ 48.0**	**$ 730.0**	**$ 588.4**	**$ 89.5**	**$ 1,359.7**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.2p Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Ground Water Systems Serving 10,000-49,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 1.3	$ 0.2	$ 3.1	$ 1.1	$ 0.2	$ 2.5	$ 2.3	$ 0.4	$ 5.4
2011	$ 3.5	$ 0.5	$ 8.0	$ 2.6	$ 0.4	$ 6.0	$ 5.8	$ 0.9	$ 13.4
2012	$ 6.3	$ 1.0	$ 14.4	$ 4.5	$ 0.7	$ 10.4	$ 10.2	$ 1.6	$ 23.4
2013	$ 9.7	$ 1.5	$ 22.3	$ 6.8	$ 1.0	$ 15.5	$ 15.2	$ 2.3	$ 34.9
2014	$ 13.8	$ 2.1	$ 31.7	$ 9.3	$ 1.4	$ 21.4	$ 20.8	$ 3.2	$ 47.9
2015	$ 17.7	$ 2.7	$ 40.8	$ 11.6	$ 1.8	$ 26.6	$ 25.7	$ 3.9	$ 59.1
2016	$ 21.1	$ 3.2	$ 48.5	$ 13.3	$ 2.0	$ 30.7	$ 29.2	$ 4.5	$ 67.1
2017	$ 24.0	$ 3.7	$ 55.3	$ 14.9	$ 2.3	$ 34.4	$ 31.9	$ 4.9	$ 73.5
2018	$ 26.7	$ 4.1	$ 61.6	$ 16.4	$ 2.5	$ 37.9	$ 34.2	$ 5.2	$ 78.8
2019	$ 29.1	$ 4.4	$ 67.1	$ 17.9	$ 2.7	$ 41.2	$ 36.1	$ 5.5	$ 83.3
2020	$ 31.2	$ 4.7	$ 71.9	$ 19.2	$ 2.9	$ 44.3	$ 37.7	$ 5.7	$ 87.1
2021	$ 33.0	$ 5.0	$ 76.1	$ 20.5	$ 3.1	$ 47.3	$ 39.1	$ 5.9	$ 90.3
2022	$ 34.6	$ 5.3	$ 79.9	$ 21.8	$ 3.3	$ 50.3	$ 40.3	$ 6.1	$ 93.3
2023	$ 36.0	$ 5.5	$ 83.3	$ 23.0	$ 3.5	$ 53.1	$ 41.4	$ 6.3	$ 95.9
2024	$ 37.3	$ 5.7	$ 86.4	$ 24.1	$ 3.7	$ 55.8	$ 42.4	$ 6.5	$ 98.2
2025	$ 38.5	$ 5.8	$ 89.2	$ 25.3	$ 3.8	$ 58.5	$ 43.3	$ 6.6	$ 100.3
2026	$ 39.6	$ 6.0	$ 91.8	$ 26.4	$ 4.0	$ 61.1	$ 44.2	$ 6.7	$ 102.4
2027	$ 40.7	$ 6.2	$ 94.4	$ 27.4	$ 4.2	$ 63.7	$ 45.0	$ 6.8	$ 104.3
2028	$ 41.1	$ 6.2	$ 95.4	$ 28.1	$ 4.3	$ 65.2	$ 45.1	$ 6.8	$ 104.6
2029	$ 42.0	$ 6.4	$ 97.4	$ 29.1	$ 4.4	$ 67.4	$ 45.7	$ 6.9	$ 106.1
Total	**$ 527.3**	**$ 80.2**	**$ 1,218.7**	**$ 343.2**	**$ 52.2**	**$ 793.3**	**$ 635.8**	**$ 96.7**	**$ 1,469.1**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.2q Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Ground Water Systems Serving 50,000-99,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.6	$ 0.1	$ 1.3	$ 0.5	$ 0.1	$ 1.0	$ 1.0	$ 0.1	$ 2.2
2011	$ 1.5	$ 0.2	$ 3.3	$ 1.1	$ 0.2	$ 2.5	$ 2.4	$ 0.4	$ 5.6
2012	$ 2.6	$ 0.4	$ 6.0	$ 1.9	$ 0.3	$ 4.3	$ 4.3	$ 0.7	$ 9.8
2013	$ 4.1	$ 0.6	$ 9.4	$ 2.8	$ 0.4	$ 6.5	$ 6.4	$ 1.0	$ 14.6
2014	$ 5.5	$ 0.8	$ 12.6	$ 3.7	$ 0.6	$ 8.4	$ 8.2	$ 1.3	$ 18.9
2015	$ 6.7	$ 1.0	$ 15.4	$ 4.3	$ 0.7	$ 9.8	$ 9.5	$ 1.5	$ 21.8
2016	$ 7.7	$ 1.2	$ 17.8	$ 4.8	$ 0.7	$ 11.1	$ 10.5	$ 1.6	$ 24.2
2017	$ 8.7	$ 1.3	$ 20.1	$ 5.4	$ 0.8	$ 12.4	$ 11.3	$ 1.7	$ 26.1
2018	$ 9.6	$ 1.5	$ 22.1	$ 5.9	$ 0.9	$ 13.5	$ 12.0	$ 1.8	$ 27.7
2019	$ 10.3	$ 1.6	$ 23.8	$ 6.3	$ 1.0	$ 14.6	$ 12.6	$ 1.9	$ 29.1
2020	$ 11.0	$ 1.7	$ 25.3	$ 6.8	$ 1.0	$ 15.7	$ 13.1	$ 2.0	$ 30.3
2021	$ 11.5	$ 1.8	$ 26.6	$ 7.2	$ 1.1	$ 16.7	$ 13.6	$ 2.1	$ 31.3
2022	$ 12.1	$ 1.8	$ 27.9	$ 7.6	$ 1.2	$ 17.6	$ 14.0	$ 2.1	$ 32.3
2023	$ 12.5	$ 1.9	$ 29.0	$ 8.0	$ 1.2	$ 18.6	$ 14.3	$ 2.2	$ 33.1
2024	$ 12.9	$ 2.0	$ 30.0	$ 8.4	$ 1.3	$ 19.5	$ 14.6	$ 2.2	$ 33.9
2025	$ 13.3	$ 2.0	$ 30.9	$ 8.8	$ 1.3	$ 20.4	$ 14.9	$ 2.3	$ 34.6
2026	$ 13.7	$ 2.1	$ 31.8	$ 9.2	$ 1.4	$ 21.3	$ 15.2	$ 2.3	$ 35.2
2027	$ 14.1	$ 2.1	$ 32.6	$ 9.5	$ 1.4	$ 22.1	$ 15.5	$ 2.3	$ 35.9
2028	$ 14.2	$ 2.2	$ 32.9	$ 9.8	$ 1.5	$ 22.6	$ 15.5	$ 2.4	$ 36.0
2029	$ 14.5	$ 2.2	$ 33.6	$ 10.1	$ 1.5	$ 23.4	$ 15.7	$ 2.4	$ 36.5
Total	**$ 187.1**	**$ 28.4**	**$ 432.3**	**$ 122.1**	**$ 18.6**	**$ 282.1**	**$ 224.7**	**$ 34.2**	**$ 519.2**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.2r Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Ground Water Systems Serving 100,000-999,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model Mean Value	Smoking/Lung Cancer 90 Percent Confidence Bound Lower (5th %tile)	Smoking/Lung Cancer 90 Percent Confidence Bound Upper (95th %tile)	Smoking/Bladder Cancer Cessation Lag Model Mean Value	Smoking/Bladder Cancer 90 Percent Confidence Bound Lower (5th %tile)	Smoking/Bladder Cancer 90 Percent Confidence Bound Upper (95th %tile)	Arsenic/Bladder Cancer Cessation Lag Model Mean Value	Arsenic/Bladder Cancer 90 Percent Confidence Bound Lower (5th %tile)	Arsenic/Bladder Cancer 90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 1.5	$ 0.2	$ 3.6	$ 1.3	$ 0.2	$ 2.9	$ 2.7	$ 0.4	$ 6.2
2011	$ 4.0	$ 0.6	$ 9.3	$ 3.0	$ 0.5	$ 7.0	$ 6.7	$ 1.0	$ 15.5
2012	$ 7.3	$ 1.1	$ 16.8	$ 5.2	$ 0.8	$ 12.0	$ 11.8	$ 1.8	$ 27.1
2013	$ 11.3	$ 1.7	$ 25.9	$ 7.8	$ 1.2	$ 18.0	$ 17.7	$ 2.7	$ 40.6
2014	$ 14.4	$ 2.2	$ 33.1	$ 9.5	$ 1.5	$ 21.8	$ 21.4	$ 3.3	$ 49.1
2015	$ 17.2	$ 2.6	$ 39.6	$ 10.9	$ 1.7	$ 25.2	$ 24.2	$ 3.7	$ 55.7
2016	$ 19.8	$ 3.0	$ 45.5	$ 12.3	$ 1.9	$ 28.3	$ 26.6	$ 4.1	$ 61.1
2017	$ 22.1	$ 3.4	$ 50.9	$ 13.5	$ 2.1	$ 31.2	$ 28.5	$ 4.3	$ 65.5
2018	$ 24.2	$ 3.7	$ 55.7	$ 14.7	$ 2.2	$ 34.0	$ 30.1	$ 4.6	$ 69.3
2019	$ 25.9	$ 3.9	$ 59.7	$ 15.9	$ 2.4	$ 36.6	$ 31.4	$ 4.8	$ 72.5
2020	$ 27.4	$ 4.2	$ 63.3	$ 17.0	$ 2.6	$ 39.2	$ 32.6	$ 5.0	$ 75.3
2021	$ 28.8	$ 4.4	$ 66.4	$ 18.0	$ 2.7	$ 41.6	$ 33.7	$ 5.1	$ 77.7
2022	$ 30.0	$ 4.6	$ 69.3	$ 19.0	$ 2.9	$ 44.0	$ 34.6	$ 5.3	$ 80.0
2023	$ 31.1	$ 4.7	$ 71.9	$ 20.0	$ 3.0	$ 46.3	$ 35.4	$ 5.4	$ 82.0
2024	$ 32.1	$ 4.9	$ 74.3	$ 21.0	$ 3.2	$ 48.5	$ 36.2	$ 5.5	$ 83.8
2025	$ 33.1	$ 5.0	$ 76.5	$ 21.9	$ 3.3	$ 50.7	$ 36.9	$ 5.6	$ 85.4
2026	$ 33.9	$ 5.1	$ 78.6	$ 22.8	$ 3.5	$ 52.8	$ 37.6	$ 5.7	$ 87.0
2027	$ 34.8	$ 5.3	$ 80.7	$ 23.7	$ 3.6	$ 55.0	$ 38.2	$ 5.8	$ 88.6
2028	$ 35.1	$ 5.3	$ 81.4	$ 24.2	$ 3.7	$ 56.2	$ 38.3	$ 5.8	$ 88.8
2029	$ 35.8	$ 5.4	$ 83.0	$ 25.0	$ 3.8	$ 58.1	$ 38.8	$ 5.9	$ 90.0
Total	**$ 469.8**	**$ 71.4**	**$ 1,085.7**	**$ 307.0**	**$ 46.7**	**$ 709.5**	**$ 563.2**	**$ 85.7**	**$ 1,301.1**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.2s Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Ground Water Systems Serving ≥1,000,000 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.3	$ 0.0	$ 0.6	$ 0.2	$ 0.0	$ 0.5	$ 0.5	$ 0.1	$ 1.0
2011	$ 0.7	$ 0.1	$ 1.5	$ 0.5	$ 0.1	$ 1.2	$ 1.1	$ 0.2	$ 2.6
2012	$ 1.2	$ 0.2	$ 2.8	$ 0.9	$ 0.1	$ 2.0	$ 2.0	$ 0.3	$ 4.5
2013	$ 1.9	$ 0.3	$ 4.3	$ 1.3	$ 0.2	$ 3.0	$ 2.9	$ 0.5	$ 6.8
2014	$ 2.4	$ 0.4	$ 5.5	$ 1.6	$ 0.2	$ 3.6	$ 3.6	$ 0.5	$ 8.2
2015	$ 2.9	$ 0.4	$ 6.6	$ 1.8	$ 0.3	$ 4.2	$ 4.0	$ 0.6	$ 9.3
2016	$ 3.3	$ 0.5	$ 7.6	$ 2.0	$ 0.3	$ 4.7	$ 4.4	$ 0.7	$ 10.2
2017	$ 3.7	$ 0.6	$ 8.5	$ 2.3	$ 0.3	$ 5.2	$ 4.7	$ 0.7	$ 10.9
2018	$ 4.0	$ 0.6	$ 9.3	$ 2.5	$ 0.4	$ 5.7	$ 5.0	$ 0.8	$ 11.5
2019	$ 4.3	$ 0.7	$ 9.9	$ 2.6	$ 0.4	$ 6.1	$ 5.2	$ 0.8	$ 12.1
2020	$ 4.6	$ 0.7	$ 10.5	$ 2.8	$ 0.4	$ 6.5	$ 5.4	$ 0.8	$ 12.5
2021	$ 4.8	$ 0.7	$ 11.1	$ 3.0	$ 0.5	$ 6.9	$ 5.6	$ 0.9	$ 12.9
2022	$ 5.0	$ 0.8	$ 11.5	$ 3.2	$ 0.5	$ 7.3	$ 5.8	$ 0.9	$ 13.3
2023	$ 5.2	$ 0.8	$ 12.0	$ 3.3	$ 0.5	$ 7.7	$ 5.9	$ 0.9	$ 13.6
2024	$ 5.3	$ 0.8	$ 12.4	$ 3.5	$ 0.5	$ 8.1	$ 6.0	$ 0.9	$ 13.9
2025	$ 5.5	$ 0.8	$ 12.7	$ 3.6	$ 0.6	$ 8.4	$ 6.1	$ 0.9	$ 14.2
2026	$ 5.7	$ 0.9	$ 13.1	$ 3.8	$ 0.6	$ 8.8	$ 6.3	$ 0.9	$ 14.5
2027	$ 5.8	$ 0.9	$ 13.4	$ 3.9	$ 0.6	$ 9.2	$ 6.4	$ 1.0	$ 14.8
2028	$ 5.8	$ 0.9	$ 13.6	$ 4.0	$ 0.6	$ 9.4	$ 6.4	$ 1.0	$ 14.8
2029	$ 6.0	$ 0.9	$ 13.8	$ 4.2	$ 0.6	$ 9.7	$ 6.5	$ 1.0	$ 15.0
Total	**$ 78.2**	**$ 11.9**	**$ 180.8**	**$ 51.1**	**$ 7.8**	**$ 118.1**	**$ 93.8**	**$ 14.3**	**$ 216.7**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.2t Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (All Ground Water Systems)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 5.9	$ 0.9	$ 13.6	$ 4.8	$ 0.7	$ 11.1	$ 10.4	$ 1.6	$ 23.8
2011	$ 15.4	$ 2.4	$ 35.4	$ 11.6	$ 1.8	$ 26.8	$ 25.8	$ 4.0	$ 59.4
2012	$ 27.9	$ 4.3	$ 64.1	$ 20.1	$ 3.1	$ 46.1	$ 45.2	$ 6.9	$ 103.8
2013	$ 43.2	$ 6.6	$ 99.3	$ 30.0	$ 4.6	$ 69.0	$ 67.6	$ 10.3	$ 155.2
2014	$ 59.1	$ 9.0	$ 135.9	$ 39.6	$ 6.1	$ 91.0	$ 88.8	$ 13.6	$ 204.0
2015	$ 75.3	$ 11.5	$ 173.2	$ 49.0	$ 7.5	$ 112.6	$ 108.5	$ 16.6	$ 249.5
2016	$ 90.2	$ 13.8	$ 207.3	$ 57.1	$ 8.7	$ 131.3	$ 124.5	$ 19.0	$ 286.3
2017	$ 103.1	$ 15.7	$ 237.2	$ 64.1	$ 9.8	$ 147.5	$ 136.6	$ 20.9	$ 314.5
2018	$ 114.5	$ 17.5	$ 263.9	$ 70.5	$ 10.8	$ 162.5	$ 146.5	$ 22.3	$ 337.6
2019	$ 124.7	$ 19.0	$ 287.7	$ 76.7	$ 11.7	$ 176.9	$ 154.8	$ 23.6	$ 357.3
2020	$ 133.6	$ 20.3	$ 308.5	$ 82.5	$ 12.6	$ 190.4	$ 161.9	$ 24.6	$ 373.7
2021	$ 141.5	$ 21.5	$ 326.6	$ 88.1	$ 13.4	$ 203.4	$ 168.0	$ 25.5	$ 387.8
2022	$ 148.4	$ 22.6	$ 343.2	$ 93.5	$ 14.2	$ 216.2	$ 173.3	$ 26.4	$ 400.9
2023	$ 154.7	$ 23.5	$ 357.8	$ 98.7	$ 15.0	$ 228.2	$ 178.1	$ 27.1	$ 412.0
2024	$ 160.3	$ 24.4	$ 371.1	$ 103.7	$ 15.8	$ 240.0	$ 182.4	$ 27.7	$ 422.1
2025	$ 165.6	$ 25.1	$ 383.2	$ 108.6	$ 16.5	$ 251.3	$ 186.3	$ 28.3	$ 431.2
2026	$ 170.4	$ 25.8	$ 394.8	$ 113.3	$ 17.2	$ 262.5	$ 190.0	$ 28.8	$ 440.0
2027	$ 175.0	$ 26.5	$ 405.9	$ 118.0	$ 17.9	$ 273.6	$ 193.4	$ 29.3	$ 448.6
2028	$ 176.9	$ 26.8	$ 410.2	$ 120.9	$ 18.3	$ 280.3	$ 194.0	$ 29.4	$ 449.9
2029	$ 180.5	$ 27.3	$ 418.8	$ 124.9	$ 18.9	$ 290.0	$ 196.6	$ 29.7	$ 456.2
Total	**$ 2,266.1**	**$ 344.6**	**$ 5,237.8**	**$ 1,475.5**	**$ 224.3**	**$ 3,410.6**	**$ 2,732.6**	**$ 415.6**	**$ 6,313.9**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.38k.

Exhibit F.2u Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (All Water Systems)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 133.4	$ 20.4	$ 306.7	$ 126.5	$ 19.4	$ 290.7	$ 250.3	$ 38.3	$ 575.3
2011	$ 345.3	$ 52.9	$ 794.2	$ 299.6	$ 45.9	$ 689.0	$ 612.6	$ 93.8	$ 1,409.1
2012	$ 624.7	$ 95.6	$ 1,435.2	$ 510.6	$ 78.1	$ 1,173.0	$ 1,057.5	$ 161.8	$ 2,429.4
2013	$ 967.8	$ 148.1	$ 2,223.0	$ 755.4	$ 115.6	$ 1,735.2	$ 1,568.0	$ 240.0	$ 3,601.7
2014	$ 1,264.2	$ 193.3	$ 2,906.2	$ 925.3	$ 141.5	$ 2,127.1	$ 1,923.8	$ 294.1	$ 4,422.3
2015	$ 1,543.0	$ 236.0	$ 3,548.7	$ 1,071.8	$ 163.9	$ 2,464.9	$ 2,205.3	$ 337.2	$ 5,071.8
2016	$ 1,797.8	$ 274.6	$ 4,134.4	$ 1,199.6	$ 183.3	$ 2,758.8	$ 2,426.6	$ 370.7	$ 5,580.4
2017	$ 2,027.9	$ 309.6	$ 4,668.0	$ 1,316.2	$ 201.0	$ 3,029.8	$ 2,606.3	$ 398.0	$ 5,999.4
2018	$ 2,230.2	$ 340.1	$ 5,137.9	$ 1,425.4	$ 217.3	$ 3,283.9	$ 2,757.0	$ 420.4	$ 6,351.6
2019	$ 2,403.5	$ 366.1	$ 5,546.5	$ 1,528.8	$ 232.9	$ 3,528.0	$ 2,886.0	$ 439.6	$ 6,660.0
2020	$ 2,554.2	$ 388.9	$ 5,896.9	$ 1,627.5	$ 247.8	$ 3,757.4	$ 2,998.3	$ 456.6	$ 6,922.3
2021	$ 2,687.0	$ 408.7	$ 6,204.0	$ 1,722.1	$ 261.9	$ 3,976.2	$ 3,097.6	$ 471.1	$ 7,152.0
2022	$ 2,805.7	$ 426.6	$ 6,489.0	$ 1,813.3	$ 275.7	$ 4,193.8	$ 3,186.5	$ 484.6	$ 7,369.8
2023	$ 2,913.1	$ 443.1	$ 6,739.0	$ 1,901.4	$ 289.2	$ 4,398.5	$ 3,267.3	$ 496.9	$ 7,558.4
2024	$ 3,011.3	$ 457.8	$ 6,968.9	$ 1,986.7	$ 302.0	$ 4,597.7	$ 3,341.4	$ 508.0	$ 7,732.9
2025	$ 3,102.0	$ 470.9	$ 7,179.3	$ 2,069.6	$ 314.1	$ 4,789.8	$ 3,410.3	$ 517.6	$ 7,892.8
2026	$ 3,186.5	$ 483.0	$ 7,381.1	$ 2,150.2	$ 325.9	$ 4,980.8	$ 3,474.9	$ 526.7	$ 8,049.2
2027	$ 3,265.8	$ 494.5	$ 7,576.4	$ 2,228.9	$ 337.5	$ 5,170.9	$ 3,536.0	$ 535.4	$ 8,203.3
2028	$ 3,297.4	$ 499.7	$ 7,645.6	$ 2,275.9	$ 344.9	$ 5,277.0	$ 3,547.7	$ 537.6	$ 8,225.9
2029	$ 3,359.7	$ 508.4	$ 7,797.3	$ 2,344.4	$ 354.8	$ 5,441.0	$ 3,594.3	$ 543.9	$ 8,341.8
Total	**$ 43,520.5**	**$ 6,618.3**	**$ 100,578.3**	**$ 29,279.2**	**$ 4,452.7**	**$ 67,663.6**	**$ 51,747.7**	**$ 7,872.4**	**$ 119,549.5**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.2j and F.2t.

Exhibit F.2v Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 3% Discount Rate
(All Water Systems)

TTHM - Preferred Alternative

	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 115.1	$ 17.6	$ 264.6	$ 109.1	$ 16.7	$ 250.8	$ 215.9	$ 33.0	$ 496.2
2011	$ 289.2	$ 44.3	$ 665.1	$ 250.9	$ 38.4	$ 577.0	$ 513.1	$ 78.6	$ 1,180.1
2012	$ 508.0	$ 77.7	$ 1,166.9	$ 415.2	$ 63.5	$ 953.8	$ 859.9	$ 131.6	$ 1,975.3
2013	$ 764.0	$ 116.9	$ 1,754.8	$ 596.3	$ 91.3	$ 1,369.8	$ 1,237.8	$ 189.5	$ 2,843.2
2014	$ 968.9	$ 148.1	$ 2,227.4	$ 709.2	$ 108.4	$ 1,630.2	$ 1,474.4	$ 225.4	$ 3,389.4
2015	$ 1,148.2	$ 175.6	$ 2,640.6	$ 797.5	$ 121.9	$ 1,834.1	$ 1,640.9	$ 250.9	$ 3,773.9
2016	$ 1,298.8	$ 198.4	$ 2,986.8	$ 866.6	$ 132.4	$ 1,993.0	$ 1,753.0	$ 267.8	$ 4,031.4
2017	$ 1,422.3	$ 217.2	$ 3,274.0	$ 923.2	$ 141.0	$ 2,125.0	$ 1,828.0	$ 279.1	$ 4,207.8
2018	$ 1,518.6	$ 231.6	$ 3,498.6	$ 970.6	$ 148.0	$ 2,236.2	$ 1,877.4	$ 286.3	$ 4,325.2
2019	$ 1,589.0	$ 242.0	$ 3,666.9	$ 1,010.7	$ 154.0	$ 2,332.5	$ 1,908.0	$ 290.6	$ 4,403.1
2020	$ 1,639.4	$ 249.6	$ 3,785.0	$ 1,044.6	$ 159.1	$ 2,411.8	$ 1,924.5	$ 293.0	$ 4,443.2
2021	$ 1,674.4	$ 254.7	$ 3,866.1	$ 1,073.2	$ 163.2	$ 2,477.9	$ 1,930.3	$ 293.6	$ 4,456.9
2022	$ 1,697.5	$ 258.1	$ 3,925.9	$ 1,097.1	$ 166.8	$ 2,537.3	$ 1,927.9	$ 293.2	$ 4,458.9
2023	$ 1,711.1	$ 260.3	$ 3,958.5	$ 1,116.8	$ 169.9	$ 2,583.7	$ 1,919.2	$ 291.9	$ 4,439.8
2024	$ 1,717.3	$ 261.1	$ 3,974.3	$ 1,133.0	$ 172.2	$ 2,622.0	$ 1,905.6	$ 289.7	$ 4,410.0
2025	$ 1,717.5	$ 260.7	$ 3,975.0	$ 1,145.9	$ 173.9	$ 2,652.0	$ 1,888.2	$ 286.6	$ 4,370.0
2026	$ 1,712.9	$ 259.6	$ 3,967.7	$ 1,155.9	$ 175.2	$ 2,677.4	$ 1,867.9	$ 283.1	$ 4,326.8
2027	$ 1,704.4	$ 258.1	$ 3,954.1	$ 1,163.2	$ 176.1	$ 2,698.7	$ 1,845.4	$ 279.4	$ 4,281.2
2028	$ 1,670.8	$ 253.2	$ 3,874.0	$ 1,153.2	$ 174.8	$ 2,673.8	$ 1,797.6	$ 272.4	$ 4,168.0
2029	$ 1,652.7	$ 250.1	$ 3,835.8	$ 1,153.3	$ 174.5	$ 2,676.6	$ 1,768.2	$ 267.6	$ 4,103.6
Total	**$ 26,520.1**	**$ 4,034.9**	**$ 61,262.1**	**$ 17,885.5**	**$ 2,721.4**	**$ 41,313.4**	**$ 32,083.1**	**$ 4,883.3**	**$ 74,084.0**
Ann.	**$ 1,523.0**	**$ 231.7**	**$ 3,518.2**	**$ 1,027.1**	**$ 156.3**	**$ 2,372.5**	**$ 1,842.5**	**$ 280.4**	**$ 4,254.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.2u.

Exhibit F.2w Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 7% Discount Rate (All Water Systems)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 95.1	$ 14.6	$ 218.7	$ 90.2	$ 13.8	$ 207.3	$ 178.4	$ 27.3	$ 410.2
2011	$ 230.1	$ 35.2	$ 529.2	$ 199.6	$ 30.6	$ 459.1	$ 408.2	$ 62.5	$ 939.0
2012	$ 389.1	$ 59.5	$ 893.8	$ 318.0	$ 48.7	$ 730.5	$ 658.6	$ 100.8	$ 1,512.9
2013	$ 563.3	$ 86.2	$ 1,293.8	$ 439.7	$ 67.3	$ 1,009.9	$ 912.6	$ 139.7	$ 2,096.2
2014	$ 687.7	$ 105.1	$ 1,580.8	$ 503.3	$ 76.9	$ 1,157.0	$ 1,046.4	$ 160.0	$ 2,405.5
2015	$ 784.4	$ 119.9	$ 1,804.0	$ 544.8	$ 83.3	$ 1,253.0	$ 1,121.1	$ 171.4	$ 2,578.2
2016	$ 854.1	$ 130.5	$ 1,964.2	$ 569.9	$ 87.1	$ 1,310.7	$ 1,152.8	$ 176.1	$ 2,651.2
2017	$ 900.4	$ 137.5	$ 2,072.6	$ 584.4	$ 89.2	$ 1,345.3	$ 1,157.2	$ 176.7	$ 2,663.8
2018	$ 925.4	$ 141.1	$ 2,132.0	$ 591.5	$ 90.2	$ 1,362.7	$ 1,144.1	$ 174.4	$ 2,635.7
2019	$ 932.1	$ 142.0	$ 2,151.0	$ 592.9	$ 90.3	$ 1,368.2	$ 1,119.2	$ 170.5	$ 2,582.9
2020	$ 925.8	$ 141.0	$ 2,137.3	$ 589.9	$ 89.8	$ 1,361.9	$ 1,086.7	$ 165.5	$ 2,509.0
2021	$ 910.2	$ 138.4	$ 2,101.5	$ 583.3	$ 88.7	$ 1,346.9	$ 1,049.3	$ 159.6	$ 2,422.6
2022	$ 888.2	$ 135.1	$ 2,054.2	$ 574.0	$ 87.3	$ 1,327.6	$ 1,008.8	$ 153.4	$ 2,333.1
2023	$ 861.9	$ 131.1	$ 1,993.8	$ 562.5	$ 85.6	$ 1,301.4	$ 966.7	$ 147.0	$ 2,236.3
2024	$ 832.7	$ 126.6	$ 1,927.0	$ 549.3	$ 83.5	$ 1,271.3	$ 923.9	$ 140.5	$ 2,138.2
2025	$ 801.6	$ 121.7	$ 1,855.3	$ 534.8	$ 81.2	$ 1,237.8	$ 881.3	$ 133.8	$ 2,039.6
2026	$ 769.6	$ 116.7	$ 1,782.6	$ 519.3	$ 78.7	$ 1,202.9	$ 839.2	$ 127.2	$ 1,944.0
2027	$ 737.1	$ 111.6	$ 1,710.1	$ 503.1	$ 76.2	$ 1,167.1	$ 798.1	$ 120.8	$ 1,851.6
2028	$ 695.6	$ 105.4	$ 1,612.8	$ 480.1	$ 72.8	$ 1,113.2	$ 748.4	$ 113.4	$ 1,735.2
2029	$ 662.3	$ 100.2	$ 1,537.2	$ 462.2	$ 69.9	$ 1,072.7	$ 708.6	$ 107.2	$ 1,644.6
Total	**$ 14,446.6**	**$ 2,199.4**	**$ 33,352.0**	**$ 9,793.0**	**$ 1,491.1**	**$ 22,606.4**	**$ 17,909.7**	**$ 2,727.8**	**$ 41,329.7**
Ann.	**$ 1,239.7**	**$ 188.7**	**$ 2,862.0**	**$ 840.3**	**$ 127.9**	**$ 1,939.9**	**$ 1,536.8**	**$ 234.1**	**$ 3,546.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.2u.

Exhibit F.2x Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 3% Discount Rate, by Small & Large Size Categories (Surface Water Systems)

TTHM - Preferred Alternative

Year	Small Systems									Large Systems								
	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model			Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 2.6	$ 0.4	$ 5.9	$ 2.1	$ 0.3	$ 4.8	$ 4.5	$ 0.7	$ 10.4	$ 107.4	$ 16.4	$ 246.9	$ 102.8	$ 15.7	$ 236.4	$ 202.4	$ 31.0	$ 465.3
2011	$ 6.5	$ 1.0	$ 15.0	$ 4.9	$ 0.8	$ 11.3	$ 10.9	$ 1.7	$ 25.1	$ 269.7	$ 41.3	$ 620.4	$ 236.2	$ 36.2	$ 543.3	$ 480.5	$ 73.6	$ 1,105.2
2012	$ 11.5	$ 1.8	$ 26.3	$ 8.3	$ 1.3	$ 19.0	$ 18.6	$ 2.8	$ 42.6	$ 473.8	$ 72.5	$ 1,088.5	$ 390.6	$ 59.8	$ 897.3	$ 804.6	$ 123.1	$ 1,848.3
2013	$ 17.2	$ 2.6	$ 39.6	$ 12.0	$ 1.8	$ 27.5	$ 27.0	$ 4.1	$ 61.9	$ 712.6	$ 109.1	$ 1,636.9	$ 560.7	$ 85.8	$ 1,287.8	$ 1,157.5	$ 177.2	$ 2,658.7
2014	$ 23.7	$ 3.6	$ 54.5	$ 16.0	$ 2.4	$ 36.8	$ 35.8	$ 5.5	$ 82.4	$ 899.9	$ 137.6	$ 2,068.7	$ 662.8	$ 101.3	$ 1,523.6	$ 1,370.6	$ 209.5	$ 3,150.6
2015	$ 30.8	$ 4.7	$ 70.9	$ 20.3	$ 3.1	$ 46.7	$ 45.0	$ 6.9	$ 103.5	$ 1,061.3	$ 162.3	$ 2,440.8	$ 740.8	$ 113.3	$ 1,703.6	$ 1,515.2	$ 231.7	$ 3,484.8
2016	$ 37.1	$ 5.7	$ 85.4	$ 23.9	$ 3.6	$ 54.9	$ 52.3	$ 8.0	$ 120.2	$ 1,196.5	$ 182.8	$ 2,751.6	$ 801.5	$ 122.4	$ 1,843.2	$ 1,610.8	$ 246.1	$ 3,704.5
2017	$ 41.9	$ 6.4	$ 96.5	$ 26.4	$ 4.0	$ 60.7	$ 56.7	$ 8.7	$ 130.5	$ 1,308.1	$ 199.7	$ 3,011.1	$ 851.9	$ 130.1	$ 1,960.9	$ 1,675.5	$ 255.8	$ 3,856.7
2018	$ 45.8	$ 7.0	$ 105.5	$ 28.4	$ 4.3	$ 65.5	$ 59.7	$ 9.1	$ 137.6	$ 1,394.8	$ 212.7	$ 3,213.4	$ 894.2	$ 136.3	$ 2,060.0	$ 1,717.9	$ 261.9	$ 3,957.7
2019	$ 48.9	$ 7.5	$ 112.9	$ 30.2	$ 4.6	$ 69.6	$ 61.7	$ 9.4	$ 142.4	$ 1,457.6	$ 222.0	$ 3,363.7	$ 929.9	$ 141.6	$ 2,145.9	$ 1,743.9	$ 265.7	$ 4,024.4
2020	$ 51.3	$ 7.8	$ 118.5	$ 31.7	$ 4.8	$ 73.1	$ 63.0	$ 9.6	$ 145.4	$ 1,502.3	$ 228.8	$ 3,468.5	$ 960.0	$ 146.2	$ 2,216.4	$ 1,757.6	$ 267.6	$ 4,057.9
2021	$ 53.1	$ 8.1	$ 122.6	$ 32.9	$ 5.0	$ 76.1	$ 63.7	$ 9.7	$ 147.0	$ 1,533.2	$ 233.2	$ 3,539.9	$ 985.3	$ 149.9	$ 2,275.1	$ 1,762.0	$ 268.0	$ 4,068.2
2022	$ 54.3	$ 8.3	$ 125.7	$ 34.0	$ 5.2	$ 78.7	$ 64.0	$ 9.7	$ 148.0	$ 1,553.4	$ 236.2	$ 3,592.6	$ 1,006.5	$ 153.0	$ 2,327.8	$ 1,759.1	$ 267.5	$ 4,068.4
2023	$ 55.2	$ 8.4	$ 127.6	$ 35.0	$ 5.3	$ 80.9	$ 64.0	$ 9.7	$ 148.0	$ 1,565.1	$ 238.0	$ 3,620.7	$ 1,023.9	$ 155.7	$ 2,368.7	$ 1,750.6	$ 266.3	$ 4,049.8
2024	$ 55.7	$ 8.5	$ 128.8	$ 35.8	$ 5.4	$ 82.8	$ 63.7	$ 9.7	$ 147.4	$ 1,570.2	$ 238.7	$ 3,633.8	$ 1,038.1	$ 157.8	$ 2,402.4	$ 1,737.9	$ 264.2	$ 4,021.8
2025	$ 55.9	$ 8.5	$ 129.4	$ 36.4	$ 5.5	$ 84.3	$ 63.3	$ 9.6	$ 146.4	$ 1,569.9	$ 238.3	$ 3,633.4	$ 1,049.3	$ 159.3	$ 2,428.6	$ 1,721.8	$ 261.3	$ 3,984.9
2026	$ 56.0	$ 8.5	$ 129.6	$ 37.0	$ 5.6	$ 85.6	$ 62.7	$ 9.5	$ 145.2	$ 1,565.3	$ 237.3	$ 3,625.9	$ 1,058.0	$ 160.4	$ 2,450.7	$ 1,703.1	$ 258.2	$ 3,945.1
2027	$ 55.9	$ 8.5	$ 129.6	$ 37.4	$ 5.7	$ 86.8	$ 62.0	$ 9.4	$ 143.8	$ 1,557.2	$ 235.8	$ 3,612.7	$ 1,064.3	$ 161.1	$ 2,469.1	$ 1,682.5	$ 254.7	$ 3,903.3
2028	$ 54.9	$ 8.3	$ 127.3	$ 37.3	$ 5.6	$ 86.4	$ 60.4	$ 9.2	$ 140.1	$ 1,526.3	$ 231.3	$ 3,538.9	$ 1,054.7	$ 159.8	$ 2,445.4	$ 1,638.8	$ 248.4	$ 3,799.9
2029	$ 54.4	$ 8.2	$ 126.3	$ 37.4	$ 5.7	$ 86.9	$ 59.5	$ 9.0	$ 138.0	$ 1,509.6	$ 228.4	$ 3,503.5	$ 1,054.4	$ 159.6	$ 2,447.1	$ 1,612.0	$ 243.9	$ 3,741.2
Total	**$ 812.8**	**$ 123.6**	**$ 1,878.0**	**$ 527.3**	**$ 80.2**	**$ 1,218.4**	**$ 998.2**	**$ 151.9**	**$ 2,305.8**	**$ 24,334.4**	**$ 3,702.4**	**$ 56,212.0**	**$ 16,465.8**	**$ 2,505.4**	**$ 38,033.3**	**$ 29,404.3**	**$ 4,475.7**	**$ 67,896.9**
Ann.	**$ 46.7**	**$ 7.1**	**$ 107.8**	**$ 30.3**	**$ 4.6**	**$ 70.0**	**$ 57.3**	**$ 8.7**	**$ 132.4**	**$ 1,397.5**	**$ 212.6**	**$ 3,228.1**	**$ 945.6**	**$ 143.9**	**$ 2,184.2**	**$ 1,688.6**	**$ 257.0**	**$ 3,899.2**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.2a through F.2i.

Exhibit F.2y Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 7% Discount Rate, by Small & Large Size Categories (Surface Water Systems)

TTHM - Preferred Alternative

	Small Systems									Large Systems								
	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model			Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 2.1	$ 0.3	$ 4.9	$ 1.7	$ 0.3	$ 4.0	$ 3.7	$ 0.6	$ 8.6	$ 88.8	$ 13.6	$ 204.1	$ 85.0	$ 13.0	$ 195.4	$ 167.3	$ 25.6	$ 384.6
2011	$ 5.2	$ 0.8	$ 11.9	$ 3.9	$ 0.6	$ 9.0	$ 8.7	$ 1.3	$ 20.0	$ 214.6	$ 32.9	$ 493.7	$ 187.9	$ 28.8	$ 432.3	$ 382.3	$ 58.5	$ 879.4
2012	$ 8.8	$ 1.3	$ 20.2	$ 6.3	$ 1.0	$ 14.5	$ 14.2	$ 2.2	$ 32.6	$ 362.9	$ 55.5	$ 833.7	$ 299.2	$ 45.8	$ 687.3	$ 616.2	$ 94.3	$ 1,415.6
2013	$ 12.7	$ 1.9	$ 29.2	$ 8.8	$ 1.4	$ 20.3	$ 19.9	$ 3.0	$ 45.6	$ 525.4	$ 80.4	$ 1,206.8	$ 413.4	$ 63.3	$ 949.5	$ 853.4	$ 130.6	$ 1,960.2
2014	$ 16.8	$ 2.6	$ 38.7	$ 11.4	$ 1.7	$ 26.1	$ 25.4	$ 3.9	$ 58.5	$ 638.7	$ 97.6	$ 1,468.2	$ 470.4	$ 71.9	$ 1,081.3	$ 972.7	$ 148.7	$ 2,236.0
2015	$ 21.1	$ 3.2	$ 48.4	$ 13.9	$ 2.1	$ 31.9	$ 30.7	$ 4.7	$ 70.7	$ 725.1	$ 110.9	$ 1,667.5	$ 506.1	$ 77.4	$ 1,163.9	$ 1,035.2	$ 158.3	$ 2,380.7
2016	$ 24.4	$ 3.7	$ 56.1	$ 15.7	$ 2.4	$ 36.1	$ 34.4	$ 5.2	$ 79.0	$ 786.9	$ 120.2	$ 1,809.6	$ 527.1	$ 80.5	$ 1,212.2	$ 1,059.3	$ 161.8	$ 2,436.2
2017	$ 26.5	$ 4.1	$ 61.1	$ 16.7	$ 2.5	$ 38.4	$ 35.9	$ 5.5	$ 82.6	$ 828.1	$ 126.4	$ 1,906.2	$ 539.3	$ 82.3	$ 1,241.4	$ 1,060.7	$ 162.0	$ 2,441.5
2018	$ 27.9	$ 4.3	$ 64.3	$ 17.3	$ 2.6	$ 39.9	$ 36.4	$ 5.5	$ 83.8	$ 850.0	$ 129.6	$ 1,958.2	$ 544.9	$ 83.1	$ 1,255.4	$ 1,046.9	$ 159.6	$ 2,411.8
2019	$ 28.7	$ 4.4	$ 66.2	$ 17.7	$ 2.7	$ 40.8	$ 36.2	$ 5.5	$ 83.5	$ 855.0	$ 130.2	$ 1,973.2	$ 545.5	$ 83.1	$ 1,258.8	$ 1,023.0	$ 155.8	$ 2,360.8
2020	$ 29.0	$ 4.4	$ 66.9	$ 17.9	$ 2.7	$ 41.3	$ 35.6	$ 5.4	$ 82.1	$ 848.3	$ 129.2	$ 1,958.6	$ 542.1	$ 82.5	$ 1,251.6	$ 992.5	$ 151.1	$ 2,291.4
2021	$ 28.9	$ 4.4	$ 66.7	$ 17.9	$ 2.7	$ 41.3	$ 34.6	$ 5.3	$ 79.9	$ 833.4	$ 126.8	$ 1,924.2	$ 535.6	$ 81.5	$ 1,236.7	$ 957.7	$ 145.7	$ 2,211.3
2022	$ 28.4	$ 4.3	$ 65.8	$ 17.8	$ 2.7	$ 41.2	$ 33.5	$ 5.1	$ 77.4	$ 812.8	$ 123.6	$ 1,879.8	$ 526.6	$ 80.1	$ 1,218.0	$ 920.4	$ 140.0	$ 2,128.8
2023	$ 27.8	$ 4.2	$ 64.3	$ 17.6	$ 2.7	$ 40.8	$ 32.2	$ 4.9	$ 74.5	$ 788.3	$ 119.9	$ 1,823.7	$ 515.7	$ 78.4	$ 1,193.1	$ 881.8	$ 134.1	$ 2,039.8
2024	$ 27.0	$ 4.1	$ 62.5	$ 17.3	$ 2.6	$ 40.1	$ 30.9	$ 4.7	$ 71.5	$ 761.3	$ 115.7	$ 1,761.9	$ 503.3	$ 76.5	$ 1,164.8	$ 842.6	$ 128.1	$ 1,950.0
2025	$ 26.1	$ 4.0	$ 60.4	$ 17.0	$ 2.6	$ 39.3	$ 29.5	$ 4.5	$ 68.3	$ 732.7	$ 111.2	$ 1,695.8	$ 489.8	$ 74.3	$ 1,133.5	$ 803.6	$ 122.0	$ 1,859.9
2026	$ 25.1	$ 3.8	$ 58.2	$ 16.6	$ 2.5	$ 38.5	$ 28.2	$ 4.3	$ 65.2	$ 703.3	$ 106.6	$ 1,629.1	$ 475.3	$ 72.1	$ 1,101.1	$ 765.2	$ 116.0	$ 1,772.5
2027	$ 24.2	$ 3.7	$ 56.0	$ 16.2	$ 2.4	$ 37.5	$ 26.8	$ 4.1	$ 62.2	$ 673.5	$ 102.0	$ 1,562.5	$ 460.3	$ 69.7	$ 1,067.9	$ 727.7	$ 110.2	$ 1,688.1
2028	$ 22.8	$ 3.5	$ 53.0	$ 15.5	$ 2.4	$ 36.0	$ 25.2	$ 3.8	$ 58.3	$ 635.4	$ 96.3	$ 1,473.3	$ 439.1	$ 66.5	$ 1,018.1	$ 682.3	$ 103.4	$ 1,582.0
2029	$ 21.8	$ 3.3	$ 50.6	$ 15.0	$ 2.3	$ 34.8	$ 23.8	$ 3.6	$ 55.3	$ 605.0	$ 91.6	$ 1,404.0	$ 422.6	$ 63.9	$ 980.7	$ 646.0	$ 97.8	$ 1,499.3
Total	**$ 435.4**	**$ 66.3**	**$ 1,005.4**	**$ 282.3**	**$ 43.0**	**$ 651.9**	**$ 545.7**	**$ 83.1**	**$ 1,259.9**	**$ 13,269.5**	**$ 2,020.2**	**$ 30,634.0**	**$ 9,029.1**	**$ 1,374.8**	**$ 20,842.6**	**$ 16,436.9**	**$ 2,503.6**	**$ 37,930.1**
Ann.	**$ 37.4**	**$ 5.7**	**$ 86.3**	**$ 24.2**	**$ 3.7**	**$ 55.9**	**$ 46.8**	**$ 7.1**	**$ 108.1**	**$ 1,138.7**	**$ 173.4**	**$ 2,628.7**	**$ 774.8**	**$ 118.0**	**$ 1,788.5**	**$ 1,410.5**	**$ 214.8**	**$ 3,254.8**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.2a through F.2i.

Exhibit F.2z Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 3% Discount Rate, by Small & Large Size Categories (Ground Water Systems)

TTHM - Preferred Alternative

Year	Small Systems									Large Systems								
	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model			Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 1.9	$ 0.3	$ 4.4	$ 1.6	$ 0.2	$ 3.6	$ 3.4	$ 0.5	$ 7.7	$ 3.2	$ 0.5	$ 7.3	$ 2.6	$ 0.4	$ 6.0	$ 5.6	$ 0.9	$ 12.8
2011	$ 4.8	$ 0.7	$ 11.2	$ 3.7	$ 0.6	$ 8.4	$ 8.1	$ 1.2	$ 18.7	$ 8.1	$ 1.2	$ 18.5	$ 6.1	$ 0.9	$ 14.0	$ 13.5	$ 2.1	$ 31.0
2012	$ 8.5	$ 1.3	$ 19.6	$ 6.1	$ 0.9	$ 14.1	$ 13.8	$ 2.1	$ 31.7	$ 14.2	$ 2.2	$ 32.5	$ 10.2	$ 1.6	$ 23.4	$ 22.9	$ 3.5	$ 52.6
2013	$ 12.8	$ 2.0	$ 29.5	$ 8.9	$ 1.4	$ 20.5	$ 20.1	$ 3.1	$ 46.1	$ 21.3	$ 3.3	$ 48.9	$ 14.8	$ 2.3	$ 34.0	$ 33.3	$ 5.1	$ 76.5
2014	$ 17.7	$ 2.7	$ 40.6	$ 11.9	$ 1.8	$ 27.4	$ 26.7	$ 4.1	$ 61.3	$ 27.6	$ 4.2	$ 63.6	$ 18.4	$ 2.8	$ 42.3	$ 41.4	$ 6.3	$ 95.1
2015	$ 22.9	$ 3.5	$ 52.7	$ 15.1	$ 2.3	$ 34.8	$ 33.5	$ 5.1	$ 77.0	$ 33.1	$ 5.1	$ 76.2	$ 21.3	$ 3.3	$ 49.0	$ 47.2	$ 7.2	$ 108.6
2016	$ 27.6	$ 4.2	$ 63.5	$ 17.8	$ 2.7	$ 40.9	$ 38.9	$ 5.9	$ 89.4	$ 37.5	$ 5.7	$ 86.3	$ 23.5	$ 3.6	$ 54.0	$ 51.0	$ 7.8	$ 117.4
2017	$ 31.2	$ 4.8	$ 71.8	$ 19.6	$ 3.0	$ 45.1	$ 42.2	$ 6.4	$ 97.1	$ 41.1	$ 6.3	$ 94.6	$ 25.3	$ 3.9	$ 58.3	$ 53.6	$ 8.2	$ 123.5
2018	$ 34.1	$ 5.2	$ 78.5	$ 21.1	$ 3.2	$ 48.7	$ 44.4	$ 6.8	$ 102.4	$ 43.9	$ 6.7	$ 101.2	$ 26.9	$ 4.1	$ 62.0	$ 55.4	$ 8.4	$ 127.5
2019	$ 36.4	$ 5.5	$ 84.0	$ 22.4	$ 3.4	$ 51.8	$ 45.9	$ 7.0	$ 106.0	$ 46.0	$ 7.0	$ 106.2	$ 28.2	$ 4.3	$ 65.2	$ 56.4	$ 8.6	$ 130.3
2020	$ 38.2	$ 5.8	$ 88.2	$ 23.6	$ 3.6	$ 54.4	$ 46.9	$ 7.1	$ 108.2	$ 47.6	$ 7.2	$ 109.8	$ 29.4	$ 4.5	$ 67.8	$ 57.1	$ 8.7	$ 131.7
2021	$ 39.5	$ 6.0	$ 91.2	$ 24.5	$ 3.7	$ 56.6	$ 47.4	$ 7.2	$ 109.4	$ 48.6	$ 7.4	$ 112.3	$ 30.4	$ 4.6	$ 70.1	$ 57.3	$ 8.7	$ 132.3
2022	$ 40.4	$ 6.1	$ 93.5	$ 25.3	$ 3.9	$ 58.6	$ 47.6	$ 7.2	$ 110.1	$ 49.4	$ 7.5	$ 114.2	$ 31.2	$ 4.7	$ 72.2	$ 57.3	$ 8.7	$ 132.5
2023	$ 41.0	$ 6.2	$ 94.9	$ 26.0	$ 4.0	$ 60.2	$ 47.6	$ 7.2	$ 110.1	$ 49.8	$ 7.6	$ 115.2	$ 31.9	$ 4.9	$ 73.9	$ 57.0	$ 8.7	$ 131.9
2024	$ 41.4	$ 6.3	$ 95.8	$ 26.6	$ 4.0	$ 61.6	$ 47.4	$ 7.2	$ 109.7	$ 50.0	$ 7.6	$ 115.8	$ 32.5	$ 4.9	$ 75.3	$ 56.6	$ 8.6	$ 131.0
2025	$ 41.6	$ 6.3	$ 96.3	$ 27.1	$ 4.1	$ 62.7	$ 47.1	$ 7.1	$ 108.9	$ 50.1	$ 7.6	$ 115.9	$ 33.0	$ 5.0	$ 76.4	$ 56.1	$ 8.5	$ 129.8
2026	$ 41.6	$ 6.3	$ 96.5	$ 27.5	$ 4.2	$ 63.7	$ 46.6	$ 7.1	$ 108.0	$ 50.0	$ 7.6	$ 115.8	$ 33.4	$ 5.1	$ 77.4	$ 55.5	$ 8.4	$ 128.5
2027	$ 41.6	$ 6.3	$ 96.4	$ 27.8	$ 4.2	$ 64.6	$ 46.1	$ 7.0	$ 107.0	$ 49.8	$ 7.5	$ 115.4	$ 33.7	$ 5.1	$ 78.2	$ 54.8	$ 8.3	$ 127.1
2028	$ 40.8	$ 6.2	$ 94.7	$ 27.7	$ 4.2	$ 64.3	$ 45.0	$ 6.8	$ 104.2	$ 48.8	$ 7.4	$ 113.1	$ 33.5	$ 5.1	$ 77.7	$ 53.4	$ 8.1	$ 123.7
2029	$ 40.5	$ 6.1	$ 94.0	$ 27.9	$ 4.2	$ 64.6	$ 44.2	$ 6.7	$ 102.7	$ 48.3	$ 7.3	$ 112.1	$ 33.6	$ 5.1	$ 78.0	$ 52.5	$ 7.9	$ 121.8
Total	**$ 604.7**	**$ 92.0**	**$ 1,397.3**	**$ 392.4**	**$ 59.7**	**$ 906.6**	**$ 742.7**	**$ 113.0**	**$ 1,715.6**	**$ 768.3**	**$ 116.9**	**$ 1,774.8**	**$ 500.0**	**$ 76.1**	**$ 1,155.1**	**$ 937.8**	**$ 142.7**	**$ 2,165.7**
Ann.	**$ 34.7**	**$ 5.3**	**$ 80.2**	**$ 22.5**	**$ 3.4**	**$ 52.1**	**$ 42.7**	**$ 6.5**	**$ 98.5**	**$ 44.1**	**$ 6.7**	**$ 101.9**	**$ 28.7**	**$ 4.4**	**$ 66.3**	**$ 53.9**	**$ 8.2**	**$ 124.4**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.2k through F.2s.

Exhibit F.2aa Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 7% Discount Rate, by Small & Large Size Categories (Ground Water Systems)

TTHM - Preferred Alternative

	Small Systems									Large Systems								
	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model			Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 1.6	$ 0.2	$ 3.6	$ 1.3	$ 0.2	$ 3.0	$ 2.8	$ 0.4	$ 6.4	$ 2.6	$ 0.4	$ 6.1	$ 2.1	$ 0.3	$ 4.9	$ 4.6	$ 0.7	$ 10.6
2011	$ 3.9	$ 0.6	$ 8.9	$ 2.9	$ 0.4	$ 6.7	$ 6.5	$ 1.0	$ 14.9	$ 6.4	$ 1.0	$ 14.7	$ 4.8	$ 0.7	$ 11.1	$ 10.7	$ 1.6	$ 24.7
2012	$ 6.5	$ 1.0	$ 15.0	$ 4.7	$ 0.7	$ 10.8	$ 10.6	$ 1.6	$ 24.3	$ 10.8	$ 1.7	$ 24.9	$ 7.8	$ 1.2	$ 17.9	$ 17.6	$ 2.7	$ 40.3
2013	$ 9.5	$ 1.4	$ 21.7	$ 6.6	$ 1.0	$ 15.1	$ 14.8	$ 2.3	$ 34.0	$ 15.7	$ 2.4	$ 36.1	$ 10.9	$ 1.7	$ 25.0	$ 24.5	$ 3.8	$ 56.4
2014	$ 12.5	$ 1.9	$ 28.8	$ 8.5	$ 1.3	$ 19.5	$ 18.9	$ 2.9	$ 43.5	$ 19.6	$ 3.0	$ 45.1	$ 13.1	$ 2.0	$ 30.1	$ 29.4	$ 4.5	$ 67.5
2015	$ 15.7	$ 2.4	$ 36.0	$ 10.3	$ 1.6	$ 23.8	$ 22.9	$ 3.5	$ 52.6	$ 22.6	$ 3.5	$ 52.0	$ 14.6	$ 2.2	$ 33.5	$ 32.3	$ 4.9	$ 74.2
2016	$ 18.2	$ 2.8	$ 41.8	$ 11.7	$ 1.8	$ 26.9	$ 25.6	$ 3.9	$ 58.8	$ 24.7	$ 3.8	$ 56.7	$ 15.4	$ 2.4	$ 35.5	$ 33.6	$ 5.1	$ 77.2
2017	$ 19.7	$ 3.0	$ 45.5	$ 12.4	$ 1.9	$ 28.6	$ 26.7	$ 4.1	$ 61.5	$ 26.0	$ 4.0	$ 59.9	$ 16.0	$ 2.4	$ 36.9	$ 34.0	$ 5.2	$ 78.2
2018	$ 20.8	$ 3.2	$ 47.9	$ 12.9	$ 2.0	$ 29.7	$ 27.1	$ 4.1	$ 62.4	$ 26.8	$ 4.1	$ 61.6	$ 16.4	$ 2.5	$ 37.8	$ 33.7	$ 5.1	$ 77.7
2019	$ 21.4	$ 3.3	$ 49.3	$ 13.2	$ 2.0	$ 30.4	$ 26.9	$ 4.1	$ 62.2	$ 27.0	$ 4.1	$ 62.3	$ 16.6	$ 2.5	$ 38.2	$ 33.1	$ 5.0	$ 76.4
2020	$ 21.6	$ 3.3	$ 49.8	$ 13.3	$ 2.0	$ 30.7	$ 26.5	$ 4.0	$ 61.1	$ 26.9	$ 4.1	$ 62.0	$ 16.6	$ 2.5	$ 38.3	$ 32.2	$ 4.9	$ 74.4
2021	$ 21.5	$ 3.3	$ 49.6	$ 13.3	$ 2.0	$ 30.8	$ 25.8	$ 3.9	$ 59.5	$ 26.4	$ 4.0	$ 61.0	$ 16.5	$ 2.5	$ 38.1	$ 31.1	$ 4.7	$ 71.9
2022	$ 21.2	$ 3.2	$ 48.9	$ 13.3	$ 2.0	$ 30.7	$ 24.9	$ 3.8	$ 57.6	$ 25.8	$ 3.9	$ 59.7	$ 16.3	$ 2.5	$ 37.8	$ 30.0	$ 4.6	$ 69.3
2023	$ 20.7	$ 3.1	$ 47.8	$ 13.1	$ 2.0	$ 30.3	$ 24.0	$ 3.6	$ 55.4	$ 25.1	$ 3.8	$ 58.0	$ 16.1	$ 2.4	$ 37.2	$ 28.7	$ 4.4	$ 66.5
2024	$ 20.1	$ 3.1	$ 46.5	$ 12.9	$ 2.0	$ 29.9	$ 23.0	$ 3.5	$ 53.2	$ 24.3	$ 3.7	$ 56.1	$ 15.8	$ 2.4	$ 36.5	$ 27.5	$ 4.2	$ 63.5
2025	$ 19.4	$ 2.9	$ 44.9	$ 12.6	$ 1.9	$ 29.3	$ 22.0	$ 3.3	$ 50.8	$ 23.4	$ 3.5	$ 54.1	$ 15.4	$ 2.3	$ 35.7	$ 26.2	$ 4.0	$ 60.6
2026	$ 18.7	$ 2.8	$ 43.3	$ 12.4	$ 1.9	$ 28.6	$ 21.0	$ 3.2	$ 48.5	$ 22.5	$ 3.4	$ 52.0	$ 15.0	$ 2.3	$ 34.8	$ 24.9	$ 3.8	$ 57.7
2027	$ 18.0	$ 2.7	$ 41.7	$ 12.0	$ 1.8	$ 27.9	$ 19.9	$ 3.0	$ 46.3	$ 21.5	$ 3.3	$ 49.9	$ 14.6	$ 2.2	$ 33.8	$ 23.7	$ 3.6	$ 55.0
2028	$ 17.0	$ 2.6	$ 39.4	$ 11.5	$ 1.7	$ 26.8	$ 18.7	$ 2.8	$ 43.4	$ 20.3	$ 3.1	$ 47.1	$ 14.0	$ 2.1	$ 32.4	$ 22.2	$ 3.4	$ 51.5
2029	$ 16.2	$ 2.5	$ 37.7	$ 11.2	$ 1.7	$ 25.9	$ 17.7	$ 2.7	$ 41.2	$ 19.4	$ 2.9	$ 44.9	$ 13.5	$ 2.0	$ 31.3	$ 21.0	$ 3.2	$ 48.8
Total	**$ 323.9**	**$ 49.3**	**$ 748.1**	**$ 210.1**	**$ 32.0**	**$ 485.1**	**$ 406.1**	**$ 61.8**	**$ 937.4**	**$ 417.7**	**$ 63.6**	**$ 964.5**	**$ 271.5**	**$ 41.3**	**$ 626.7**	**$ 521.0**	**$ 79.3**	**$ 1,202.4**
Ann.	**$ 27.8**	**$ 4.2**	**$ 64.2**	**$ 18.0**	**$ 2.7**	**$ 41.6**	**$ 34.8**	**$ 5.3**	**$ 80.4**	**$ 35.8**	**$ 5.5**	**$ 82.8**	**$ 23.3**	**$ 3.5**	**$ 53.8**	**$ 44.7**	**$ 6.8**	**$ 103.2**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.2k through F.2s.

Exhibit F.2ab Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size
(All Systems)

TTHM - Preferred Alternative

Smoking/Lung Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.3	$ 1.2	$ 2.7	$ 13.1	$ 10.9	$ 47.3	$ 39.3	$ 115.1
2011	$ 0.1	$ 0.6	$ 0.7	$ 3.1	$ 6.9	$ 32.9	$ 27.3	$ 118.8	$ 98.8	$ 289.2
2012	$ 0.1	$ 1.1	$ 1.3	$ 5.4	$ 12.1	$ 57.7	$ 48.0	$ 208.7	$ 173.6	$ 508.0
2013	$ 0.2	$ 1.6	$ 2.0	$ 8.1	$ 18.2	$ 86.8	$ 72.2	$ 313.9	$ 261.1	$ 764.0
2014	$ 0.3	$ 2.2	$ 2.7	$ 11.2	$ 25.1	$ 119.8	$ 94.5	$ 389.4	$ 323.9	$ 968.9
2015	$ 0.4	$ 2.8	$ 3.5	$ 14.5	$ 32.5	$ 150.0	$ 112.1	$ 454.4	$ 377.9	$ 1,148.2
2016	$ 0.4	$ 3.4	$ 4.2	$ 17.5	$ 39.2	$ 173.5	$ 126.9	$ 509.7	$ 424.0	$ 1,298.8
2017	$ 0.5	$ 3.9	$ 4.7	$ 19.7	$ 44.3	$ 192.9	$ 139.2	$ 555.2	$ 461.9	$ 1,422.3
2018	$ 0.5	$ 4.2	$ 5.2	$ 21.6	$ 48.4	$ 208.7	$ 148.9	$ 590.1	$ 491.0	$ 1,518.6
2019	$ 0.6	$ 4.5	$ 5.5	$ 23.0	$ 51.7	$ 221.1	$ 156.1	$ 614.8	$ 511.6	$ 1,589.0
2020	$ 0.6	$ 4.7	$ 5.8	$ 24.2	$ 54.2	$ 230.2	$ 161.2	$ 632.3	$ 526.1	$ 1,639.4
2021	$ 0.6	$ 4.9	$ 6.0	$ 25.0	$ 56.1	$ 236.6	$ 164.7	$ 644.4	$ 536.1	$ 1,674.4
2022	$ 0.6	$ 5.0	$ 6.1	$ 25.6	$ 57.4	$ 240.9	$ 167.0	$ 652.2	$ 542.6	$ 1,697.5
2023	$ 0.7	$ 5.1	$ 6.2	$ 26.0	$ 58.2	$ 243.7	$ 168.4	$ 656.6	$ 546.3	$ 1,711.1
2024	$ 0.7	$ 5.1	$ 6.3	$ 26.2	$ 58.8	$ 245.2	$ 169.1	$ 658.3	$ 547.7	$ 1,717.3
2025	$ 0.7	$ 5.2	$ 6.3	$ 26.3	$ 59.0	$ 245.7	$ 169.1	$ 657.8	$ 547.3	$ 1,717.5
2026	$ 0.7	$ 5.2	$ 6.3	$ 26.4	$ 59.1	$ 245.5	$ 168.7	$ 655.6	$ 545.5	$ 1,712.9
2027	$ 0.7	$ 5.2	$ 6.3	$ 26.3	$ 59.0	$ 244.6	$ 167.9	$ 652.0	$ 542.5	$ 1,704.4
2028	$ 0.7	$ 5.1	$ 6.2	$ 25.8	$ 57.9	$ 240.0	$ 164.6	$ 638.9	$ 531.6	$ 1,670.8
2029	$ 0.6	$ 5.0	$ 6.2	$ 25.6	$ 57.4	$ 237.7	$ 162.8	$ 631.8	$ 525.6	$ 1,652.7
Total	**$ 9.7**	**$ 75.0**	**$ 92.0**	**$ 382.7**	**$ 858.1**	**$ 3,666.6**	**$ 2,599.5**	**$ 10,282.2**	**$ 8,554.3**	**$ 26,520.1**
Ann.	**$ 0.6**	**$ 4.3**	**$ 5.3**	**$ 22.0**	**$ 49.3**	**$ 210.6**	**$ 149.3**	**$ 590.5**	**$ 491.3**	**$ 1,523.0**

Smoking/Bladder Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.2	$ 1.0	$ 2.2	$ 12.4	$ 10.3	$ 45.1	$ 37.6	$ 109.1
2011	$ 0.1	$ 0.5	$ 0.6	$ 2.3	$ 5.2	$ 28.4	$ 23.8	$ 103.6	$ 86.5	$ 250.9
2012	$ 0.1	$ 0.8	$ 0.9	$ 3.9	$ 8.7	$ 47.0	$ 39.3	$ 171.4	$ 143.0	$ 415.2
2013	$ 0.1	$ 1.1	$ 1.4	$ 5.6	$ 12.6	$ 67.6	$ 56.5	$ 246.1	$ 205.2	$ 596.3
2014	$ 0.2	$ 1.5	$ 1.8	$ 7.5	$ 16.9	$ 89.6	$ 70.1	$ 284.5	$ 237.1	$ 709.2
2015	$ 0.2	$ 1.9	$ 2.3	$ 9.6	$ 21.4	$ 107.1	$ 78.5	$ 314.4	$ 262.0	$ 797.5
2016	$ 0.3	$ 2.2	$ 2.7	$ 11.2	$ 25.2	$ 118.4	$ 85.2	$ 339.0	$ 282.4	$ 866.6
2017	$ 0.3	$ 2.4	$ 3.0	$ 12.4	$ 27.8	$ 127.5	$ 90.8	$ 359.5	$ 299.4	$ 923.2
2018	$ 0.3	$ 2.6	$ 3.2	$ 13.4	$ 30.0	$ 135.1	$ 95.5	$ 376.7	$ 313.8	$ 970.6
2019	$ 0.4	$ 2.8	$ 3.4	$ 14.2	$ 31.8	$ 141.4	$ 99.5	$ 391.3	$ 325.9	$ 1,010.7
2020	$ 0.4	$ 2.9	$ 3.6	$ 14.9	$ 33.4	$ 146.8	$ 102.8	$ 403.7	$ 336.1	$ 1,044.6
2021	$ 0.4	$ 3.0	$ 3.7	$ 15.5	$ 34.8	$ 151.3	$ 105.6	$ 414.1	$ 344.7	$ 1,073.2
2022	$ 0.4	$ 3.1	$ 3.9	$ 16.0	$ 35.9	$ 155.1	$ 108.0	$ 422.7	$ 351.9	$ 1,097.1
2023	$ 0.4	$ 3.2	$ 4.0	$ 16.5	$ 36.9	$ 158.3	$ 110.0	$ 429.8	$ 357.8	$ 1,116.8
2024	$ 0.4	$ 3.3	$ 4.0	$ 16.8	$ 37.8	$ 160.9	$ 111.5	$ 435.6	$ 362.5	$ 1,133.0
2025	$ 0.4	$ 3.4	$ 4.1	$ 17.2	$ 38.5	$ 163.0	$ 112.8	$ 440.2	$ 366.3	$ 1,145.9
2026	$ 0.4	$ 3.4	$ 4.2	$ 17.4	$ 39.0	$ 164.7	$ 113.8	$ 443.7	$ 369.2	$ 1,155.9
2027	$ 0.4	$ 3.5	$ 4.2	$ 17.6	$ 39.5	$ 165.9	$ 114.5	$ 446.2	$ 371.3	$ 1,163.2
2028	$ 0.4	$ 3.4	$ 4.2	$ 17.5	$ 39.3	$ 164.7	$ 113.5	$ 442.1	$ 367.9	$ 1,153.2
2029	$ 0.4	$ 3.5	$ 4.2	$ 17.6	$ 39.5	$ 164.9	$ 113.5	$ 441.9	$ 367.7	$ 1,153.3
Total	**$ 6.3**	**$ 48.7**	**$ 59.7**	**$ 248.3**	**$ 556.7**	**$ 2,470.1**	**$ 1,755.6**	**$ 6,951.8**	**$ 5,788.3**	**$ 17,885.5**
Ann.	**$ 0.4**	**$ 2.8**	**$ 3.4**	**$ 14.3**	**$ 32.0**	**$ 141.9**	**$ 100.8**	**$ 399.2**	**$ 332.4**	**$ 1,027.1**

Arsenic/Bladder Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.4	$ 0.5	$ 2.1	$ 4.8	$ 24.5	$ 20.4	$ 89.0	$ 74.1	$ 215.9
2011	$ 0.1	$ 1.0	$ 1.2	$ 5.1	$ 11.5	$ 58.2	$ 48.5	$ 211.3	$ 176.0	$ 513.1
2012	$ 0.2	$ 1.7	$ 2.1	$ 8.7	$ 19.6	$ 97.6	$ 81.3	$ 353.9	$ 294.7	$ 859.9
2013	$ 0.3	$ 2.5	$ 3.1	$ 12.7	$ 28.5	$ 140.5	$ 117.0	$ 509.3	$ 423.9	$ 1,237.8
2014	$ 0.4	$ 3.3	$ 4.1	$ 16.9	$ 37.8	$ 185.6	$ 145.1	$ 590.2	$ 491.1	$ 1,474.4
2015	$ 0.5	$ 4.2	$ 5.1	$ 21.2	$ 47.5	$ 220.8	$ 161.3	$ 644.4	$ 536.1	$ 1,640.9
2016	$ 0.6	$ 4.8	$ 5.9	$ 24.6	$ 55.2	$ 241.3	$ 172.2	$ 681.5	$ 566.9	$ 1,753.0
2017	$ 0.7	$ 5.2	$ 6.4	$ 26.7	$ 59.9	$ 255.1	$ 179.7	$ 706.6	$ 587.7	$ 1,828.0
2018	$ 0.7	$ 5.5	$ 6.8	$ 28.1	$ 63.0	$ 264.4	$ 184.6	$ 723.0	$ 601.3	$ 1,877.4
2019	$ 0.7	$ 5.7	$ 7.0	$ 29.1	$ 65.2	$ 270.4	$ 187.6	$ 732.9	$ 609.5	$ 1,908.0
2020	$ 0.7	$ 5.8	$ 7.1	$ 29.7	$ 66.5	$ 274.0	$ 189.3	$ 737.8	$ 613.6	$ 1,924.5
2021	$ 0.8	$ 5.9	$ 7.2	$ 30.0	$ 67.2	$ 275.7	$ 189.9	$ 739.0	$ 614.6	$ 1,930.3
2022	$ 0.8	$ 5.9	$ 7.2	$ 30.1	$ 67.5	$ 276.1	$ 189.7	$ 737.4	$ 613.2	$ 1,927.9
2023	$ 0.8	$ 5.9	$ 7.2	$ 30.1	$ 67.5	$ 275.3	$ 188.9	$ 733.5	$ 610.0	$ 1,919.2
2024	$ 0.8	$ 5.9	$ 7.2	$ 30.0	$ 67.2	$ 273.8	$ 187.5	$ 727.8	$ 605.3	$ 1,905.6
2025	$ 0.8	$ 5.8	$ 7.2	$ 29.8	$ 66.8	$ 271.6	$ 185.9	$ 720.9	$ 599.5	$ 1,888.2
2026	$ 0.7	$ 5.8	$ 7.1	$ 29.5	$ 66.2	$ 269.0	$ 183.9	$ 712.9	$ 592.9	$ 1,867.9
2027	$ 0.7	$ 5.7	$ 7.0	$ 29.2	$ 65.4	$ 265.9	$ 181.7	$ 704.1	$ 585.6	$ 1,845.4
2028	$ 0.7	$ 5.6	$ 6.8	$ 28.5	$ 63.8	$ 259.2	$ 177.0	$ 685.7	$ 570.3	$ 1,797.6
2029	$ 0.7	$ 5.5	$ 6.7	$ 28.0	$ 62.8	$ 255.1	$ 174.1	$ 674.4	$ 560.9	$ 1,768.2
Total	**$ 11.9**	**$ 92.2**	**$ 113.0**	**$ 470.1**	**$ 1,053.9**	**$ 4,454.1**	**$ 3,145.4**	**$ 12,415.6**	**$ 10,327.1**	**$ 32,083.1**
Ann.	**$ 0.7**	**$ 5.3**	**$ 6.5**	**$ 27.0**	**$ 60.5**	**$ 255.8**	**$ 180.6**	**$ 713.0**	**$ 593.1**	**$ 1,842.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.2a through F.2i and F.2k through F.2s.

Exhibit F.2ac Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size
(All Systems)

TTHM - Preferred Alternative

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	>1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.2	$ 1.0	$ 2.3	$ 10.8	$ 9.0	$ 39.1	$ 32.5	$ 95.1
2011	$ 0.1	$ 0.5	$ 0.6	$ 2.4	$ 5.5	$ 26.1	$ 21.7	$ 94.5	$ 78.6	$ 230.1
2012	$ 0.1	$ 0.8	$ 1.0	$ 4.1	$ 9.3	$ 44.2	$ 36.7	$ 159.9	$ 132.9	$ 389.1
2013	$ 0.2	$ 1.2	$ 1.4	$ 6.0	$ 13.4	$ 64.0	$ 53.2	$ 231.4	$ 192.5	$ 563.3
2014	$ 0.2	$ 1.6	$ 1.9	$ 7.9	$ 17.8	$ 85.0	$ 67.1	$ 276.4	$ 229.8	$ 687.7
2015	$ 0.3	$ 1.9	$ 2.4	$ 9.9	$ 22.2	$ 102.5	$ 76.6	$ 310.4	$ 258.2	$ 784.4
2016	$ 0.3	$ 2.3	$ 2.8	$ 11.5	$ 25.8	$ 114.1	$ 83.5	$ 335.2	$ 278.8	$ 854.1
2017	$ 0.3	$ 2.5	$ 3.0	$ 12.5	$ 28.0	$ 122.1	$ 88.1	$ 351.5	$ 292.4	$ 900.4
2018	$ 0.3	$ 2.6	$ 3.2	$ 13.1	$ 29.5	$ 127.2	$ 90.8	$ 359.6	$ 299.2	$ 925.4
2019	$ 0.3	$ 2.6	$ 3.2	$ 13.5	$ 30.3	$ 129.7	$ 91.6	$ 360.7	$ 300.1	$ 932.1
2020	$ 0.3	$ 2.7	$ 3.3	$ 13.7	$ 30.6	$ 130.0	$ 91.0	$ 357.1	$ 297.1	$ 925.8
2021	$ 0.3	$ 2.7	$ 3.3	$ 13.6	$ 30.5	$ 128.6	$ 89.5	$ 350.3	$ 291.4	$ 910.2
2022	$ 0.3	$ 2.6	$ 3.2	$ 13.4	$ 30.0	$ 126.1	$ 87.4	$ 341.2	$ 283.9	$ 888.2
2023	$ 0.3	$ 2.6	$ 3.1	$ 13.1	$ 29.3	$ 122.7	$ 84.8	$ 330.7	$ 275.2	$ 861.9
2024	$ 0.3	$ 2.5	$ 3.1	$ 12.7	$ 28.5	$ 118.9	$ 82.0	$ 319.2	$ 265.6	$ 832.7
2025	$ 0.3	$ 2.4	$ 3.0	$ 12.3	$ 27.6	$ 114.7	$ 78.9	$ 307.0	$ 255.5	$ 801.6
2026	$ 0.3	$ 2.3	$ 2.8	$ 11.8	$ 26.5	$ 110.3	$ 75.8	$ 294.6	$ 245.1	$ 769.6
2027	$ 0.3	$ 2.2	$ 2.7	$ 11.4	$ 25.5	$ 105.8	$ 72.6	$ 282.0	$ 234.6	$ 737.1
2028	$ 0.3	$ 2.1	$ 2.6	$ 10.8	$ 24.1	$ 99.9	$ 68.5	$ 266.0	$ 221.3	$ 695.6
2029	$ 0.3	$ 2.0	$ 2.5	$ 10.3	$ 23.0	$ 95.2	$ 65.2	$ 253.2	$ 210.6	$ 662.3
Total	**$ 5.2**	**$ 40.2**	**$ 49.3**	**$ 205.0**	**$ 459.7**	**$ 1,978.0**	**$ 1,414.1**	**$ 5,619.9**	**$ 4,675.3**	**$ 14,446.6**
Ann.	**$ 0.4**	**$ 3.4**	**$ 4.2**	**$ 17.6**	**$ 39.4**	**$ 169.7**	**$ 121.3**	**$ 482.2**	**$ 401.2**	**$ 1,239.7**

Smoking/Bladder Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	>1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.2	$ 0.8	$ 1.8	$ 10.2	$ 8.5	$ 37.3	$ 31.1	$ 90.2
2011	$ 0.0	$ 0.4	$ 0.4	$ 1.8	$ 4.1	$ 22.6	$ 18.9	$ 82.5	$ 68.8	$ 199.6
2012	$ 0.1	$ 0.6	$ 0.7	$ 3.0	$ 6.7	$ 36.0	$ 30.1	$ 131.3	$ 109.5	$ 318.0
2013	$ 0.1	$ 0.8	$ 1.0	$ 4.2	$ 9.3	$ 49.8	$ 41.6	$ 181.5	$ 151.3	$ 439.7
2014	$ 0.1	$ 1.0	$ 1.3	$ 5.4	$ 12.0	$ 63.6	$ 49.7	$ 201.9	$ 168.3	$ 503.3
2015	$ 0.2	$ 1.3	$ 1.6	$ 6.5	$ 14.7	$ 73.2	$ 53.6	$ 214.8	$ 179.0	$ 544.8
2016	$ 0.2	$ 1.4	$ 1.8	$ 7.4	$ 16.6	$ 77.9	$ 56.0	$ 222.9	$ 185.7	$ 569.9
2017	$ 0.2	$ 1.5	$ 1.9	$ 7.9	$ 17.6	$ 80.7	$ 57.5	$ 227.6	$ 189.6	$ 584.4
2018	$ 0.2	$ 1.6	$ 2.0	$ 8.2	$ 18.3	$ 82.3	$ 58.2	$ 229.6	$ 191.2	$ 591.5
2019	$ 0.2	$ 1.6	$ 2.0	$ 8.3	$ 18.7	$ 83.0	$ 58.4	$ 229.6	$ 191.2	$ 592.9
2020	$ 0.2	$ 1.7	$ 2.0	$ 8.4	$ 18.9	$ 82.9	$ 58.1	$ 228.0	$ 189.8	$ 589.9
2021	$ 0.2	$ 1.7	$ 2.0	$ 8.4	$ 18.9	$ 82.3	$ 57.4	$ 225.1	$ 187.4	$ 583.3
2022	$ 0.2	$ 1.6	$ 2.0	$ 8.4	$ 18.8	$ 81.2	$ 56.5	$ 221.2	$ 184.1	$ 574.0
2023	$ 0.2	$ 1.6	$ 2.0	$ 8.3	$ 18.6	$ 79.7	$ 55.4	$ 216.5	$ 180.2	$ 562.5
2024	$ 0.2	$ 1.6	$ 2.0	$ 8.2	$ 18.3	$ 78.0	$ 54.1	$ 211.2	$ 175.8	$ 549.3
2025	$ 0.2	$ 1.6	$ 1.9	$ 8.0	$ 17.9	$ 76.1	$ 52.7	$ 205.5	$ 171.0	$ 534.8
2026	$ 0.2	$ 1.5	$ 1.9	$ 7.8	$ 17.5	$ 74.0	$ 51.1	$ 199.3	$ 165.9	$ 519.3
2027	$ 0.2	$ 1.5	$ 1.8	$ 7.6	$ 17.1	$ 71.8	$ 49.5	$ 193.0	$ 160.6	$ 503.1
2028	$ 0.2	$ 1.4	$ 1.8	$ 7.3	$ 16.4	$ 68.6	$ 47.3	$ 184.1	$ 153.1	$ 480.1
2029	$ 0.2	$ 1.4	$ 1.7	$ 7.1	$ 15.8	$ 66.1	$ 45.5	$ 177.1	$ 147.4	$ 462.2
Total	**$ 3.4**	**$ 26.1**	**$ 31.9**	**$ 132.9**	**$ 298.1**	**$ 1,339.8**	**$ 960.2**	**$ 3,819.7**	**$ 3,180.9**	**$ 9,793.0**
Ann.	**$ 0.3**	**$ 2.2**	**$ 2.7**	**$ 11.4**	**$ 25.6**	**$ 115.0**	**$ 82.4**	**$ 327.8**	**$ 273.0**	**$ 840.3**

Arsenic/Bladder Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	>1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.3	$ 0.4	$ 1.8	$ 3.9	$ 20.2	$ 16.9	$ 73.5	$ 61.3	$ 178.4
2011	$ 0.1	$ 0.8	$ 1.0	$ 4.1	$ 9.2	$ 46.3	$ 38.6	$ 168.1	$ 140.0	$ 408.2
2012	$ 0.2	$ 1.3	$ 1.6	$ 6.7	$ 15.0	$ 74.7	$ 62.3	$ 271.1	$ 225.7	$ 658.6
2013	$ 0.2	$ 1.8	$ 2.2	$ 9.4	$ 21.0	$ 103.6	$ 86.3	$ 375.5	$ 312.6	$ 912.6
2014	$ 0.3	$ 2.3	$ 2.9	$ 12.0	$ 26.9	$ 131.7	$ 103.0	$ 418.9	$ 348.5	$ 1,046.4
2015	$ 0.4	$ 2.8	$ 3.5	$ 14.5	$ 32.4	$ 150.8	$ 110.2	$ 440.2	$ 366.2	$ 1,121.1
2016	$ 0.4	$ 3.2	$ 3.9	$ 16.2	$ 36.3	$ 158.7	$ 113.3	$ 448.2	$ 372.8	$ 1,152.8
2017	$ 0.4	$ 3.3	$ 4.1	$ 16.9	$ 37.9	$ 161.5	$ 113.7	$ 447.3	$ 372.0	$ 1,157.2
2018	$ 0.4	$ 3.4	$ 4.1	$ 17.1	$ 38.4	$ 161.1	$ 112.5	$ 440.6	$ 366.4	$ 1,144.1
2019	$ 0.4	$ 3.3	$ 4.1	$ 17.0	$ 38.2	$ 158.6	$ 110.1	$ 429.9	$ 357.5	$ 1,119.2
2020	$ 0.4	$ 3.3	$ 4.0	$ 16.7	$ 37.5	$ 154.7	$ 106.9	$ 416.6	$ 346.5	$ 1,086.7
2021	$ 0.4	$ 3.2	$ 3.9	$ 16.3	$ 36.5	$ 149.9	$ 103.2	$ 401.7	$ 334.1	$ 1,049.3
2022	$ 0.4	$ 3.1	$ 3.8	$ 15.8	$ 35.3	$ 144.4	$ 99.3	$ 385.8	$ 320.9	$ 1,008.8
2023	$ 0.4	$ 3.0	$ 3.6	$ 15.2	$ 34.0	$ 138.7	$ 95.1	$ 369.4	$ 307.2	$ 966.7
2024	$ 0.4	$ 2.9	$ 3.5	$ 14.5	$ 32.6	$ 132.8	$ 90.9	$ 352.9	$ 293.5	$ 923.9
2025	$ 0.4	$ 2.7	$ 3.3	$ 13.9	$ 31.2	$ 126.8	$ 86.7	$ 336.5	$ 279.8	$ 881.3
2026	$ 0.3	$ 2.6	$ 3.2	$ 13.3	$ 29.7	$ 120.8	$ 82.6	$ 320.3	$ 266.4	$ 839.2
2027	$ 0.3	$ 2.5	$ 3.0	$ 12.6	$ 28.3	$ 115.0	$ 78.6	$ 304.5	$ 253.3	$ 798.1
2028	$ 0.3	$ 2.3	$ 2.8	$ 11.8	$ 26.6	$ 107.9	$ 73.7	$ 285.5	$ 237.4	$ 748.4
2029	$ 0.3	$ 2.2	$ 2.7	$ 11.2	$ 25.2	$ 102.2	$ 69.8	$ 270.3	$ 224.8	$ 708.6
Total	**$ 6.5**	**$ 50.4**	**$ 61.8**	**$ 257.0**	**$ 576.2**	**$ 2,460.6**	**$ 1,753.5**	**$ 6,956.9**	**$ 5,786.9**	**$ 17,909.7**
Ann.	**$ 0.6**	**$ 4.3**	**$ 5.3**	**$ 22.1**	**$ 49.4**	**$ 211.1**	**$ 150.5**	**$ 597.0**	**$ 496.6**	**$ 1,536.8**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.2a through F.2i and F.2k through F.2s.

Section F.3
Model Outputs - Preferred Alternative
TTHM as Indicator
Bronchitis for Non-Fatal Cases

Exhibit F.3a Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Surface Water Systems Serving <100 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2011	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2012	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.1
2013	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.1
2014	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1
2015	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.2
2016	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.2
2017	$ 0.1	$ 0.0	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.2
2018	$ 0.1	$ 0.0	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.2
2019	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.2
2020	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.2
2021	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.3
2022	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.3
2023	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.3
2024	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.3
2025	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.3
2026	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.3
2027	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.3
2028	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.3
2029	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.3
Total	**$ 1.5**	**$ 0.3**	**$ 3.4**	**$ 1.0**	**$ 0.2**	**$ 2.2**	**$ 1.9**	**$ 0.4**	**$ 4.2**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.3b Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Surface Water Systems Serving 100-499 People)

TTHM - Preferred Alternative

	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1
2011	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.3
2012	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.1	$ 0.5
2013	$ 0.2	$ 0.1	$ 0.5	$ 0.2	$ 0.0	$ 0.4	$ 0.4	$ 0.1	$ 0.8
2014	$ 0.3	$ 0.1	$ 0.7	$ 0.2	$ 0.0	$ 0.5	$ 0.5	$ 0.1	$ 1.1
2015	$ 0.4	$ 0.1	$ 1.0	$ 0.3	$ 0.1	$ 0.6	$ 0.6	$ 0.1	$ 1.4
2016	$ 0.5	$ 0.1	$ 1.2	$ 0.4	$ 0.1	$ 0.8	$ 0.8	$ 0.2	$ 1.7
2017	$ 0.6	$ 0.1	$ 1.4	$ 0.4	$ 0.1	$ 0.9	$ 0.9	$ 0.2	$ 1.9
2018	$ 0.7	$ 0.2	$ 1.6	$ 0.4	$ 0.1	$ 1.0	$ 0.9	$ 0.2	$ 2.1
2019	$ 0.8	$ 0.2	$ 1.7	$ 0.5	$ 0.1	$ 1.1	$ 1.0	$ 0.2	$ 2.2
2020	$ 0.9	$ 0.2	$ 1.9	$ 0.5	$ 0.1	$ 1.2	$ 1.0	$ 0.2	$ 2.3
2021	$ 0.9	$ 0.2	$ 2.0	$ 0.6	$ 0.1	$ 1.3	$ 1.1	$ 0.2	$ 2.4
2022	$ 1.0	$ 0.2	$ 2.1	$ 0.6	$ 0.1	$ 1.3	$ 1.1	$ 0.2	$ 2.5
2023	$ 1.0	$ 0.2	$ 2.2	$ 0.6	$ 0.1	$ 1.4	$ 1.2	$ 0.3	$ 2.6
2024	$ 1.0	$ 0.2	$ 2.3	$ 0.7	$ 0.1	$ 1.5	$ 1.2	$ 0.3	$ 2.7
2025	$ 1.1	$ 0.2	$ 2.4	$ 0.7	$ 0.2	$ 1.6	$ 1.2	$ 0.3	$ 2.7
2026	$ 1.1	$ 0.2	$ 2.5	$ 0.7	$ 0.2	$ 1.6	$ 1.2	$ 0.3	$ 2.8
2027	$ 1.1	$ 0.2	$ 2.6	$ 0.8	$ 0.2	$ 1.7	$ 1.3	$ 0.3	$ 2.8
2028	$ 1.2	$ 0.2	$ 2.6	$ 0.8	$ 0.2	$ 1.8	$ 1.3	$ 0.3	$ 2.8
2029	$ 1.2	$ 0.3	$ 2.6	$ 0.8	$ 0.2	$ 1.8	$ 1.3	$ 0.3	$ 2.9
Total	**$ 14.4**	**$ 3.1**	**$ 32.0**	**$ 9.4**	**$ 2.0**	**$ 20.8**	**$ 17.4**	**$ 3.8**	**$ 38.7**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.3c Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Surface Water Systems Serving 500-999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.2
2011	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.1	$ 0.5
2012	$ 0.3	$ 0.1	$ 0.6	$ 0.2	$ 0.0	$ 0.4	$ 0.4	$ 0.1	$ 0.9
2013	$ 0.4	$ 0.1	$ 0.9	$ 0.3	$ 0.1	$ 0.6	$ 0.6	$ 0.1	$ 1.4
2014	$ 0.6	$ 0.1	$ 1.3	$ 0.4	$ 0.1	$ 0.9	$ 0.9	$ 0.2	$ 1.9
2015	$ 0.8	$ 0.2	$ 1.7	$ 0.5	$ 0.1	$ 1.1	$ 1.1	$ 0.2	$ 2.5
2016	$ 1.0	$ 0.2	$ 2.1	$ 0.6	$ 0.1	$ 1.4	$ 1.4	$ 0.3	$ 3.0
2017	$ 1.1	$ 0.2	$ 2.5	$ 0.7	$ 0.2	$ 1.6	$ 1.5	$ 0.3	$ 3.3
2018	$ 1.3	$ 0.3	$ 2.8	$ 0.8	$ 0.2	$ 1.7	$ 1.6	$ 0.4	$ 3.6
2019	$ 1.4	$ 0.3	$ 3.1	$ 0.9	$ 0.2	$ 1.9	$ 1.8	$ 0.4	$ 3.9
2020	$ 1.5	$ 0.3	$ 3.3	$ 0.9	$ 0.2	$ 2.1	$ 1.8	$ 0.4	$ 4.1
2021	$ 1.6	$ 0.3	$ 3.6	$ 1.0	$ 0.2	$ 2.2	$ 1.9	$ 0.4	$ 4.3
2022	$ 1.7	$ 0.4	$ 3.8	$ 1.1	$ 0.2	$ 2.4	$ 2.0	$ 0.4	$ 4.4
2023	$ 1.8	$ 0.4	$ 3.9	$ 1.1	$ 0.2	$ 2.5	$ 2.0	$ 0.4	$ 4.6
2024	$ 1.8	$ 0.4	$ 4.1	$ 1.2	$ 0.3	$ 2.6	$ 2.1	$ 0.5	$ 4.7
2025	$ 1.9	$ 0.4	$ 4.2	$ 1.2	$ 0.3	$ 2.8	$ 2.2	$ 0.5	$ 4.8
2026	$ 2.0	$ 0.4	$ 4.4	$ 1.3	$ 0.3	$ 2.9	$ 2.2	$ 0.5	$ 4.9
2027	$ 2.0	$ 0.4	$ 4.5	$ 1.4	$ 0.3	$ 3.0	$ 2.2	$ 0.5	$ 5.0
2028	$ 2.0	$ 0.4	$ 4.6	$ 1.4	$ 0.3	$ 3.1	$ 2.3	$ 0.5	$ 5.0
2029	$ 2.1	$ 0.4	$ 4.7	$ 1.4	$ 0.3	$ 3.2	$ 2.3	$ 0.5	$ 5.1
Total	**$ 25.4**	**$ 5.5**	**$ 56.3**	**$ 16.5**	**$ 3.6**	**$ 36.6**	**$ 30.7**	**$ 6.6**	**$ 68.1**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.3d Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Surface Water Systems Serving 1,000-3,299 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.4	$ 0.1	$ 0.8	$ 0.3	$ 0.1	$ 0.6	$ 0.6	$ 0.1	$ 1.4
2011	$ 0.9	$ 0.2	$ 2.1	$ 0.7	$ 0.2	$ 1.6	$ 1.6	$ 0.3	$ 3.5
2012	$ 1.7	$ 0.4	$ 3.7	$ 1.2	$ 0.3	$ 2.7	$ 2.7	$ 0.6	$ 6.0
2013	$ 2.6	$ 0.6	$ 5.8	$ 1.8	$ 0.4	$ 4.0	$ 4.1	$ 0.9	$ 9.0
2014	$ 3.7	$ 0.8	$ 8.2	$ 2.5	$ 0.6	$ 5.5	$ 5.6	$ 1.2	$ 12.4
2015	$ 5.0	$ 1.1	$ 11.0	$ 3.3	$ 0.7	$ 7.3	$ 7.3	$ 1.6	$ 16.1
2016	$ 6.2	$ 1.4	$ 13.7	$ 4.0	$ 0.9	$ 8.8	$ 8.7	$ 1.9	$ 19.2
2017	$ 7.2	$ 1.6	$ 15.9	$ 4.5	$ 1.0	$ 10.0	$ 9.8	$ 2.1	$ 21.6
2018	$ 8.1	$ 1.8	$ 18.0	$ 5.0	$ 1.1	$ 11.1	$ 10.6	$ 2.3	$ 23.4
2019	$ 8.9	$ 1.9	$ 19.8	$ 5.5	$ 1.2	$ 12.2	$ 11.3	$ 2.5	$ 25.0
2020	$ 9.7	$ 2.1	$ 21.5	$ 6.0	$ 1.3	$ 13.2	$ 11.9	$ 2.6	$ 26.3
2021	$ 10.3	$ 2.2	$ 22.9	$ 6.4	$ 1.4	$ 14.2	$ 12.4	$ 2.7	$ 27.5
2022	$ 10.9	$ 2.4	$ 24.2	$ 6.8	$ 1.5	$ 15.2	$ 12.8	$ 2.8	$ 28.5
2023	$ 11.4	$ 2.5	$ 25.3	$ 7.2	$ 1.6	$ 16.1	$ 13.2	$ 2.8	$ 29.4
2024	$ 11.8	$ 2.6	$ 26.4	$ 7.6	$ 1.6	$ 16.9	$ 13.6	$ 2.9	$ 30.2
2025	$ 12.3	$ 2.6	$ 27.3	$ 8.0	$ 1.7	$ 17.8	$ 13.9	$ 3.0	$ 30.9
2026	$ 12.7	$ 2.7	$ 28.2	$ 8.4	$ 1.8	$ 18.6	$ 14.2	$ 3.0	$ 31.6
2027	$ 13.0	$ 2.8	$ 29.1	$ 8.7	$ 1.9	$ 19.5	$ 14.5	$ 3.1	$ 32.3
2028	$ 13.2	$ 2.8	$ 29.4	$ 8.9	$ 1.9	$ 20.0	$ 14.5	$ 3.1	$ 32.4
2029	$ 13.5	$ 2.9	$ 30.1	$ 9.3	$ 2.0	$ 20.7	$ 14.7	$ 3.2	$ 32.9
Total	**$ 163.6**	**$ 35.4**	**$ 363.3**	**$ 106.3**	**$ 23.0**	**$ 236.0**	**$ 197.9**	**$ 42.8**	**$ 439.4**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.3e Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Surface Water Systems Serving 3,300-9,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 1.0	$ 0.2	$ 2.3	$ 0.8	$ 0.2	$ 1.8	$ 1.8	$ 0.4	$ 4.0
2011	$ 2.7	$ 0.6	$ 5.9	$ 2.0	$ 0.4	$ 4.5	$ 4.5	$ 1.0	$ 9.9
2012	$ 4.9	$ 1.1	$ 10.7	$ 3.5	$ 0.8	$ 7.7	$ 7.9	$ 1.7	$ 17.3
2013	$ 7.5	$ 1.7	$ 16.5	$ 5.2	$ 1.1	$ 11.5	$ 11.8	$ 2.6	$ 25.9
2014	$ 10.7	$ 2.3	$ 23.5	$ 7.2	$ 1.6	$ 15.9	$ 16.1	$ 3.5	$ 35.5
2015	$ 14.3	$ 3.1	$ 31.5	$ 9.4	$ 2.1	$ 20.8	$ 20.8	$ 4.6	$ 46.0
2016	$ 17.7	$ 3.9	$ 39.1	$ 11.4	$ 2.5	$ 25.1	$ 25.0	$ 5.5	$ 55.0
2017	$ 20.6	$ 4.5	$ 45.6	$ 13.0	$ 2.8	$ 28.7	$ 27.9	$ 6.1	$ 61.7
2018	$ 23.3	$ 5.1	$ 51.4	$ 14.4	$ 3.1	$ 31.9	$ 30.3	$ 6.6	$ 67.0
2019	$ 25.6	$ 5.6	$ 56.7	$ 15.8	$ 3.4	$ 34.9	$ 32.3	$ 7.0	$ 71.5
2020	$ 27.7	$ 6.0	$ 61.4	$ 17.1	$ 3.7	$ 37.8	$ 34.0	$ 7.4	$ 75.3
2021	$ 29.5	$ 6.4	$ 65.5	$ 18.3	$ 4.0	$ 40.6	$ 35.4	$ 7.7	$ 78.5
2022	$ 31.1	$ 6.7	$ 69.2	$ 19.5	$ 4.2	$ 43.4	$ 36.7	$ 7.9	$ 81.5
2023	$ 32.6	$ 7.0	$ 72.4	$ 20.7	$ 4.5	$ 45.9	$ 37.8	$ 8.2	$ 84.0
2024	$ 33.9	$ 7.3	$ 75.4	$ 21.8	$ 4.7	$ 48.5	$ 38.8	$ 8.4	$ 86.3
2025	$ 35.1	$ 7.6	$ 78.1	$ 22.9	$ 4.9	$ 50.9	$ 39.7	$ 8.5	$ 88.4
2026	$ 36.2	$ 7.8	$ 80.6	$ 23.9	$ 5.1	$ 53.3	$ 40.6	$ 8.7	$ 90.3
2027	$ 37.3	$ 8.0	$ 83.2	$ 25.0	$ 5.4	$ 55.7	$ 41.4	$ 8.9	$ 92.3
2028	$ 37.7	$ 8.1	$ 84.1	$ 25.6	$ 5.5	$ 57.1	$ 41.5	$ 8.9	$ 92.6
2029	$ 38.5	$ 8.3	$ 86.1	$ 26.5	$ 5.7	$ 59.2	$ 42.1	$ 9.0	$ 94.1
Total	**$ 467.9**	**$ 101.2**	**$ 1,039.2**	**$ 304.0**	**$ 65.7**	**$ 675.1**	**$ 566.2**	**$ 122.5**	**$ 1,256.9**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.3f Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Surface Water Systems Serving 10,000-49,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 6.8	$ 1.5	$ 15.0	$ 6.5	$ 1.4	$ 14.4	$ 12.9	$ 2.8	$ 28.3
2011	$ 17.7	$ 3.9	$ 38.9	$ 15.5	$ 3.4	$ 34.1	$ 31.5	$ 6.9	$ 69.4
2012	$ 32.0	$ 7.0	$ 70.4	$ 26.4	$ 5.8	$ 58.1	$ 54.3	$ 11.9	$ 119.6
2013	$ 49.6	$ 10.9	$ 109.2	$ 39.0	$ 8.6	$ 85.9	$ 80.6	$ 17.7	$ 177.3
2014	$ 70.6	$ 15.5	$ 155.4	$ 53.3	$ 11.7	$ 117.3	$ 109.7	$ 24.0	$ 241.4
2015	$ 91.2	$ 19.9	$ 201.0	$ 65.6	$ 14.4	$ 144.8	$ 134.3	$ 29.4	$ 296.2
2016	$ 108.7	$ 23.8	$ 239.6	$ 74.7	$ 16.3	$ 164.7	$ 151.3	$ 33.1	$ 333.4
2017	$ 124.6	$ 27.2	$ 275.2	$ 82.8	$ 18.1	$ 183.0	$ 164.8	$ 36.0	$ 363.9
2018	$ 139.0	$ 30.3	$ 307.1	$ 90.4	$ 19.7	$ 199.7	$ 176.0	$ 38.3	$ 388.7
2019	$ 151.9	$ 33.0	$ 336.3	$ 97.5	$ 21.2	$ 215.9	$ 185.5	$ 40.3	$ 410.7
2020	$ 163.0	$ 35.4	$ 361.3	$ 104.3	$ 22.6	$ 231.1	$ 193.7	$ 42.0	$ 429.2
2021	$ 172.7	$ 37.4	$ 383.2	$ 110.8	$ 24.0	$ 245.7	$ 200.9	$ 43.5	$ 445.8
2022	$ 181.3	$ 39.2	$ 403.1	$ 117.0	$ 25.3	$ 260.1	$ 207.4	$ 44.9	$ 461.0
2023	$ 189.0	$ 40.8	$ 420.3	$ 123.0	$ 26.5	$ 273.5	$ 213.2	$ 46.0	$ 474.1
2024	$ 196.1	$ 42.3	$ 436.2	$ 128.8	$ 27.8	$ 286.6	$ 218.6	$ 47.1	$ 486.2
2025	$ 202.6	$ 43.6	$ 450.9	$ 134.5	$ 28.9	$ 299.4	$ 223.5	$ 48.1	$ 497.6
2026	$ 208.6	$ 44.8	$ 464.5	$ 140.1	$ 30.1	$ 311.9	$ 228.2	$ 49.0	$ 508.1
2027	$ 214.3	$ 46.0	$ 478.3	$ 145.5	$ 31.2	$ 324.7	$ 232.6	$ 49.9	$ 519.2
2028	$ 216.5	$ 46.5	$ 482.9	$ 148.6	$ 31.9	$ 331.4	$ 233.5	$ 50.1	$ 520.7
2029	$ 221.0	$ 47.4	$ 493.7	$ 153.3	$ 32.9	$ 342.5	$ 236.8	$ 50.8	$ 529.1
Total	**$ 2,757.2**	**$ 596.3**	**$ 6,122.7**	**$ 1,857.6**	**$ 401.8**	**$ 4,124.7**	**$ 3,289.1**	**$ 711.9**	**$ 7,299.9**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.3g Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Surface Water Systems Serving 50,000-99,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 6.0	$ 1.3	$ 13.1	$ 5.7	$ 1.3	$ 12.5	$ 11.2	$ 2.5	$ 24.7
2011	$ 15.4	$ 3.4	$ 33.9	$ 13.5	$ 3.0	$ 29.7	$ 27.4	$ 6.0	$ 60.4
2012	$ 27.9	$ 6.1	$ 61.4	$ 23.0	$ 5.0	$ 50.6	$ 47.4	$ 10.4	$ 104.2
2013	$ 43.2	$ 9.5	$ 95.1	$ 34.0	$ 7.5	$ 74.8	$ 70.2	$ 15.4	$ 154.5
2014	$ 58.4	$ 12.8	$ 128.5	$ 43.5	$ 9.5	$ 95.7	$ 89.7	$ 19.7	$ 197.5
2015	$ 71.4	$ 15.6	$ 157.4	$ 50.2	$ 11.0	$ 110.6	$ 102.7	$ 22.5	$ 226.6
2016	$ 83.3	$ 18.2	$ 183.7	$ 56.1	$ 12.3	$ 123.7	$ 113.1	$ 24.7	$ 249.3
2017	$ 94.2	$ 20.6	$ 208.1	$ 61.6	$ 13.5	$ 136.1	$ 121.6	$ 26.5	$ 268.5
2018	$ 103.9	$ 22.6	$ 229.6	$ 66.8	$ 14.5	$ 147.6	$ 128.7	$ 28.0	$ 284.4
2019	$ 112.3	$ 24.4	$ 248.7	$ 71.7	$ 15.6	$ 158.7	$ 134.9	$ 29.3	$ 298.6
2020	$ 119.5	$ 25.9	$ 264.9	$ 76.4	$ 16.6	$ 169.2	$ 140.3	$ 30.4	$ 310.8
2021	$ 125.9	$ 27.3	$ 279.4	$ 80.9	$ 17.5	$ 179.4	$ 145.0	$ 31.4	$ 321.8
2022	$ 131.6	$ 28.5	$ 292.6	$ 85.2	$ 18.4	$ 189.4	$ 149.3	$ 32.3	$ 332.0
2023	$ 136.8	$ 29.5	$ 304.2	$ 89.4	$ 19.3	$ 198.8	$ 153.3	$ 33.1	$ 340.8
2024	$ 141.6	$ 30.5	$ 314.9	$ 93.5	$ 20.1	$ 207.9	$ 156.9	$ 33.8	$ 349.1
2025	$ 146.0	$ 31.4	$ 325.0	$ 97.4	$ 21.0	$ 216.9	$ 160.3	$ 34.5	$ 356.8
2026	$ 150.1	$ 32.3	$ 334.2	$ 101.3	$ 21.8	$ 225.6	$ 163.5	$ 35.1	$ 364.1
2027	$ 154.0	$ 33.0	$ 343.8	$ 105.1	$ 22.5	$ 234.6	$ 166.5	$ 35.7	$ 371.8
2028	$ 155.5	$ 33.4	$ 346.7	$ 107.3	$ 23.0	$ 239.2	$ 167.1	$ 35.9	$ 372.6
2029	$ 158.5	$ 34.0	$ 354.1	$ 110.6	$ 23.7	$ 247.0	$ 169.4	$ 36.3	$ 378.4
Total	**$ 2,035.5**	**$ 440.3**	**$ 4,519.4**	**$ 1,373.0**	**$ 297.0**	**$ 3,048.1**	**$ 2,418.5**	**$ 523.6**	**$ 5,366.8**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.3h Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Surface Water Systems Serving 100,000-999,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 26.3	$ 5.8	$ 57.9	$ 25.2	$ 5.5	$ 55.4	$ 49.6	$ 10.9	$ 109.1
2011	$ 68.1	$ 15.0	$ 150.1	$ 59.7	$ 13.1	$ 131.4	$ 121.4	$ 26.7	$ 267.4
2012	$ 123.4	$ 27.1	$ 271.6	$ 101.7	$ 22.3	$ 223.9	$ 209.5	$ 46.0	$ 461.1
2013	$ 191.3	$ 42.0	$ 420.8	$ 150.5	$ 33.0	$ 331.1	$ 310.7	$ 68.2	$ 683.5
2014	$ 244.6	$ 53.6	$ 538.4	$ 179.2	$ 39.3	$ 394.4	$ 370.9	$ 81.3	$ 816.5
2015	$ 294.2	$ 64.4	$ 648.7	$ 204.1	$ 44.6	$ 450.0	$ 417.3	$ 91.3	$ 920.2
2016	$ 340.2	$ 74.4	$ 750.0	$ 226.7	$ 49.5	$ 499.8	$ 454.9	$ 99.4	$ 1,002.8
2017	$ 382.1	$ 83.4	$ 843.8	$ 247.8	$ 54.1	$ 547.2	$ 486.1	$ 106.1	$ 1,073.6
2018	$ 418.6	$ 91.2	$ 924.9	$ 267.6	$ 58.3	$ 591.2	$ 512.7	$ 111.6	$ 1,132.6
2019	$ 449.6	$ 97.8	$ 995.7	$ 286.5	$ 62.3	$ 634.4	$ 535.7	$ 116.5	$ 1,186.2
2020	$ 476.7	$ 103.5	$ 1,056.5	$ 304.6	$ 66.1	$ 675.0	$ 555.9	$ 120.7	$ 1,232.0
2021	$ 500.8	$ 108.5	$ 1,111.1	$ 322.0	$ 69.8	$ 714.5	$ 574.0	$ 124.4	$ 1,273.6
2022	$ 522.4	$ 113.0	$ 1,161.5	$ 338.8	$ 73.3	$ 753.3	$ 590.4	$ 127.7	$ 1,312.5
2023	$ 542.2	$ 117.0	$ 1,205.6	$ 355.1	$ 76.6	$ 789.6	$ 605.4	$ 130.6	$ 1,346.0
2024	$ 560.4	$ 120.8	$ 1,246.7	$ 371.0	$ 80.0	$ 825.3	$ 619.3	$ 133.5	$ 1,377.6
2025	$ 577.3	$ 124.2	$ 1,285.1	$ 386.4	$ 83.1	$ 860.2	$ 632.3	$ 136.0	$ 1,407.5
2026	$ 593.2	$ 127.4	$ 1,320.7	$ 401.5	$ 86.3	$ 894.0	$ 644.6	$ 138.5	$ 1,435.3
2027	$ 608.1	$ 130.4	$ 1,357.5	$ 416.2	$ 89.3	$ 929.1	$ 656.4	$ 140.8	$ 1,465.2
2028	$ 613.6	$ 131.7	$ 1,368.4	$ 424.6	$ 91.1	$ 947.0	$ 658.2	$ 141.3	$ 1,468.0
2029	$ 625.3	$ 134.0	$ 1,397.0	$ 437.4	$ 93.8	$ 977.3	$ 667.2	$ 143.0	$ 1,490.6
Total	**$ 8,158.4**	**$ 1,765.1**	**$ 18,111.9**	**$ 5,506.6**	**$ 1,191.5**	**$ 12,224.0**	**$ 9,672.4**	**$ 2,094.5**	**$ 21,461.3**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.3i Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Surface Water Systems Serving >1,000,000 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 22.4	$ 4.9	$ 49.3	$ 21.4	$ 4.7	$ 47.2	$ 42.2	$ 9.3	$ 92.8
2011	$ 58.0	$ 12.8	$ 127.7	$ 50.8	$ 11.2	$ 111.9	$ 103.3	$ 22.7	$ 227.5
2012	$ 105.0	$ 23.1	$ 231.1	$ 86.6	$ 19.0	$ 190.5	$ 178.3	$ 39.2	$ 392.5
2013	$ 162.8	$ 35.7	$ 358.1	$ 128.1	$ 28.1	$ 281.8	$ 264.4	$ 58.0	$ 581.7
2014	$ 208.2	$ 45.6	$ 458.2	$ 152.5	$ 33.4	$ 335.7	$ 315.7	$ 69.2	$ 694.9
2015	$ 250.4	$ 54.8	$ 552.1	$ 173.7	$ 38.0	$ 383.0	$ 355.2	$ 77.7	$ 783.2
2016	$ 289.5	$ 63.3	$ 638.3	$ 192.9	$ 42.2	$ 425.3	$ 387.1	$ 84.6	$ 853.4
2017	$ 325.2	$ 71.0	$ 718.2	$ 210.9	$ 46.0	$ 465.7	$ 413.7	$ 90.3	$ 913.7
2018	$ 356.3	$ 77.6	$ 787.1	$ 227.7	$ 49.6	$ 503.2	$ 436.3	$ 95.0	$ 963.9
2019	$ 382.7	$ 83.2	$ 847.4	$ 243.8	$ 53.0	$ 539.9	$ 455.9	$ 99.1	$ 1,009.5
2020	$ 405.7	$ 88.1	$ 899.1	$ 259.2	$ 56.3	$ 574.5	$ 473.1	$ 102.7	$ 1,048.5
2021	$ 426.2	$ 92.4	$ 945.6	$ 274.0	$ 59.4	$ 608.0	$ 488.5	$ 105.9	$ 1,083.9
2022	$ 444.6	$ 96.2	$ 988.5	$ 288.4	$ 62.4	$ 641.1	$ 502.4	$ 108.7	$ 1,117.0
2023	$ 461.5	$ 99.6	$ 1,026.0	$ 302.2	$ 65.2	$ 672.0	$ 515.2	$ 111.2	$ 1,145.5
2024	$ 476.9	$ 102.8	$ 1,061.0	$ 315.7	$ 68.1	$ 702.4	$ 527.0	$ 113.6	$ 1,172.4
2025	$ 491.3	$ 105.7	$ 1,093.7	$ 328.9	$ 70.7	$ 732.1	$ 538.1	$ 115.8	$ 1,197.9
2026	$ 504.8	$ 108.5	$ 1,124.0	$ 341.7	$ 73.4	$ 760.8	$ 548.6	$ 117.9	$ 1,221.6
2027	$ 517.5	$ 111.0	$ 1,155.3	$ 354.2	$ 76.0	$ 790.8	$ 558.6	$ 119.8	$ 1,246.9
2028	$ 522.2	$ 112.1	$ 1,164.6	$ 361.4	$ 77.5	$ 805.9	$ 560.2	$ 120.2	$ 1,249.3
2029	$ 532.2	$ 114.1	$ 1,189.0	$ 372.3	$ 79.8	$ 831.7	$ 567.8	$ 121.7	$ 1,268.6
Total	**$ 6,943.3**	**$ 1,502.2**	**$ 15,414.3**	**$ 4,686.4**	**$ 1,014.0**	**$ 10,403.3**	**$ 8,231.7**	**$ 1,782.5**	**$ 18,264.9**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.3j Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (All Surface Water Systems)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 63.0	$ 13.9	$ 138.5	$ 60.1	$ 13.2	$ 132.1	$ 118.5	$ 26.1	$ 260.6
2011	$ 163.1	$ 35.9	$ 359.2	$ 142.3	$ 31.3	$ 313.5	$ 290.1	$ 63.8	$ 638.9
2012	$ 295.2	$ 64.8	$ 649.8	$ 242.7	$ 53.3	$ 534.1	$ 500.8	$ 110.0	$ 1,102.3
2013	$ 457.7	$ 100.5	$ 1,007.0	$ 359.1	$ 78.8	$ 790.1	$ 742.8	$ 163.1	$ 1,634.3
2014	$ 597.0	$ 130.8	$ 1,314.3	$ 438.8	$ 96.2	$ 965.9	$ 909.1	$ 199.2	$ 2,001.2
2015	$ 727.7	$ 159.2	$ 1,604.6	$ 507.1	$ 110.9	$ 1,118.2	$ 1,039.6	$ 227.4	$ 2,292.3
2016	$ 847.3	$ 185.2	$ 1,867.8	$ 566.9	$ 123.9	$ 1,249.7	$ 1,142.2	$ 249.6	$ 2,518.0
2017	$ 955.8	$ 208.6	$ 2,110.8	$ 621.7	$ 135.7	$ 1,373.1	$ 1,226.3	$ 267.7	$ 2,708.3
2018	$ 1,051.3	$ 228.9	$ 2,322.6	$ 673.3	$ 146.6	$ 1,487.4	$ 1,297.2	$ 282.5	$ 2,865.9
2019	$ 1,133.3	$ 246.4	$ 2,509.6	$ 722.2	$ 157.0	$ 1,599.2	$ 1,358.3	$ 295.3	$ 3,007.8
2020	$ 1,204.8	$ 261.5	$ 2,670.0	$ 769.0	$ 166.9	$ 1,704.2	$ 1,411.8	$ 306.4	$ 3,128.7
2021	$ 1,268.0	$ 274.9	$ 2,813.5	$ 814.0	$ 176.4	$ 1,806.1	$ 1,459.3	$ 316.3	$ 3,238.0
2022	$ 1,324.8	$ 286.6	$ 2,945.2	$ 857.4	$ 185.5	$ 1,906.2	$ 1,502.2	$ 325.0	$ 3,339.8
2023	$ 1,376.4	$ 297.0	$ 3,060.3	$ 899.5	$ 194.1	$ 2,000.0	$ 1,541.4	$ 332.6	$ 3,427.3
2024	$ 1,423.7	$ 306.9	$ 3,167.2	$ 940.3	$ 202.7	$ 2,091.9	$ 1,577.6	$ 340.1	$ 3,509.5
2025	$ 1,467.7	$ 315.7	$ 3,267.0	$ 980.1	$ 210.8	$ 2,181.8	$ 1,611.4	$ 346.6	$ 3,586.9
2026	$ 1,508.8	$ 324.2	$ 3,359.5	$ 1,019.0	$ 218.9	$ 2,268.9	$ 1,643.3	$ 353.0	$ 3,659.0
2027	$ 1,547.5	$ 331.9	$ 3,454.4	$ 1,056.9	$ 226.7	$ 2,359.3	$ 1,673.6	$ 359.0	$ 3,735.8
2028	$ 1,561.9	$ 335.2	$ 3,483.4	$ 1,078.6	$ 231.5	$ 2,405.6	$ 1,678.6	$ 360.2	$ 3,743.7
2029	$ 1,592.3	$ 341.3	$ 3,557.5	$ 1,111.7	$ 238.3	$ 2,483.6	$ 1,701.8	$ 364.7	$ 3,802.0
Total	**$ 20,567.3**	**$ 4,449.3**	**$ 45,662.3**	**$ 13,860.7**	**$ 2,998.8**	**$ 30,770.8**	**$ 24,425.8**	**$ 5,288.7**	**$ 54,200.2**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38b, E.38f, and E.17j.

Exhibit F.3k Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Ground Water Systems Serving <100 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.1
2011	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1
2012	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.2
2013	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.0	$ 0.4
2014	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.0	$ 0.5
2015	$ 0.2	$ 0.0	$ 0.4	$ 0.1	$ 0.0	$ 0.3	$ 0.3	$ 0.1	$ 0.6
2016	$ 0.2	$ 0.1	$ 0.5	$ 0.2	$ 0.0	$ 0.3	$ 0.3	$ 0.1	$ 0.8
2017	$ 0.3	$ 0.1	$ 0.6	$ 0.2	$ 0.0	$ 0.4	$ 0.4	$ 0.1	$ 0.9
2018	$ 0.3	$ 0.1	$ 0.7	$ 0.2	$ 0.0	$ 0.4	$ 0.4	$ 0.1	$ 0.9
2019	$ 0.4	$ 0.1	$ 0.8	$ 0.2	$ 0.0	$ 0.5	$ 0.4	$ 0.1	$ 1.0
2020	$ 0.4	$ 0.1	$ 0.8	$ 0.2	$ 0.1	$ 0.5	$ 0.5	$ 0.1	$ 1.0
2021	$ 0.4	$ 0.1	$ 0.9	$ 0.3	$ 0.1	$ 0.6	$ 0.5	$ 0.1	$ 1.1
2022	$ 0.4	$ 0.1	$ 1.0	$ 0.3	$ 0.1	$ 0.6	$ 0.5	$ 0.1	$ 1.1
2023	$ 0.4	$ 0.1	$ 1.0	$ 0.3	$ 0.1	$ 0.6	$ 0.5	$ 0.1	$ 1.2
2024	$ 0.5	$ 0.1	$ 1.0	$ 0.3	$ 0.1	$ 0.7	$ 0.5	$ 0.1	$ 1.2
2025	$ 0.5	$ 0.1	$ 1.1	$ 0.3	$ 0.1	$ 0.7	$ 0.5	$ 0.1	$ 1.2
2026	$ 0.5	$ 0.1	$ 1.1	$ 0.3	$ 0.1	$ 0.7	$ 0.6	$ 0.1	$ 1.2
2027	$ 0.5	$ 0.1	$ 1.1	$ 0.3	$ 0.1	$ 0.8	$ 0.6	$ 0.1	$ 1.3
2028	$ 0.5	$ 0.1	$ 1.2	$ 0.4	$ 0.1	$ 0.8	$ 0.6	$ 0.1	$ 1.3
2029	$ 0.5	$ 0.1	$ 1.2	$ 0.4	$ 0.1	$ 0.8	$ 0.6	$ 0.1	$ 1.3
Total	**$ 6.5**	**$ 1.4**	**$ 14.3**	**$ 4.2**	**$ 0.9**	**$ 9.3**	**$ 7.8**	**$ 1.7**	**$ 17.3**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.3l Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Ground Water Systems Serving 100-499 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.0	$ 0.4
2011	$ 0.3	$ 0.1	$ 0.6	$ 0.2	$ 0.0	$ 0.5	$ 0.5	$ 0.1	$ 1.0
2012	$ 0.5	$ 0.1	$ 1.1	$ 0.4	$ 0.1	$ 0.8	$ 0.8	$ 0.2	$ 1.8
2013	$ 0.8	$ 0.2	$ 1.7	$ 0.5	$ 0.1	$ 1.2	$ 1.2	$ 0.3	$ 2.6
2014	$ 1.1	$ 0.2	$ 2.4	$ 0.7	$ 0.2	$ 1.6	$ 1.6	$ 0.4	$ 3.6
2015	$ 1.5	$ 0.3	$ 3.2	$ 1.0	$ 0.2	$ 2.1	$ 2.1	$ 0.5	$ 4.7
2016	$ 1.8	$ 0.4	$ 4.0	$ 1.2	$ 0.3	$ 2.6	$ 2.5	$ 0.6	$ 5.6
2017	$ 2.1	$ 0.5	$ 4.6	$ 1.3	$ 0.3	$ 2.9	$ 2.8	$ 0.6	$ 6.3
2018	$ 2.4	$ 0.5	$ 5.2	$ 1.5	$ 0.3	$ 3.2	$ 3.1	$ 0.7	$ 6.8
2019	$ 2.6	$ 0.6	$ 5.8	$ 1.6	$ 0.3	$ 3.6	$ 3.3	$ 0.7	$ 7.3
2020	$ 2.8	$ 0.6	$ 6.3	$ 1.7	$ 0.4	$ 3.9	$ 3.5	$ 0.8	$ 7.7
2021	$ 3.0	$ 0.7	$ 6.7	$ 1.9	$ 0.4	$ 4.1	$ 3.6	$ 0.8	$ 8.0
2022	$ 3.2	$ 0.7	$ 7.1	$ 2.0	$ 0.4	$ 4.4	$ 3.7	$ 0.8	$ 8.3
2023	$ 3.3	$ 0.7	$ 7.4	$ 2.1	$ 0.5	$ 4.7	$ 3.9	$ 0.8	$ 8.6
2024	$ 3.5	$ 0.7	$ 7.7	$ 2.2	$ 0.5	$ 4.9	$ 4.0	$ 0.9	$ 8.8
2025	$ 3.6	$ 0.8	$ 8.0	$ 2.3	$ 0.5	$ 5.2	$ 4.0	$ 0.9	$ 9.0
2026	$ 3.7	$ 0.8	$ 8.2	$ 2.4	$ 0.5	$ 5.4	$ 4.1	$ 0.9	$ 9.2
2027	$ 3.8	$ 0.8	$ 8.5	$ 2.5	$ 0.5	$ 5.7	$ 4.2	$ 0.9	$ 9.4
2028	$ 3.8	$ 0.8	$ 8.6	$ 2.6	$ 0.6	$ 5.8	$ 4.2	$ 0.9	$ 9.4
2029	$ 3.9	$ 0.8	$ 8.8	$ 2.7	$ 0.6	$ 6.0	$ 4.3	$ 0.9	$ 9.6
Total	**$ 47.7**	**$ 10.3**	**$ 106.0**	**$ 31.0**	**$ 6.7**	**$ 68.8**	**$ 57.7**	**$ 12.5**	**$ 128.2**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.3m Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Ground Water Systems Serving 500-999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.0	$ 0.4
2011	$ 0.3	$ 0.1	$ 0.6	$ 0.2	$ 0.0	$ 0.5	$ 0.5	$ 0.1	$ 1.1
2012	$ 0.5	$ 0.1	$ 1.2	$ 0.4	$ 0.1	$ 0.8	$ 0.9	$ 0.2	$ 1.9
2013	$ 0.8	$ 0.2	$ 1.8	$ 0.6	$ 0.1	$ 1.2	$ 1.3	$ 0.3	$ 2.8
2014	$ 1.2	$ 0.3	$ 2.5	$ 0.8	$ 0.2	$ 1.7	$ 1.7	$ 0.4	$ 3.8
2015	$ 1.5	$ 0.3	$ 3.4	$ 1.0	$ 0.2	$ 2.3	$ 2.3	$ 0.5	$ 5.0
2016	$ 1.9	$ 0.4	$ 4.2	$ 1.2	$ 0.3	$ 2.7	$ 2.7	$ 0.6	$ 6.0
2017	$ 2.2	$ 0.5	$ 4.9	$ 1.4	$ 0.3	$ 3.1	$ 3.0	$ 0.7	$ 6.7
2018	$ 2.5	$ 0.5	$ 5.6	$ 1.6	$ 0.3	$ 3.5	$ 3.3	$ 0.7	$ 7.3
2019	$ 2.8	$ 0.6	$ 6.1	$ 1.7	$ 0.4	$ 3.8	$ 3.5	$ 0.8	$ 7.8
2020	$ 3.0	$ 0.7	$ 6.7	$ 1.9	$ 0.4	$ 4.1	$ 3.7	$ 0.8	$ 8.2
2021	$ 3.2	$ 0.7	$ 7.1	$ 2.0	$ 0.4	$ 4.4	$ 3.8	$ 0.8	$ 8.5
2022	$ 3.4	$ 0.7	$ 7.5	$ 2.1	$ 0.5	$ 4.7	$ 4.0	$ 0.9	$ 8.8
2023	$ 3.5	$ 0.8	$ 7.9	$ 2.2	$ 0.5	$ 5.0	$ 4.1	$ 0.9	$ 9.1
2024	$ 3.7	$ 0.8	$ 8.2	$ 2.4	$ 0.5	$ 5.3	$ 4.2	$ 0.9	$ 9.4
2025	$ 3.8	$ 0.8	$ 8.5	$ 2.5	$ 0.5	$ 5.5	$ 4.3	$ 0.9	$ 9.6
2026	$ 3.9	$ 0.8	$ 8.8	$ 2.6	$ 0.6	$ 5.8	$ 4.4	$ 0.9	$ 9.8
2027	$ 4.0	$ 0.9	$ 9.0	$ 2.7	$ 0.6	$ 6.0	$ 4.5	$ 1.0	$ 10.0
2028	$ 4.1	$ 0.9	$ 9.1	$ 2.8	$ 0.6	$ 6.2	$ 4.5	$ 1.0	$ 10.0
2029	$ 4.2	$ 0.9	$ 9.3	$ 2.9	$ 0.6	$ 6.4	$ 4.6	$ 1.0	$ 10.2
Total	**$ 50.8**	**$ 11.0**	**$ 112.7**	**$ 33.0**	**$ 7.1**	**$ 73.3**	**$ 61.4**	**$ 13.3**	**$ 136.4**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.3n Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Ground Water Systems Serving 1,000-3,299 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.3	$ 0.1	$ 0.7	$ 0.3	$ 0.1	$ 0.6	$ 0.6	$ 0.1	$ 1.3
2011	$ 0.9	$ 0.2	$ 1.9	$ 0.7	$ 0.1	$ 1.5	$ 1.5	$ 0.3	$ 3.2
2012	$ 1.6	$ 0.3	$ 3.5	$ 1.1	$ 0.3	$ 2.5	$ 2.6	$ 0.6	$ 5.7
2013	$ 2.5	$ 0.5	$ 5.4	$ 1.7	$ 0.4	$ 3.8	$ 3.9	$ 0.8	$ 8.5
2014	$ 3.5	$ 0.8	$ 7.7	$ 2.4	$ 0.5	$ 5.2	$ 5.3	$ 1.2	$ 11.6
2015	$ 4.7	$ 1.0	$ 10.3	$ 3.1	$ 0.7	$ 6.8	$ 6.8	$ 1.5	$ 15.1
2016	$ 5.8	$ 1.3	$ 12.8	$ 3.7	$ 0.8	$ 8.2	$ 8.2	$ 1.8	$ 18.0
2017	$ 6.8	$ 1.5	$ 14.9	$ 4.3	$ 0.9	$ 9.4	$ 9.1	$ 2.0	$ 20.2
2018	$ 7.6	$ 1.7	$ 16.8	$ 4.7	$ 1.0	$ 10.4	$ 9.9	$ 2.2	$ 21.9
2019	$ 8.4	$ 1.8	$ 18.6	$ 5.2	$ 1.1	$ 11.4	$ 10.6	$ 2.3	$ 23.4
2020	$ 9.1	$ 2.0	$ 20.1	$ 5.6	$ 1.2	$ 12.4	$ 11.1	$ 2.4	$ 24.6
2021	$ 9.7	$ 2.1	$ 21.5	$ 6.0	$ 1.3	$ 13.3	$ 11.6	$ 2.5	$ 25.7
2022	$ 10.2	$ 2.2	$ 22.7	$ 6.4	$ 1.4	$ 14.2	$ 12.0	$ 2.6	$ 26.7
2023	$ 10.7	$ 2.3	$ 23.7	$ 6.8	$ 1.5	$ 15.0	$ 12.4	$ 2.7	$ 27.5
2024	$ 11.1	$ 2.4	$ 24.7	$ 7.1	$ 1.5	$ 15.9	$ 12.7	$ 2.7	$ 28.3
2025	$ 11.5	$ 2.5	$ 25.6	$ 7.5	$ 1.6	$ 16.7	$ 13.0	$ 2.8	$ 29.0
2026	$ 11.9	$ 2.5	$ 26.4	$ 7.8	$ 1.7	$ 17.4	$ 13.3	$ 2.9	$ 29.6
2027	$ 12.2	$ 2.6	$ 27.2	$ 8.2	$ 1.8	$ 18.2	$ 13.5	$ 2.9	$ 30.2
2028	$ 12.3	$ 2.7	$ 27.5	$ 8.4	$ 1.8	$ 18.7	$ 13.6	$ 2.9	$ 30.3
2029	$ 12.6	$ 2.7	$ 28.2	$ 8.7	$ 1.9	$ 19.4	$ 13.8	$ 3.0	$ 30.8
Total	**$ 153.2**	**$ 33.1**	**$ 340.3**	**$ 99.6**	**$ 21.5**	**$ 221.1**	**$ 185.4**	**$ 40.1**	**$ 411.6**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.3o Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Ground Water Systems Serving 3,300-9,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.5	$ 0.1	$ 1.2	$ 0.4	$ 0.1	$ 1.0	$ 0.9	$ 0.2	$ 2.0
2011	$ 1.4	$ 0.3	$ 3.1	$ 1.0	$ 0.2	$ 2.3	$ 2.3	$ 0.5	$ 5.1
2012	$ 2.5	$ 0.6	$ 5.5	$ 1.8	$ 0.4	$ 4.0	$ 4.1	$ 0.9	$ 9.0
2013	$ 3.9	$ 0.9	$ 8.6	$ 2.7	$ 0.6	$ 6.0	$ 6.1	$ 1.3	$ 13.4
2014	$ 5.5	$ 1.2	$ 12.2	$ 3.7	$ 0.8	$ 8.2	$ 8.3	$ 1.8	$ 18.4
2015	$ 7.4	$ 1.6	$ 16.3	$ 4.9	$ 1.1	$ 10.8	$ 10.8	$ 2.4	$ 23.8
2016	$ 9.2	$ 2.0	$ 20.3	$ 5.9	$ 1.3	$ 13.0	$ 12.9	$ 2.8	$ 28.5
2017	$ 10.7	$ 2.3	$ 23.6	$ 6.7	$ 1.5	$ 14.8	$ 14.5	$ 3.2	$ 31.9
2018	$ 12.0	$ 2.6	$ 26.6	$ 7.5	$ 1.6	$ 16.5	$ 15.7	$ 3.4	$ 34.7
2019	$ 13.3	$ 2.9	$ 29.4	$ 8.2	$ 1.8	$ 18.1	$ 16.7	$ 3.6	$ 37.0
2020	$ 14.3	$ 3.1	$ 31.8	$ 8.8	$ 1.9	$ 19.6	$ 17.6	$ 3.8	$ 39.0
2021	$ 15.3	$ 3.3	$ 33.9	$ 9.5	$ 2.1	$ 21.1	$ 18.3	$ 4.0	$ 40.7
2022	$ 16.1	$ 3.5	$ 35.9	$ 10.1	$ 2.2	$ 22.5	$ 19.0	$ 4.1	$ 42.2
2023	$ 16.9	$ 3.6	$ 37.5	$ 10.7	$ 2.3	$ 23.8	$ 19.6	$ 4.2	$ 43.5
2024	$ 17.6	$ 3.8	$ 39.1	$ 11.3	$ 2.4	$ 25.1	$ 20.1	$ 4.3	$ 44.7
2025	$ 18.2	$ 3.9	$ 40.5	$ 11.8	$ 2.5	$ 26.4	$ 20.6	$ 4.4	$ 45.8
2026	$ 18.8	$ 4.0	$ 41.8	$ 12.4	$ 2.7	$ 27.6	$ 21.0	$ 4.5	$ 46.8
2027	$ 19.3	$ 4.1	$ 43.1	$ 12.9	$ 2.8	$ 28.9	$ 21.4	$ 4.6	$ 47.8
2028	$ 19.5	$ 4.2	$ 43.6	$ 13.3	$ 2.8	$ 29.6	$ 21.5	$ 4.6	$ 48.0
2029	$ 20.0	$ 4.3	$ 44.6	$ 13.7	$ 2.9	$ 30.7	$ 21.8	$ 4.7	$ 48.7
Total	**$ 242.4**	**$ 52.4**	**$ 538.4**	**$ 157.5**	**$ 34.0**	**$ 349.8**	**$ 293.3**	**$ 63.5**	**$ 651.1**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.3p Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Ground Water Systems Serving 10,000-49,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.7	$ 0.1	$ 1.4	$ 0.5	$ 0.1	$ 1.2	$ 1.2	$ 0.3	$ 2.5
2011	$ 1.7	$ 0.4	$ 3.8	$ 1.3	$ 0.3	$ 2.8	$ 2.9	$ 0.6	$ 6.3
2012	$ 3.1	$ 0.7	$ 6.8	$ 2.2	$ 0.5	$ 4.9	$ 5.0	$ 1.1	$ 11.1
2013	$ 4.8	$ 1.1	$ 10.6	$ 3.3	$ 0.7	$ 7.4	$ 7.5	$ 1.7	$ 16.6
2014	$ 6.8	$ 1.5	$ 15.0	$ 4.6	$ 1.0	$ 10.1	$ 10.3	$ 2.3	$ 22.7
2015	$ 8.8	$ 1.9	$ 19.4	$ 5.7	$ 1.3	$ 12.7	$ 12.7	$ 2.8	$ 28.1
2016	$ 10.5	$ 2.3	$ 23.0	$ 6.6	$ 1.4	$ 14.6	$ 14.5	$ 3.2	$ 31.9
2017	$ 11.9	$ 2.6	$ 26.4	$ 7.4	$ 1.6	$ 16.4	$ 15.9	$ 3.5	$ 35.0
2018	$ 13.3	$ 2.9	$ 29.3	$ 8.2	$ 1.8	$ 18.0	$ 17.0	$ 3.7	$ 37.5
2019	$ 14.5	$ 3.1	$ 32.0	$ 8.9	$ 1.9	$ 19.7	$ 17.9	$ 3.9	$ 39.7
2020	$ 15.5	$ 3.4	$ 34.4	$ 9.6	$ 2.1	$ 21.2	$ 18.8	$ 4.1	$ 41.6
2021	$ 16.4	$ 3.6	$ 36.4	$ 10.2	$ 2.2	$ 22.7	$ 19.5	$ 4.2	$ 43.2
2022	$ 17.2	$ 3.7	$ 38.3	$ 10.8	$ 2.3	$ 24.1	$ 20.1	$ 4.4	$ 44.7
2023	$ 18.0	$ 3.9	$ 39.9	$ 11.5	$ 2.5	$ 25.5	$ 20.7	$ 4.5	$ 46.0
2024	$ 18.6	$ 4.0	$ 41.5	$ 12.0	$ 2.6	$ 26.8	$ 21.2	$ 4.6	$ 47.1
2025	$ 19.3	$ 4.1	$ 42.9	$ 12.6	$ 2.7	$ 28.1	$ 21.7	$ 4.7	$ 48.2
2026	$ 19.8	$ 4.3	$ 44.2	$ 13.2	$ 2.8	$ 29.4	$ 22.1	$ 4.7	$ 49.2
2027	$ 20.4	$ 4.4	$ 45.5	$ 13.7	$ 2.9	$ 30.7	$ 22.5	$ 4.8	$ 50.3
2028	$ 20.6	$ 4.4	$ 45.9	$ 14.1	$ 3.0	$ 31.4	$ 22.6	$ 4.8	$ 50.4
2029	$ 21.0	$ 4.5	$ 47.0	$ 14.6	$ 3.1	$ 32.5	$ 22.9	$ 4.9	$ 51.2
Total	**$ 262.9**	**$ 56.9**	**$ 583.8**	**$ 171.1**	**$ 37.0**	**$ 380.1**	**$ 316.9**	**$ 68.6**	**$ 703.4**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.3q Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Ground Water Systems Serving 50,000-99,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.3	$ 0.1	$ 0.6	$ 0.2	$ 0.0	$ 0.5	$ 0.5	$ 0.1	$ 1.1
2011	$ 0.7	$ 0.2	$ 1.6	$ 0.5	$ 0.1	$ 1.2	$ 1.2	$ 0.3	$ 2.7
2012	$ 1.3	$ 0.3	$ 2.9	$ 0.9	$ 0.2	$ 2.1	$ 2.1	$ 0.5	$ 4.6
2013	$ 2.0	$ 0.4	$ 4.4	$ 1.4	$ 0.3	$ 3.1	$ 3.2	$ 0.7	$ 6.9
2014	$ 2.7	$ 0.6	$ 6.0	$ 1.8	$ 0.4	$ 4.0	$ 4.1	$ 0.9	$ 9.0
2015	$ 3.3	$ 0.7	$ 7.3	$ 2.1	$ 0.5	$ 4.7	$ 4.7	$ 1.0	$ 10.4
2016	$ 3.8	$ 0.8	$ 8.5	$ 2.4	$ 0.5	$ 5.3	$ 5.2	$ 1.1	$ 11.5
2017	$ 4.3	$ 0.9	$ 9.6	$ 2.7	$ 0.6	$ 5.9	$ 5.6	$ 1.2	$ 12.4
2018	$ 4.8	$ 1.0	$ 10.5	$ 2.9	$ 0.6	$ 6.4	$ 6.0	$ 1.3	$ 13.2
2019	$ 5.1	$ 1.1	$ 11.4	$ 3.1	$ 0.7	$ 7.0	$ 6.3	$ 1.4	$ 13.9
2020	$ 5.5	$ 1.2	$ 12.1	$ 3.4	$ 0.7	$ 7.5	$ 6.5	$ 1.4	$ 14.5
2021	$ 5.7	$ 1.2	$ 12.8	$ 3.6	$ 0.8	$ 8.0	$ 6.8	$ 1.5	$ 15.0
2022	$ 6.0	$ 1.3	$ 13.4	$ 3.8	$ 0.8	$ 8.5	$ 7.0	$ 1.5	$ 15.5
2023	$ 6.2	$ 1.3	$ 13.9	$ 4.0	$ 0.9	$ 8.9	$ 7.1	$ 1.5	$ 15.9
2024	$ 6.5	$ 1.4	$ 14.4	$ 4.2	$ 0.9	$ 9.4	$ 7.3	$ 1.6	$ 16.3
2025	$ 6.7	$ 1.4	$ 14.8	$ 4.4	$ 0.9	$ 9.8	$ 7.5	$ 1.6	$ 16.6
2026	$ 6.9	$ 1.5	$ 15.3	$ 4.6	$ 1.0	$ 10.2	$ 7.6	$ 1.6	$ 16.9
2027	$ 7.0	$ 1.5	$ 15.7	$ 4.8	$ 1.0	$ 10.7	$ 7.7	$ 1.7	$ 17.3
2028	$ 7.1	$ 1.5	$ 15.8	$ 4.9	$ 1.0	$ 10.9	$ 7.8	$ 1.7	$ 17.3
2029	$ 7.2	$ 1.6	$ 16.2	$ 5.0	$ 1.1	$ 11.3	$ 7.9	$ 1.7	$ 17.6
Total	**$ 93.3**	**$ 20.2**	**$ 207.0**	**$ 60.9**	**$ 13.2**	**$ 135.1**	**$ 112.0**	**$ 24.2**	**$ 248.5**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.3r Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Ground Water Systems Serving 100,000-999,999 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.8	$ 0.2	$ 1.7	$ 0.6	$ 0.1	$ 1.4	$ 1.3	$ 0.3	$ 2.9
2011	$ 2.0	$ 0.4	$ 4.4	$ 1.5	$ 0.3	$ 3.3	$ 3.3	$ 0.7	$ 7.3
2012	$ 3.6	$ 0.8	$ 7.9	$ 2.6	$ 0.6	$ 5.7	$ 5.8	$ 1.3	$ 12.8
2013	$ 5.6	$ 1.2	$ 12.3	$ 3.9	$ 0.9	$ 8.5	$ 8.7	$ 1.9	$ 19.2
2014	$ 7.1	$ 1.6	$ 15.7	$ 4.7	$ 1.0	$ 10.3	$ 10.6	$ 2.3	$ 23.3
2015	$ 8.5	$ 1.9	$ 18.8	$ 5.4	$ 1.2	$ 12.0	$ 12.0	$ 2.6	$ 26.5
2016	$ 9.8	$ 2.1	$ 21.7	$ 6.1	$ 1.3	$ 13.4	$ 13.2	$ 2.9	$ 29.0
2017	$ 11.0	$ 2.4	$ 24.3	$ 6.7	$ 1.5	$ 14.9	$ 14.1	$ 3.1	$ 31.2
2018	$ 12.0	$ 2.6	$ 26.5	$ 7.3	$ 1.6	$ 16.2	$ 14.9	$ 3.3	$ 33.0
2019	$ 12.9	$ 2.8	$ 28.5	$ 7.9	$ 1.7	$ 17.5	$ 15.6	$ 3.4	$ 34.6
2020	$ 13.6	$ 3.0	$ 30.2	$ 8.4	$ 1.8	$ 18.7	$ 16.2	$ 3.5	$ 36.0
2021	$ 14.3	$ 3.1	$ 31.8	$ 9.0	$ 1.9	$ 19.9	$ 16.8	$ 3.6	$ 37.2
2022	$ 14.9	$ 3.2	$ 33.2	$ 9.5	$ 2.1	$ 21.1	$ 17.2	$ 3.7	$ 38.3
2023	$ 15.5	$ 3.3	$ 34.5	$ 10.0	$ 2.2	$ 22.2	$ 17.7	$ 3.8	$ 39.3
2024	$ 16.0	$ 3.5	$ 35.7	$ 10.5	$ 2.3	$ 23.3	$ 18.1	$ 3.9	$ 40.2
2025	$ 16.5	$ 3.6	$ 36.8	$ 10.9	$ 2.4	$ 24.4	$ 18.4	$ 4.0	$ 41.1
2026	$ 17.0	$ 3.6	$ 37.8	$ 11.4	$ 2.5	$ 25.4	$ 18.8	$ 4.0	$ 41.8
2027	$ 17.4	$ 3.7	$ 38.9	$ 11.9	$ 2.5	$ 26.5	$ 19.1	$ 4.1	$ 42.7
2028	$ 17.6	$ 3.8	$ 39.2	$ 12.1	$ 2.6	$ 27.1	$ 19.2	$ 4.1	$ 42.7
2029	$ 17.9	$ 3.8	$ 40.0	$ 12.5	$ 2.7	$ 28.0	$ 19.4	$ 4.2	$ 43.4
Total	**$ 234.2**	**$ 50.7**	**$ 519.9**	**$ 153.0**	**$ 33.1**	**$ 339.8**	**$ 280.7**	**$ 60.8**	**$ 622.8**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.3s Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Ground Water Systems Serving ≥1,000,000 People)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.0	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.2	$ 0.0	$ 0.5
2011	$ 0.3	$ 0.1	$ 0.7	$ 0.3	$ 0.1	$ 0.6	$ 0.6	$ 0.1	$ 1.2
2012	$ 0.6	$ 0.1	$ 1.3	$ 0.4	$ 0.1	$ 1.0	$ 1.0	$ 0.2	$ 2.1
2013	$ 0.9	$ 0.2	$ 2.0	$ 0.6	$ 0.1	$ 1.4	$ 1.5	$ 0.3	$ 3.2
2014	$ 1.2	$ 0.3	$ 2.6	$ 0.8	$ 0.2	$ 1.7	$ 1.8	$ 0.4	$ 3.9
2015	$ 1.4	$ 0.3	$ 3.1	$ 0.9	$ 0.2	$ 2.0	$ 2.0	$ 0.4	$ 4.4
2016	$ 1.6	$ 0.4	$ 3.6	$ 1.0	$ 0.2	$ 2.2	$ 2.2	$ 0.5	$ 4.8
2017	$ 1.8	$ 0.4	$ 4.0	$ 1.1	$ 0.2	$ 2.5	$ 2.4	$ 0.5	$ 5.2
2018	$ 2.0	$ 0.4	$ 4.4	$ 1.2	$ 0.3	$ 2.7	$ 2.5	$ 0.5	$ 5.5
2019	$ 2.1	$ 0.5	$ 4.7	$ 1.3	$ 0.3	$ 2.9	$ 2.6	$ 0.6	$ 5.8
2020	$ 2.3	$ 0.5	$ 5.0	$ 1.4	$ 0.3	$ 3.1	$ 2.7	$ 0.6	$ 6.0
2021	$ 2.4	$ 0.5	$ 5.3	$ 1.5	$ 0.3	$ 3.3	$ 2.8	$ 0.6	$ 6.2
2022	$ 2.5	$ 0.5	$ 5.5	$ 1.6	$ 0.3	$ 3.5	$ 2.9	$ 0.6	$ 6.4
2023	$ 2.6	$ 0.6	$ 5.7	$ 1.7	$ 0.4	$ 3.7	$ 2.9	$ 0.6	$ 6.5
2024	$ 2.7	$ 0.6	$ 5.9	$ 1.7	$ 0.4	$ 3.9	$ 3.0	$ 0.6	$ 6.7
2025	$ 2.8	$ 0.6	$ 6.1	$ 1.8	$ 0.4	$ 4.1	$ 3.1	$ 0.7	$ 6.8
2026	$ 2.8	$ 0.6	$ 6.3	$ 1.9	$ 0.4	$ 4.2	$ 3.1	$ 0.7	$ 7.0
2027	$ 2.9	$ 0.6	$ 6.5	$ 2.0	$ 0.4	$ 4.4	$ 3.2	$ 0.7	$ 7.1
2028	$ 2.9	$ 0.6	$ 6.5	$ 2.0	$ 0.4	$ 4.5	$ 3.2	$ 0.7	$ 7.1
2029	$ 3.0	$ 0.6	$ 6.7	$ 2.1	$ 0.4	$ 4.7	$ 3.2	$ 0.7	$ 7.2
Total	**$ 39.0**	**$ 8.4**	**$ 86.6**	**$ 25.5**	**$ 5.5**	**$ 56.6**	**$ 46.7**	**$ 10.1**	**$ 103.7**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.3t Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (All Ground Water Systems)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 2.9	$ 0.6	$ 6.4	$ 2.4	$ 0.5	$ 5.2	$ 5.1	$ 1.1	$ 11.2
2011	$ 7.6	$ 1.7	$ 16.8	$ 5.8	$ 1.3	$ 12.7	$ 12.8	$ 2.8	$ 28.1
2012	$ 13.8	$ 3.0	$ 30.4	$ 9.9	$ 2.2	$ 21.9	$ 22.3	$ 4.9	$ 49.2
2013	$ 21.4	$ 4.7	$ 47.1	$ 14.9	$ 3.3	$ 32.7	$ 33.5	$ 7.3	$ 73.6
2014	$ 29.3	$ 6.4	$ 64.5	$ 19.6	$ 4.3	$ 43.2	$ 44.0	$ 9.6	$ 96.8
2015	$ 37.3	$ 8.2	$ 82.3	$ 24.3	$ 5.3	$ 53.5	$ 53.8	$ 11.8	$ 118.6
2016	$ 44.7	$ 9.8	$ 98.6	$ 28.3	$ 6.2	$ 62.5	$ 61.8	$ 13.5	$ 136.1
2017	$ 51.2	$ 11.2	$ 113.0	$ 31.8	$ 6.9	$ 70.3	$ 67.8	$ 14.8	$ 149.8
2018	$ 56.9	$ 12.4	$ 125.7	$ 35.1	$ 7.6	$ 77.4	$ 72.8	$ 15.9	$ 160.9
2019	$ 62.0	$ 13.5	$ 137.3	$ 38.1	$ 8.3	$ 84.4	$ 77.0	$ 16.7	$ 170.5
2020	$ 66.5	$ 14.4	$ 147.4	$ 41.1	$ 8.9	$ 91.0	$ 80.6	$ 17.5	$ 178.6
2021	$ 70.5	$ 15.3	$ 156.4	$ 43.9	$ 9.5	$ 97.3	$ 83.7	$ 18.1	$ 185.7
2022	$ 74.0	$ 16.0	$ 164.5	$ 46.6	$ 10.1	$ 103.6	$ 86.4	$ 18.7	$ 192.1
2023	$ 77.2	$ 16.7	$ 171.6	$ 49.2	$ 10.6	$ 109.5	$ 88.9	$ 19.2	$ 197.6
2024	$ 80.1	$ 17.3	$ 178.1	$ 51.8	$ 11.2	$ 115.2	$ 91.1	$ 19.6	$ 202.6
2025	$ 82.8	$ 17.8	$ 184.2	$ 54.3	$ 11.7	$ 120.8	$ 93.1	$ 20.0	$ 207.3
2026	$ 85.3	$ 18.3	$ 189.8	$ 56.7	$ 12.2	$ 126.2	$ 95.0	$ 20.4	$ 211.6
2027	$ 87.6	$ 18.8	$ 195.5	$ 59.1	$ 12.7	$ 131.8	$ 96.8	$ 20.8	$ 216.1
2028	$ 88.5	$ 19.0	$ 197.5	$ 60.5	$ 13.0	$ 134.9	$ 97.1	$ 20.8	$ 216.6
2029	$ 90.4	$ 19.4	$ 201.9	$ 62.6	$ 13.4	$ 139.8	$ 98.5	$ 21.1	$ 220.0
Total	**$ 1,129.9**	**$ 244.4**	**$ 2,509.1**	**$ 735.8**	**$ 159.1**	**$ 1,633.9**	**$ 1,362.0**	**$ 294.8**	**$ 3,023.0**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.38c, E.38g, and E.17k.

Exhibit F.3u Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (All Water Systems)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 65.9	$ 14.5	$ 144.9	$ 62.5	$ 13.8	$ 137.4	$ 123.6	$ 27.2	$ 271.8
2011	$ 170.7	$ 37.5	$ 375.9	$ 148.1	$ 32.6	$ 326.2	$ 302.8	$ 66.6	$ 667.1
2012	$ 309.0	$ 67.9	$ 680.2	$ 252.6	$ 55.5	$ 556.0	$ 523.1	$ 114.9	$ 1,151.5
2013	$ 479.1	$ 105.2	$ 1,054.1	$ 374.0	$ 82.1	$ 822.8	$ 776.2	$ 170.4	$ 1,707.9
2014	$ 626.3	$ 137.2	$ 1,378.7	$ 458.4	$ 100.5	$ 1,009.1	$ 953.1	$ 208.8	$ 2,098.0
2015	$ 765.0	$ 167.3	$ 1,686.9	$ 531.4	$ 116.2	$ 1,171.7	$ 1,093.3	$ 239.2	$ 2,410.9
2016	$ 892.0	$ 194.9	$ 1,966.4	$ 595.2	$ 130.1	$ 1,312.1	$ 1,204.0	$ 263.1	$ 2,654.2
2017	$ 1,006.9	$ 219.8	$ 2,223.9	$ 653.6	$ 142.7	$ 1,443.4	$ 1,294.1	$ 282.5	$ 2,858.1
2018	$ 1,108.2	$ 241.3	$ 2,448.4	$ 708.3	$ 154.2	$ 1,564.9	$ 1,370.0	$ 298.3	$ 3,026.8
2019	$ 1,195.3	$ 259.9	$ 2,646.9	$ 760.3	$ 165.3	$ 1,683.6	$ 1,435.3	$ 312.0	$ 3,178.3
2020	$ 1,271.3	$ 275.9	$ 2,817.3	$ 810.0	$ 175.8	$ 1,795.2	$ 1,492.3	$ 323.9	$ 3,307.3
2021	$ 1,338.5	$ 290.1	$ 2,969.8	$ 857.9	$ 186.0	$ 1,903.4	$ 1,543.0	$ 334.5	$ 3,423.7
2022	$ 1,398.8	$ 302.6	$ 3,109.7	$ 904.0	$ 195.6	$ 2,009.8	$ 1,588.6	$ 343.7	$ 3,531.9
2023	$ 1,453.5	$ 313.6	$ 3,231.9	$ 948.7	$ 204.7	$ 2,109.4	$ 1,630.3	$ 351.7	$ 3,624.9
2024	$ 1,503.8	$ 324.2	$ 3,345.3	$ 992.1	$ 213.9	$ 2,207.1	$ 1,668.7	$ 359.7	$ 3,712.1
2025	$ 1,550.4	$ 333.5	$ 3,451.2	$ 1,034.4	$ 222.5	$ 2,302.6	$ 1,704.5	$ 366.7	$ 3,794.2
2026	$ 1,594.0	$ 342.5	$ 3,549.3	$ 1,075.7	$ 231.1	$ 2,395.1	$ 1,738.3	$ 373.5	$ 3,870.6
2027	$ 1,635.1	$ 350.7	$ 3,650.0	$ 1,116.0	$ 239.4	$ 2,491.1	$ 1,770.4	$ 379.7	$ 3,952.0
2028	$ 1,650.5	$ 354.2	$ 3,680.9	$ 1,139.1	$ 244.5	$ 2,540.5	$ 1,775.7	$ 381.1	$ 3,960.3
2029	$ 1,682.7	$ 360.7	$ 3,759.5	$ 1,174.2	$ 251.7	$ 2,623.4	$ 1,800.2	$ 385.8	$ 4,022.0
Total	**$ 21,697.2**	**$ 4,693.7**	**$ 48,171.4**	**$ 14,596.4**	**$ 3,157.9**	**$ 32,404.8**	**$ 25,787.8**	**$ 5,583.5**	**$ 57,223.2**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.3j and F.3t.

Exhibit F.3v Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 3% Discount Rate
(All Water Systems)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model: Mean Value	Smoking/Lung Cancer: 90 Percent Confidence Bound Lower (5th %tile)	Smoking/Lung Cancer: 90 Percent Confidence Bound Upper (95th %tile)	Smoking/Bladder Cancer Cessation Lag Model: Mean Value	Smoking/Bladder Cancer: 90 Percent Confidence Bound Lower (5th %tile)	Smoking/Bladder Cancer: 90 Percent Confidence Bound Upper (95th %tile)	Arsenic/Bladder Cancer Cessation Lag Model: Mean Value	Arsenic/Bladder Cancer: 90 Percent Confidence Bound Lower (5th %tile)	Arsenic/Bladder Cancer: 90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 56.9	$ 12.5	$ 125.0	$ 53.9	$ 11.9	$ 118.5	$ 106.6	$ 23.5	$ 234.5
2011	$ 142.9	$ 31.4	$ 314.8	$ 124.0	$ 27.3	$ 273.2	$ 253.6	$ 55.8	$ 558.6
2012	$ 251.3	$ 55.2	$ 553.1	$ 205.4	$ 45.1	$ 452.1	$ 425.4	$ 93.4	$ 936.2
2013	$ 378.2	$ 83.0	$ 832.1	$ 295.2	$ 64.8	$ 649.5	$ 612.8	$ 134.5	$ 1,348.2
2014	$ 480.0	$ 105.2	$ 1,056.7	$ 351.3	$ 77.0	$ 773.4	$ 730.4	$ 160.1	$ 1,607.9
2015	$ 569.2	$ 124.5	$ 1,255.2	$ 395.4	$ 86.5	$ 871.8	$ 813.5	$ 178.0	$ 1,793.9
2016	$ 644.4	$ 140.8	$ 1,420.6	$ 430.0	$ 94.0	$ 947.9	$ 869.8	$ 190.1	$ 1,917.4
2017	$ 706.2	$ 154.2	$ 1,559.8	$ 458.4	$ 100.1	$ 1,012.4	$ 907.7	$ 198.1	$ 2,004.6
2018	$ 754.7	$ 164.3	$ 1,667.2	$ 482.3	$ 105.0	$ 1,065.6	$ 932.9	$ 203.2	$ 2,061.1
2019	$ 790.2	$ 171.8	$ 1,749.9	$ 502.7	$ 109.3	$ 1,113.1	$ 948.9	$ 206.3	$ 2,101.2
2020	$ 816.0	$ 177.1	$ 1,808.3	$ 519.9	$ 112.9	$ 1,152.3	$ 957.9	$ 207.9	$ 2,122.8
2021	$ 834.1	$ 180.8	$ 1,850.7	$ 534.6	$ 115.9	$ 1,186.1	$ 961.6	$ 208.4	$ 2,133.5
2022	$ 846.3	$ 183.1	$ 1,881.4	$ 546.9	$ 118.3	$ 1,216.0	$ 961.2	$ 207.9	$ 2,136.8
2023	$ 853.8	$ 184.2	$ 1,898.4	$ 557.3	$ 120.2	$ 1,239.1	$ 957.6	$ 206.6	$ 2,129.2
2024	$ 857.6	$ 184.9	$ 1,907.8	$ 565.8	$ 122.0	$ 1,258.7	$ 951.6	$ 205.1	$ 2,117.0
2025	$ 858.4	$ 184.7	$ 1,910.9	$ 572.7	$ 123.2	$ 1,274.9	$ 943.8	$ 203.0	$ 2,100.8
2026	$ 856.9	$ 184.1	$ 1,907.9	$ 578.2	$ 124.2	$ 1,287.5	$ 934.4	$ 200.8	$ 2,080.6
2027	$ 853.4	$ 183.0	$ 1,904.9	$ 582.4	$ 124.9	$ 1,300.1	$ 924.0	$ 198.2	$ 2,062.5
2028	$ 836.3	$ 179.5	$ 1,865.1	$ 577.2	$ 123.9	$ 1,287.3	$ 899.7	$ 193.1	$ 2,006.6
2029	$ 827.8	$ 177.4	$ 1,849.4	$ 577.6	$ 123.8	$ 1,290.5	$ 885.6	$ 189.8	$ 1,978.6
Total	**$ 13,214.6**	**$ 2,861.8**	**$ 29,319.3**	**$ 8,911.3**	**$ 1,930.2**	**$ 19,769.8**	**$ 15,979.0**	**$ 3,463.8**	**$ 35,432.2**
Ann.	**$ 758.9**	**$ 164.3**	**$ 1,683.7**	**$ 511.8**	**$ 110.8**	**$ 1,135.3**	**$ 917.6**	**$ 198.9**	**$ 2,034.8**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibit F.3u.

Exhibit F.3w Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 7% Discount Rate
(All Water Systems)

TTHM - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 47.0	$ 10.3	$ 103.3	$ 44.5	$ 9.8	$ 98.0	$ 88.1	$ 19.4	$ 193.8
2011	$ 113.7	$ 25.0	$ 250.5	$ 98.7	$ 21.7	$ 217.3	$ 201.8	$ 44.4	$ 444.5
2012	$ 192.5	$ 42.3	$ 423.6	$ 157.3	$ 34.5	$ 346.2	$ 325.8	$ 71.6	$ 717.1
2013	$ 278.8	$ 61.2	$ 613.5	$ 217.7	$ 47.8	$ 478.9	$ 451.8	$ 99.2	$ 994.0
2014	$ 340.7	$ 74.7	$ 749.9	$ 249.3	$ 54.6	$ 548.9	$ 518.4	$ 113.6	$ 1,141.2
2015	$ 388.9	$ 85.1	$ 857.5	$ 270.1	$ 59.1	$ 595.6	$ 555.8	$ 121.6	$ 1,225.6
2016	$ 423.8	$ 92.6	$ 934.2	$ 282.8	$ 61.8	$ 623.4	$ 572.0	$ 125.0	$ 1,261.0
2017	$ 447.1	$ 97.6	$ 987.4	$ 290.2	$ 63.3	$ 640.9	$ 574.6	$ 125.4	$ 1,269.0
2018	$ 459.9	$ 100.1	$ 1,016.0	$ 293.9	$ 64.0	$ 649.4	$ 568.5	$ 123.8	$ 1,256.0
2019	$ 463.6	$ 100.8	$ 1,026.5	$ 294.9	$ 64.1	$ 652.9	$ 556.6	$ 121.0	$ 1,232.6
2020	$ 460.8	$ 100.0	$ 1,021.1	$ 293.6	$ 63.7	$ 650.7	$ 540.9	$ 117.4	$ 1,198.7
2021	$ 453.4	$ 98.3	$ 1,006.0	$ 290.6	$ 63.0	$ 644.8	$ 522.7	$ 113.3	$ 1,159.7
2022	$ 442.8	$ 95.8	$ 984.5	$ 286.2	$ 61.9	$ 636.3	$ 502.9	$ 108.8	$ 1,118.1
2023	$ 430.0	$ 92.8	$ 956.2	$ 280.7	$ 60.6	$ 624.1	$ 482.3	$ 104.1	$ 1,072.5
2024	$ 415.8	$ 89.6	$ 925.0	$ 274.3	$ 59.1	$ 610.3	$ 461.4	$ 99.5	$ 1,026.4
2025	$ 400.7	$ 86.2	$ 891.9	$ 267.3	$ 57.5	$ 595.0	$ 440.5	$ 94.8	$ 980.5
2026	$ 385.0	$ 82.7	$ 857.2	$ 259.8	$ 55.8	$ 578.4	$ 419.8	$ 90.2	$ 934.8
2027	$ 369.1	$ 79.2	$ 823.8	$ 251.9	$ 54.0	$ 562.3	$ 399.6	$ 85.7	$ 892.0
2028	$ 348.2	$ 74.7	$ 776.5	$ 240.3	$ 51.6	$ 535.9	$ 374.6	$ 80.4	$ 835.4
2029	$ 331.7	$ 71.1	$ 741.2	$ 231.5	$ 49.6	$ 517.2	$ 354.9	$ 76.1	$ 792.9
Total	**$ 7,193.3**	**$ 1,560.1**	**$ 15,945.9**	**$ 4,875.6**	**$ 1,057.7**	**$ 10,806.4**	**$ 8,913.1**	**$ 1,935.1**	**$ 19,745.8**
Ann.	**$ 617.3**	**$ 133.9**	**$ 1,368.3**	**$ 418.4**	**$ 90.8**	**$ 927.3**	**$ 764.8**	**$ 166.1**	**$ 1,694.4**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.3u.

Exhibit F.3x Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 3% Discount Rate, by Small & Large Size Categories (Surface Water Systems)

TTHM - Preferred Alternative

	Small Systems									Large Systems								
	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model			Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 1.3	$ 0.3	$ 2.8	$ 1.0	$ 0.2	$ 2.3	$ 2.2	$ 0.5	$ 4.9	$ 53.1	$ 11.7	$ 116.7	$ 50.8	$ 11.2	$ 111.7	$ 100.0	$ 22.0	$ 219.9
2011	$ 3.2	$ 0.7	$ 7.1	$ 2.4	$ 0.5	$ 5.4	$ 5.4	$ 1.2	$ 11.9	$ 133.3	$ 29.3	$ 293.7	$ 116.8	$ 25.7	$ 257.2	$ 237.5	$ 52.2	$ 523.2
2012	$ 5.7	$ 1.2	$ 12.5	$ 4.1	$ 0.9	$ 9.0	$ 9.2	$ 2.0	$ 20.2	$ 234.4	$ 51.5	$ 515.9	$ 193.2	$ 42.4	$ 425.3	$ 398.0	$ 87.4	$ 876.1
2013	$ 8.5	$ 1.9	$ 18.8	$ 5.9	$ 1.3	$ 13.0	$ 13.3	$ 2.9	$ 29.4	$ 352.8	$ 77.5	$ 776.2	$ 277.6	$ 60.9	$ 610.7	$ 573.0	$ 125.8	$ 1,260.8
2014	$ 11.8	$ 2.6	$ 25.9	$ 7.9	$ 1.7	$ 17.5	$ 17.8	$ 3.9	$ 39.1	$ 445.8	$ 97.7	$ 981.4	$ 328.4	$ 72.0	$ 722.8	$ 679.0	$ 148.8	$ 1,494.7
2015	$ 15.3	$ 3.3	$ 33.7	$ 10.1	$ 2.2	$ 22.2	$ 22.3	$ 4.9	$ 49.2	$ 526.2	$ 115.1	$ 1,160.3	$ 367.2	$ 80.3	$ 809.8	$ 751.2	$ 164.3	$ 1,656.5
2016	$ 18.4	$ 4.0	$ 40.6	$ 11.8	$ 2.6	$ 26.1	$ 25.9	$ 5.7	$ 57.2	$ 593.7	$ 129.7	$ 1,308.7	$ 397.7	$ 86.9	$ 876.7	$ 799.2	$ 174.7	$ 1,761.9
2017	$ 20.8	$ 4.5	$ 46.0	$ 13.1	$ 2.9	$ 28.9	$ 28.2	$ 6.1	$ 62.2	$ 649.5	$ 141.8	$ 1,434.5	$ 423.0	$ 92.3	$ 934.2	$ 831.9	$ 181.6	$ 1,837.4
2018	$ 22.8	$ 5.0	$ 50.3	$ 14.1	$ 3.1	$ 31.2	$ 29.7	$ 6.5	$ 65.6	$ 693.1	$ 150.9	$ 1,531.3	$ 444.3	$ 96.8	$ 981.7	$ 853.7	$ 185.9	$ 1,886.0
2019	$ 24.3	$ 5.3	$ 53.9	$ 15.0	$ 3.3	$ 33.2	$ 30.7	$ 6.7	$ 68.0	$ 724.9	$ 157.6	$ 1,605.2	$ 462.5	$ 100.5	$ 1,024.1	$ 867.3	$ 188.6	$ 1,920.5
2020	$ 25.6	$ 5.5	$ 56.6	$ 15.8	$ 3.4	$ 34.9	$ 31.3	$ 6.8	$ 69.5	$ 747.7	$ 162.3	$ 1,657.1	$ 477.8	$ 103.7	$ 1,058.9	$ 874.8	$ 189.9	$ 1,938.7
2021	$ 26.5	$ 5.7	$ 58.7	$ 16.4	$ 3.6	$ 36.4	$ 31.7	$ 6.9	$ 70.4	$ 763.7	$ 165.6	$ 1,694.6	$ 490.8	$ 106.4	$ 1,089.1	$ 877.7	$ 190.3	$ 1,947.4
2022	$ 27.1	$ 5.9	$ 60.2	$ 17.0	$ 3.7	$ 37.7	$ 31.9	$ 6.9	$ 70.9	$ 774.4	$ 167.5	$ 1,721.7	$ 501.8	$ 108.6	$ 1,115.6	$ 877.0	$ 189.7	$ 1,949.7
2023	$ 27.5	$ 5.9	$ 61.2	$ 17.5	$ 3.8	$ 38.8	$ 31.9	$ 6.9	$ 71.0	$ 780.9	$ 168.5	$ 1,736.4	$ 510.9	$ 110.2	$ 1,136.0	$ 873.5	$ 188.5	$ 1,942.2
2024	$ 27.8	$ 6.0	$ 61.8	$ 17.9	$ 3.9	$ 39.7	$ 31.8	$ 6.9	$ 70.8	$ 784.1	$ 169.0	$ 1,744.4	$ 518.4	$ 111.8	$ 1,153.2	$ 867.9	$ 187.1	$ 1,930.6
2025	$ 27.9	$ 6.0	$ 62.2	$ 18.2	$ 3.9	$ 40.5	$ 31.6	$ 6.8	$ 70.4	$ 784.7	$ 168.8	$ 1,746.7	$ 524.5	$ 112.8	$ 1,167.5	$ 860.6	$ 185.1	$ 1,915.6
2026	$ 28.0	$ 6.0	$ 62.3	$ 18.5	$ 4.0	$ 41.2	$ 31.4	$ 6.7	$ 69.8	$ 783.0	$ 168.2	$ 1,743.6	$ 529.3	$ 113.7	$ 1,178.4	$ 852.0	$ 183.0	$ 1,897.1
2027	$ 28.0	$ 6.0	$ 62.4	$ 18.7	$ 4.0	$ 41.8	$ 31.0	$ 6.7	$ 69.3	$ 779.7	$ 167.2	$ 1,740.4	$ 532.9	$ 114.3	$ 1,189.5	$ 842.4	$ 180.7	$ 1,880.4
2028	$ 27.5	$ 5.9	$ 61.3	$ 18.7	$ 4.0	$ 41.6	$ 30.2	$ 6.5	$ 67.5	$ 763.9	$ 163.9	$ 1,703.8	$ 527.9	$ 113.3	$ 1,177.3	$ 820.3	$ 176.0	$ 1,829.4
2029	$ 27.2	$ 5.8	$ 60.9	$ 18.7	$ 4.0	$ 41.9	$ 29.8	$ 6.4	$ 66.5	$ 756.1	$ 162.1	$ 1,689.2	$ 528.1	$ 113.2	$ 1,179.9	$ 807.4	$ 173.0	$ 1,803.8
Total	**$ 405.1**	**$ 87.7**	**$ 899.2**	**$ 262.8**	**$ 56.9**	**$ 583.4**	**$ 497.4**	**$ 107.7**	**$ 1,103.4**	**$ 12,125.2**	**$ 2,626.0**	**$ 26,901.7**	**$ 8,203.7**	**$ 1,777.0**	**$ 18,199.4**	**$ 14,644.4**	**$ 3,174.7**	**$ 32,471.9**
Ann.	**$ 23.3**	**$ 5.0**	**$ 51.6**	**$ 15.1**	**$ 3.3**	**$ 33.5**	**$ 28.6**	**$ 6.2**	**$ 63.4**	**$ 696.3**	**$ 150.8**	**$ 1,544.9**	**$ 471.1**	**$ 102.1**	**$ 1,045.2**	**$ 841.0**	**$ 182.3**	**$ 1,864.8**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.3a through F.3i.

Exhibit F.3y Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 7% Discount Rate, by Small & Large Size Categories (Surface Water Systems)

TTHM - Preferred Alternative

Year	Small Systems									Large Systems								
	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model			Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 1.1	$ 0.2	$ 2.3	$ 0.9	$ 0.2	$ 1.9	$ 1.8	$ 0.4	$ 4.1	$ 43.9	$ 9.7	$ 96.4	$ 42.0	$ 9.2	$ 92.3	$ 82.6	$ 18.2	$ 181.7
2011	$ 2.6	$ 0.6	$ 5.6	$ 1.9	$ 0.4	$ 4.3	$ 4.3	$ 0.9	$ 9.5	$ 106.1	$ 23.3	$ 233.7	$ 92.9	$ 20.4	$ 204.6	$ 189.0	$ 41.6	$ 416.3
2012	$ 4.3	$ 1.0	$ 9.6	$ 3.1	$ 0.7	$ 6.9	$ 7.0	$ 1.5	$ 15.5	$ 179.5	$ 39.4	$ 395.1	$ 148.0	$ 32.5	$ 325.7	$ 304.8	$ 67.0	$ 671.0
2013	$ 6.3	$ 1.4	$ 13.8	$ 4.4	$ 1.0	$ 9.6	$ 9.8	$ 2.2	$ 21.6	$ 260.1	$ 57.1	$ 572.3	$ 204.6	$ 44.9	$ 450.2	$ 422.5	$ 92.7	$ 929.5
2014	$ 8.3	$ 1.8	$ 18.4	$ 5.6	$ 1.2	$ 12.4	$ 12.6	$ 2.8	$ 27.7	$ 316.4	$ 69.3	$ 696.5	$ 233.0	$ 51.1	$ 513.0	$ 481.9	$ 105.6	$ 1,060.8
2015	$ 10.4	$ 2.3	$ 23.0	$ 6.9	$ 1.5	$ 15.2	$ 15.2	$ 3.3	$ 33.6	$ 359.5	$ 78.6	$ 792.7	$ 250.9	$ 54.9	$ 553.2	$ 513.2	$ 112.3	$ 1,131.7
2016	$ 12.1	$ 2.6	$ 26.7	$ 7.8	$ 1.7	$ 17.2	$ 17.0	$ 3.7	$ 37.6	$ 390.4	$ 85.3	$ 860.7	$ 261.5	$ 57.2	$ 576.5	$ 525.6	$ 114.9	$ 1,158.7
2017	$ 13.2	$ 2.9	$ 29.1	$ 8.3	$ 1.8	$ 18.3	$ 17.8	$ 3.9	$ 39.4	$ 411.2	$ 89.8	$ 908.1	$ 267.8	$ 58.5	$ 591.4	$ 526.7	$ 115.0	$ 1,163.1
2018	$ 13.9	$ 3.0	$ 30.6	$ 8.6	$ 1.9	$ 19.0	$ 18.1	$ 3.9	$ 39.9	$ 422.4	$ 92.0	$ 933.2	$ 270.8	$ 59.0	$ 598.2	$ 520.2	$ 113.3	$ 1,149.3
2019	$ 14.3	$ 3.1	$ 31.6	$ 8.8	$ 1.9	$ 19.5	$ 18.0	$ 3.9	$ 39.9	$ 425.2	$ 92.4	$ 941.6	$ 271.3	$ 59.0	$ 600.7	$ 508.8	$ 110.6	$ 1,126.6
2020	$ 14.4	$ 3.1	$ 32.0	$ 8.9	$ 1.9	$ 19.7	$ 17.7	$ 3.8	$ 39.2	$ 422.2	$ 91.6	$ 935.7	$ 269.8	$ 58.6	$ 598.0	$ 494.0	$ 107.2	$ 1,094.8
2021	$ 14.4	$ 3.1	$ 31.9	$ 8.9	$ 1.9	$ 19.8	$ 17.2	$ 3.7	$ 38.3	$ 415.1	$ 90.0	$ 921.1	$ 266.8	$ 57.8	$ 592.0	$ 477.1	$ 103.4	$ 1,058.6
2022	$ 14.2	$ 3.1	$ 31.5	$ 8.9	$ 1.9	$ 19.7	$ 16.7	$ 3.6	$ 37.1	$ 405.2	$ 87.7	$ 900.9	$ 262.6	$ 56.8	$ 583.7	$ 458.9	$ 99.3	$ 1,020.2
2023	$ 13.9	$ 3.0	$ 30.8	$ 8.8	$ 1.9	$ 19.5	$ 16.1	$ 3.5	$ 35.7	$ 393.4	$ 84.9	$ 874.6	$ 257.3	$ 55.5	$ 572.2	$ 440.0	$ 94.9	$ 978.3
2024	$ 13.5	$ 2.9	$ 30.0	$ 8.7	$ 1.9	$ 19.3	$ 15.4	$ 3.3	$ 34.3	$ 380.2	$ 82.0	$ 845.8	$ 251.4	$ 54.2	$ 559.2	$ 420.8	$ 90.7	$ 936.1
2025	$ 13.0	$ 2.8	$ 29.0	$ 8.5	$ 1.8	$ 18.9	$ 14.8	$ 3.2	$ 32.8	$ 366.2	$ 78.8	$ 815.2	$ 244.8	$ 52.7	$ 544.9	$ 401.7	$ 86.4	$ 894.1
2026	$ 12.6	$ 2.7	$ 28.0	$ 8.3	$ 1.8	$ 18.5	$ 14.1	$ 3.0	$ 31.4	$ 351.8	$ 75.6	$ 783.4	$ 237.8	$ 51.1	$ 529.5	$ 382.8	$ 82.2	$ 852.3
2027	$ 12.1	$ 2.6	$ 27.0	$ 8.1	$ 1.7	$ 18.1	$ 13.4	$ 2.9	$ 30.0	$ 337.2	$ 72.3	$ 752.7	$ 230.5	$ 49.4	$ 514.4	$ 364.3	$ 78.1	$ 813.3
2028	$ 11.4	$ 2.5	$ 25.5	$ 7.8	$ 1.7	$ 17.3	$ 12.6	$ 2.7	$ 28.1	$ 318.0	$ 68.3	$ 709.3	$ 219.8	$ 47.2	$ 490.1	$ 341.5	$ 73.3	$ 761.6
2029	$ 10.9	$ 2.3	$ 24.4	$ 7.5	$ 1.6	$ 16.8	$ 11.9	$ 2.6	$ 26.7	$ 303.0	$ 64.9	$ 677.0	$ 211.6	$ 45.4	$ 472.8	$ 323.6	$ 69.3	$ 722.9
Total	**$ 216.9**	**$ 47.0**	**$ 481.0**	**$ 140.6**	**$ 30.5**	**$ 311.9**	**$ 271.7**	**$ 58.9**	**$ 602.3**	**$ 6,607.1**	**$ 1,433.0**	**$ 14,646.0**	**$ 4,495.1**	**$ 975.2**	**$ 9,962.8**	**$ 8,179.9**	**$ 1,776.0**	**$ 18,120.8**
Ann.	**$ 18.6**	**$ 4.0**	**$ 41.3**	**$ 12.1**	**$ 2.6**	**$ 26.8**	**$ 23.3**	**$ 5.1**	**$ 51.7**	**$ 567.0**	**$ 123.0**	**$ 1,256.8**	**$ 385.7**	**$ 83.7**	**$ 854.9**	**$ 701.9**	**$ 152.4**	**$ 1,555.0**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.3a through F.3i.

Exhibit F.3z Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 3% Discount Rate, by Small & Large Size Categories (Ground Water Systems)

TTHM - Preferred Alternative

	Small Systems									Large Systems								
	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model			Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.9	$ 0.2	$ 2.1	$ 0.8	$ 0.2	$ 1.7	$ 1.7	$ 0.4	$ 3.6	$ 1.6	$ 0.3	$ 3.5	$ 1.3	$ 0.3	$ 2.8	$ 2.8	$ 0.6	$ 6.1
2011	$ 2.4	$ 0.5	$ 5.3	$ 1.8	$ 0.4	$ 4.0	$ 4.0	$ 0.9	$ 8.9	$ 4.0	$ 0.9	$ 8.8	$ 3.0	$ 0.7	$ 6.6	$ 6.7	$ 1.5	$ 14.7
2012	$ 4.2	$ 0.9	$ 9.3	$ 3.0	$ 0.7	$ 6.7	$ 6.8	$ 1.5	$ 15.0	$ 7.0	$ 1.5	$ 15.4	$ 5.0	$ 1.1	$ 11.1	$ 11.3	$ 2.5	$ 25.0
2013	$ 6.3	$ 1.4	$ 14.0	$ 4.4	$ 1.0	$ 9.7	$ 9.9	$ 2.2	$ 21.8	$ 10.5	$ 2.3	$ 23.2	$ 7.3	$ 1.6	$ 16.1	$ 16.5	$ 3.6	$ 36.3
2014	$ 8.7	$ 1.9	$ 19.3	$ 5.9	$ 1.3	$ 13.0	$ 13.2	$ 2.9	$ 29.1	$ 13.7	$ 3.0	$ 30.2	$ 9.1	$ 2.0	$ 20.1	$ 20.5	$ 4.5	$ 45.1
2015	$ 11.4	$ 2.5	$ 25.1	$ 7.5	$ 1.6	$ 16.5	$ 16.6	$ 3.6	$ 36.6	$ 16.4	$ 3.6	$ 36.2	$ 10.6	$ 2.3	$ 23.3	$ 23.4	$ 5.1	$ 51.6
2016	$ 13.7	$ 3.0	$ 30.2	$ 8.8	$ 1.9	$ 19.4	$ 19.3	$ 4.2	$ 42.5	$ 18.6	$ 4.1	$ 41.0	$ 11.7	$ 2.5	$ 25.7	$ 25.3	$ 5.5	$ 55.8
2017	$ 15.5	$ 3.4	$ 34.2	$ 9.7	$ 2.1	$ 21.5	$ 20.9	$ 4.6	$ 46.3	$ 20.4	$ 4.5	$ 45.1	$ 12.6	$ 2.7	$ 27.8	$ 26.6	$ 5.8	$ 58.8
2018	$ 16.9	$ 3.7	$ 37.4	$ 10.5	$ 2.3	$ 23.2	$ 22.1	$ 4.8	$ 48.8	$ 21.8	$ 4.8	$ 48.2	$ 13.4	$ 2.9	$ 29.5	$ 27.5	$ 6.0	$ 60.8
2019	$ 18.1	$ 3.9	$ 40.1	$ 11.2	$ 2.4	$ 24.7	$ 22.8	$ 5.0	$ 50.6	$ 22.9	$ 5.0	$ 50.7	$ 14.0	$ 3.1	$ 31.1	$ 28.1	$ 6.1	$ 62.2
2020	$ 19.0	$ 4.1	$ 42.1	$ 11.7	$ 2.5	$ 26.0	$ 23.3	$ 5.1	$ 51.7	$ 23.7	$ 5.1	$ 52.5	$ 14.6	$ 3.2	$ 32.4	$ 28.4	$ 6.2	$ 62.9
2021	$ 19.7	$ 4.3	$ 43.7	$ 12.2	$ 2.6	$ 27.1	$ 23.6	$ 5.1	$ 52.4	$ 24.2	$ 5.3	$ 53.8	$ 15.1	$ 3.3	$ 33.6	$ 28.5	$ 6.2	$ 63.3
2022	$ 20.2	$ 4.4	$ 44.8	$ 12.6	$ 2.7	$ 28.1	$ 23.7	$ 5.1	$ 52.8	$ 24.6	$ 5.3	$ 54.7	$ 15.6	$ 3.4	$ 34.6	$ 28.6	$ 6.2	$ 63.5
2023	$ 20.5	$ 4.4	$ 45.5	$ 13.0	$ 2.8	$ 28.9	$ 23.7	$ 5.1	$ 52.8	$ 24.9	$ 5.4	$ 55.3	$ 15.9	$ 3.4	$ 35.4	$ 28.5	$ 6.1	$ 63.3
2024	$ 20.7	$ 4.5	$ 46.0	$ 13.3	$ 2.9	$ 29.6	$ 23.7	$ 5.1	$ 52.6	$ 25.0	$ 5.4	$ 55.6	$ 16.2	$ 3.5	$ 36.1	$ 28.3	$ 6.1	$ 62.9
2025	$ 20.8	$ 4.5	$ 46.3	$ 13.5	$ 2.9	$ 30.2	$ 23.5	$ 5.1	$ 52.4	$ 25.0	$ 5.4	$ 55.7	$ 16.5	$ 3.5	$ 36.7	$ 28.0	$ 6.0	$ 62.4
2026	$ 20.8	$ 4.5	$ 46.4	$ 13.8	$ 3.0	$ 30.6	$ 23.3	$ 5.0	$ 51.9	$ 25.0	$ 5.4	$ 55.7	$ 16.7	$ 3.6	$ 37.2	$ 27.8	$ 6.0	$ 61.8
2027	$ 20.8	$ 4.5	$ 46.4	$ 13.9	$ 3.0	$ 31.1	$ 23.1	$ 5.0	$ 51.5	$ 24.9	$ 5.3	$ 55.6	$ 16.9	$ 3.6	$ 37.7	$ 27.4	$ 5.9	$ 61.2
2028	$ 20.4	$ 4.4	$ 45.6	$ 13.9	$ 3.0	$ 31.0	$ 22.5	$ 4.8	$ 50.2	$ 24.4	$ 5.2	$ 54.5	$ 16.8	$ 3.6	$ 37.4	$ 26.7	$ 5.7	$ 59.6
2029	$ 20.3	$ 4.3	$ 45.3	$ 13.9	$ 3.0	$ 31.2	$ 22.2	$ 4.7	$ 49.5	$ 24.2	$ 5.2	$ 54.0	$ 16.8	$ 3.6	$ 37.6	$ 26.3	$ 5.6	$ 58.7
Total	**$ 301.4**	**$ 65.2**	**$ 669.0**	**$ 195.6**	**$ 42.3**	**$ 434.1**	**$ 370.1**	**$ 80.2**	**$ 821.0**	**$ 382.8**	**$ 82.9**	**$ 849.4**	**$ 249.2**	**$ 54.0**	**$ 552.9**	**$ 467.1**	**$ 101.2**	**$ 1,035.9**
Ann.	**$ 17.3**	**$ 3.7**	**$ 38.4**	**$ 11.2**	**$ 2.4**	**$ 24.9**	**$ 21.3**	**$ 4.6**	**$ 47.1**	**$ 22.0**	**$ 4.8**	**$ 48.8**	**$ 14.3**	**$ 3.1**	**$ 31.8**	**$ 26.8**	**$ 5.8**	**$ 59.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.3k through F.3s.

Exhibit F.3aa Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 7% Discount Rate, by Small & Large Size Categories (Surface Water Systems)

TTHM - Preferred Alternative

	Small Systems									Large Systems								
	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model			Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.8	$ 0.2	$ 1.7	$ 0.6	$ 0.1	$ 1.4	$ 1.4	$ 0.3	$ 3.0	$ 1.3	$ 0.3	$ 2.9	$ 1.1	$ 0.2	$ 2.3	$ 2.3	$ 0.5	$ 5.0
2011	$ 1.9	$ 0.4	$ 4.2	$ 1.4	$ 0.3	$ 3.2	$ 3.2	$ 0.7	$ 7.0	$ 3.2	$ 0.7	$ 7.0	$ 2.4	$ 0.5	$ 5.3	$ 5.3	$ 1.2	$ 11.7
2012	$ 3.2	$ 0.7	$ 7.1	$ 2.3	$ 0.5	$ 5.1	$ 5.2	$ 1.1	$ 11.5	$ 5.4	$ 1.2	$ 11.8	$ 3.9	$ 0.8	$ 8.5	$ 8.7	$ 1.9	$ 19.1
2013	$ 4.7	$ 1.0	$ 10.3	$ 3.3	$ 0.7	$ 7.2	$ 7.3	$ 1.6	$ 16.1	$ 7.8	$ 1.7	$ 17.1	$ 5.4	$ 1.2	$ 11.9	$ 12.2	$ 2.7	$ 26.7
2014	$ 6.2	$ 1.4	$ 13.7	$ 4.2	$ 0.9	$ 9.2	$ 9.4	$ 2.1	$ 20.6	$ 9.7	$ 2.1	$ 21.4	$ 6.5	$ 1.4	$ 14.3	$ 14.5	$ 3.2	$ 32.0
2015	$ 7.8	$ 1.7	$ 17.1	$ 5.1	$ 1.1	$ 11.3	$ 11.3	$ 2.5	$ 25.0	$ 11.2	$ 2.5	$ 24.7	$ 7.2	$ 1.6	$ 15.9	$ 16.0	$ 3.5	$ 35.3
2016	$ 9.0	$ 2.0	$ 19.9	$ 5.8	$ 1.3	$ 12.8	$ 12.7	$ 2.8	$ 28.0	$ 12.2	$ 2.7	$ 27.0	$ 7.7	$ 1.7	$ 16.9	$ 16.7	$ 3.6	$ 36.7
2017	$ 9.8	$ 2.1	$ 21.7	$ 6.2	$ 1.3	$ 13.6	$ 13.3	$ 2.9	$ 29.3	$ 12.9	$ 2.8	$ 28.5	$ 8.0	$ 1.7	$ 17.6	$ 16.9	$ 3.7	$ 37.2
2018	$ 10.3	$ 2.2	$ 22.8	$ 6.4	$ 1.4	$ 14.1	$ 13.5	$ 2.9	$ 29.7	$ 13.3	$ 2.9	$ 29.4	$ 8.1	$ 1.8	$ 18.0	$ 16.8	$ 3.7	$ 37.0
2019	$ 10.6	$ 2.3	$ 23.5	$ 6.5	$ 1.4	$ 14.5	$ 13.4	$ 2.9	$ 29.7	$ 13.4	$ 2.9	$ 29.7	$ 8.2	$ 1.8	$ 18.2	$ 16.5	$ 3.6	$ 36.5
2020	$ 10.7	$ 2.3	$ 23.8	$ 6.6	$ 1.4	$ 14.7	$ 13.2	$ 2.9	$ 29.2	$ 13.4	$ 2.9	$ 29.6	$ 8.3	$ 1.8	$ 18.3	$ 16.0	$ 3.5	$ 35.5
2021	$ 10.7	$ 2.3	$ 23.7	$ 6.6	$ 1.4	$ 14.7	$ 12.8	$ 2.8	$ 28.5	$ 13.2	$ 2.9	$ 29.2	$ 8.2	$ 1.8	$ 18.2	$ 15.5	$ 3.4	$ 34.4
2022	$ 10.5	$ 2.3	$ 23.4	$ 6.6	$ 1.4	$ 14.7	$ 12.4	$ 2.7	$ 27.6	$ 12.9	$ 2.8	$ 28.6	$ 8.1	$ 1.8	$ 18.1	$ 14.9	$ 3.2	$ 33.2
2023	$ 10.3	$ 2.2	$ 22.9	$ 6.5	$ 1.4	$ 14.5	$ 12.0	$ 2.6	$ 26.6	$ 12.5	$ 2.7	$ 27.8	$ 8.0	$ 1.7	$ 17.8	$ 14.3	$ 3.1	$ 31.9
2024	$ 10.0	$ 2.2	$ 22.3	$ 6.4	$ 1.4	$ 14.3	$ 11.5	$ 2.5	$ 25.5	$ 12.1	$ 2.6	$ 26.9	$ 7.9	$ 1.7	$ 17.5	$ 13.7	$ 3.0	$ 30.5
2025	$ 9.7	$ 2.1	$ 21.6	$ 6.3	$ 1.4	$ 14.1	$ 11.0	$ 2.4	$ 24.4	$ 11.7	$ 2.5	$ 26.0	$ 7.7	$ 1.7	$ 17.1	$ 13.1	$ 2.8	$ 29.1
2026	$ 9.4	$ 2.0	$ 20.8	$ 6.2	$ 1.3	$ 13.8	$ 10.5	$ 2.3	$ 23.3	$ 11.2	$ 2.4	$ 25.0	$ 7.5	$ 1.6	$ 16.7	$ 12.5	$ 2.7	$ 27.8
2027	$ 9.0	$ 1.9	$ 20.1	$ 6.0	$ 1.3	$ 13.5	$ 10.0	$ 2.1	$ 22.3	$ 10.8	$ 2.3	$ 24.0	$ 7.3	$ 1.6	$ 16.3	$ 11.9	$ 2.5	$ 26.5
2028	$ 8.5	$ 1.8	$ 19.0	$ 5.8	$ 1.2	$ 12.9	$ 9.4	$ 2.0	$ 20.9	$ 10.2	$ 2.2	$ 22.7	$ 7.0	$ 1.5	$ 15.6	$ 11.1	$ 2.4	$ 24.8
2029	$ 8.1	$ 1.7	$ 18.2	$ 5.6	$ 1.2	$ 12.5	$ 8.9	$ 1.9	$ 19.8	$ 9.7	$ 2.1	$ 21.7	$ 6.7	$ 1.4	$ 15.1	$ 10.5	$ 2.3	$ 23.5
Total	**$ 161.4**	**$ 35.0**	**$ 357.9**	**$ 104.6**	**$ 22.7**	**$ 232.1**	**$ 202.2**	**$ 43.9**	**$ 448.1**	**$ 208.0**	**$ 45.1**	**$ 461.1**	**$ 135.2**	**$ 29.3**	**$ 299.7**	**$ 259.3**	**$ 56.3**	**$ 574.5**
Ann.	**$ 13.8**	**$ 3.0**	**$ 30.7**	**$ 9.0**	**$ 1.9**	**$ 19.9**	**$ 17.3**	**$ 3.8**	**$ 38.5**	**$ 17.8**	**$ 3.9**	**$ 39.6**	**$ 11.6**	**$ 2.5**	**$ 25.7**	**$ 22.3**	**$ 4.8**	**$ 49.3**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.3k through F.3s.

Exhibit F.3ab Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size
(All Systems)

TTHM - Preferred Alternative

Smoking/Lung Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.1	$ 0.6	$ 1.3	$ 6.5	$ 5.4	$ 23.4	$ 19.4	$ 56.9
2011	$ 0.0	$ 0.3	$ 0.4	$ 1.5	$ 3.4	$ 16.2	$ 13.5	$ 58.7	$ 48.8	$ 142.9
2012	$ 0.1	$ 0.5	$ 0.6	$ 2.7	$ 6.0	$ 28.5	$ 23.7	$ 103.2	$ 85.9	$ 251.3
2013	$ 0.1	$ 0.8	$ 1.0	$ 4.0	$ 9.0	$ 43.0	$ 35.7	$ 155.4	$ 129.2	$ 378.2
2014	$ 0.1	$ 1.1	$ 1.3	$ 5.5	$ 12.4	$ 59.3	$ 46.8	$ 192.9	$ 160.4	$ 480.0
2015	$ 0.2	$ 1.4	$ 1.7	$ 7.2	$ 16.1	$ 74.4	$ 55.6	$ 225.3	$ 187.4	$ 569.2
2016	$ 0.2	$ 1.7	$ 2.1	$ 8.7	$ 19.4	$ 86.1	$ 63.0	$ 252.9	$ 210.3	$ 644.4
2017	$ 0.2	$ 1.9	$ 2.4	$ 9.8	$ 22.0	$ 95.8	$ 69.1	$ 275.7	$ 229.4	$ 706.2
2018	$ 0.3	$ 2.1	$ 2.6	$ 10.7	$ 24.0	$ 103.7	$ 74.0	$ 293.3	$ 244.0	$ 754.7
2019	$ 0.3	$ 2.2	$ 2.8	$ 11.5	$ 25.7	$ 110.0	$ 77.6	$ 305.8	$ 254.4	$ 790.2
2020	$ 0.3	$ 2.4	$ 2.9	$ 12.0	$ 27.0	$ 114.6	$ 80.2	$ 314.7	$ 261.9	$ 816.0
2021	$ 0.3	$ 2.4	$ 3.0	$ 12.5	$ 27.9	$ 117.9	$ 82.0	$ 321.0	$ 267.1	$ 834.1
2022	$ 0.3	$ 2.5	$ 3.1	$ 12.8	$ 28.6	$ 120.1	$ 83.3	$ 325.1	$ 270.5	$ 846.3
2023	$ 0.3	$ 2.5	$ 3.1	$ 13.0	$ 29.1	$ 121.6	$ 84.0	$ 327.6	$ 272.6	$ 853.8
2024	$ 0.3	$ 2.6	$ 3.1	$ 13.1	$ 29.3	$ 122.5	$ 84.4	$ 328.7	$ 273.5	$ 857.6
2025	$ 0.3	$ 2.6	$ 3.2	$ 13.2	$ 29.5	$ 122.8	$ 84.5	$ 328.8	$ 273.6	$ 858.4
2026	$ 0.3	$ 2.6	$ 3.2	$ 13.2	$ 29.6	$ 122.8	$ 84.4	$ 328.0	$ 272.9	$ 856.9
2027	$ 0.3	$ 2.6	$ 3.2	$ 13.2	$ 29.5	$ 122.5	$ 84.0	$ 326.5	$ 271.6	$ 853.4
2028	$ 0.3	$ 2.5	$ 3.1	$ 12.9	$ 29.0	$ 120.2	$ 82.4	$ 319.8	$ 266.1	$ 836.3
2029	$ 0.3	$ 2.5	$ 3.1	$ 12.8	$ 28.8	$ 119.0	$ 81.5	$ 316.4	$ 263.3	$ 827.8
Total	**$ 4.8**	**$ 37.4**	**$ 45.8**	**$ 190.8**	**$ 427.7**	**$ 1,827.3**	**$ 1,295.3**	**$ 5,123.2**	**$ 4,262.2**	**$ 13,214.6**
Ann.	**$ 0.3**	**$ 2.1**	**$ 2.6**	**$ 11.0**	**$ 24.6**	**$ 104.9**	**$ 74.4**	**$ 294.2**	**$ 244.8**	**$ 758.9**

Smoking/Bladder Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.1	$ 0.5	$ 1.1	$ 6.1	$ 5.1	$ 22.3	$ 18.6	$ 53.9
2011	$ 0.0	$ 0.2	$ 0.3	$ 1.1	$ 2.6	$ 14.0	$ 11.8	$ 51.2	$ 42.7	$ 124.0
2012	$ 0.0	$ 0.4	$ 0.5	$ 1.9	$ 4.3	$ 23.3	$ 19.5	$ 84.8	$ 70.7	$ 205.4
2013	$ 0.1	$ 0.5	$ 0.7	$ 2.8	$ 6.3	$ 33.5	$ 28.0	$ 121.9	$ 101.6	$ 295.2
2014	$ 0.1	$ 0.7	$ 0.9	$ 3.7	$ 8.4	$ 44.4	$ 34.7	$ 140.9	$ 117.5	$ 351.3
2015	$ 0.1	$ 0.9	$ 1.1	$ 4.7	$ 10.6	$ 53.1	$ 38.9	$ 155.9	$ 129.9	$ 395.4
2016	$ 0.1	$ 1.1	$ 1.3	$ 5.6	$ 12.5	$ 58.7	$ 42.3	$ 168.2	$ 140.1	$ 430.0
2017	$ 0.2	$ 1.2	$ 1.5	$ 6.2	$ 13.8	$ 63.3	$ 45.1	$ 178.5	$ 148.7	$ 458.4
2018	$ 0.2	$ 1.3	$ 1.6	$ 6.6	$ 14.9	$ 67.1	$ 47.5	$ 187.2	$ 155.9	$ 482.3
2019	$ 0.2	$ 1.4	$ 1.7	$ 7.1	$ 15.8	$ 70.3	$ 49.5	$ 194.6	$ 162.1	$ 502.7
2020	$ 0.2	$ 1.5	$ 1.8	$ 7.4	$ 16.6	$ 73.1	$ 51.2	$ 200.9	$ 167.3	$ 519.9
2021	$ 0.2	$ 1.5	$ 1.9	$ 7.7	$ 17.3	$ 75.4	$ 52.6	$ 206.3	$ 171.7	$ 534.6
2022	$ 0.2	$ 1.6	$ 1.9	$ 8.0	$ 17.9	$ 77.3	$ 53.8	$ 210.7	$ 175.4	$ 546.9
2023	$ 0.2	$ 1.6	$ 2.0	$ 8.2	$ 18.4	$ 79.0	$ 54.9	$ 214.5	$ 178.5	$ 557.3
2024	$ 0.2	$ 1.6	$ 2.0	$ 8.4	$ 18.9	$ 80.4	$ 55.7	$ 217.5	$ 181.1	$ 565.8
2025	$ 0.2	$ 1.7	$ 2.1	$ 8.6	$ 19.2	$ 81.5	$ 56.4	$ 220.0	$ 183.1	$ 572.7
2026	$ 0.2	$ 1.7	$ 2.1	$ 8.7	$ 19.5	$ 82.4	$ 56.9	$ 222.0	$ 184.7	$ 578.2
2027	$ 0.2	$ 1.7	$ 2.1	$ 8.8	$ 19.8	$ 83.1	$ 57.3	$ 223.4	$ 185.9	$ 582.4
2028	$ 0.2	$ 1.7	$ 2.1	$ 8.8	$ 19.7	$ 82.4	$ 56.8	$ 221.3	$ 184.1	$ 577.2
2029	$ 0.2	$ 1.7	$ 2.1	$ 8.8	$ 19.8	$ 82.6	$ 56.9	$ 221.3	$ 184.2	$ 577.6
Total	**$ 3.1**	**$ 24.3**	**$ 29.7**	**$ 123.8**	**$ 277.5**	**$ 1,230.9**	**$ 874.7**	**$ 3,463.5**	**$ 2,883.8**	**$ 8,911.3**
Ann.	**$ 0.2**	**$ 1.4**	**$ 1.7**	**$ 7.1**	**$ 15.9**	**$ 70.7**	**$ 50.2**	**$ 198.9**	**$ 165.6**	**$ 511.8**

Arsenic/Bladder Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.3	$ 1.0	$ 2.4	$ 12.1	$ 10.1	$ 43.9	$ 36.6	$ 106.6
2011	$ 0.1	$ 0.5	$ 0.6	$ 2.5	$ 5.7	$ 28.8	$ 24.0	$ 104.5	$ 87.0	$ 253.6
2012	$ 0.1	$ 0.8	$ 1.0	$ 4.3	$ 9.7	$ 48.3	$ 40.2	$ 175.1	$ 145.8	$ 425.4
2013	$ 0.2	$ 1.2	$ 1.5	$ 6.3	$ 14.1	$ 69.6	$ 57.9	$ 252.1	$ 209.9	$ 612.8
2014	$ 0.2	$ 1.6	$ 2.0	$ 8.4	$ 18.7	$ 91.9	$ 71.9	$ 292.4	$ 243.3	$ 730.4
2015	$ 0.3	$ 2.1	$ 2.5	$ 10.5	$ 23.5	$ 109.4	$ 80.0	$ 319.5	$ 265.8	$ 813.5
2016	$ 0.3	$ 2.4	$ 2.9	$ 12.2	$ 27.4	$ 119.7	$ 85.4	$ 338.1	$ 281.3	$ 869.8
2017	$ 0.3	$ 2.6	$ 3.2	$ 13.3	$ 29.7	$ 126.7	$ 89.2	$ 350.9	$ 291.8	$ 907.7
2018	$ 0.4	$ 2.7	$ 3.4	$ 14.0	$ 31.3	$ 131.4	$ 91.7	$ 359.3	$ 298.8	$ 932.9
2019	$ 0.4	$ 2.8	$ 3.5	$ 14.5	$ 32.4	$ 134.5	$ 93.3	$ 364.5	$ 303.1	$ 948.9
2020	$ 0.4	$ 2.9	$ 3.5	$ 14.8	$ 33.1	$ 136.4	$ 94.2	$ 367.2	$ 305.4	$ 957.9
2021	$ 0.4	$ 2.9	$ 3.6	$ 14.9	$ 33.5	$ 137.3	$ 94.6	$ 368.1	$ 306.2	$ 961.6
2022	$ 0.4	$ 2.9	$ 3.6	$ 15.0	$ 33.7	$ 137.6	$ 94.6	$ 367.6	$ 305.7	$ 961.2
2023	$ 0.4	$ 2.9	$ 3.6	$ 15.0	$ 33.7	$ 137.4	$ 94.2	$ 366.0	$ 304.4	$ 957.6
2024	$ 0.4	$ 2.9	$ 3.6	$ 15.0	$ 33.6	$ 136.7	$ 93.7	$ 363.5	$ 302.3	$ 951.6
2025	$ 0.4	$ 2.9	$ 3.6	$ 14.9	$ 33.4	$ 135.8	$ 92.9	$ 360.3	$ 299.7	$ 943.8
2026	$ 0.4	$ 2.9	$ 3.5	$ 14.8	$ 33.1	$ 134.6	$ 92.0	$ 356.6	$ 296.6	$ 934.4
2027	$ 0.4	$ 2.9	$ 3.5	$ 14.6	$ 32.8	$ 133.1	$ 91.0	$ 352.5	$ 293.2	$ 924.0
2028	$ 0.4	$ 2.8	$ 3.4	$ 14.2	$ 31.9	$ 129.7	$ 88.6	$ 343.2	$ 285.5	$ 899.7
2029	$ 0.4	$ 2.7	$ 3.4	$ 14.0	$ 31.4	$ 127.8	$ 87.2	$ 337.8	$ 280.9	$ 885.6
Total	**$ 5.9**	**$ 45.9**	**$ 56.3**	**$ 234.2**	**$ 525.1**	**$ 2,218.8**	**$ 1,566.6**	**$ 6,183.1**	**$ 5,143.0**	**$ 15,979.0**
Ann.	**$ 0.3**	**$ 2.6**	**$ 3.2**	**$ 13.5**	**$ 30.2**	**$ 127.4**	**$ 90.0**	**$ 355.1**	**$ 295.4**	**$ 917.6**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.3a through F.3i and F.3k through F.3s.

Exhibit F.3ac Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size
(All Systems)

TTHM - Preferred Alternative

Smoking/Lung Cancer Cessation Lag Model

Year	<100	101-500	501-1K	1,001-3,3K	3,301-10K	10,001-50K	50,001-100K	100,001-1M	>1M	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.1	$ 0.5	$ 1.1	$ 5.3	$ 4.4	$ 19.3	$ 16.1	$ 47.0
2011	$ 0.0	$ 0.2	$ 0.3	$ 1.2	$ 2.7	$ 12.9	$ 10.7	$ 46.7	$ 38.9	$ 113.7
2012	$ 0.1	$ 0.4	$ 0.5	$ 2.0	$ 4.6	$ 21.9	$ 18.2	$ 79.1	$ 65.8	$ 192.5
2013	$ 0.1	$ 0.6	$ 0.7	$ 3.0	$ 6.6	$ 31.7	$ 26.3	$ 114.6	$ 95.3	$ 278.8
2014	$ 0.1	$ 0.8	$ 0.9	$ 3.9	$ 8.8	$ 42.1	$ 33.2	$ 136.9	$ 113.9	$ 340.7
2015	$ 0.1	$ 1.0	$ 1.2	$ 4.9	$ 11.0	$ 50.8	$ 38.0	$ 153.9	$ 128.0	$ 388.9
2016	$ 0.1	$ 1.1	$ 1.4	$ 5.7	$ 12.8	$ 56.6	$ 41.4	$ 166.3	$ 138.3	$ 423.8
2017	$ 0.2	$ 1.2	$ 1.5	$ 6.2	$ 13.9	$ 60.6	$ 43.8	$ 174.5	$ 145.2	$ 447.1
2018	$ 0.2	$ 1.3	$ 1.6	$ 6.5	$ 14.6	$ 63.2	$ 45.1	$ 178.7	$ 148.7	$ 459.9
2019	$ 0.2	$ 1.3	$ 1.6	$ 6.7	$ 15.1	$ 64.5	$ 45.5	$ 179.4	$ 149.2	$ 463.6
2020	$ 0.2	$ 1.3	$ 1.6	$ 6.8	$ 15.2	$ 64.7	$ 45.3	$ 177.7	$ 147.9	$ 460.8
2021	$ 0.2	$ 1.3	$ 1.6	$ 6.8	$ 15.2	$ 64.1	$ 44.6	$ 174.5	$ 145.2	$ 453.4
2022	$ 0.2	$ 1.3	$ 1.6	$ 6.7	$ 15.0	$ 62.8	$ 43.6	$ 170.1	$ 141.5	$ 442.8
2023	$ 0.2	$ 1.3	$ 1.6	$ 6.5	$ 14.6	$ 61.2	$ 42.3	$ 165.0	$ 137.3	$ 430.0
2024	$ 0.2	$ 1.2	$ 1.5	$ 6.3	$ 14.2	$ 59.4	$ 40.9	$ 159.4	$ 132.6	$ 415.8
2025	$ 0.2	$ 1.2	$ 1.5	$ 6.1	$ 13.8	$ 57.3	$ 39.4	$ 153.5	$ 127.7	$ 400.7
2026	$ 0.1	$ 1.2	$ 1.4	$ 5.9	$ 13.3	$ 55.2	$ 37.9	$ 147.4	$ 122.6	$ 385.0
2027	$ 0.1	$ 1.1	$ 1.4	$ 5.7	$ 12.8	$ 53.0	$ 36.3	$ 141.2	$ 117.5	$ 369.1
2028	$ 0.1	$ 1.1	$ 1.3	$ 5.4	$ 12.1	$ 50.0	$ 34.3	$ 133.1	$ 110.8	$ 348.2
2029	$ 0.1	$ 1.0	$ 1.2	$ 5.1	$ 11.5	$ 47.7	$ 32.7	$ 126.8	$ 105.5	$ 331.7
Total	**$ 2.6**	**$ 20.0**	**$ 24.5**	**$ 102.1**	**$ 229.0**	**$ 985.1**	**$ 704.1**	**$ 2,798.1**	**$ 2,327.8**	**$ 7,193.3**
Ann.	**$ 0.2**	**$ 1.7**	**$ 2.1**	**$ 8.8**	**$ 19.6**	**$ 84.5**	**$ 60.4**	**$ 240.1**	**$ 199.7**	**$ 617.3**

Smoking/Bladder Cancer Cessation Lag Model

Year	<100	101-500	501-1K	1,001-3,3K	3,301-10K	10,001-50K	50,001-100K	100,001-1M	>1M	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.1	$ 0.4	$ 0.9	$ 5.0	$ 4.2	$ 18.4	$ 15.4	$ 44.5
2011	$ 0.0	$ 0.2	$ 0.2	$ 0.9	$ 2.0	$ 11.2	$ 9.3	$ 40.8	$ 34.0	$ 98.7
2012	$ 0.0	$ 0.3	$ 0.4	$ 1.5	$ 3.3	$ 17.8	$ 14.9	$ 65.0	$ 54.2	$ 157.3
2013	$ 0.1	$ 0.4	$ 0.5	$ 2.1	$ 4.6	$ 24.7	$ 20.6	$ 89.8	$ 74.9	$ 217.7
2014	$ 0.1	$ 0.5	$ 0.6	$ 2.7	$ 5.9	$ 31.5	$ 24.6	$ 100.0	$ 83.4	$ 249.3
2015	$ 0.1	$ 0.6	$ 0.8	$ 3.2	$ 7.3	$ 36.3	$ 26.6	$ 106.5	$ 88.7	$ 270.1
2016	$ 0.1	$ 0.7	$ 0.9	$ 3.7	$ 8.2	$ 38.6	$ 27.8	$ 110.6	$ 92.1	$ 282.8
2017	$ 0.1	$ 0.8	$ 0.9	$ 3.9	$ 8.7	$ 40.1	$ 28.5	$ 113.0	$ 94.1	$ 290.2
2018	$ 0.1	$ 0.8	$ 1.0	$ 4.1	$ 9.1	$ 40.9	$ 28.9	$ 114.1	$ 95.0	$ 293.9
2019	$ 0.1	$ 0.8	$ 1.0	$ 4.1	$ 9.3	$ 41.3	$ 29.0	$ 114.2	$ 95.1	$ 294.9
2020	$ 0.1	$ 0.8	$ 1.0	$ 4.2	$ 9.4	$ 41.3	$ 28.9	$ 113.5	$ 94.5	$ 293.6
2021	$ 0.1	$ 0.8	$ 1.0	$ 4.2	$ 9.4	$ 41.0	$ 28.6	$ 112.1	$ 93.3	$ 290.6
2022	$ 0.1	$ 0.8	$ 1.0	$ 4.2	$ 9.4	$ 40.5	$ 28.2	$ 110.3	$ 91.8	$ 286.2
2023	$ 0.1	$ 0.8	$ 1.0	$ 4.1	$ 9.3	$ 39.8	$ 27.6	$ 108.0	$ 89.9	$ 280.7
2024	$ 0.1	$ 0.8	$ 1.0	$ 4.1	$ 9.1	$ 39.0	$ 27.0	$ 105.5	$ 87.8	$ 274.3
2025	$ 0.1	$ 0.8	$ 1.0	$ 4.0	$ 9.0	$ 38.0	$ 26.3	$ 102.7	$ 85.5	$ 267.3
2026	$ 0.1	$ 0.8	$ 0.9	$ 3.9	$ 8.8	$ 37.0	$ 25.6	$ 99.7	$ 83.0	$ 259.8
2027	$ 0.1	$ 0.7	$ 0.9	$ 3.8	$ 8.6	$ 35.9	$ 24.8	$ 96.6	$ 80.4	$ 251.9
2028	$ 0.1	$ 0.7	$ 0.9	$ 3.7	$ 8.2	$ 34.3	$ 23.7	$ 92.1	$ 76.7	$ 240.3
2029	$ 0.1	$ 0.7	$ 0.9	$ 3.5	$ 7.9	$ 33.1	$ 22.8	$ 88.7	$ 73.8	$ 231.5
Total	**$ 1.7**	**$ 13.0**	**$ 15.9**	**$ 66.2**	**$ 148.5**	**$ 667.2**	**$ 478.1**	**$ 1,901.6**	**$ 1,583.5**	**$ 4,875.6**
Ann.	**$ 0.1**	**$ 1.1**	**$ 1.4**	**$ 5.7**	**$ 12.7**	**$ 57.3**	**$ 41.0**	**$ 163.2**	**$ 135.9**	**$ 418.4**

Arsenic/Bladder Cancer Cessation Lag Model

Year	<100	101-500	501-1K	1,001-3,3K	3,301-10K	10,001-50K	50,001-100K	100,001-1M	>1M	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.2	$ 0.9	$ 1.9	$ 10.0	$ 8.3	$ 36.3	$ 30.3	$ 88.1
2011	$ 0.1	$ 0.4	$ 0.5	$ 2.0	$ 4.5	$ 22.9	$ 19.1	$ 83.1	$ 69.2	$ 201.8
2012	$ 0.1	$ 0.6	$ 0.8	$ 3.3	$ 7.4	$ 37.0	$ 30.8	$ 134.1	$ 111.6	$ 325.8
2013	$ 0.1	$ 0.9	$ 1.1	$ 4.6	$ 10.4	$ 51.3	$ 42.7	$ 185.9	$ 154.7	$ 451.8
2014	$ 0.1	$ 1.2	$ 1.4	$ 5.9	$ 13.3	$ 65.3	$ 51.0	$ 207.5	$ 172.7	$ 518.4
2015	$ 0.2	$ 1.4	$ 1.7	$ 7.2	$ 16.1	$ 74.8	$ 54.6	$ 218.3	$ 181.6	$ 555.8
2016	$ 0.2	$ 1.6	$ 1.9	$ 8.0	$ 18.0	$ 78.7	$ 56.2	$ 222.4	$ 185.0	$ 572.0
2017	$ 0.2	$ 1.6	$ 2.0	$ 8.4	$ 18.8	$ 80.2	$ 56.5	$ 222.1	$ 184.7	$ 574.6
2018	$ 0.2	$ 1.7	$ 2.0	$ 8.5	$ 19.1	$ 80.1	$ 55.9	$ 218.9	$ 182.1	$ 568.5
2019	$ 0.2	$ 1.7	$ 2.0	$ 8.5	$ 19.0	$ 78.9	$ 54.7	$ 213.8	$ 177.8	$ 556.6
2020	$ 0.2	$ 1.6	$ 2.0	$ 8.3	$ 18.7	$ 77.0	$ 53.2	$ 207.4	$ 172.5	$ 540.9
2021	$ 0.2	$ 1.6	$ 2.0	$ 8.1	$ 18.2	$ 74.7	$ 51.4	$ 200.1	$ 166.4	$ 522.7
2022	$ 0.2	$ 1.5	$ 1.9	$ 7.9	$ 17.6	$ 72.0	$ 49.5	$ 192.4	$ 160.0	$ 502.9
2023	$ 0.2	$ 1.5	$ 1.8	$ 7.6	$ 17.0	$ 69.2	$ 47.5	$ 184.3	$ 153.3	$ 482.3
2024	$ 0.2	$ 1.4	$ 1.7	$ 7.3	$ 16.3	$ 66.3	$ 45.4	$ 176.2	$ 146.6	$ 461.4
2025	$ 0.2	$ 1.4	$ 1.7	$ 6.9	$ 15.6	$ 63.4	$ 43.4	$ 168.2	$ 139.9	$ 440.5
2026	$ 0.2	$ 1.3	$ 1.6	$ 6.6	$ 14.9	$ 60.5	$ 41.3	$ 160.2	$ 133.3	$ 419.8
2027	$ 0.2	$ 1.2	$ 1.5	$ 6.3	$ 14.2	$ 57.6	$ 39.3	$ 152.5	$ 126.8	$ 399.6
2028	$ 0.1	$ 1.2	$ 1.4	$ 5.9	$ 13.3	$ 54.0	$ 36.9	$ 142.9	$ 118.8	$ 374.6
2029	$ 0.1	$ 1.1	$ 1.4	$ 5.6	$ 12.6	$ 51.2	$ 34.9	$ 135.4	$ 112.6	$ 354.9
Total	**$ 3.2**	**$ 25.1**	**$ 30.7**	**$ 128.0**	**$ 286.9**	**$ 1,224.8**	**$ 872.7**	**$ 3,461.9**	**$ 2,879.7**	**$ 8,913.1**
Ann.	**$ 0.3**	**$ 2.2**	**$ 2.6**	**$ 11.0**	**$ 24.6**	**$ 105.1**	**$ 74.9**	**$ 297.1**	**$ 247.1**	**$ 764.8**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.3a through F.3i and F.3k through F.3s.

Section F.4
Model Outputs - Preferred Alternative
HAA5 as Indicator
Lymphoma for Non-Fatal Cases

Exhibit F.4a Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (All Surface Water Systems)

HAA5 - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 142.4	$ 21.8	$ 327.4	$ 138.4	$ 21.2	$ 318.1	$ 270.4	$ 41.4	$ 621.7
2011	$ 368.2	$ 56.4	$ 846.9	$ 327.0	$ 50.1	$ 752.1	$ 660.0	$ 101.1	$ 1,518.0
2012	$ 666.1	$ 101.9	$ 1,530.2	$ 556.3	$ 85.1	$ 1,278.0	$ 1,136.8	$ 174.0	$ 2,611.4
2013	$ 1,032.0	$ 158.0	$ 2,370.4	$ 821.7	$ 125.8	$ 1,887.3	$ 1,682.9	$ 257.6	$ 3,865.5
2014	$ 1,345.5	$ 205.7	$ 3,093.1	$ 1,001.6	$ 153.1	$ 2,302.4	$ 2,055.0	$ 314.2	$ 4,724.0
2015	$ 1,639.6	$ 250.7	$ 3,770.9	$ 1,154.9	$ 176.6	$ 2,656.1	$ 2,345.6	$ 358.7	$ 5,394.5
2016	$ 1,908.8	$ 291.6	$ 4,389.7	$ 1,288.4	$ 196.8	$ 2,963.0	$ 2,573.2	$ 393.1	$ 5,917.7
2017	$ 2,152.7	$ 328.7	$ 4,955.4	$ 1,410.5	$ 215.4	$ 3,246.8	$ 2,759.1	$ 421.3	$ 6,351.1
2018	$ 2,367.0	$ 360.9	$ 5,453.1	$ 1,524.7	$ 232.5	$ 3,512.7	$ 2,915.4	$ 444.5	$ 6,716.6
2019	$ 2,550.0	$ 388.4	$ 5,884.7	$ 1,632.9	$ 248.7	$ 3,768.2	$ 3,049.6	$ 464.6	$ 7,037.6
2020	$ 2,709.0	$ 412.5	$ 6,254.3	$ 1,736.0	$ 264.3	$ 4,008.0	$ 3,166.8	$ 482.2	$ 7,311.4
2021	$ 2,849.0	$ 433.3	$ 6,577.9	$ 1,834.9	$ 279.1	$ 4,236.5	$ 3,270.7	$ 497.5	$ 7,551.7
2022	$ 2,974.1	$ 452.2	$ 6,878.4	$ 1,930.1	$ 293.5	$ 4,463.9	$ 3,364.0	$ 511.5	$ 7,780.3
2023	$ 3,087.3	$ 469.6	$ 7,142.0	$ 2,022.0	$ 307.5	$ 4,677.7	$ 3,449.0	$ 524.6	$ 7,978.7
2024	$ 3,190.8	$ 485.0	$ 7,384.3	$ 2,111.1	$ 320.9	$ 4,885.7	$ 3,527.1	$ 536.2	$ 8,162.7
2025	$ 3,286.4	$ 498.8	$ 7,605.9	$ 2,197.6	$ 333.6	$ 5,086.2	$ 3,599.9	$ 546.4	$ 8,331.5
2026	$ 3,375.4	$ 511.7	$ 7,818.7	$ 2,281.9	$ 345.9	$ 5,285.7	$ 3,668.2	$ 556.0	$ 8,496.9
2027	$ 3,459.0	$ 523.7	$ 8,024.6	$ 2,364.0	$ 357.9	$ 5,484.3	$ 3,732.9	$ 565.2	$ 8,660.1
2028	$ 3,492.1	$ 529.2	$ 8,097.1	$ 2,412.5	$ 365.6	$ 5,593.9	$ 3,745.5	$ 567.6	$ 8,684.5
2029	$ 3,557.7	$ 538.4	$ 8,256.9	$ 2,484.0	$ 375.9	$ 5,765.1	$ 3,795.0	$ 574.3	$ 8,807.6
Total	**$ 46,153.1**	**$ 7,018.6**	**$ 106,661.9**	**$ 31,230.6**	**$ 4,749.6**	**$ 72,171.6**	**$ 54,767.0**	**$ 8,331.8**	**$ 126,523.4**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.39b, E.39f, and E.39j.

Exhibit F.4b Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (All Ground Water Systems)

HAA5 - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 11.5	$ 1.8	$ 26.4	$ 9.6	$ 1.5	$ 22.1	$ 20.3	$ 3.1	$ 46.7
2011	$ 29.8	$ 4.6	$ 68.6	$ 23.1	$ 3.5	$ 53.1	$ 50.5	$ 7.7	$ 116.1
2012	$ 54.0	$ 8.3	$ 124.1	$ 39.7	$ 6.1	$ 91.3	$ 88.1	$ 13.5	$ 202.4
2013	$ 83.7	$ 12.8	$ 192.2	$ 59.3	$ 9.1	$ 136.2	$ 131.6	$ 20.1	$ 302.3
2014	$ 113.1	$ 17.3	$ 259.9	$ 76.9	$ 11.8	$ 176.7	$ 170.1	$ 26.0	$ 391.0
2015	$ 141.7	$ 21.7	$ 325.8	$ 93.0	$ 14.2	$ 213.8	$ 203.4	$ 31.1	$ 467.7
2016	$ 167.3	$ 25.6	$ 384.8	$ 106.7	$ 16.3	$ 245.3	$ 229.4	$ 35.0	$ 527.5
2017	$ 190.0	$ 29.0	$ 437.4	$ 118.8	$ 18.1	$ 273.5	$ 249.7	$ 38.1	$ 574.8
2018	$ 210.2	$ 32.1	$ 484.3	$ 130.2	$ 19.9	$ 299.9	$ 266.4	$ 40.6	$ 613.8
2019	$ 227.9	$ 34.7	$ 526.0	$ 140.9	$ 21.5	$ 325.3	$ 280.5	$ 42.7	$ 647.4
2020	$ 243.5	$ 37.1	$ 562.1	$ 151.2	$ 23.0	$ 349.1	$ 292.6	$ 44.6	$ 675.5
2021	$ 257.1	$ 39.1	$ 593.6	$ 161.1	$ 24.5	$ 371.9	$ 303.1	$ 46.1	$ 699.8
2022	$ 269.2	$ 40.9	$ 622.6	$ 170.5	$ 25.9	$ 394.4	$ 312.4	$ 47.5	$ 722.4
2023	$ 280.1	$ 42.6	$ 648.1	$ 179.7	$ 27.3	$ 415.7	$ 320.7	$ 48.8	$ 741.8
2024	$ 290.1	$ 44.1	$ 671.4	$ 188.6	$ 28.7	$ 436.4	$ 328.2	$ 49.9	$ 759.5
2025	$ 299.3	$ 45.4	$ 692.8	$ 197.2	$ 29.9	$ 456.4	$ 335.1	$ 50.9	$ 775.5
2026	$ 307.9	$ 46.7	$ 713.1	$ 205.6	$ 31.2	$ 476.2	$ 341.5	$ 51.8	$ 791.1
2027	$ 315.9	$ 47.8	$ 732.8	$ 213.8	$ 32.4	$ 495.9	$ 347.5	$ 52.6	$ 806.3
2028	$ 319.2	$ 48.4	$ 740.2	$ 218.9	$ 33.2	$ 507.5	$ 348.7	$ 52.8	$ 808.4
2029	$ 325.5	$ 49.3	$ 755.4	$ 226.0	$ 34.2	$ 524.6	$ 353.2	$ 53.5	$ 819.7
Total	**$ 4,137.0**	**$ 629.1**	**$ 9,561.6**	**$ 2,710.7**	**$ 412.2**	**$ 6,265.3**	**$ 4,972.9**	**$ 756.4**	**$ 11,489.7**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.39c, E.39g, and E.39k.

Exhibit F.4c Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (All Water Systems)

HAA5 - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 153.9	$ 23.6	$ 353.8	$ 148.0	$ 22.7	$ 340.2	$ 290.7	$ 44.5	$ 668.4
2011	$ 398.0	$ 60.9	$ 915.5	$ 350.1	$ 53.6	$ 805.2	$ 710.5	$ 108.8	$ 1,634.1
2012	$ 720.1	$ 110.2	$ 1,654.3	$ 596.1	$ 91.2	$ 1,369.3	$ 1,224.8	$ 187.4	$ 2,813.8
2013	$ 1,115.7	$ 170.8	$ 2,562.6	$ 881.0	$ 134.8	$ 2,023.6	$ 1,814.5	$ 277.7	$ 4,167.8
2014	$ 1,458.6	$ 223.0	$ 3,353.0	$ 1,078.4	$ 164.9	$ 2,479.1	$ 2,225.1	$ 340.2	$ 5,115.0
2015	$ 1,781.3	$ 272.4	$ 4,096.7	$ 1,247.9	$ 190.8	$ 2,869.9	$ 2,549.0	$ 389.8	$ 5,862.2
2016	$ 2,076.1	$ 317.2	$ 4,774.5	$ 1,395.1	$ 213.1	$ 3,208.3	$ 2,802.6	$ 428.1	$ 6,445.2
2017	$ 2,342.8	$ 357.7	$ 5,392.8	$ 1,529.3	$ 233.5	$ 3,520.4	$ 3,008.8	$ 459.4	$ 6,925.9
2018	$ 2,577.2	$ 393.0	$ 5,937.4	$ 1,654.9	$ 252.3	$ 3,812.7	$ 3,181.9	$ 485.2	$ 7,330.4
2019	$ 2,778.0	$ 423.2	$ 6,410.7	$ 1,773.8	$ 270.2	$ 4,093.4	$ 3,330.1	$ 507.3	$ 7,685.0
2020	$ 2,952.4	$ 449.6	$ 6,816.4	$ 1,887.2	$ 287.4	$ 4,357.1	$ 3,459.4	$ 526.8	$ 7,986.9
2021	$ 3,106.0	$ 472.4	$ 7,171.5	$ 1,995.9	$ 303.6	$ 4,608.4	$ 3,573.8	$ 543.6	$ 8,251.5
2022	$ 3,243.3	$ 493.2	$ 7,501.0	$ 2,100.6	$ 319.4	$ 4,858.3	$ 3,676.4	$ 559.0	$ 8,502.7
2023	$ 3,367.4	$ 512.2	$ 7,790.1	$ 2,201.7	$ 334.9	$ 5,093.4	$ 3,769.6	$ 573.3	$ 8,720.5
2024	$ 3,480.9	$ 529.2	$ 8,055.7	$ 2,299.7	$ 349.6	$ 5,322.1	$ 3,855.3	$ 586.1	$ 8,922.2
2025	$ 3,585.7	$ 544.3	$ 8,298.7	$ 2,394.8	$ 363.5	$ 5,542.6	$ 3,935.0	$ 597.3	$ 9,107.0
2026	$ 3,683.3	$ 558.3	$ 8,531.8	$ 2,487.4	$ 377.1	$ 5,761.9	$ 4,009.7	$ 607.8	$ 9,287.9
2027	$ 3,774.8	$ 571.5	$ 8,757.4	$ 2,577.7	$ 390.3	$ 5,980.2	$ 4,080.4	$ 617.8	$ 9,466.3
2028	$ 3,811.4	$ 577.6	$ 8,837.2	$ 2,631.4	$ 398.8	$ 6,101.3	$ 4,094.2	$ 620.4	$ 9,493.0
2029	$ 3,883.2	$ 587.7	$ 9,012.4	$ 2,710.1	$ 410.1	$ 6,289.6	$ 4,148.2	$ 627.8	$ 9,627.3
Total	**$ 50,290.1**	**$ 7,647.7**	**$ 116,223.6**	**$ 33,941.3**	**$ 5,161.8**	**$ 78,436.9**	**$ 59,739.9**	**$ 9,088.3**	**$ 138,013.0**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.4a and F.4b.

Exhibit F.4d Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 3% Discount Rate
(All Water Systems)

HAA5 - Preferred Alternative

	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 132.7	$ 20.3	$ 305.2	$ 127.7	$ 19.5	$ 293.5	$ 250.8	$ 38.4	$ 576.5
2011	$ 333.4	$ 51.0	$ 766.7	$ 293.2	$ 44.9	$ 674.3	$ 595.0	$ 91.1	$ 1,368.5
2012	$ 585.5	$ 89.6	$ 1,345.1	$ 484.6	$ 74.2	$ 1,113.4	$ 995.9	$ 152.4	$ 2,287.9
2013	$ 880.7	$ 134.8	$ 2,022.9	$ 695.5	$ 106.5	$ 1,597.4	$ 1,432.4	$ 219.3	$ 3,290.1
2014	$ 1,117.9	$ 170.9	$ 2,569.8	$ 826.5	$ 126.4	$ 1,900.0	$ 1,705.4	$ 260.7	$ 3,920.2
2015	$ 1,325.5	$ 202.7	$ 3,048.3	$ 928.5	$ 142.0	$ 2,135.4	$ 1,896.7	$ 290.0	$ 4,362.0
2016	$ 1,499.8	$ 229.1	$ 3,449.2	$ 1,007.9	$ 154.0	$ 2,317.8	$ 2,024.6	$ 309.3	$ 4,656.1
2017	$ 1,643.2	$ 250.9	$ 3,782.4	$ 1,072.6	$ 163.8	$ 2,469.1	$ 2,110.3	$ 322.2	$ 4,857.7
2018	$ 1,755.0	$ 267.6	$ 4,043.1	$ 1,126.9	$ 171.8	$ 2,596.2	$ 2,166.7	$ 330.4	$ 4,991.6
2019	$ 1,836.6	$ 279.8	$ 4,238.2	$ 1,172.7	$ 178.6	$ 2,706.2	$ 2,201.6	$ 335.4	$ 5,080.7
2020	$ 1,895.0	$ 288.6	$ 4,375.2	$ 1,211.3	$ 184.4	$ 2,796.6	$ 2,220.5	$ 338.1	$ 5,126.5
2021	$ 1,935.6	$ 294.4	$ 4,469.1	$ 1,243.8	$ 189.2	$ 2,871.8	$ 2,227.1	$ 338.7	$ 5,142.1
2022	$ 1,962.2	$ 298.4	$ 4,538.2	$ 1,270.9	$ 193.3	$ 2,939.3	$ 2,224.3	$ 338.2	$ 5,144.3
2023	$ 1,978.0	$ 300.8	$ 4,575.8	$ 1,293.3	$ 196.7	$ 2,991.9	$ 2,214.2	$ 336.8	$ 5,122.4
2024	$ 1,985.1	$ 301.8	$ 4,594.0	$ 1,311.5	$ 199.4	$ 3,035.1	$ 2,198.6	$ 334.2	$ 5,088.2
2025	$ 1,985.3	$ 301.3	$ 4,594.8	$ 1,326.0	$ 201.3	$ 3,068.8	$ 2,178.7	$ 330.7	$ 5,042.3
2026	$ 1,979.9	$ 300.1	$ 4,586.3	$ 1,337.1	$ 202.7	$ 3,097.3	$ 2,155.4	$ 326.7	$ 4,992.7
2027	$ 1,970.1	$ 298.3	$ 4,570.4	$ 1,345.3	$ 203.7	$ 3,121.0	$ 2,129.5	$ 322.4	$ 4,940.4
2028	$ 1,931.2	$ 292.7	$ 4,477.7	$ 1,333.3	$ 202.1	$ 3,091.5	$ 2,074.5	$ 314.4	$ 4,810.0
2029	$ 1,910.3	$ 289.1	$ 4,433.5	$ 1,333.2	$ 201.8	$ 3,094.1	$ 2,040.6	$ 308.8	$ 4,736.0
Total	**$ 30,643.0**	**$ 4,662.2**	**$ 70,786.1**	**$ 20,741.8**	**$ 3,156.0**	**$ 47,910.8**	**$ 37,042.8**	**$ 5,638.3**	**$ 85,536.3**
Ann.	**$ 1,759.8**	**$ 267.7**	**$ 4,065.1**	**$ 1,191.2**	**$ 181.2**	**$ 2,751.4**	**$ 2,127.3**	**$ 323.8**	**$ 4,912.2**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.4c.

Exhibit F.4e Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 7% Discount Rate
(All Water Systems)

HAA5 - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 109.7	$ 16.8	$ 252.2	$ 105.5	$ 16.2	$ 242.6	$ 207.3	$ 31.7	$ 476.5
2011	$ 265.2	$ 40.6	$ 610.1	$ 233.3	$ 35.7	$ 536.5	$ 473.4	$ 72.5	$ 1,088.9
2012	$ 448.5	$ 68.6	$ 1,030.2	$ 371.2	$ 56.8	$ 852.7	$ 762.8	$ 116.7	$ 1,752.3
2013	$ 649.3	$ 99.4	$ 1,491.5	$ 512.7	$ 78.5	$ 1,177.7	$ 1,056.1	$ 161.6	$ 2,425.7
2014	$ 793.4	$ 121.3	$ 1,823.8	$ 586.6	$ 89.7	$ 1,348.4	$ 1,210.3	$ 185.0	$ 2,782.2
2015	$ 905.5	$ 138.5	$ 2,082.6	$ 634.3	$ 97.0	$ 1,458.9	$ 1,295.8	$ 198.1	$ 2,980.0
2016	$ 986.4	$ 150.7	$ 2,268.3	$ 662.8	$ 101.3	$ 1,524.3	$ 1,331.5	$ 203.4	$ 3,062.0
2017	$ 1,040.2	$ 158.8	$ 2,394.5	$ 679.0	$ 103.7	$ 1,563.1	$ 1,335.9	$ 204.0	$ 3,075.2
2018	$ 1,069.5	$ 163.1	$ 2,463.8	$ 686.7	$ 104.7	$ 1,582.1	$ 1,320.4	$ 201.3	$ 3,041.9
2019	$ 1,077.3	$ 164.1	$ 2,486.2	$ 687.9	$ 104.8	$ 1,587.5	$ 1,291.5	$ 196.7	$ 2,980.4
2020	$ 1,070.1	$ 162.9	$ 2,470.6	$ 684.0	$ 104.2	$ 1,579.2	$ 1,253.9	$ 190.9	$ 2,894.8
2021	$ 1,052.1	$ 160.0	$ 2,429.2	$ 676.1	$ 102.8	$ 1,561.0	$ 1,210.6	$ 184.1	$ 2,795.1
2022	$ 1,026.7	$ 156.1	$ 2,374.6	$ 665.0	$ 101.1	$ 1,538.0	$ 1,163.9	$ 177.0	$ 2,691.7
2023	$ 996.3	$ 151.5	$ 2,304.8	$ 651.4	$ 99.1	$ 1,507.0	$ 1,115.3	$ 169.6	$ 2,580.1
2024	$ 962.5	$ 146.3	$ 2,227.5	$ 635.9	$ 96.7	$ 1,471.6	$ 1,066.0	$ 162.1	$ 2,467.0
2025	$ 926.6	$ 140.6	$ 2,144.5	$ 618.9	$ 93.9	$ 1,432.3	$ 1,016.9	$ 154.3	$ 2,353.4
2026	$ 889.6	$ 134.8	$ 2,060.6	$ 600.8	$ 91.1	$ 1,391.6	$ 968.4	$ 146.8	$ 2,243.2
2027	$ 852.0	$ 129.0	$ 1,976.7	$ 581.8	$ 88.1	$ 1,349.8	$ 921.0	$ 139.4	$ 2,136.7
2028	$ 804.0	$ 121.8	$ 1,864.2	$ 555.1	$ 84.1	$ 1,287.1	$ 863.7	$ 130.9	$ 2,002.5
2029	$ 765.6	$ 115.9	$ 1,776.8	$ 534.3	$ 80.9	$ 1,240.0	$ 817.8	$ 123.8	$ 1,898.0
Total	**$ 16,690.5**	**$ 2,541.0**	**$ 38,532.5**	**$ 11,363.4**	**$ 1,730.2**	**$ 26,231.4**	**$ 20,682.2**	**$ 3,150.1**	**$ 47,727.6**
Ann.	**$ 1,432.2**	**$ 218.0**	**$ 3,306.5**	**$ 975.1**	**$ 148.5**	**$ 2,250.9**	**$ 1,774.7**	**$ 270.3**	**$ 4,095.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.4c.

Exhibit F.4f Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size
(All Systems)

HAA5 - Preferred Alternative

Smoking/Lung Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.3	$ 1.2	$ 2.8	$ 16.3	$ 12.9	$ 54.8	$ 44.3	$ 132.7
2011	$ 0.1	$ 0.6	$ 0.7	$ 3.0	$ 7.0	$ 40.9	$ 32.3	$ 137.6	$ 111.1	$ 333.4
2012	$ 0.1	$ 1.0	$ 1.2	$ 5.3	$ 12.4	$ 71.9	$ 56.7	$ 241.7	$ 195.2	$ 585.5
2013	$ 0.2	$ 1.5	$ 1.8	$ 8.0	$ 18.6	$ 108.2	$ 85.3	$ 363.5	$ 293.6	$ 880.7
2014	$ 0.3	$ 2.0	$ 2.5	$ 11.1	$ 25.7	$ 149.2	$ 111.7	$ 451.0	$ 364.3	$ 1,117.9
2015	$ 0.3	$ 2.6	$ 3.3	$ 14.4	$ 33.3	$ 187.0	$ 132.6	$ 526.5	$ 425.4	$ 1,325.5
2016	$ 0.4	$ 3.2	$ 4.0	$ 17.3	$ 40.2	$ 216.3	$ 150.1	$ 590.9	$ 477.5	$ 1,499.8
2017	$ 0.5	$ 3.6	$ 4.5	$ 19.6	$ 45.4	$ 240.5	$ 164.7	$ 644.0	$ 520.6	$ 1,643.2
2018	$ 0.5	$ 3.9	$ 4.9	$ 21.4	$ 49.6	$ 260.3	$ 176.3	$ 684.6	$ 553.5	$ 1,755.0
2019	$ 0.5	$ 4.2	$ 5.2	$ 22.8	$ 53.0	$ 275.8	$ 184.8	$ 713.4	$ 576.8	$ 1,836.6
2020	$ 0.6	$ 4.4	$ 5.5	$ 24.0	$ 55.7	$ 287.1	$ 190.8	$ 733.8	$ 593.3	$ 1,895.0
2021	$ 0.6	$ 4.5	$ 5.7	$ 24.8	$ 57.6	$ 295.1	$ 195.0	$ 747.8	$ 604.6	$ 1,935.6
2022	$ 0.6	$ 4.6	$ 5.8	$ 25.4	$ 58.9	$ 300.5	$ 197.7	$ 756.8	$ 611.9	$ 1,962.2
2023	$ 0.6	$ 4.7	$ 5.9	$ 25.8	$ 59.8	$ 303.9	$ 199.4	$ 761.9	$ 616.0	$ 1,978.0
2024	$ 0.6	$ 4.7	$ 6.0	$ 26.0	$ 60.4	$ 305.8	$ 200.1	$ 763.9	$ 617.6	$ 1,985.1
2025	$ 0.6	$ 4.8	$ 6.0	$ 26.1	$ 60.6	$ 306.5	$ 200.2	$ 763.3	$ 617.2	$ 1,985.3
2026	$ 0.6	$ 4.8	$ 6.0	$ 26.1	$ 60.7	$ 306.2	$ 199.7	$ 760.8	$ 615.1	$ 1,979.9
2027	$ 0.6	$ 4.8	$ 6.0	$ 26.1	$ 60.6	$ 305.1	$ 198.7	$ 756.6	$ 611.7	$ 1,970.1
2028	$ 0.6	$ 4.7	$ 5.9	$ 25.6	$ 59.5	$ 299.4	$ 194.8	$ 741.3	$ 599.4	$ 1,931.2
2029	$ 0.6	$ 4.6	$ 5.8	$ 25.4	$ 59.0	$ 296.4	$ 192.7	$ 733.0	$ 592.6	$ 1,910.3
Total	**$ 8.8**	**$ 69.1**	**$ 87.0**	**$ 379.4**	**$ 881.0**	**$ 4,572.5**	**$ 3,076.3**	**$ 11,927.3**	**$ 9,641.7**	**$ 30,643.0**
Ann.	**$ 0.5**	**$ 4.0**	**$ 5.0**	**$ 21.8**	**$ 50.6**	**$ 262.6**	**$ 176.7**	**$ 685.0**	**$ 553.7**	**$ 1,759.8**

Smoking/Bladder Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.2	$ 1.0	$ 2.3	$ 15.5	$ 12.4	$ 53.0	$ 43.1	$ 127.7
2011	$ 0.1	$ 0.4	$ 0.5	$ 2.3	$ 5.5	$ 35.6	$ 28.4	$ 121.6	$ 98.8	$ 293.2
2012	$ 0.1	$ 0.7	$ 0.9	$ 3.9	$ 9.1	$ 58.9	$ 46.9	$ 200.9	$ 163.2	$ 484.6
2013	$ 0.1	$ 1.0	$ 1.3	$ 5.7	$ 13.2	$ 84.6	$ 67.3	$ 288.1	$ 234.0	$ 695.5
2014	$ 0.2	$ 1.4	$ 1.7	$ 7.6	$ 17.6	$ 112.1	$ 83.5	$ 332.5	$ 269.9	$ 826.5
2015	$ 0.2	$ 1.8	$ 2.2	$ 9.6	$ 22.3	$ 134.0	$ 93.4	$ 367.2	$ 297.8	$ 928.5
2016	$ 0.3	$ 2.1	$ 2.6	$ 11.3	$ 26.2	$ 148.0	$ 101.3	$ 395.5	$ 320.6	$ 1,007.9
2017	$ 0.3	$ 2.3	$ 2.9	$ 12.4	$ 28.9	$ 159.3	$ 107.9	$ 419.0	$ 339.6	$ 1,072.6
2018	$ 0.3	$ 2.4	$ 3.1	$ 13.4	$ 31.1	$ 168.7	$ 113.4	$ 438.9	$ 355.6	$ 1,126.9
2019	$ 0.3	$ 2.6	$ 3.3	$ 14.2	$ 33.0	$ 176.6	$ 118.1	$ 455.6	$ 369.0	$ 1,172.7
2020	$ 0.3	$ 2.7	$ 3.4	$ 14.9	$ 34.6	$ 183.3	$ 122.0	$ 469.7	$ 380.4	$ 1,211.3
2021	$ 0.4	$ 2.8	$ 3.5	$ 15.5	$ 35.9	$ 188.9	$ 125.3	$ 481.6	$ 389.9	$ 1,243.8
2022	$ 0.4	$ 2.9	$ 3.7	$ 16.0	$ 37.1	$ 193.7	$ 128.1	$ 491.5	$ 397.7	$ 1,270.9
2023	$ 0.4	$ 3.0	$ 3.8	$ 16.4	$ 38.1	$ 197.6	$ 130.3	$ 499.6	$ 404.2	$ 1,293.3
2024	$ 0.4	$ 3.1	$ 3.8	$ 16.8	$ 38.9	$ 200.8	$ 132.2	$ 506.1	$ 409.5	$ 1,311.5
2025	$ 0.4	$ 3.1	$ 3.9	$ 17.1	$ 39.6	$ 203.4	$ 133.7	$ 511.3	$ 413.6	$ 1,326.0
2026	$ 0.4	$ 3.1	$ 4.0	$ 17.3	$ 40.2	$ 205.5	$ 134.8	$ 515.2	$ 416.7	$ 1,337.1
2027	$ 0.4	$ 3.2	$ 4.0	$ 17.5	$ 40.6	$ 207.0	$ 135.6	$ 518.0	$ 418.9	$ 1,345.3
2028	$ 0.4	$ 3.2	$ 4.0	$ 17.4	$ 40.4	$ 205.4	$ 134.4	$ 513.1	$ 414.9	$ 1,333.3
2029	$ 0.4	$ 3.2	$ 4.0	$ 17.5	$ 40.6	$ 205.7	$ 134.4	$ 512.8	$ 414.6	$ 1,333.2
Total	**$ 5.8**	**$ 45.1**	**$ 56.8**	**$ 247.7**	**$ 575.1**	**$ 3,084.6**	**$ 2,083.4**	**$ 8,091.1**	**$ 6,552.2**	**$ 20,741.8**
Ann.	**$ 0.3**	**$ 2.6**	**$ 3.3**	**$ 14.2**	**$ 33.0**	**$ 177.1**	**$ 119.6**	**$ 464.7**	**$ 376.3**	**$ 1,191.2**

Arsenic/Bladder Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.4	$ 0.5	$ 2.1	$ 4.9	$ 30.6	$ 24.3	$ 103.8	$ 84.1	$ 250.8
2011	$ 0.1	$ 0.9	$ 1.2	$ 5.1	$ 11.9	$ 72.7	$ 57.6	$ 246.1	$ 199.3	$ 595.0
2012	$ 0.2	$ 1.6	$ 2.0	$ 8.7	$ 20.2	$ 121.8	$ 96.4	$ 411.7	$ 333.3	$ 995.9
2013	$ 0.3	$ 2.3	$ 2.9	$ 12.6	$ 29.3	$ 175.4	$ 138.7	$ 591.9	$ 479.0	$ 1,432.4
2014	$ 0.4	$ 3.1	$ 3.8	$ 16.8	$ 38.9	$ 231.6	$ 171.8	$ 685.0	$ 554.0	$ 1,705.4
2015	$ 0.5	$ 3.8	$ 4.8	$ 21.0	$ 48.8	$ 275.4	$ 190.9	$ 747.4	$ 604.1	$ 1,896.7
2016	$ 0.6	$ 4.4	$ 5.6	$ 24.4	$ 56.7	$ 300.9	$ 203.7	$ 790.0	$ 638.4	$ 2,024.6
2017	$ 0.6	$ 4.8	$ 6.1	$ 26.5	$ 61.4	$ 318.1	$ 212.5	$ 818.8	$ 661.5	$ 2,110.3
2018	$ 0.6	$ 5.1	$ 6.4	$ 27.8	$ 64.6	$ 329.6	$ 218.2	$ 837.6	$ 676.7	$ 2,166.7
2019	$ 0.7	$ 5.2	$ 6.6	$ 28.8	$ 66.8	$ 337.1	$ 221.8	$ 849.0	$ 685.8	$ 2,201.6
2020	$ 0.7	$ 5.3	$ 6.7	$ 29.3	$ 68.1	$ 341.5	$ 223.8	$ 854.7	$ 690.3	$ 2,220.5
2021	$ 0.7	$ 5.4	$ 6.8	$ 29.7	$ 68.9	$ 343.7	$ 224.5	$ 856.1	$ 691.5	$ 2,227.1
2022	$ 0.7	$ 5.4	$ 6.8	$ 29.8	$ 69.2	$ 344.1	$ 224.2	$ 854.1	$ 689.9	$ 2,224.3
2023	$ 0.7	$ 5.4	$ 6.8	$ 29.8	$ 69.2	$ 343.2	$ 223.2	$ 849.6	$ 686.3	$ 2,214.2
2024	$ 0.7	$ 5.4	$ 6.8	$ 29.7	$ 68.9	$ 341.3	$ 221.7	$ 843.1	$ 681.1	$ 2,198.6
2025	$ 0.7	$ 5.4	$ 6.8	$ 29.5	$ 68.4	$ 338.6	$ 219.7	$ 835.1	$ 674.6	$ 2,178.7
2026	$ 0.7	$ 5.3	$ 6.7	$ 29.2	$ 67.8	$ 335.3	$ 217.4	$ 825.9	$ 667.2	$ 2,155.4
2027	$ 0.7	$ 5.3	$ 6.6	$ 28.9	$ 67.0	$ 331.5	$ 214.8	$ 815.8	$ 659.0	$ 2,129.5
2028	$ 0.7	$ 5.1	$ 6.5	$ 28.2	$ 65.4	$ 323.1	$ 209.2	$ 794.5	$ 641.8	$ 2,074.5
2029	$ 0.6	$ 5.0	$ 6.4	$ 27.7	$ 64.3	$ 318.0	$ 205.8	$ 781.4	$ 631.3	$ 2,040.6
Total	**$ 10.8**	**$ 84.8**	**$ 106.7**	**$ 465.5**	**$ 1,080.8**	**$ 5,553.3**	**$ 3,720.2**	**$ 14,391.7**	**$ 11,629.0**	**$ 37,042.8**
Ann.	**$ 0.6**	**$ 4.9**	**$ 6.1**	**$ 26.7**	**$ 62.1**	**$ 318.9**	**$ 213.6**	**$ 826.5**	**$ 667.8**	**$ 2,127.3**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.39b, E.39c, E.39f, E.39g, E.39j, and E.39k.

Exhibit F.4g Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size
(All Systems)

HAA5 - Preferred Alternative

Smoking/Lung Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.2	$ 1.0	$ 2.3	$ 13.5	$ 10.6	$ 45.3	$ 36.6	$ 109.7
2011	$ 0.1	$ 0.4	$ 0.6	$ 2.4	$ 5.6	$ 32.6	$ 25.7	$ 109.5	$ 88.4	$ 265.2
2012	$ 0.1	$ 0.7	$ 0.9	$ 4.1	$ 9.5	$ 55.1	$ 43.4	$ 185.1	$ 149.5	$ 448.5
2013	$ 0.1	$ 1.1	$ 1.4	$ 5.9	$ 13.7	$ 79.7	$ 62.9	$ 268.0	$ 216.5	$ 649.3
2014	$ 0.2	$ 1.4	$ 1.8	$ 7.8	$ 18.2	$ 105.9	$ 79.3	$ 320.1	$ 258.6	$ 793.4
2015	$ 0.2	$ 1.8	$ 2.2	$ 9.8	$ 22.8	$ 127.8	$ 90.6	$ 359.7	$ 290.6	$ 905.5
2016	$ 0.3	$ 2.1	$ 2.6	$ 11.4	$ 26.4	$ 142.2	$ 98.7	$ 388.6	$ 314.0	$ 986.4
2017	$ 0.3	$ 2.3	$ 2.8	$ 12.4	$ 28.7	$ 152.2	$ 104.3	$ 407.7	$ 329.5	$ 1,040.2
2018	$ 0.3	$ 2.4	$ 3.0	$ 13.0	$ 30.2	$ 158.6	$ 107.4	$ 417.2	$ 337.3	$ 1,069.5
2019	$ 0.3	$ 2.4	$ 3.1	$ 13.4	$ 31.1	$ 161.8	$ 108.4	$ 418.5	$ 338.4	$ 1,077.3
2020	$ 0.3	$ 2.5	$ 3.1	$ 13.5	$ 31.4	$ 162.1	$ 107.7	$ 414.3	$ 335.0	$ 1,070.1
2021	$ 0.3	$ 2.5	$ 3.1	$ 13.5	$ 31.3	$ 160.4	$ 106.0	$ 406.5	$ 328.6	$ 1,052.1
2022	$ 0.3	$ 2.4	$ 3.0	$ 13.3	$ 30.8	$ 157.2	$ 103.5	$ 396.0	$ 320.2	$ 1,026.7
2023	$ 0.3	$ 2.4	$ 3.0	$ 13.0	$ 30.1	$ 153.1	$ 100.4	$ 383.8	$ 310.3	$ 996.3
2024	$ 0.3	$ 2.3	$ 2.9	$ 12.6	$ 29.3	$ 148.3	$ 97.0	$ 370.4	$ 299.5	$ 962.5
2025	$ 0.3	$ 2.2	$ 2.8	$ 12.2	$ 28.3	$ 143.1	$ 93.4	$ 356.3	$ 288.1	$ 926.6
2026	$ 0.3	$ 2.1	$ 2.7	$ 11.7	$ 27.3	$ 137.6	$ 89.7	$ 341.8	$ 276.4	$ 889.6
2027	$ 0.3	$ 2.1	$ 2.6	$ 11.3	$ 26.2	$ 131.9	$ 85.9	$ 327.2	$ 264.6	$ 852.0
2028	$ 0.2	$ 1.9	$ 2.4	$ 10.7	$ 24.8	$ 124.6	$ 81.1	$ 308.6	$ 249.5	$ 804.0
2029	$ 0.2	$ 1.9	$ 2.3	$ 10.2	$ 23.6	$ 118.8	$ 77.2	$ 293.8	$ 237.5	$ 765.6
Total	**$ 4.7**	**$ 37.0**	**$ 46.6**	**$ 203.2**	**$ 471.8**	**$ 2,466.6**	**$ 1,673.3**	**$ 6,518.3**	**$ 5,269.0**	**$ 16,690.5**
Ann.	**$ 0.4**	**$ 3.2**	**$ 4.0**	**$ 17.4**	**$ 40.5**	**$ 211.7**	**$ 143.6**	**$ 559.3**	**$ 452.1**	**$ 1,432.2**

Smoking/Bladder Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.2	$ 0.8	$ 1.9	$ 12.8	$ 10.2	$ 43.8	$ 35.6	$ 105.5
2011	$ 0.0	$ 0.3	$ 0.4	$ 1.9	$ 4.3	$ 28.3	$ 22.6	$ 96.7	$ 78.6	$ 233.3
2012	$ 0.1	$ 0.5	$ 0.7	$ 3.0	$ 7.0	$ 45.1	$ 35.9	$ 153.8	$ 125.0	$ 371.2
2013	$ 0.1	$ 0.8	$ 1.0	$ 4.2	$ 9.7	$ 62.4	$ 49.6	$ 212.4	$ 172.6	$ 512.7
2014	$ 0.1	$ 1.0	$ 1.2	$ 5.4	$ 12.5	$ 79.6	$ 59.2	$ 236.0	$ 191.6	$ 586.6
2015	$ 0.2	$ 1.2	$ 1.5	$ 6.6	$ 15.3	$ 91.5	$ 63.8	$ 250.8	$ 203.5	$ 634.3
2016	$ 0.2	$ 1.4	$ 1.7	$ 7.4	$ 17.2	$ 97.3	$ 66.7	$ 260.1	$ 210.9	$ 662.8
2017	$ 0.2	$ 1.4	$ 1.8	$ 7.9	$ 18.3	$ 100.9	$ 68.3	$ 265.3	$ 215.0	$ 679.0
2018	$ 0.2	$ 1.5	$ 1.9	$ 8.2	$ 18.9	$ 102.8	$ 69.1	$ 267.5	$ 216.7	$ 686.7
2019	$ 0.2	$ 1.5	$ 1.9	$ 8.3	$ 19.3	$ 103.6	$ 69.3	$ 267.3	$ 216.5	$ 687.9
2020	$ 0.2	$ 1.5	$ 1.9	$ 8.4	$ 19.5	$ 103.5	$ 68.9	$ 265.3	$ 214.8	$ 684.0
2021	$ 0.2	$ 1.5	$ 1.9	$ 8.4	$ 19.5	$ 102.7	$ 68.1	$ 261.8	$ 211.9	$ 676.1
2022	$ 0.2	$ 1.5	$ 1.9	$ 8.4	$ 19.4	$ 101.3	$ 67.0	$ 257.2	$ 208.1	$ 665.0
2023	$ 0.2	$ 1.5	$ 1.9	$ 8.3	$ 19.2	$ 99.5	$ 65.6	$ 251.6	$ 203.6	$ 651.4
2024	$ 0.2	$ 1.5	$ 1.9	$ 8.1	$ 18.9	$ 97.4	$ 64.1	$ 245.4	$ 198.5	$ 635.9
2025	$ 0.2	$ 1.4	$ 1.8	$ 8.0	$ 18.5	$ 94.9	$ 62.4	$ 238.6	$ 193.0	$ 618.9
2026	$ 0.2	$ 1.4	$ 1.8	$ 7.8	$ 18.0	$ 92.3	$ 60.6	$ 231.5	$ 187.2	$ 600.8
2027	$ 0.2	$ 1.4	$ 1.7	$ 7.6	$ 17.6	$ 89.5	$ 58.7	$ 224.0	$ 181.2	$ 581.8
2028	$ 0.2	$ 1.3	$ 1.7	$ 7.3	$ 16.8	$ 85.5	$ 56.0	$ 213.6	$ 172.7	$ 555.1
2029	$ 0.2	$ 1.3	$ 1.6	$ 7.0	$ 16.3	$ 82.4	$ 53.9	$ 205.5	$ 166.2	$ 534.3
Total	**$ 3.1**	**$ 24.2**	**$ 30.4**	**$ 132.7**	**$ 308.2**	**$ 1,673.5**	**$ 1,140.0**	**$ 4,448.2**	**$ 3,603.2**	**$ 11,363.4**
Ann.	**$ 0.3**	**$ 2.1**	**$ 2.6**	**$ 11.4**	**$ 26.4**	**$ 143.6**	**$ 97.8**	**$ 381.7**	**$ 309.2**	**$ 975.1**

Arsenic/Bladder Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.3	$ 0.4	$ 1.8	$ 4.1	$ 25.3	$ 20.1	$ 85.8	$ 69.5	$ 207.3
2011	$ 0.1	$ 0.7	$ 0.9	$ 4.1	$ 9.5	$ 57.8	$ 45.8	$ 195.8	$ 158.6	$ 473.4
2012	$ 0.2	$ 1.2	$ 1.5	$ 6.7	$ 15.5	$ 93.3	$ 73.9	$ 315.3	$ 255.3	$ 762.8
2013	$ 0.2	$ 1.7	$ 2.1	$ 9.3	$ 21.6	$ 129.3	$ 102.2	$ 436.4	$ 353.1	$ 1,056.1
2014	$ 0.3	$ 2.2	$ 2.7	$ 11.9	$ 27.6	$ 164.3	$ 121.9	$ 486.2	$ 393.1	$ 1,210.3
2015	$ 0.3	$ 2.6	$ 3.3	$ 14.4	$ 33.4	$ 188.1	$ 130.4	$ 510.6	$ 412.7	$ 1,295.8
2016	$ 0.4	$ 2.9	$ 3.7	$ 16.0	$ 37.3	$ 197.9	$ 134.0	$ 519.5	$ 419.8	$ 1,331.5
2017	$ 0.4	$ 3.0	$ 3.8	$ 16.7	$ 38.9	$ 201.4	$ 134.5	$ 518.4	$ 418.8	$ 1,335.9
2018	$ 0.4	$ 3.1	$ 3.9	$ 17.0	$ 39.4	$ 200.9	$ 133.0	$ 510.5	$ 412.3	$ 1,320.4
2019	$ 0.4	$ 3.1	$ 3.9	$ 16.9	$ 39.2	$ 197.7	$ 130.1	$ 498.0	$ 402.3	$ 1,291.5
2020	$ 0.4	$ 3.0	$ 3.8	$ 16.6	$ 38.5	$ 192.8	$ 126.4	$ 482.6	$ 389.8	$ 1,253.9
2021	$ 0.4	$ 2.9	$ 3.7	$ 16.1	$ 37.4	$ 186.8	$ 122.0	$ 465.3	$ 375.9	$ 1,210.6
2022	$ 0.4	$ 2.8	$ 3.6	$ 15.6	$ 36.2	$ 180.0	$ 117.3	$ 446.9	$ 361.0	$ 1,163.9
2023	$ 0.3	$ 2.7	$ 3.4	$ 15.0	$ 34.8	$ 172.9	$ 112.4	$ 427.9	$ 345.7	$ 1,115.3
2024	$ 0.3	$ 2.6	$ 3.3	$ 14.4	$ 33.4	$ 165.5	$ 107.5	$ 408.8	$ 330.2	$ 1,066.0
2025	$ 0.3	$ 2.5	$ 3.2	$ 13.8	$ 31.9	$ 158.0	$ 102.5	$ 389.8	$ 314.9	$ 1,016.9
2026	$ 0.3	$ 2.4	$ 3.0	$ 13.1	$ 30.5	$ 150.6	$ 97.7	$ 371.1	$ 299.7	$ 968.4
2027	$ 0.3	$ 2.3	$ 2.9	$ 12.5	$ 29.0	$ 143.4	$ 92.9	$ 352.8	$ 285.0	$ 921.0
2028	$ 0.3	$ 2.1	$ 2.7	$ 11.7	$ 27.2	$ 134.5	$ 87.1	$ 330.8	$ 267.2	$ 863.7
2029	$ 0.3	$ 2.0	$ 2.5	$ 11.1	$ 25.8	$ 127.4	$ 82.5	$ 313.2	$ 253.0	$ 817.8
Total	**$ 5.9**	**$ 46.3**	**$ 58.4**	**$ 254.5**	**$ 591.1**	**$ 3,068.1**	**$ 2,074.2**	**$ 8,065.7**	**$ 6,518.0**	**$ 20,682.2**
Ann.	**$ 0.5**	**$ 4.0**	**$ 5.0**	**$ 21.8**	**$ 50.7**	**$ 263.3**	**$ 178.0**	**$ 692.1**	**$ 559.3**	**$ 1,774.7**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.39b, E.39c, E.39f, E.39g, E.39j, and E.39k.

Section F.5
Model Outputs - Preferred Alternative
HAA5 as Indicator
Bronchitis for Non-Fatal Cases

Exhibit F.5a Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (All Surface Water Systems)

HAA5 - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 70.4	$ 15.5	$ 154.7	$ 68.4	$ 15.1	$ 150.3	$ 133.6	$ 29.4	$ 293.8
2011	$ 182.0	$ 40.0	$ 400.9	$ 161.6	$ 35.6	$ 356.0	$ 326.2	$ 71.7	$ 718.6
2012	$ 329.5	$ 72.4	$ 725.3	$ 275.2	$ 60.4	$ 605.7	$ 562.3	$ 123.5	$ 1,237.7
2013	$ 510.9	$ 112.2	$ 1,124.0	$ 406.8	$ 89.3	$ 895.0	$ 833.1	$ 182.9	$ 1,833.0
2014	$ 666.6	$ 146.1	$ 1,467.4	$ 496.2	$ 108.7	$ 1,092.3	$ 1,018.1	$ 223.1	$ 2,241.1
2015	$ 812.9	$ 177.8	$ 1,792.5	$ 572.6	$ 125.3	$ 1,262.6	$ 1,162.9	$ 254.4	$ 2,564.3
2016	$ 947.1	$ 207.0	$ 2,087.8	$ 639.3	$ 139.7	$ 1,409.3	$ 1,276.7	$ 279.0	$ 2,814.6
2017	$ 1,068.9	$ 233.3	$ 2,360.7	$ 700.4	$ 152.9	$ 1,546.8	$ 1,370.0	$ 299.1	$ 3,025.7
2018	$ 1,176.2	$ 256.1	$ 2,598.6	$ 757.7	$ 165.0	$ 1,673.9	$ 1,448.8	$ 315.5	$ 3,200.7
2019	$ 1,268.2	$ 275.7	$ 2,808.3	$ 812.1	$ 176.5	$ 1,798.2	$ 1,516.7	$ 329.7	$ 3,358.5
2020	$ 1,348.3	$ 292.6	$ 2,988.1	$ 864.1	$ 187.5	$ 1,914.9	$ 1,576.2	$ 342.1	$ 3,493.1
2021	$ 1,419.2	$ 307.6	$ 3,148.8	$ 914.0	$ 198.1	$ 2,028.0	$ 1,629.3	$ 353.2	$ 3,615.0
2022	$ 1,482.7	$ 320.8	$ 3,296.4	$ 962.2	$ 208.2	$ 2,139.2	$ 1,677.1	$ 362.8	$ 3,728.6
2023	$ 1,540.4	$ 332.4	$ 3,425.1	$ 1,008.9	$ 217.7	$ 2,243.3	$ 1,720.9	$ 371.3	$ 3,826.4
2024	$ 1,593.4	$ 343.5	$ 3,544.7	$ 1,054.3	$ 227.3	$ 2,345.3	$ 1,761.4	$ 379.7	$ 3,918.4
2025	$ 1,642.6	$ 353.3	$ 3,656.3	$ 1,098.4	$ 236.3	$ 2,445.1	$ 1,799.3	$ 387.1	$ 4,005.1
2026	$ 1,688.5	$ 362.8	$ 3,759.8	$ 1,141.5	$ 245.2	$ 2,541.7	$ 1,835.0	$ 394.2	$ 4,085.9
2027	$ 1,731.9	$ 371.5	$ 3,865.9	$ 1,183.6	$ 253.9	$ 2,642.1	$ 1,869.0	$ 400.9	$ 4,172.0
2028	$ 1,747.9	$ 375.1	$ 3,898.3	$ 1,207.6	$ 259.1	$ 2,693.1	$ 1,874.7	$ 402.3	$ 4,181.1
2029	$ 1,781.9	$ 381.9	$ 3,981.1	$ 1,244.2	$ 266.7	$ 2,779.6	$ 1,900.8	$ 407.4	$ 4,246.6
Total	**$ 23,009.6**	**$ 4,977.6**	**$ 51,084.8**	**$ 15,568.9**	**$ 3,368.5**	**$ 34,562.5**	**$ 27,292.0**	**$ 5,909.3**	**$ 60,560.0**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.39b, E.39f, and E.39j.

Exhibit F.5b Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (All Ground Water Systems)

HAA5 - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 5.7	$ 1.2	$ 12.5	$ 4.7	$ 1.0	$ 10.4	$ 10.0	$ 2.2	$ 22.0
2011	$ 14.7	$ 3.2	$ 32.5	$ 11.4	$ 2.5	$ 25.1	$ 25.0	$ 5.5	$ 55.0
2012	$ 26.7	$ 5.9	$ 58.8	$ 19.7	$ 4.3	$ 43.3	$ 43.6	$ 9.6	$ 95.9
2013	$ 41.4	$ 9.1	$ 91.1	$ 29.4	$ 6.4	$ 64.6	$ 65.2	$ 14.3	$ 143.4
2014	$ 56.0	$ 12.3	$ 123.3	$ 38.1	$ 8.3	$ 83.8	$ 84.3	$ 18.5	$ 185.5
2015	$ 70.2	$ 15.4	$ 154.9	$ 46.1	$ 10.1	$ 101.6	$ 100.8	$ 22.1	$ 222.3
2016	$ 83.0	$ 18.1	$ 183.0	$ 52.9	$ 11.6	$ 116.7	$ 113.8	$ 24.9	$ 250.9
2017	$ 94.4	$ 20.6	$ 208.4	$ 59.0	$ 12.9	$ 130.3	$ 124.0	$ 27.1	$ 273.8
2018	$ 104.5	$ 22.8	$ 230.8	$ 64.7	$ 14.1	$ 142.9	$ 132.4	$ 28.8	$ 292.5
2019	$ 113.4	$ 24.6	$ 251.0	$ 70.1	$ 15.2	$ 155.2	$ 139.5	$ 30.3	$ 308.9
2020	$ 121.2	$ 26.3	$ 268.5	$ 75.3	$ 16.3	$ 166.8	$ 145.6	$ 31.6	$ 322.7
2021	$ 128.1	$ 27.8	$ 284.1	$ 80.2	$ 17.4	$ 178.0	$ 151.0	$ 32.7	$ 335.0
2022	$ 134.2	$ 29.0	$ 298.4	$ 85.0	$ 18.4	$ 189.0	$ 155.7	$ 33.7	$ 346.2
2023	$ 139.8	$ 30.2	$ 310.8	$ 89.7	$ 19.3	$ 199.4	$ 160.0	$ 34.5	$ 355.7
2024	$ 144.9	$ 31.2	$ 322.3	$ 94.2	$ 20.3	$ 209.5	$ 163.9	$ 35.3	$ 364.6
2025	$ 149.6	$ 32.2	$ 333.0	$ 98.6	$ 21.2	$ 219.4	$ 167.5	$ 36.0	$ 372.8
2026	$ 154.0	$ 33.1	$ 342.9	$ 102.8	$ 22.1	$ 229.0	$ 170.8	$ 36.7	$ 380.4
2027	$ 158.1	$ 33.9	$ 353.0	$ 107.0	$ 23.0	$ 238.9	$ 174.0	$ 37.3	$ 388.4
2028	$ 159.8	$ 34.3	$ 356.3	$ 109.6	$ 23.5	$ 244.3	$ 174.5	$ 37.5	$ 389.2
2029	$ 163.0	$ 34.9	$ 364.2	$ 113.2	$ 24.3	$ 252.9	$ 176.9	$ 37.9	$ 395.2
Total	**$ 2,062.7**	**$ 446.1**	**$ 4,580.0**	**$ 1,351.6**	**$ 292.3**	**$ 3,001.2**	**$ 2,478.5**	**$ 536.5**	**$ 5,500.6**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.39c, E.39g, and E.39k.

Exhibit F.5c Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (All Water Systems)

HAA5 - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 153.9	$ 23.6	$ 353.8	$ 148.0	$ 22.7	$ 340.2	$ 290.7	$ 44.5	$ 668.4
2011	$ 398.0	$ 60.9	$ 915.5	$ 350.1	$ 53.6	$ 805.2	$ 710.5	$ 108.8	$ 1,634.1
2012	$ 720.1	$ 110.2	$ 1,654.3	$ 596.1	$ 91.2	$ 1,369.3	$ 1,224.8	$ 187.4	$ 2,813.8
2013	$ 1,115.7	$ 170.8	$ 2,562.6	$ 881.0	$ 134.8	$ 2,023.6	$ 1,814.5	$ 277.7	$ 4,167.8
2014	$ 1,458.6	$ 223.0	$ 3,353.0	$ 1,078.4	$ 164.9	$ 2,479.1	$ 2,225.1	$ 340.2	$ 5,115.0
2015	$ 1,781.3	$ 272.4	$ 4,096.7	$ 1,247.9	$ 190.8	$ 2,869.9	$ 2,549.0	$ 389.8	$ 5,862.2
2016	$ 2,076.1	$ 317.2	$ 4,774.5	$ 1,395.1	$ 213.1	$ 3,208.3	$ 2,802.6	$ 428.1	$ 6,445.2
2017	$ 2,342.8	$ 357.7	$ 5,392.8	$ 1,529.3	$ 233.5	$ 3,520.4	$ 3,008.8	$ 459.4	$ 6,925.9
2018	$ 2,577.2	$ 393.0	$ 5,937.4	$ 1,654.9	$ 252.3	$ 3,812.7	$ 3,181.9	$ 485.2	$ 7,330.4
2019	$ 2,778.0	$ 423.2	$ 6,410.7	$ 1,773.8	$ 270.2	$ 4,093.4	$ 3,330.1	$ 507.3	$ 7,685.0
2020	$ 2,952.4	$ 449.6	$ 6,816.4	$ 1,887.2	$ 287.4	$ 4,357.1	$ 3,459.4	$ 526.8	$ 7,986.9
2021	$ 3,106.0	$ 472.4	$ 7,171.5	$ 1,995.9	$ 303.6	$ 4,608.4	$ 3,573.8	$ 543.6	$ 8,251.5
2022	$ 3,243.3	$ 493.2	$ 7,501.0	$ 2,100.6	$ 319.4	$ 4,858.3	$ 3,676.4	$ 559.0	$ 8,502.7
2023	$ 3,367.4	$ 512.2	$ 7,790.1	$ 2,201.7	$ 334.9	$ 5,093.4	$ 3,769.6	$ 573.3	$ 8,720.5
2024	$ 3,480.9	$ 529.2	$ 8,055.7	$ 2,299.7	$ 349.6	$ 5,322.1	$ 3,855.3	$ 586.1	$ 8,922.2
2025	$ 3,585.7	$ 544.3	$ 8,298.7	$ 2,394.8	$ 363.5	$ 5,542.6	$ 3,935.0	$ 597.3	$ 9,107.0
2026	$ 3,683.3	$ 558.3	$ 8,531.8	$ 2,487.4	$ 377.1	$ 5,761.9	$ 4,009.7	$ 607.8	$ 9,287.9
2027	$ 3,774.8	$ 571.5	$ 8,757.4	$ 2,577.7	$ 390.3	$ 5,980.2	$ 4,080.4	$ 617.8	$ 9,466.3
2028	$ 3,811.4	$ 577.6	$ 8,837.2	$ 2,631.4	$ 398.8	$ 6,101.3	$ 4,094.2	$ 620.4	$ 9,493.0
2029	$ 3,883.2	$ 587.7	$ 9,012.4	$ 2,710.1	$ 410.1	$ 6,289.6	$ 4,148.2	$ 627.8	$ 9,627.3
Total	**$ 50,290.1**	**$ 7,647.7**	**$ 116,223.6**	**$ 33,941.3**	**$ 5,161.8**	**$ 78,436.9**	**$ 59,739.9**	**$ 9,088.3**	**$ 138,013.0**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.5a and F.5b.

Exhibit F.5d Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal (All Water Systems)

HAA5 - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model: Mean Value	Smoking/Lung Cancer: 90 Percent Confidence Bound Lower (5th %tile)	Smoking/Lung Cancer: 90 Percent Confidence Bound Upper (95th %tile)	Smoking/Bladder Cancer Cessation Lag Model: Mean Value	Smoking/Bladder Cancer: 90 Percent Confidence Bound Lower (5th %tile)	Smoking/Bladder Cancer: 90 Percent Confidence Bound Upper (95th %tile)	Arsenic/Bladder Cancer Cessation Lag Model: Mean Value	Arsenic/Bladder Cancer: 90 Percent Confidence Bound Lower (5th %tile)	Arsenic/Bladder Cancer: 90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 132.7	$ 20.3	$ 305.2	$ 127.7	$ 19.5	$ 293.5	$ 250.8	$ 38.4	$ 576.5
2011	$ 333.4	$ 51.0	$ 766.7	$ 293.2	$ 44.9	$ 674.3	$ 595.0	$ 91.1	$ 1,368.5
2012	$ 585.5	$ 89.6	$ 1,345.1	$ 484.6	$ 74.2	$ 1,113.4	$ 995.9	$ 152.4	$ 2,287.9
2013	$ 880.7	$ 134.8	$ 2,022.9	$ 695.5	$ 106.5	$ 1,597.4	$ 1,432.4	$ 219.3	$ 3,290.1
2014	$ 1,117.9	$ 170.9	$ 2,569.8	$ 826.5	$ 126.4	$ 1,900.0	$ 1,705.4	$ 260.7	$ 3,920.2
2015	$ 1,325.5	$ 202.7	$ 3,048.3	$ 928.5	$ 142.0	$ 2,135.4	$ 1,896.7	$ 290.0	$ 4,362.0
2016	$ 1,499.8	$ 229.1	$ 3,449.2	$ 1,007.9	$ 154.0	$ 2,317.8	$ 2,024.6	$ 309.3	$ 4,656.1
2017	$ 1,643.2	$ 250.9	$ 3,782.4	$ 1,072.6	$ 163.8	$ 2,469.1	$ 2,110.3	$ 322.2	$ 4,857.7
2018	$ 1,755.0	$ 267.6	$ 4,043.1	$ 1,126.9	$ 171.8	$ 2,596.2	$ 2,166.7	$ 330.4	$ 4,991.6
2019	$ 1,836.6	$ 279.8	$ 4,238.2	$ 1,172.7	$ 178.6	$ 2,706.2	$ 2,201.6	$ 335.4	$ 5,080.7
2020	$ 1,895.0	$ 288.6	$ 4,375.2	$ 1,211.3	$ 184.4	$ 2,796.6	$ 2,220.5	$ 338.1	$ 5,126.5
2021	$ 1,935.6	$ 294.4	$ 4,469.1	$ 1,243.8	$ 189.2	$ 2,871.8	$ 2,227.1	$ 338.7	$ 5,142.1
2022	$ 1,962.2	$ 298.4	$ 4,538.2	$ 1,270.9	$ 193.3	$ 2,939.3	$ 2,224.3	$ 338.2	$ 5,144.3
2023	$ 1,978.0	$ 300.8	$ 4,575.8	$ 1,293.3	$ 196.7	$ 2,991.9	$ 2,214.2	$ 336.8	$ 5,122.4
2024	$ 1,985.1	$ 301.8	$ 4,594.0	$ 1,311.5	$ 199.4	$ 3,035.1	$ 2,198.6	$ 334.2	$ 5,088.2
2025	$ 1,985.3	$ 301.3	$ 4,594.8	$ 1,326.0	$ 201.3	$ 3,068.8	$ 2,178.7	$ 330.7	$ 5,042.3
2026	$ 1,979.9	$ 300.1	$ 4,586.3	$ 1,337.1	$ 202.7	$ 3,097.3	$ 2,155.4	$ 326.7	$ 4,992.7
2027	$ 1,970.1	$ 298.3	$ 4,570.4	$ 1,345.3	$ 203.7	$ 3,121.0	$ 2,129.5	$ 322.4	$ 4,940.4
2028	$ 1,931.2	$ 292.7	$ 4,477.7	$ 1,333.3	$ 202.1	$ 3,091.5	$ 2,074.5	$ 314.4	$ 4,810.0
2029	$ 1,910.3	$ 289.1	$ 4,433.5	$ 1,333.2	$ 201.8	$ 3,094.1	$ 2,040.6	$ 308.8	$ 4,736.0
Total	**$ 30,643.0**	**$ 4,662.2**	**$ 70,786.1**	**$ 20,741.8**	**$ 3,156.0**	**$ 47,910.8**	**$ 37,042.8**	**$ 5,638.3**	**$ 85,536.3**
Ann.	**$ 1,759.8**	**$ 267.7**	**$ 4,065.1**	**$ 1,191.2**	**$ 181.2**	**$ 2,751.4**	**$ 2,127.3**	**$ 323.8**	**$ 4,912.2**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.5c.

Exhibit F.5e Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at (All Water Systems)

HAA5 - Preferred Alternative

Year	Smoking/Lung Cancer Cessation Lag Model			Smoking/Bladder Cancer Cessation Lag Model			Arsenic/Bladder Cancer Cessation Lag Model		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 109.7	$ 16.8	$ 252.2	$ 105.5	$ 16.2	$ 242.6	$ 207.3	$ 31.7	$ 476.5
2011	$ 265.2	$ 40.6	$ 610.1	$ 233.3	$ 35.7	$ 536.5	$ 473.4	$ 72.5	$ 1,088.9
2012	$ 448.5	$ 68.6	$ 1,030.2	$ 371.2	$ 56.8	$ 852.7	$ 762.8	$ 116.7	$ 1,752.3
2013	$ 649.3	$ 99.4	$ 1,491.5	$ 512.7	$ 78.5	$ 1,177.7	$ 1,056.1	$ 161.6	$ 2,425.7
2014	$ 793.4	$ 121.3	$ 1,823.8	$ 586.6	$ 89.7	$ 1,348.4	$ 1,210.3	$ 185.0	$ 2,782.2
2015	$ 905.5	$ 138.5	$ 2,082.6	$ 634.3	$ 97.0	$ 1,458.9	$ 1,295.8	$ 198.1	$ 2,980.0
2016	$ 986.4	$ 150.7	$ 2,268.3	$ 662.8	$ 101.3	$ 1,524.3	$ 1,331.5	$ 203.4	$ 3,062.0
2017	$ 1,040.2	$ 158.8	$ 2,394.5	$ 679.0	$ 103.7	$ 1,563.1	$ 1,335.9	$ 204.0	$ 3,075.2
2018	$ 1,069.5	$ 163.1	$ 2,463.8	$ 686.7	$ 104.7	$ 1,582.1	$ 1,320.4	$ 201.3	$ 3,041.9
2019	$ 1,077.3	$ 164.1	$ 2,486.2	$ 687.9	$ 104.8	$ 1,587.5	$ 1,291.5	$ 196.7	$ 2,980.4
2020	$ 1,070.1	$ 162.9	$ 2,470.6	$ 684.0	$ 104.2	$ 1,579.2	$ 1,253.9	$ 190.9	$ 2,894.8
2021	$ 1,052.1	$ 160.0	$ 2,429.2	$ 676.1	$ 102.8	$ 1,561.0	$ 1,210.6	$ 184.1	$ 2,795.1
2022	$ 1,026.7	$ 156.1	$ 2,374.6	$ 665.0	$ 101.1	$ 1,538.0	$ 1,163.9	$ 177.0	$ 2,691.7
2023	$ 996.3	$ 151.5	$ 2,304.8	$ 651.4	$ 99.1	$ 1,507.0	$ 1,115.3	$ 169.6	$ 2,580.1
2024	$ 962.5	$ 146.3	$ 2,227.5	$ 635.9	$ 96.7	$ 1,471.6	$ 1,066.0	$ 162.1	$ 2,467.0
2025	$ 926.6	$ 140.6	$ 2,144.5	$ 618.9	$ 93.9	$ 1,432.3	$ 1,016.9	$ 154.3	$ 2,353.4
2026	$ 889.6	$ 134.8	$ 2,060.6	$ 600.8	$ 91.1	$ 1,391.6	$ 968.4	$ 146.8	$ 2,243.2
2027	$ 852.0	$ 129.0	$ 1,976.7	$ 581.8	$ 88.1	$ 1,349.8	$ 921.0	$ 139.4	$ 2,136.7
2028	$ 804.0	$ 121.8	$ 1,864.2	$ 555.1	$ 84.1	$ 1,287.1	$ 863.7	$ 130.9	$ 2,002.5
2029	$ 765.6	$ 115.9	$ 1,776.8	$ 534.3	$ 80.9	$ 1,240.0	$ 817.8	$ 123.8	$ 1,898.0
Total	**$ 16,690.5**	**$ 2,541.0**	**$ 38,532.5**	**$ 11,363.4**	**$ 1,730.2**	**$ 26,231.4**	**$ 20,682.2**	**$ 3,150.1**	**$ 47,727.6**
Ann.	**$ 1,432.2**	**$ 218.0**	**$ 3,306.5**	**$ 975.1**	**$ 148.5**	**$ 2,250.9**	**$ 1,774.7**	**$ 270.3**	**$ 4,095.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.5c.

Exhibit F.5f Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size
(All Systems)

HAA5 - Preferred Alternative

Smoking/Lung Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.1	$ 0.6	$ 1.4	$ 8.0	$ 6.3	$ 27.1	$ 21.9	$ 65.6
2011	$ 0.0	$ 0.3	$ 0.3	$ 1.5	$ 3.5	$ 20.2	$ 16.0	$ 68.0	$ 54.9	$ 164.8
2012	$ 0.1	$ 0.5	$ 0.6	$ 2.6	$ 6.1	$ 35.6	$ 28.0	$ 119.6	$ 96.6	$ 289.6
2013	$ 0.1	$ 0.7	$ 0.9	$ 4.0	$ 9.2	$ 53.5	$ 42.2	$ 180.0	$ 145.4	$ 436.0
2014	$ 0.1	$ 1.0	$ 1.3	$ 5.5	$ 12.7	$ 73.9	$ 55.4	$ 223.5	$ 180.5	$ 553.8
2015	$ 0.2	$ 1.3	$ 1.6	$ 7.1	$ 16.5	$ 92.7	$ 65.7	$ 261.0	$ 210.9	$ 657.1
2016	$ 0.2	$ 1.6	$ 2.0	$ 8.6	$ 19.9	$ 107.3	$ 74.5	$ 293.2	$ 236.9	$ 744.2
2017	$ 0.2	$ 1.8	$ 2.2	$ 9.7	$ 22.5	$ 119.4	$ 81.8	$ 319.8	$ 258.5	$ 815.9
2018	$ 0.2	$ 1.9	$ 2.4	$ 10.6	$ 24.7	$ 129.3	$ 87.6	$ 340.2	$ 275.0	$ 872.1
2019	$ 0.3	$ 2.1	$ 2.6	$ 11.4	$ 26.4	$ 137.1	$ 91.9	$ 354.8	$ 286.9	$ 913.4
2020	$ 0.3	$ 2.2	$ 2.7	$ 11.9	$ 27.7	$ 142.9	$ 95.0	$ 365.2	$ 295.3	$ 943.2
2021	$ 0.3	$ 2.2	$ 2.8	$ 12.4	$ 28.7	$ 147.0	$ 97.1	$ 372.5	$ 301.2	$ 964.2
2022	$ 0.3	$ 2.3	$ 2.9	$ 12.7	$ 29.4	$ 149.8	$ 98.6	$ 377.3	$ 305.1	$ 978.3
2023	$ 0.3	$ 2.3	$ 2.9	$ 12.9	$ 29.8	$ 151.7	$ 99.5	$ 380.2	$ 307.4	$ 987.0
2024	$ 0.3	$ 2.4	$ 3.0	$ 13.0	$ 30.1	$ 152.7	$ 99.9	$ 381.5	$ 308.4	$ 991.3
2025	$ 0.3	$ 2.4	$ 3.0	$ 13.1	$ 30.3	$ 153.2	$ 100.1	$ 381.5	$ 308.5	$ 992.3
2026	$ 0.3	$ 2.4	$ 3.0	$ 13.1	$ 30.4	$ 153.2	$ 99.9	$ 380.6	$ 307.7	$ 990.5
2027	$ 0.3	$ 2.4	$ 3.0	$ 13.1	$ 30.3	$ 152.8	$ 99.5	$ 378.8	$ 306.3	$ 986.4
2028	$ 0.3	$ 2.3	$ 2.9	$ 12.8	$ 29.8	$ 149.9	$ 97.5	$ 371.1	$ 300.0	$ 966.6
2029	$ 0.3	$ 2.3	$ 2.9	$ 12.7	$ 29.6	$ 148.5	$ 96.5	$ 367.2	$ 296.8	$ 956.8
Total	**$ 4.4**	**$ 34.4**	**$ 43.4**	**$ 189.1**	**$ 439.1**	**$ 2,278.8**	**$ 1,532.9**	**$ 5,942.8**	**$ 4,804.0**	**$ 15,269.0**
Ann.	**$ 0.3**	**$ 2.0**	**$ 2.5**	**$ 10.9**	**$ 25.2**	**$ 130.9**	**$ 88.0**	**$ 341.3**	**$ 275.9**	**$ 876.9**

Smoking/Bladder Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.1	$ 0.5	$ 1.2	$ 7.6	$ 6.1	$ 26.2	$ 21.3	$ 63.1
2011	$ 0.0	$ 0.2	$ 0.3	$ 1.2	$ 2.7	$ 17.6	$ 14.0	$ 60.1	$ 48.9	$ 144.9
2012	$ 0.0	$ 0.4	$ 0.4	$ 1.9	$ 4.5	$ 29.1	$ 23.2	$ 99.4	$ 80.7	$ 239.7
2013	$ 0.1	$ 0.5	$ 0.6	$ 2.8	$ 6.5	$ 41.9	$ 33.3	$ 142.6	$ 115.9	$ 344.3
2014	$ 0.1	$ 0.7	$ 0.9	$ 3.8	$ 8.7	$ 55.5	$ 41.3	$ 164.7	$ 133.7	$ 409.5
2015	$ 0.1	$ 0.9	$ 1.1	$ 4.8	$ 11.1	$ 66.4	$ 46.3	$ 182.0	$ 147.7	$ 460.3
2016	$ 0.1	$ 1.0	$ 1.3	$ 5.6	$ 13.0	$ 73.4	$ 50.3	$ 196.2	$ 159.1	$ 500.1
2017	$ 0.1	$ 1.1	$ 1.4	$ 6.2	$ 14.3	$ 79.1	$ 53.6	$ 208.1	$ 168.6	$ 532.6
2018	$ 0.2	$ 1.2	$ 1.5	$ 6.7	$ 15.4	$ 83.9	$ 56.4	$ 218.1	$ 176.7	$ 560.0
2019	$ 0.2	$ 1.3	$ 1.6	$ 7.1	$ 16.4	$ 87.9	$ 58.7	$ 226.6	$ 183.5	$ 583.2
2020	$ 0.2	$ 1.3	$ 1.7	$ 7.4	$ 17.2	$ 91.2	$ 60.7	$ 233.8	$ 189.3	$ 602.9
2021	$ 0.2	$ 1.4	$ 1.8	$ 7.7	$ 17.9	$ 94.1	$ 62.4	$ 239.9	$ 194.2	$ 619.6
2022	$ 0.2	$ 1.4	$ 1.8	$ 8.0	$ 18.5	$ 96.5	$ 63.8	$ 245.0	$ 198.3	$ 633.6
2023	$ 0.2	$ 1.5	$ 1.9	$ 8.2	$ 19.0	$ 98.6	$ 65.0	$ 249.3	$ 201.7	$ 645.3
2024	$ 0.2	$ 1.5	$ 1.9	$ 8.4	$ 19.4	$ 100.3	$ 66.0	$ 252.7	$ 204.5	$ 654.9
2025	$ 0.2	$ 1.6	$ 2.0	$ 8.5	$ 19.8	$ 101.7	$ 66.8	$ 255.5	$ 206.7	$ 662.7
2026	$ 0.2	$ 1.6	$ 2.0	$ 8.7	$ 20.1	$ 102.8	$ 67.4	$ 257.7	$ 208.4	$ 668.9
2027	$ 0.2	$ 1.6	$ 2.0	$ 8.8	$ 20.3	$ 103.7	$ 67.9	$ 259.4	$ 209.7	$ 673.6
2028	$ 0.2	$ 1.6	$ 2.0	$ 8.7	$ 20.2	$ 102.8	$ 67.3	$ 256.8	$ 207.7	$ 667.4
2029	$ 0.2	$ 1.6	$ 2.0	$ 8.8	$ 20.3	$ 103.0	$ 67.3	$ 256.8	$ 207.7	$ 667.7
Total	**$ 2.9**	**$ 22.5**	**$ 28.3**	**$ 123.5**	**$ 286.7**	**$ 1,537.2**	**$ 1,038.1**	**$ 4,031.0**	**$ 3,264.3**	**$ 10,334.4**
Ann.	**$ 0.2**	**$ 1.3**	**$ 1.6**	**$ 7.1**	**$ 16.5**	**$ 88.3**	**$ 59.6**	**$ 231.5**	**$ 187.5**	**$ 593.5**

Arsenic/Bladder Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.2	$ 1.1	$ 2.4	$ 15.1	$ 12.0	$ 51.3	$ 41.6	$ 123.9
2011	$ 0.1	$ 0.5	$ 0.6	$ 2.5	$ 5.9	$ 35.9	$ 28.5	$ 121.6	$ 98.5	$ 294.1
2012	$ 0.1	$ 0.8	$ 1.0	$ 4.3	$ 10.0	$ 60.3	$ 47.7	$ 203.7	$ 164.9	$ 492.7
2013	$ 0.1	$ 1.1	$ 1.4	$ 6.2	$ 14.5	$ 86.8	$ 68.7	$ 293.0	$ 237.1	$ 709.1
2014	$ 0.2	$ 1.5	$ 1.9	$ 8.3	$ 19.3	$ 114.7	$ 85.1	$ 339.4	$ 274.4	$ 844.8
2015	$ 0.2	$ 1.9	$ 2.4	$ 10.4	$ 24.2	$ 136.5	$ 94.6	$ 370.5	$ 299.5	$ 940.3
2016	$ 0.3	$ 2.2	$ 2.8	$ 12.1	$ 28.1	$ 149.3	$ 101.1	$ 392.0	$ 316.7	$ 1,004.5
2017	$ 0.3	$ 2.4	$ 3.0	$ 13.1	$ 30.5	$ 157.9	$ 105.5	$ 406.6	$ 328.5	$ 1,047.8
2018	$ 0.3	$ 2.5	$ 3.2	$ 13.8	$ 32.1	$ 163.8	$ 108.4	$ 416.2	$ 336.2	$ 1,076.7
2019	$ 0.3	$ 2.6	$ 3.3	$ 14.3	$ 33.2	$ 167.6	$ 110.3	$ 422.2	$ 341.0	$ 1,094.9
2020	$ 0.3	$ 2.7	$ 3.3	$ 14.6	$ 33.9	$ 170.0	$ 111.4	$ 425.4	$ 343.6	$ 1,105.2
2021	$ 0.3	$ 2.7	$ 3.4	$ 14.8	$ 34.3	$ 171.2	$ 111.8	$ 426.4	$ 344.4	$ 1,109.4
2022	$ 0.3	$ 2.7	$ 3.4	$ 14.9	$ 34.5	$ 171.5	$ 111.8	$ 425.8	$ 343.9	$ 1,108.9
2023	$ 0.3	$ 2.7	$ 3.4	$ 14.9	$ 34.5	$ 171.2	$ 111.4	$ 423.9	$ 342.4	$ 1,104.8
2024	$ 0.3	$ 2.7	$ 3.4	$ 14.8	$ 34.4	$ 170.4	$ 110.7	$ 421.1	$ 340.1	$ 1,098.0
2025	$ 0.3	$ 2.7	$ 3.4	$ 14.7	$ 34.2	$ 169.2	$ 109.8	$ 417.4	$ 337.2	$ 1,088.9
2026	$ 0.3	$ 2.7	$ 3.3	$ 14.6	$ 33.9	$ 167.7	$ 108.7	$ 413.2	$ 333.7	$ 1,078.2
2027	$ 0.3	$ 2.6	$ 3.3	$ 14.5	$ 33.6	$ 166.0	$ 107.5	$ 408.4	$ 330.0	$ 1,066.2
2028	$ 0.3	$ 2.6	$ 3.2	$ 14.1	$ 32.7	$ 161.7	$ 104.7	$ 397.7	$ 321.3	$ 1,038.3
2029	$ 0.3	$ 2.5	$ 3.2	$ 13.9	$ 32.2	$ 159.3	$ 103.1	$ 391.4	$ 316.2	$ 1,022.1
Total	**$ 5.4**	**$ 42.2**	**$ 53.2**	**$ 231.9**	**$ 538.5**	**$ 2,766.4**	**$ 1,852.9**	**$ 7,167.2**	**$ 5,791.4**	**$ 18,449.0**
Ann.	**$ 0.3**	**$ 2.4**	**$ 3.1**	**$ 13.3**	**$ 30.9**	**$ 158.9**	**$ 106.4**	**$ 411.6**	**$ 332.6**	**$ 1,059.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.39b, E.39c, E.39f, E.39g, E.39j, and E.39k.

Exhibit F.5g Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size
(All Systems)

HAA5 - Preferred Alternative

Smoking/Lung Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.1	$ 0.5	$ 1.1	$ 6.7	$ 5.2	$ 22.4	$ 18.1	$ 54.2
2011	$ 0.0	$ 0.2	$ 0.3	$ 1.2	$ 2.8	$ 16.1	$ 12.7	$ 54.1	$ 43.7	$ 131.1
2012	$ 0.0	$ 0.4	$ 0.5	$ 2.0	$ 4.7	$ 27.2	$ 21.5	$ 91.6	$ 74.0	$ 221.8
2013	$ 0.1	$ 0.5	$ 0.7	$ 2.9	$ 6.8	$ 39.5	$ 31.1	$ 132.7	$ 107.2	$ 321.4
2014	$ 0.1	$ 0.7	$ 0.9	$ 3.9	$ 9.0	$ 52.5	$ 39.3	$ 158.6	$ 128.1	$ 393.0
2015	$ 0.1	$ 0.9	$ 1.1	$ 4.9	$ 11.3	$ 63.3	$ 44.9	$ 178.3	$ 144.1	$ 448.9
2016	$ 0.1	$ 1.0	$ 1.3	$ 5.6	$ 13.1	$ 70.6	$ 49.0	$ 192.8	$ 155.8	$ 489.4
2017	$ 0.1	$ 1.1	$ 1.4	$ 6.1	$ 14.3	$ 75.6	$ 51.8	$ 202.4	$ 163.6	$ 516.5
2018	$ 0.2	$ 1.2	$ 1.5	$ 6.5	$ 15.0	$ 78.8	$ 53.4	$ 207.3	$ 167.6	$ 531.4
2019	$ 0.2	$ 1.2	$ 1.5	$ 6.7	$ 15.5	$ 80.5	$ 53.9	$ 208.1	$ 168.3	$ 535.8
2020	$ 0.2	$ 1.2	$ 1.5	$ 6.7	$ 15.6	$ 80.7	$ 53.6	$ 206.2	$ 166.7	$ 532.6
2021	$ 0.2	$ 1.2	$ 1.5	$ 6.7	$ 15.6	$ 79.9	$ 52.8	$ 202.5	$ 163.7	$ 524.1
2022	$ 0.2	$ 1.2	$ 1.5	$ 6.6	$ 15.4	$ 78.4	$ 51.6	$ 197.4	$ 159.6	$ 511.9
2023	$ 0.2	$ 1.2	$ 1.5	$ 6.5	$ 15.0	$ 76.4	$ 50.1	$ 191.5	$ 154.8	$ 497.1
2024	$ 0.1	$ 1.1	$ 1.4	$ 6.3	$ 14.6	$ 74.1	$ 48.5	$ 185.0	$ 149.5	$ 480.7
2025	$ 0.1	$ 1.1	$ 1.4	$ 6.1	$ 14.1	$ 71.5	$ 46.7	$ 178.1	$ 144.0	$ 463.1
2026	$ 0.1	$ 1.1	$ 1.3	$ 5.9	$ 13.6	$ 68.8	$ 44.9	$ 171.0	$ 138.2	$ 445.0
2027	$ 0.1	$ 1.0	$ 1.3	$ 5.6	$ 13.1	$ 66.1	$ 43.0	$ 163.8	$ 132.5	$ 426.6
2028	$ 0.1	$ 1.0	$ 1.2	$ 5.3	$ 12.4	$ 62.4	$ 40.6	$ 154.5	$ 124.9	$ 402.4
2029	$ 0.1	$ 0.9	$ 1.2	$ 5.1	$ 11.8	$ 59.5	$ 38.7	$ 147.1	$ 119.0	$ 383.4
Total	**$ 2.4**	**$ 18.4**	**$ 23.2**	**$ 101.2**	**$ 235.0**	**$ 1,228.4**	**$ 833.2**	**$ 3,245.4**	**$ 2,623.4**	**$ 8,310.7**
Ann.	**$ 0.2**	**$ 1.6**	**$ 2.0**	**$ 8.7**	**$ 20.2**	**$ 105.4**	**$ 71.5**	**$ 278.5**	**$ 225.1**	**$ 713.1**

Smoking/Bladder Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.1	$ 0.4	$ 1.0	$ 6.3	$ 5.0	$ 21.6	$ 17.6	$ 52.1
2011	$ 0.0	$ 0.2	$ 0.2	$ 0.9	$ 2.1	$ 14.0	$ 11.2	$ 47.8	$ 38.9	$ 115.3
2012	$ 0.0	$ 0.3	$ 0.3	$ 1.5	$ 3.5	$ 22.3	$ 17.8	$ 76.1	$ 61.8	$ 183.6
2013	$ 0.0	$ 0.4	$ 0.5	$ 2.1	$ 4.8	$ 30.9	$ 24.6	$ 105.2	$ 85.4	$ 253.8
2014	$ 0.1	$ 0.5	$ 0.6	$ 2.7	$ 6.2	$ 39.4	$ 29.3	$ 116.9	$ 94.9	$ 290.6
2015	$ 0.1	$ 0.6	$ 0.7	$ 3.3	$ 7.6	$ 45.4	$ 31.6	$ 124.4	$ 100.9	$ 314.5
2016	$ 0.1	$ 0.7	$ 0.8	$ 3.7	$ 8.5	$ 48.3	$ 33.1	$ 129.0	$ 104.6	$ 328.9
2017	$ 0.1	$ 0.7	$ 0.9	$ 3.9	$ 9.1	$ 50.1	$ 33.9	$ 131.7	$ 106.8	$ 337.2
2018	$ 0.1	$ 0.7	$ 0.9	$ 4.1	$ 9.4	$ 51.1	$ 34.4	$ 132.9	$ 107.7	$ 341.3
2019	$ 0.1	$ 0.8	$ 0.9	$ 4.1	$ 9.6	$ 51.5	$ 34.5	$ 132.9	$ 107.7	$ 342.1
2020	$ 0.1	$ 0.8	$ 1.0	$ 4.2	$ 9.7	$ 51.5	$ 34.3	$ 132.0	$ 106.9	$ 340.4
2021	$ 0.1	$ 0.8	$ 1.0	$ 4.2	$ 9.7	$ 51.2	$ 33.9	$ 130.4	$ 105.6	$ 336.8
2022	$ 0.1	$ 0.8	$ 1.0	$ 4.2	$ 9.7	$ 50.5	$ 33.4	$ 128.2	$ 103.8	$ 331.5
2023	$ 0.1	$ 0.8	$ 0.9	$ 4.1	$ 9.6	$ 49.7	$ 32.8	$ 125.6	$ 101.6	$ 325.0
2024	$ 0.1	$ 0.7	$ 0.9	$ 4.1	$ 9.4	$ 48.6	$ 32.0	$ 122.5	$ 99.1	$ 317.6
2025	$ 0.1	$ 0.7	$ 0.9	$ 4.0	$ 9.2	$ 47.5	$ 31.2	$ 119.3	$ 96.5	$ 309.3
2026	$ 0.1	$ 0.7	$ 0.9	$ 3.9	$ 9.0	$ 46.2	$ 30.3	$ 115.8	$ 93.7	$ 300.5
2027	$ 0.1	$ 0.7	$ 0.9	$ 3.8	$ 8.8	$ 44.8	$ 29.4	$ 112.2	$ 90.7	$ 291.3
2028	$ 0.1	$ 0.7	$ 0.8	$ 3.6	$ 8.4	$ 42.8	$ 28.0	$ 106.9	$ 86.5	$ 277.8
2029	$ 0.1	$ 0.6	$ 0.8	$ 3.5	$ 8.2	$ 41.3	$ 27.0	$ 102.9	$ 83.2	$ 267.6
Total	**$ 1.5**	**$ 12.0**	**$ 15.2**	**$ 66.1**	**$ 153.5**	**$ 833.3**	**$ 567.6**	**$ 2,214.4**	**$ 1,793.7**	**$ 5,657.3**
Ann.	**$ 0.1**	**$ 1.0**	**$ 1.3**	**$ 5.7**	**$ 13.2**	**$ 71.5**	**$ 48.7**	**$ 190.0**	**$ 153.9**	**$ 485.5**

Arsenic/Bladder Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.2	$ 0.9	$ 2.0	$ 12.5	$ 9.9	$ 42.4	$ 34.4	$ 102.4
2011	$ 0.0	$ 0.4	$ 0.5	$ 2.0	$ 4.7	$ 28.6	$ 22.7	$ 96.8	$ 78.4	$ 234.0
2012	$ 0.1	$ 0.6	$ 0.8	$ 3.3	$ 7.7	$ 46.2	$ 36.5	$ 156.0	$ 126.3	$ 377.3
2013	$ 0.1	$ 0.8	$ 1.1	$ 4.6	$ 10.7	$ 64.0	$ 50.6	$ 216.0	$ 174.8	$ 522.8
2014	$ 0.1	$ 1.1	$ 1.4	$ 5.9	$ 13.7	$ 81.4	$ 60.4	$ 240.9	$ 194.8	$ 599.6
2015	$ 0.2	$ 1.3	$ 1.6	$ 7.1	$ 16.5	$ 93.3	$ 64.6	$ 253.1	$ 204.6	$ 642.4
2016	$ 0.2	$ 1.4	$ 1.8	$ 8.0	$ 18.5	$ 98.2	$ 66.5	$ 257.8	$ 208.3	$ 660.6
2017	$ 0.2	$ 1.5	$ 1.9	$ 8.3	$ 19.3	$ 100.0	$ 66.8	$ 257.4	$ 207.9	$ 663.3
2018	$ 0.2	$ 1.5	$ 1.9	$ 8.4	$ 19.6	$ 99.8	$ 66.1	$ 253.7	$ 204.9	$ 656.1
2019	$ 0.2	$ 1.5	$ 1.9	$ 8.4	$ 19.5	$ 98.3	$ 64.7	$ 247.7	$ 200.1	$ 642.3
2020	$ 0.2	$ 1.5	$ 1.9	$ 8.2	$ 19.1	$ 96.0	$ 62.9	$ 240.2	$ 194.0	$ 624.1
2021	$ 0.2	$ 1.5	$ 1.8	$ 8.0	$ 18.6	$ 93.1	$ 60.8	$ 231.8	$ 187.2	$ 603.0
2022	$ 0.2	$ 1.4	$ 1.8	$ 7.8	$ 18.0	$ 89.8	$ 58.5	$ 222.8	$ 180.0	$ 580.2
2023	$ 0.2	$ 1.4	$ 1.7	$ 7.5	$ 17.4	$ 86.3	$ 56.1	$ 213.5	$ 172.5	$ 556.5
2024	$ 0.2	$ 1.3	$ 1.6	$ 7.2	$ 16.7	$ 82.6	$ 53.7	$ 204.2	$ 164.9	$ 532.4
2025	$ 0.2	$ 1.3	$ 1.6	$ 6.9	$ 16.0	$ 79.0	$ 51.3	$ 194.8	$ 157.4	$ 508.2
2026	$ 0.2	$ 1.2	$ 1.5	$ 6.6	$ 15.2	$ 75.4	$ 48.9	$ 185.6	$ 149.9	$ 484.4
2027	$ 0.1	$ 1.1	$ 1.4	$ 6.3	$ 14.5	$ 71.8	$ 46.5	$ 176.7	$ 142.7	$ 461.1
2028	$ 0.1	$ 1.1	$ 1.3	$ 5.9	$ 13.6	$ 67.3	$ 43.6	$ 165.6	$ 133.7	$ 432.3
2029	$ 0.1	$ 1.0	$ 1.3	$ 5.6	$ 12.9	$ 63.8	$ 41.3	$ 156.9	$ 126.7	$ 409.6
Total	**$ 2.9**	**$ 23.1**	**$ 29.1**	**$ 126.7**	**$ 294.3**	**$ 1,527.2**	**$ 1,032.3**	**$ 4,013.7**	**$ 3,243.5**	**$ 10,292.8**
Ann.	**$ 0.3**	**$ 2.0**	**$ 2.5**	**$ 10.9**	**$ 25.3**	**$ 131.1**	**$ 88.6**	**$ 344.4**	**$ 278.3**	**$ 883.2**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f, E.39b, E.39c, E.39f, E.39g, E.39j, and E.39k.

Section F.6
Model Outputs - Alternative 1
TTHM as Indicator
Lymphoma for Non-Fatal Cases

Exhibit F.6a Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Smoking/Lung Cancer Cessation Lag Model)

TTHM - Alternative 1

Year	Surface Water Systems			Ground Water Systems			All Systems		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 118.9	$ 18.2	$ 273.4	$ 6.1	$ 0.9	$ 14.0	$ 125.0	$ 19.1	$ 287.4
2011	$ 316.9	$ 48.5	$ 729.0	$ 16.2	$ 2.5	$ 37.2	$ 333.1	$ 51.0	$ 766.2
2012	$ 578.4	$ 88.5	$ 1,328.7	$ 29.6	$ 4.5	$ 67.9	$ 607.9	$ 93.0	$ 1,396.6
2013	$ 893.5	$ 136.8	$ 2,052.3	$ 45.7	$ 7.0	$ 104.9	$ 939.1	$ 143.8	$ 2,157.1
2014	$ 1,154.6	$ 176.5	$ 2,654.2	$ 62.2	$ 9.5	$ 143.0	$ 1,216.8	$ 186.0	$ 2,797.1
2015	$ 1,377.8	$ 210.7	$ 3,168.6	$ 78.7	$ 12.0	$ 180.9	$ 1,456.4	$ 222.7	$ 3,349.5
2016	$ 1,567.5	$ 239.5	$ 3,604.9	$ 93.3	$ 14.3	$ 214.6	$ 1,660.8	$ 253.7	$ 3,819.5
2017	$ 1,731.5	$ 264.4	$ 3,985.8	$ 105.5	$ 16.1	$ 242.8	$ 1,837.0	$ 280.5	$ 4,228.6
2018	$ 1,876.0	$ 286.0	$ 4,321.9	$ 116.0	$ 17.7	$ 267.3	$ 1,992.0	$ 303.7	$ 4,589.2
2019	$ 2,004.9	$ 305.4	$ 4,626.8	$ 125.3	$ 19.1	$ 289.1	$ 2,130.2	$ 324.5	$ 4,915.9
2020	$ 2,121.3	$ 323.0	$ 4,897.4	$ 133.6	$ 20.3	$ 308.4	$ 2,254.8	$ 343.3	$ 5,205.8
2021	$ 2,227.1	$ 338.7	$ 5,142.2	$ 141.1	$ 21.5	$ 325.7	$ 2,368.2	$ 360.2	$ 5,467.9
2022	$ 2,324.2	$ 353.4	$ 5,375.3	$ 147.9	$ 22.5	$ 342.0	$ 2,472.1	$ 375.9	$ 5,717.3
2023	$ 2,413.8	$ 367.1	$ 5,584.0	$ 154.1	$ 23.4	$ 356.5	$ 2,567.9	$ 390.6	$ 5,940.5
2024	$ 2,497.1	$ 379.6	$ 5,778.8	$ 159.9	$ 24.3	$ 370.0	$ 2,657.0	$ 403.9	$ 6,148.9
2025	$ 2,574.9	$ 390.8	$ 5,959.2	$ 165.3	$ 25.1	$ 382.5	$ 2,740.1	$ 415.9	$ 6,341.7
2026	$ 2,648.0	$ 401.4	$ 6,133.7	$ 170.3	$ 25.8	$ 394.5	$ 2,818.3	$ 427.2	$ 6,528.2
2027	$ 2,717.0	$ 411.4	$ 6,303.3	$ 175.0	$ 26.5	$ 406.0	$ 2,892.0	$ 437.9	$ 6,709.3
2028	$ 2,746.5	$ 416.2	$ 6,368.1	$ 177.2	$ 26.8	$ 410.8	$ 2,923.6	$ 443.1	$ 6,778.9
2029	$ 2,801.3	$ 423.9	$ 6,501.5	$ 180.9	$ 27.4	$ 419.9	$ 2,982.3	$ 451.3	$ 6,921.4
Total	**$ 36,691.1**	**$ 5,580.1**	**$ 84,789.0**	**$ 2,283.7**	**$ 347.3**	**$ 5,278.1**	**$ 38,974.8**	**$ 5,927.4**	**$ 90,067.2**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.40b, and E.40c.

Exhibit F.6b Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, Smoking/Lung Cancer Cessation Lag Model
(All Water Systems)

TTHM - Alternative 1

Year	3% Discount Rate			7% Discount Rate		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 107.8	$ 16.5	$ 247.9	$ 89.1	$ 13.6	$ 204.9
2011	$ 279.0	$ 42.7	$ 641.7	$ 222.0	$ 34.0	$ 510.6
2012	$ 494.3	$ 75.6	$ 1,135.6	$ 378.6	$ 57.9	$ 869.7
2013	$ 741.4	$ 113.5	$ 1,702.9	$ 546.6	$ 83.7	$ 1,255.5
2014	$ 932.6	$ 142.6	$ 2,143.8	$ 661.9	$ 101.2	$ 1,521.5
2015	$ 1,083.7	$ 165.7	$ 2,492.4	$ 740.4	$ 113.2	$ 1,702.7
2016	$ 1,199.8	$ 183.3	$ 2,759.3	$ 789.1	$ 120.5	$ 1,814.6
2017	$ 1,288.5	$ 196.7	$ 2,965.9	$ 815.7	$ 124.5	$ 1,877.6
2018	$ 1,356.5	$ 206.8	$ 3,125.0	$ 826.6	$ 126.0	$ 1,904.4
2019	$ 1,408.3	$ 214.5	$ 3,250.0	$ 826.1	$ 125.8	$ 1,906.5
2020	$ 1,447.3	$ 220.4	$ 3,341.4	$ 817.3	$ 124.4	$ 1,886.8
2021	$ 1,475.8	$ 224.5	$ 3,407.4	$ 802.2	$ 122.0	$ 1,852.2
2022	$ 1,495.6	$ 227.4	$ 3,459.1	$ 782.6	$ 119.0	$ 1,810.0
2023	$ 1,508.4	$ 229.4	$ 3,489.4	$ 759.8	$ 115.6	$ 1,757.6
2024	$ 1,515.2	$ 230.3	$ 3,506.6	$ 734.7	$ 111.7	$ 1,700.2
2025	$ 1,517.1	$ 230.3	$ 3,511.3	$ 708.1	$ 107.5	$ 1,638.8
2026	$ 1,515.0	$ 229.6	$ 3,509.2	$ 680.6	$ 103.2	$ 1,576.6
2027	$ 1,509.3	$ 228.5	$ 3,501.6	$ 652.8	$ 98.8	$ 1,514.4
2028	$ 1,481.4	$ 224.5	$ 3,434.8	$ 616.7	$ 93.5	$ 1,430.0
2029	$ 1,467.1	$ 222.0	$ 3,404.9	$ 587.9	$ 89.0	$ 1,364.5
Total	**$ 23,824.0**	**$ 3,625.0**	**$ 55,030.0**	**$ 13,038.6**	**$ 1,985.2**	**$ 30,099.0**
Ann.	**$ 1,368.2**	**$ 208.2**	**$ 3,160.3**	**$ 1,118.9**	**$ 170.4**	**$ 2,582.8**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.6a.

Exhibit F.6c Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size

(All Systems)

TTHM - Alternative 1

Smoking/Lung Cancer Cessation Lag Model										
Year	**<100**	**100-499**	**500-999**	**1,000-3,299**	**3,300-9,999**	**10,000-49,999**	**50,000-99,999**	**100,000-999,999**	**≥1,000,000**	**Total**
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.3	$ 0.4	$ 1.5	$ 3.5	$ 12.0	$ 10.0	$ 43.7	$ 36.3	$ 107.8
2011	$ 0.1	$ 0.8	$ 1.0	$ 4.0	$ 9.0	$ 31.2	$ 26.0	$ 113.0	$ 94.0	$ 279.0
2012	$ 0.2	$ 1.4	$ 1.7	$ 7.1	$ 16.0	$ 55.2	$ 46.0	$ 200.2	$ 166.6	$ 494.3
2013	$ 0.3	$ 2.1	$ 2.5	$ 10.6	$ 24.0	$ 82.8	$ 69.0	$ 300.2	$ 249.8	$ 741.4
2014	$ 0.4	$ 2.8	$ 3.5	$ 14.5	$ 32.8	$ 113.0	$ 89.4	$ 369.1	$ 307.2	$ 932.6
2015	$ 0.5	$ 3.6	$ 4.4	$ 18.6	$ 42.0	$ 139.5	$ 104.1	$ 420.8	$ 350.2	$ 1,083.7
2016	$ 0.6	$ 4.3	$ 5.3	$ 22.2	$ 50.1	$ 158.6	$ 115.3	$ 460.4	$ 383.2	$ 1,199.8
2017	$ 0.6	$ 4.8	$ 5.9	$ 24.8	$ 55.9	$ 173.2	$ 123.8	$ 490.9	$ 408.6	$ 1,288.5
2018	$ 0.7	$ 5.2	$ 6.4	$ 26.7	$ 60.4	$ 184.3	$ 130.4	$ 514.4	$ 428.1	$ 1,356.5
2019	$ 0.7	$ 5.5	$ 6.7	$ 28.2	$ 63.8	$ 192.8	$ 135.4	$ 532.2	$ 443.0	$ 1,408.3
2020	$ 0.7	$ 5.7	$ 7.0	$ 29.4	$ 66.4	$ 199.3	$ 139.2	$ 545.6	$ 454.1	$ 1,447.3
2021	$ 0.8	$ 5.8	$ 7.2	$ 30.2	$ 68.3	$ 204.1	$ 142.0	$ 555.3	$ 462.1	$ 1,475.8
2022	$ 0.8	$ 6.0	$ 7.3	$ 30.9	$ 69.7	$ 207.5	$ 143.9	$ 561.9	$ 467.6	$ 1,495.6
2023	$ 0.8	$ 6.0	$ 7.5	$ 31.3	$ 70.7	$ 209.9	$ 145.1	$ 566.0	$ 471.1	$ 1,508.4
2024	$ 0.8	$ 6.1	$ 7.5	$ 31.6	$ 71.4	$ 211.3	$ 145.8	$ 568.0	$ 472.7	$ 1,515.2
2025	$ 0.8	$ 6.1	$ 7.6	$ 31.8	$ 71.7	$ 212.0	$ 146.0	$ 568.3	$ 472.9	$ 1,517.1
2026	$ 0.8	$ 6.1	$ 7.6	$ 31.8	$ 71.9	$ 212.0	$ 145.8	$ 567.1	$ 471.9	$ 1,515.0
2027	$ 0.8	$ 6.1	$ 7.6	$ 31.8	$ 71.8	$ 211.4	$ 145.3	$ 564.6	$ 469.9	$ 1,509.3
2028	$ 0.8	$ 6.0	$ 7.4	$ 31.3	$ 70.6	$ 207.7	$ 142.6	$ 553.9	$ 461.0	$ 1,481.4
2029	$ 0.8	$ 6.0	$ 7.4	$ 31.0	$ 70.0	$ 205.9	$ 141.2	$ 548.3	$ 456.4	$ 1,467.1
Total	**$ 11.7**	**$ 90.7**	**$ 111.7**	**$ 469.4**	**$ 1,060.0**	**$ 3,223.8**	**$ 2,286.3**	**$ 9,043.7**	**$ 7,526.8**	**$ 23,824.0**
Ann.	**$ 0.7**	**$ 5.2**	**$ 6.4**	**$ 27.0**	**$ 60.9**	**$ 185.1**	**$ 131.3**	**$ 519.4**	**$ 432.2**	**$ 1,368.2**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.40d.

Exhibit F.6d Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size
(All Systems)

TTHM - Alternative 1

Smoking/Lung Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.3	$ 1.3	$ 2.9	$ 10.0	$ 8.3	$ 36.1	$ 30.0	$ 89.1
2011	$ 0.1	$ 0.6	$ 0.8	$ 3.2	$ 7.2	$ 24.8	$ 20.7	$ 89.9	$ 74.8	$ 222.0
2012	$ 0.1	$ 1.0	$ 1.3	$ 5.4	$ 12.3	$ 42.3	$ 35.2	$ 153.3	$ 127.6	$ 378.6
2013	$ 0.2	$ 1.5	$ 1.9	$ 7.8	$ 17.7	$ 61.1	$ 50.8	$ 221.3	$ 184.2	$ 546.6
2014	$ 0.3	$ 2.0	$ 2.5	$ 10.3	$ 23.2	$ 80.2	$ 63.5	$ 261.9	$ 218.0	$ 661.9
2015	$ 0.3	$ 2.5	$ 3.0	$ 12.7	$ 28.7	$ 95.3	$ 71.1	$ 287.5	$ 239.3	$ 740.4
2016	$ 0.4	$ 2.8	$ 3.5	$ 14.6	$ 32.9	$ 104.3	$ 75.8	$ 302.8	$ 252.0	$ 789.1
2017	$ 0.4	$ 3.0	$ 3.7	$ 15.7	$ 35.4	$ 109.6	$ 78.4	$ 310.8	$ 258.6	$ 815.7
2018	$ 0.4	$ 3.1	$ 3.9	$ 16.3	$ 36.8	$ 112.3	$ 79.5	$ 313.5	$ 260.9	$ 826.6
2019	$ 0.4	$ 3.2	$ 3.9	$ 16.6	$ 37.4	$ 113.1	$ 79.4	$ 312.2	$ 259.8	$ 826.1
2020	$ 0.4	$ 3.2	$ 3.9	$ 16.6	$ 37.5	$ 112.5	$ 78.6	$ 308.1	$ 256.4	$ 817.3
2021	$ 0.4	$ 3.2	$ 3.9	$ 16.4	$ 37.1	$ 110.9	$ 77.2	$ 301.8	$ 251.2	$ 802.2
2022	$ 0.4	$ 3.1	$ 3.8	$ 16.2	$ 36.5	$ 108.6	$ 75.3	$ 294.0	$ 244.7	$ 782.6
2023	$ 0.4	$ 3.0	$ 3.8	$ 15.8	$ 35.6	$ 105.7	$ 73.1	$ 285.1	$ 237.3	$ 759.8
2024	$ 0.4	$ 3.0	$ 3.6	$ 15.3	$ 34.6	$ 102.5	$ 70.7	$ 275.4	$ 229.2	$ 734.7
2025	$ 0.4	$ 2.9	$ 3.5	$ 14.8	$ 33.5	$ 98.9	$ 68.1	$ 265.2	$ 220.7	$ 708.1
2026	$ 0.4	$ 2.8	$ 3.4	$ 14.3	$ 32.3	$ 95.2	$ 65.5	$ 254.8	$ 212.0	$ 680.6
2027	$ 0.3	$ 2.7	$ 3.3	$ 13.7	$ 31.0	$ 91.4	$ 62.8	$ 244.2	$ 203.2	$ 652.8
2028	$ 0.3	$ 2.5	$ 3.1	$ 13.0	$ 29.4	$ 86.5	$ 59.4	$ 230.6	$ 191.9	$ 616.7
2029	$ 0.3	$ 2.4	$ 3.0	$ 12.4	$ 28.1	$ 82.5	$ 56.6	$ 219.8	$ 182.9	$ 587.9
Total	**$ 6.3**	**$ 48.8**	**$ 60.1**	**$ 252.4**	**$ 570.1**	**$ 1,747.8**	**$ 1,250.0**	**$ 4,968.2**	**$ 4,134.9**	**$ 13,038.6**
Ann.	**$ 0.5**	**$ 4.2**	**$ 5.2**	**$ 21.7**	**$ 48.9**	**$ 150.0**	**$ 107.3**	**$ 426.3**	**$ 354.8**	**$ 1,118.9**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.40d.

Section F.7
Model Outputs - Alternative 1
TTHM as Indicator
Bronchitis for Non-Fatal Cases

Exhibit F.7a Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Smoking/Lung Cancer Cessation Lag Model)

TTHM - Alternative 1

Year	Surface Water Systems			Ground Water Systems			All Systems		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 58.7	$ 12.9	$ 129.2	$ 3.0	$ 0.7	$ 6.6	$ 61.7	$ 13.6	$ 135.8
2011	$ 156.7	$ 34.5	$ 345.1	$ 8.0	$ 1.8	$ 17.6	$ 164.7	$ 36.2	$ 362.7
2012	$ 286.1	$ 62.8	$ 629.8	$ 14.6	$ 3.2	$ 32.2	$ 300.7	$ 66.1	$ 661.9
2013	$ 442.3	$ 97.1	$ 973.2	$ 22.6	$ 5.0	$ 49.7	$ 464.9	$ 102.1	$ 1,022.9
2014	$ 572.0	$ 125.3	$ 1,259.2	$ 30.8	$ 6.8	$ 67.8	$ 602.8	$ 132.1	$ 1,327.0
2015	$ 683.1	$ 149.4	$ 1,506.2	$ 39.0	$ 8.5	$ 86.0	$ 722.1	$ 157.9	$ 1,592.2
2016	$ 777.7	$ 170.0	$ 1,714.5	$ 46.3	$ 10.1	$ 102.1	$ 824.0	$ 180.1	$ 1,816.6
2017	$ 859.8	$ 187.7	$ 1,898.9	$ 52.4	$ 11.4	$ 115.7	$ 912.2	$ 199.1	$ 2,014.5
2018	$ 932.2	$ 203.0	$ 2,059.6	$ 57.7	$ 12.6	$ 127.4	$ 989.9	$ 215.6	$ 2,186.9
2019	$ 997.1	$ 216.8	$ 2,208.0	$ 62.3	$ 13.5	$ 138.0	$ 1,059.4	$ 230.3	$ 2,346.0
2020	$ 1,055.8	$ 229.2	$ 2,339.8	$ 66.5	$ 14.4	$ 147.3	$ 1,122.3	$ 243.6	$ 2,487.2
2021	$ 1,109.4	$ 240.5	$ 2,461.5	$ 70.3	$ 15.2	$ 155.9	$ 1,179.7	$ 255.7	$ 2,617.5
2022	$ 1,158.7	$ 250.7	$ 2,576.1	$ 73.7	$ 15.9	$ 163.9	$ 1,232.4	$ 266.6	$ 2,740.0
2023	$ 1,204.4	$ 259.9	$ 2,678.0	$ 76.9	$ 16.6	$ 171.0	$ 1,281.3	$ 276.5	$ 2,849.0
2024	$ 1,247.0	$ 268.8	$ 2,774.0	$ 79.9	$ 17.2	$ 177.6	$ 1,326.9	$ 286.0	$ 2,951.7
2025	$ 1,287.0	$ 276.8	$ 2,864.7	$ 82.6	$ 17.8	$ 183.9	$ 1,369.6	$ 294.6	$ 3,048.6
2026	$ 1,324.6	$ 284.6	$ 2,949.5	$ 85.2	$ 18.3	$ 189.7	$ 1,409.8	$ 302.9	$ 3,139.2
2027	$ 1,360.4	$ 291.8	$ 3,036.6	$ 87.6	$ 18.8	$ 195.6	$ 1,448.0	$ 310.6	$ 3,232.2
2028	$ 1,374.7	$ 295.0	$ 3,065.9	$ 88.7	$ 19.0	$ 197.8	$ 1,463.4	$ 314.0	$ 3,263.6
2029	$ 1,403.1	$ 300.7	$ 3,134.7	$ 90.6	$ 19.4	$ 202.4	$ 1,493.7	$ 320.1	$ 3,337.1
Total	**$ 18,290.8**	**$ 3,957.5**	**$ 40,604.3**	**$ 1,138.6**	**$ 246.3**	**$ 2,528.3**	**$ 19,429.5**	**$ 4,203.8**	**$ 43,132.6**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.40b, and E.40c.

Exhibit F.7b Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, Smoking/Lung Cancer Cessation Lag Model
(All Water Systems)

TTHM - Alternative 1

Year	3% Discount Rate			7% Discount Rate		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 53.3	$ 11.7	$ 117.1	$ 44.0	$ 9.7	$ 96.8
2011	$ 137.9	$ 30.3	$ 303.8	$ 109.7	$ 24.1	$ 241.7
2012	$ 244.5	$ 53.7	$ 538.2	$ 187.3	$ 41.1	$ 412.2
2013	$ 367.0	$ 80.6	$ 807.5	$ 270.6	$ 59.4	$ 595.3
2014	$ 462.0	$ 101.2	$ 1,017.0	$ 327.9	$ 71.9	$ 721.8
2015	$ 537.3	$ 117.5	$ 1,184.7	$ 367.1	$ 80.3	$ 809.4
2016	$ 595.3	$ 130.1	$ 1,312.4	$ 391.5	$ 85.6	$ 863.1
2017	$ 639.8	$ 139.7	$ 1,413.0	$ 405.0	$ 88.4	$ 894.5
2018	$ 674.1	$ 146.8	$ 1,489.2	$ 410.8	$ 89.5	$ 907.5
2019	$ 700.4	$ 152.3	$ 1,551.0	$ 410.9	$ 89.3	$ 909.8
2020	$ 720.4	$ 156.4	$ 1,596.4	$ 406.8	$ 88.3	$ 901.5
2021	$ 735.1	$ 159.4	$ 1,631.1	$ 399.6	$ 86.6	$ 886.6
2022	$ 745.6	$ 161.3	$ 1,657.7	$ 390.2	$ 84.4	$ 867.4
2023	$ 752.6	$ 162.4	$ 1,673.5	$ 379.1	$ 81.8	$ 842.9
2024	$ 756.7	$ 163.1	$ 1,683.3	$ 366.9	$ 79.1	$ 816.2
2025	$ 758.3	$ 163.1	$ 1,688.0	$ 353.9	$ 76.1	$ 787.8
2026	$ 757.9	$ 162.8	$ 1,687.5	$ 340.5	$ 73.2	$ 758.2
2027	$ 755.7	$ 162.1	$ 1,686.9	$ 326.8	$ 70.1	$ 729.6
2028	$ 741.5	$ 159.1	$ 1,653.7	$ 308.7	$ 66.2	$ 688.5
2029	$ 734.8	$ 157.5	$ 1,641.6	$ 294.5	$ 63.1	$ 657.9
Total	**$ 11,870.1**	**$ 2,571.1**	**$ 26,333.4**	**$ 6,491.6**	**$ 1,408.2**	**$ 14,388.5**
Ann.	**$ 681.7**	**$ 147.7**	**$ 1,512.3**	**$ 557.0**	**$ 120.8**	**$ 1,234.7**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.7a.

Exhibit F.7c Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size

(All Systems)

TTHM - Alternative 1

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.2	$ 0.8	$ 1.7	$ 6.0	$ 5.0	$ 21.6	$ 18.0	$ 53.3
2011	$ 0.0	$ 0.4	$ 0.5	$ 2.0	$ 4.5	$ 15.4	$ 12.8	$ 55.8	$ 46.5	$ 137.9
2012	$ 0.1	$ 0.7	$ 0.8	$ 3.5	$ 7.9	$ 27.3	$ 22.7	$ 99.0	$ 82.4	$ 244.5
2013	$ 0.1	$ 1.0	$ 1.3	$ 5.3	$ 11.9	$ 41.0	$ 34.1	$ 148.6	$ 123.7	$ 367.0
2014	$ 0.2	$ 1.4	$ 1.7	$ 7.2	$ 16.2	$ 56.0	$ 44.3	$ 182.8	$ 152.2	$ 462.0
2015	$ 0.2	$ 1.8	$ 2.2	$ 9.2	$ 20.8	$ 69.1	$ 51.6	$ 208.6	$ 173.6	$ 537.3
2016	$ 0.3	$ 2.1	$ 2.6	$ 11.0	$ 24.9	$ 78.7	$ 57.2	$ 228.4	$ 190.1	$ 595.3
2017	$ 0.3	$ 2.4	$ 2.9	$ 12.3	$ 27.8	$ 86.0	$ 61.5	$ 243.8	$ 202.9	$ 639.8
2018	$ 0.3	$ 2.6	$ 3.2	$ 13.3	$ 30.0	$ 91.6	$ 64.8	$ 255.6	$ 212.7	$ 674.1
2019	$ 0.3	$ 2.7	$ 3.3	$ 14.0	$ 31.7	$ 95.9	$ 67.3	$ 264.7	$ 220.3	$ 700.4
2020	$ 0.4	$ 2.8	$ 3.5	$ 14.6	$ 33.0	$ 99.2	$ 69.3	$ 271.6	$ 226.0	$ 720.4
2021	$ 0.4	$ 2.9	$ 3.6	$ 15.1	$ 34.0	$ 101.7	$ 70.7	$ 276.6	$ 230.2	$ 735.1
2022	$ 0.4	$ 3.0	$ 3.7	$ 15.4	$ 34.8	$ 103.5	$ 71.7	$ 280.1	$ 233.1	$ 745.6
2023	$ 0.4	$ 3.0	$ 3.7	$ 15.6	$ 35.3	$ 104.7	$ 72.4	$ 282.4	$ 235.0	$ 752.6
2024	$ 0.4	$ 3.0	$ 3.8	$ 15.8	$ 35.6	$ 105.5	$ 72.8	$ 283.7	$ 236.1	$ 756.7
2025	$ 0.4	$ 3.1	$ 3.8	$ 15.9	$ 35.9	$ 105.9	$ 73.0	$ 284.0	$ 236.4	$ 758.3
2026	$ 0.4	$ 3.1	$ 3.8	$ 15.9	$ 35.9	$ 106.0	$ 72.9	$ 283.7	$ 236.1	$ 757.9
2027	$ 0.4	$ 3.1	$ 3.8	$ 15.9	$ 35.9	$ 105.9	$ 72.7	$ 282.7	$ 235.3	$ 755.7
2028	$ 0.4	$ 3.0	$ 3.7	$ 15.6	$ 35.3	$ 104.0	$ 71.4	$ 277.3	$ 230.7	$ 741.5
2029	$ 0.4	$ 3.0	$ 3.7	$ 15.5	$ 35.1	$ 103.1	$ 70.7	$ 274.6	$ 228.6	$ 734.8
Total	**$ 5.8**	**$ 45.2**	**$ 55.7**	**$ 233.9**	**$ 528.3**	**$ 1,606.5**	**$ 1,139.2**	**$ 4,505.6**	**$ 3,749.9**	**$ 11,870.1**
Ann.	**$ 0.3**	**$ 2.6**	**$ 3.2**	**$ 13.4**	**$ 30.3**	**$ 92.3**	**$ 65.4**	**$ 258.7**	**$ 215.3**	**$ 681.7**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f and E.40d.

Exhibit F.7d Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size
(All Systems)

TTHM - Alternative 1

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.2	$ 0.6	$ 1.4	$ 4.9	$ 4.1	$ 17.8	$ 14.8	$ 44.0
2011	$ 0.0	$ 0.3	$ 0.4	$ 1.6	$ 3.6	$ 12.3	$ 10.2	$ 44.4	$ 37.0	$ 109.7
2012	$ 0.1	$ 0.5	$ 0.6	$ 2.7	$ 6.1	$ 20.9	$ 17.4	$ 75.8	$ 63.1	$ 187.3
2013	$ 0.1	$ 0.7	$ 0.9	$ 3.9	$ 8.8	$ 30.2	$ 25.2	$ 109.6	$ 91.2	$ 270.6
2014	$ 0.1	$ 1.0	$ 1.2	$ 5.1	$ 11.5	$ 39.7	$ 31.4	$ 129.8	$ 108.0	$ 327.9
2015	$ 0.2	$ 1.2	$ 1.5	$ 6.3	$ 14.2	$ 47.2	$ 35.3	$ 142.5	$ 118.6	$ 367.1
2016	$ 0.2	$ 1.4	$ 1.7	$ 7.2	$ 16.3	$ 51.8	$ 37.6	$ 150.2	$ 125.0	$ 391.5
2017	$ 0.2	$ 1.5	$ 1.9	$ 7.8	$ 17.6	$ 54.4	$ 38.9	$ 154.3	$ 128.4	$ 405.0
2018	$ 0.2	$ 1.6	$ 1.9	$ 8.1	$ 18.3	$ 55.8	$ 39.5	$ 155.8	$ 129.6	$ 410.8
2019	$ 0.2	$ 1.6	$ 2.0	$ 8.2	$ 18.6	$ 56.3	$ 39.5	$ 155.3	$ 129.2	$ 410.9
2020	$ 0.2	$ 1.6	$ 2.0	$ 8.3	$ 18.7	$ 56.0	$ 39.1	$ 153.3	$ 127.6	$ 406.8
2021	$ 0.2	$ 1.6	$ 1.9	$ 8.2	$ 18.5	$ 55.3	$ 38.4	$ 150.3	$ 125.1	$ 399.6
2022	$ 0.2	$ 1.6	$ 1.9	$ 8.1	$ 18.2	$ 54.1	$ 37.5	$ 146.6	$ 122.0	$ 390.2
2023	$ 0.2	$ 1.5	$ 1.9	$ 7.9	$ 17.8	$ 52.7	$ 36.5	$ 142.2	$ 118.4	$ 379.1
2024	$ 0.2	$ 1.5	$ 1.8	$ 7.7	$ 17.3	$ 51.2	$ 35.3	$ 137.5	$ 114.5	$ 366.9
2025	$ 0.2	$ 1.4	$ 1.8	$ 7.4	$ 16.7	$ 49.4	$ 34.1	$ 132.6	$ 110.3	$ 353.9
2026	$ 0.2	$ 1.4	$ 1.7	$ 7.2	$ 16.1	$ 47.6	$ 32.8	$ 127.4	$ 106.1	$ 340.5
2027	$ 0.2	$ 1.3	$ 1.6	$ 6.9	$ 15.5	$ 45.8	$ 31.5	$ 122.3	$ 101.8	$ 326.8
2028	$ 0.2	$ 1.3	$ 1.6	$ 6.5	$ 14.7	$ 43.3	$ 29.7	$ 115.4	$ 96.1	$ 308.7
2029	$ 0.2	$ 1.2	$ 1.5	$ 6.2	$ 14.1	$ 41.3	$ 28.3	$ 110.1	$ 91.6	$ 294.5
Total	**$ 3.1**	**$ 24.3**	**$ 29.9**	**$ 125.7**	**$ 284.0**	**$ 870.4**	**$ 622.4**	**$ 2,473.3**	**$ 2,058.5**	**$ 6,491.6**
Ann.	**$ 0.3**	**$ 2.1**	**$ 2.6**	**$ 10.8**	**$ 24.4**	**$ 74.7**	**$ 53.4**	**$ 212.2**	**$ 176.6**	**$ 557.0**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.40d.

Section F.8
Model Outputs - Alternative 2
TTHM as Indicator
Lymphoma for Non-Fatal Cases

Exhibit F.8a Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Smoking/Lung Cancer Cessation Lag Model)

TTHM - Alternative 2

Year	Surface Water Systems			Ground Water Systems			All Systems		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 436.2	$ 66.8	$ 1,002.8	$ 31.9	$ 4.9	$ 73.4	$ 468.2	$ 71.7	$ 1,076.2
2011	$ 1,162.3	$ 178.0	$ 2,673.4	$ 85.0	$ 13.0	$ 195.6	$ 1,247.4	$ 191.0	$ 2,869.0
2012	$ 2,120.9	$ 324.6	$ 4,872.2	$ 155.2	$ 23.7	$ 356.5	$ 2,276.1	$ 348.3	$ 5,228.7
2013	$ 3,276.0	$ 501.4	$ 7,524.7	$ 239.7	$ 36.7	$ 550.6	$ 3,515.7	$ 538.1	$ 8,075.3
2014	$ 4,232.9	$ 647.1	$ 9,730.6	$ 320.2	$ 49.0	$ 736.2	$ 4,553.2	$ 696.1	$ 10,466.8
2015	$ 5,050.6	$ 772.3	$ 11,615.5	$ 393.4	$ 60.2	$ 904.8	$ 5,444.0	$ 832.5	$ 12,520.3
2016	$ 5,745.8	$ 877.8	$ 13,213.8	$ 455.4	$ 69.6	$ 1,047.3	$ 6,201.3	$ 947.3	$ 14,261.2
2017	$ 6,346.7	$ 969.1	$ 14,609.5	$ 508.2	$ 77.6	$ 1,169.8	$ 6,854.9	$ 1,046.7	$ 15,779.3
2018	$ 6,875.9	$ 1,048.4	$ 15,840.9	$ 554.3	$ 84.5	$ 1,277.0	$ 7,430.2	$ 1,133.0	$ 17,117.9
2019	$ 7,348.3	$ 1,119.4	$ 16,957.7	$ 595.2	$ 90.7	$ 1,373.5	$ 7,943.5	$ 1,210.0	$ 18,331.2
2020	$ 7,774.4	$ 1,183.8	$ 17,949.1	$ 631.9	$ 96.2	$ 1,458.9	$ 8,406.4	$ 1,280.0	$ 19,408.1
2021	$ 8,162.3	$ 1,241.4	$ 18,845.8	$ 665.2	$ 101.2	$ 1,535.9	$ 8,827.5	$ 1,342.6	$ 20,381.7
2022	$ 8,517.8	$ 1,295.2	$ 19,700.0	$ 695.6	$ 105.8	$ 1,608.9	$ 9,213.5	$ 1,401.0	$ 21,308.9
2023	$ 8,846.1	$ 1,345.4	$ 20,464.4	$ 723.7	$ 110.1	$ 1,674.1	$ 9,569.8	$ 1,455.5	$ 22,138.5
2024	$ 9,151.2	$ 1,391.1	$ 21,178.1	$ 749.6	$ 114.0	$ 1,734.8	$ 9,900.8	$ 1,505.1	$ 22,912.9
2025	$ 9,436.2	$ 1,432.3	$ 21,839.1	$ 773.8	$ 117.5	$ 1,790.9	$ 10,210.0	$ 1,549.8	$ 23,630.0
2026	$ 9,704.0	$ 1,471.0	$ 22,478.3	$ 796.5	$ 120.7	$ 1,845.0	$ 10,500.6	$ 1,591.7	$ 24,323.3
2027	$ 9,956.9	$ 1,507.6	$ 23,099.6	$ 817.9	$ 123.8	$ 1,897.5	$ 10,774.8	$ 1,631.4	$ 24,997.1
2028	$ 10,064.8	$ 1,525.3	$ 23,336.8	$ 827.3	$ 125.4	$ 1,918.2	$ 10,892.1	$ 1,650.6	$ 25,255.1
2029	$ 10,265.9	$ 1,553.6	$ 23,825.6	$ 844.3	$ 127.8	$ 1,959.5	$ 11,110.2	$ 1,681.4	$ 25,785.0
Total	**$ 134,475.5**	**$ 20,451.6**	**$ 310,757.9**	**$ 10,864.4**	**$ 1,652.2**	**$ 25,108.3**	**$ 145,340.0**	**$ 22,103.8**	**$ 335,866.2**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.41b, and E.41c.

Exhibit F.8b Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, Smoking/Lung Cancer Cessation Lag Model
(All Water Systems)

TTHM - Alternative 2

Year	3% Discount Rate			7% Discount Rate		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 403.8	$ 61.8	$ 928.3	$ 333.8	$ 51.1	$ 767.3
2011	$ 1,044.6	$ 160.0	$ 2,402.7	$ 831.2	$ 127.3	$ 1,911.7
2012	$ 1,850.7	$ 283.2	$ 4,251.4	$ 1,417.4	$ 216.9	$ 3,256.2
2013	$ 2,775.3	$ 424.8	$ 6,374.7	$ 2,046.2	$ 313.2	$ 4,699.9
2014	$ 3,489.6	$ 533.5	$ 8,021.9	$ 2,476.6	$ 378.6	$ 5,693.2
2015	$ 4,050.9	$ 619.4	$ 9,316.3	$ 2,767.5	$ 423.2	$ 6,364.7
2016	$ 4,479.9	$ 684.4	$ 10,302.6	$ 2,946.2	$ 450.1	$ 6,775.4
2017	$ 4,807.9	$ 734.1	$ 11,067.3	$ 3,043.7	$ 464.8	$ 7,006.2
2018	$ 5,059.6	$ 771.5	$ 11,656.4	$ 3,083.3	$ 470.1	$ 7,103.3
2019	$ 5,251.6	$ 800.0	$ 12,119.1	$ 3,080.6	$ 469.3	$ 7,109.2
2020	$ 5,395.7	$ 821.6	$ 12,457.3	$ 3,046.9	$ 463.9	$ 7,034.4
2021	$ 5,501.0	$ 836.7	$ 12,701.2	$ 2,990.2	$ 454.8	$ 6,904.0
2022	$ 5,574.3	$ 847.6	$ 12,892.2	$ 2,916.8	$ 443.5	$ 6,745.8
2023	$ 5,621.2	$ 855.0	$ 13,004.0	$ 2,831.4	$ 430.6	$ 6,550.0
2024	$ 5,646.3	$ 858.3	$ 13,066.9	$ 2,737.7	$ 416.2	$ 6,335.6
2025	$ 5,653.1	$ 858.1	$ 13,083.4	$ 2,638.5	$ 400.5	$ 6,106.4
2026	$ 5,644.6	$ 855.6	$ 13,075.0	$ 2,536.0	$ 384.4	$ 5,874.4
2027	$ 5,623.3	$ 851.4	$ 13,045.8	$ 2,432.0	$ 368.2	$ 5,642.2
2028	$ 5,519.0	$ 836.4	$ 12,796.5	$ 2,297.7	$ 348.2	$ 5,327.5
2029	$ 5,465.5	$ 827.1	$ 12,684.5	$ 2,190.3	$ 331.5	$ 5,083.4
Total	**$ 88,857.9**	**$ 13,520.4**	**$ 205,247.6**	**$ 48,643.6**	**$ 7,406.4**	**$ 112,290.8**
Ann.	**$ 5,102.9**	**$ 776.5**	**$ 11,786.9**	**$ 4,174.1**	**$ 635.5**	**$ 9,635.7**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.8a.

Exhibit F.8c Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size
(All Systems)

TTHM - Alternative 2

Smoking/Lung Cancer Cessation Lag Model										
Year	**<100**	**100-499**	**500-999**	**1,000-3,299**	**3,300-9,999**	**10,000-49,999**	**50,000-99,999**	**100,000-999,999**	**≥1,000,000**	**Total**
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.6	$ 0.8	$ 4.0	$ 10.2	$ 49.1	$ 38.9	$ 165.9	$ 134.3	$ 403.8
2011	$ 0.2	$ 1.5	$ 2.1	$ 10.4	$ 26.3	$ 127.1	$ 100.6	$ 429.2	$ 347.3	$ 1,044.6
2012	$ 0.3	$ 2.7	$ 3.7	$ 18.4	$ 46.7	$ 225.2	$ 178.1	$ 760.3	$ 615.3	$ 1,850.7
2013	$ 0.5	$ 4.0	$ 5.5	$ 27.6	$ 70.0	$ 337.8	$ 267.1	$ 1,140.2	$ 922.7	$ 2,775.3
2014	$ 0.7	$ 5.4	$ 7.5	$ 37.6	$ 95.4	$ 460.7	$ 346.4	$ 1,401.7	$ 1,134.3	$ 3,489.6
2015	$ 0.9	$ 7.0	$ 9.6	$ 48.2	$ 122.4	$ 568.6	$ 403.2	$ 1,597.9	$ 1,293.0	$ 4,050.9
2016	$ 1.0	$ 8.3	$ 11.5	$ 57.5	$ 145.9	$ 646.6	$ 446.3	$ 1,748.2	$ 1,414.7	$ 4,479.9
2017	$ 1.1	$ 9.3	$ 12.8	$ 64.2	$ 162.9	$ 705.8	$ 479.4	$ 1,864.0	$ 1,508.4	$ 4,807.9
2018	$ 1.2	$ 10.0	$ 13.8	$ 69.3	$ 175.8	$ 751.2	$ 504.9	$ 1,953.0	$ 1,580.4	$ 5,059.6
2019	$ 1.3	$ 10.6	$ 14.6	$ 73.2	$ 185.7	$ 785.9	$ 524.3	$ 2,020.8	$ 1,635.2	$ 5,251.6
2020	$ 1.3	$ 11.0	$ 15.2	$ 76.1	$ 193.2	$ 812.3	$ 538.9	$ 2,071.4	$ 1,676.2	$ 5,395.7
2021	$ 1.4	$ 11.3	$ 15.6	$ 78.4	$ 198.9	$ 831.8	$ 549.6	$ 2,108.1	$ 1,705.9	$ 5,501.0
2022	$ 1.4	$ 11.5	$ 16.0	$ 80.0	$ 203.0	$ 845.9	$ 557.1	$ 2,133.2	$ 1,726.2	$ 5,574.3
2023	$ 1.4	$ 11.7	$ 16.2	$ 81.1	$ 205.9	$ 855.4	$ 561.9	$ 2,148.7	$ 1,738.8	$ 5,621.2
2024	$ 1.4	$ 11.8	$ 16.3	$ 81.9	$ 207.8	$ 861.2	$ 564.5	$ 2,156.4	$ 1,745.0	$ 5,646.3
2025	$ 1.5	$ 11.9	$ 16.4	$ 82.3	$ 208.9	$ 863.8	$ 565.2	$ 2,157.3	$ 1,745.7	$ 5,653.1
2026	$ 1.5	$ 11.9	$ 16.4	$ 82.4	$ 209.2	$ 863.8	$ 564.5	$ 2,152.8	$ 1,742.0	$ 5,644.6
2027	$ 1.5	$ 11.9	$ 16.4	$ 82.3	$ 209.0	$ 861.7	$ 562.4	$ 2,143.5	$ 1,734.6	$ 5,623.3
2028	$ 1.4	$ 11.7	$ 16.2	$ 81.0	$ 205.6	$ 846.6	$ 552.0	$ 2,102.8	$ 1,701.6	$ 5,519.0
2029	$ 1.4	$ 11.6	$ 16.0	$ 80.4	$ 204.0	$ 839.2	$ 546.7	$ 2,081.7	$ 1,684.5	$ 5,465.5
Total	**$ 21.5**	**$ 175.6**	**$ 242.7**	**$ 1,216.3**	**$ 3,086.9**	**$ 13,139.7**	**$ 8,852.1**	**$ 34,337.0**	**$ 27,786.0**	**$ 88,857.9**
Ann.	**$ 1.2**	**$ 10.1**	**$ 13.9**	**$ 69.8**	**$ 177.3**	**$ 754.6**	**$ 508.4**	**$ 1,971.9**	**$ 1,595.7**	**$ 5,102.9**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f and E.41d.

Exhibit F.8d Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size
(All Systems)

TTHM - Alternative 2

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.5	$ 0.7	$ 3.3	$ 8.4	$ 40.6	$ 32.1	$ 137.1	$ 111.0	$ 333.8
2011	$ 0.1	$ 1.2	$ 1.6	$ 8.3	$ 21.0	$ 101.2	$ 80.0	$ 341.5	$ 276.3	$ 831.2
2012	$ 0.2	$ 2.0	$ 2.8	$ 14.1	$ 35.7	$ 172.5	$ 136.4	$ 582.3	$ 471.2	$ 1,417.4
2013	$ 0.4	$ 2.9	$ 4.1	$ 20.3	$ 51.6	$ 249.0	$ 197.0	$ 840.7	$ 680.3	$ 2,046.2
2014	$ 0.5	$ 3.9	$ 5.3	$ 26.7	$ 67.7	$ 326.9	$ 245.8	$ 994.8	$ 805.0	$ 2,476.6
2015	$ 0.6	$ 4.8	$ 6.6	$ 32.9	$ 83.6	$ 388.5	$ 275.5	$ 1,091.7	$ 883.4	$ 2,767.5
2016	$ 0.7	$ 5.5	$ 7.5	$ 37.8	$ 95.9	$ 425.2	$ 293.5	$ 1,149.7	$ 930.3	$ 2,946.2
2017	$ 0.7	$ 5.9	$ 8.1	$ 40.6	$ 103.1	$ 446.8	$ 303.5	$ 1,180.0	$ 954.9	$ 3,043.7
2018	$ 0.7	$ 6.1	$ 8.4	$ 42.2	$ 107.2	$ 457.8	$ 307.7	$ 1,190.1	$ 963.1	$ 3,083.3
2019	$ 0.8	$ 6.2	$ 8.6	$ 42.9	$ 108.9	$ 461.0	$ 307.6	$ 1,185.4	$ 959.2	$ 3,080.6
2020	$ 0.8	$ 6.2	$ 8.6	$ 43.0	$ 109.1	$ 458.7	$ 304.3	$ 1,169.7	$ 946.5	$ 3,046.9
2021	$ 0.8	$ 6.1	$ 8.5	$ 42.6	$ 108.1	$ 452.2	$ 298.8	$ 1,145.9	$ 927.3	$ 2,990.2
2022	$ 0.7	$ 6.0	$ 8.4	$ 41.9	$ 106.2	$ 442.6	$ 291.5	$ 1,116.2	$ 903.2	$ 2,916.8
2023	$ 0.7	$ 5.9	$ 8.2	$ 40.9	$ 103.7	$ 430.9	$ 283.0	$ 1,082.3	$ 875.8	$ 2,831.4
2024	$ 0.7	$ 5.7	$ 7.9	$ 39.7	$ 100.8	$ 417.5	$ 273.7	$ 1,045.5	$ 846.1	$ 2,737.7
2025	$ 0.7	$ 5.5	$ 7.7	$ 38.4	$ 97.5	$ 403.2	$ 263.8	$ 1,006.9	$ 814.8	$ 2,638.5
2026	$ 0.7	$ 5.3	$ 7.4	$ 37.0	$ 94.0	$ 388.1	$ 253.6	$ 967.2	$ 782.7	$ 2,536.0
2027	$ 0.6	$ 5.1	$ 7.1	$ 35.6	$ 90.4	$ 372.7	$ 243.2	$ 927.1	$ 750.2	$ 2,432.0
2028	$ 0.6	$ 4.9	$ 6.7	$ 33.7	$ 85.6	$ 352.5	$ 229.8	$ 875.4	$ 708.4	$ 2,297.7
2029	$ 0.6	$ 4.6	$ 6.4	$ 32.2	$ 81.7	$ 336.3	$ 219.1	$ 834.2	$ 675.1	$ 2,190.3
Total	**$ 11.6**	**$ 94.4**	**$ 130.5**	**$ 654.2**	**$ 1,660.4**	**$ 7,124.1**	**$ 4,840.0**	**$ 18,863.7**	**$ 15,264.8**	**$ 48,643.6**
Ann.	**$ 1.0**	**$ 8.1**	**$ 11.2**	**$ 56.1**	**$ 142.5**	**$ 611.3**	**$ 415.3**	**$ 1,618.7**	**$ 1,309.9**	**$ 4,174.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.41d.

Section F.9
Model Outputs - Alternative 2
TTHM as Indicator
Bronchitis for Non-Fatal Cases

Exhibit F.9a Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Smoking/Lung Cancer Cessation Lag Model)

TTHM - Alternative 2

Year	Surface Water Systems			Ground Water Systems			All Systems		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 215.5	$ 47.4	$ 473.9	$ 15.8	$ 3.5	$ 34.7	$ 231.3	$ 50.9	$ 508.5
2011	$ 574.6	$ 126.4	$ 1,265.5	$ 42.0	$ 9.2	$ 92.6	$ 616.6	$ 135.6	$ 1,358.1
2012	$ 1,049.2	$ 230.4	$ 2,309.3	$ 76.8	$ 16.9	$ 169.0	$ 1,125.9	$ 247.3	$ 2,478.3
2013	$ 1,621.7	$ 356.0	$ 3,568.2	$ 118.7	$ 26.1	$ 261.1	$ 1,740.4	$ 382.1	$ 3,829.2
2014	$ 2,097.0	$ 459.5	$ 4,616.3	$ 158.7	$ 34.8	$ 349.3	$ 2,255.7	$ 494.3	$ 4,965.5
2015	$ 2,504.0	$ 547.7	$ 5,521.5	$ 195.0	$ 42.7	$ 430.1	$ 2,699.0	$ 590.4	$ 5,951.5
2016	$ 2,850.8	$ 623.1	$ 6,284.7	$ 226.0	$ 49.4	$ 498.1	$ 3,076.8	$ 672.4	$ 6,782.9
2017	$ 3,151.4	$ 687.9	$ 6,960.0	$ 252.3	$ 55.1	$ 557.3	$ 3,403.7	$ 743.0	$ 7,517.3
2018	$ 3,416.9	$ 744.1	$ 7,548.8	$ 275.4	$ 60.0	$ 608.5	$ 3,692.3	$ 804.1	$ 8,157.3
2019	$ 3,654.5	$ 794.5	$ 8,092.5	$ 296.0	$ 64.4	$ 655.5	$ 3,950.5	$ 858.9	$ 8,747.9
2020	$ 3,869.6	$ 839.9	$ 8,575.5	$ 314.5	$ 68.3	$ 697.0	$ 4,184.1	$ 908.1	$ 9,272.5
2021	$ 4,065.9	$ 881.4	$ 9,021.4	$ 331.4	$ 71.8	$ 735.2	$ 4,397.3	$ 953.2	$ 9,756.7
2022	$ 4,246.5	$ 918.7	$ 9,440.9	$ 346.8	$ 75.0	$ 771.0	$ 4,593.4	$ 993.7	$ 10,212.0
2023	$ 4,413.9	$ 952.3	$ 9,814.3	$ 361.1	$ 77.9	$ 802.8	$ 4,775.0	$ 1,030.3	$ 10,617.1
2024	$ 4,570.0	$ 985.2	$ 10,166.3	$ 374.3	$ 80.7	$ 832.8	$ 4,944.3	$ 1,065.9	$ 10,999.1
2025	$ 4,716.4	$ 1,014.6	$ 10,498.6	$ 386.8	$ 83.2	$ 860.9	$ 5,103.1	$ 1,097.8	$ 11,359.5
2026	$ 4,854.4	$ 1,042.9	$ 10,809.1	$ 398.5	$ 85.6	$ 887.2	$ 5,252.9	$ 1,128.6	$ 11,696.3
2027	$ 4,985.3	$ 1,069.3	$ 11,128.3	$ 409.5	$ 87.8	$ 914.1	$ 5,394.8	$ 1,157.1	$ 12,042.4
2028	$ 5,037.8	$ 1,081.1	$ 11,235.3	$ 414.1	$ 88.9	$ 923.5	$ 5,451.8	$ 1,170.0	$ 12,158.8
2029	$ 5,141.8	$ 1,102.0	$ 11,487.4	$ 422.9	$ 90.6	$ 944.8	$ 5,564.7	$ 1,192.7	$ 12,432.2
Total	**$ 67,037.1**	**$ 14,504.5**	**$ 148,817.7**	**$ 5,416.5**	**$ 1,171.7**	**$ 12,025.5**	**$ 72,453.6**	**$ 15,676.2**	**$ 160,843.2**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.41b, and E.41c.

Exhibit F.9b Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, Smoking/Lung Cancer Cessation Lag Model
(All Water Systems)

TTHM - Alternative 2

Year	3% Discount Rate			7% Discount Rate		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 199.5	$ 43.9	$ 438.7	$ 164.9	$ 36.3	$ 362.6
2011	$ 516.4	$ 113.6	$ 1,137.4	$ 410.9	$ 90.4	$ 905.0
2012	$ 915.5	$ 201.1	$ 2,015.1	$ 701.2	$ 154.0	$ 1,543.3
2013	$ 1,373.9	$ 301.6	$ 3,022.8	$ 1,012.9	$ 222.4	$ 2,228.6
2014	$ 1,728.8	$ 378.8	$ 3,805.7	$ 1,226.9	$ 268.9	$ 2,700.9
2015	$ 2,008.3	$ 439.3	$ 4,428.5	$ 1,372.1	$ 300.1	$ 3,025.5
2016	$ 2,222.8	$ 485.8	$ 4,900.1	$ 1,461.8	$ 319.5	$ 3,222.5
2017	$ 2,387.3	$ 521.1	$ 5,272.5	$ 1,511.3	$ 329.9	$ 3,337.8
2018	$ 2,514.3	$ 547.5	$ 5,554.7	$ 1,532.2	$ 333.7	$ 3,385.0
2019	$ 2,611.7	$ 567.8	$ 5,783.4	$ 1,532.1	$ 333.1	$ 3,392.6
2020	$ 2,685.6	$ 582.9	$ 5,951.7	$ 1,516.5	$ 329.2	$ 3,360.8
2021	$ 2,740.2	$ 594.0	$ 6,080.0	$ 1,489.5	$ 322.9	$ 3,304.9
2022	$ 2,779.1	$ 601.2	$ 6,178.4	$ 1,454.1	$ 314.6	$ 3,232.8
2023	$ 2,804.8	$ 605.2	$ 6,236.4	$ 1,412.7	$ 304.8	$ 3,141.2
2024	$ 2,819.7	$ 607.9	$ 6,272.6	$ 1,367.1	$ 294.7	$ 3,041.3
2025	$ 2,825.5	$ 607.8	$ 6,289.5	$ 1,318.7	$ 283.7	$ 2,935.5
2026	$ 2,823.7	$ 606.7	$ 6,287.3	$ 1,268.6	$ 272.6	$ 2,824.8
2027	$ 2,815.5	$ 603.9	$ 6,284.8	$ 1,217.7	$ 261.2	$ 2,718.1
2028	$ 2,762.4	$ 592.8	$ 6,160.8	$ 1,150.1	$ 246.8	$ 2,564.9
2029	$ 2,737.4	$ 586.7	$ 6,115.8	$ 1,097.1	$ 235.1	$ 2,451.0
Total	**$ 44,272.4**	**$ 9,589.6**	**$ 98,216.2**	**$ 24,218.4**	**$ 5,253.7**	**$ 53,679.2**
Ann.	**$ 2,542.5**	**$ 550.7**	**$ 5,640.4**	**$ 2,078.2**	**$ 450.8**	**$ 4,606.2**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.9a.

Exhibit F.9c Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size

(All Systems)

TTHM - Alternative 2

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.3	$ 0.4	$ 2.0	$ 5.0	$ 24.3	$ 19.2	$ 82.0	$ 66.3	$ 199.5
2011	$ 0.1	$ 0.7	$ 1.0	$ 5.1	$ 13.0	$ 62.8	$ 49.7	$ 212.2	$ 171.7	$ 516.4
2012	$ 0.2	$ 1.3	$ 1.8	$ 9.1	$ 23.1	$ 111.4	$ 88.1	$ 376.1	$ 304.4	$ 915.5
2013	$ 0.2	$ 2.0	$ 2.7	$ 13.6	$ 34.6	$ 167.2	$ 132.2	$ 564.5	$ 456.8	$ 1,373.9
2014	$ 0.3	$ 2.7	$ 3.7	$ 18.6	$ 47.3	$ 228.2	$ 171.6	$ 694.4	$ 561.9	$ 1,728.8
2015	$ 0.4	$ 3.5	$ 4.8	$ 23.9	$ 60.7	$ 281.9	$ 199.9	$ 792.2	$ 641.1	$ 2,008.3
2016	$ 0.5	$ 4.1	$ 5.7	$ 28.5	$ 72.4	$ 320.8	$ 221.5	$ 867.4	$ 701.9	$ 2,222.8
2017	$ 0.6	$ 4.6	$ 6.4	$ 31.9	$ 80.9	$ 350.5	$ 238.1	$ 925.5	$ 749.0	$ 2,387.3
2018	$ 0.6	$ 5.0	$ 6.9	$ 34.4	$ 87.4	$ 373.3	$ 250.9	$ 970.5	$ 785.3	$ 2,514.3
2019	$ 0.6	$ 5.3	$ 7.3	$ 36.4	$ 92.4	$ 390.9	$ 260.8	$ 1,005.0	$ 813.2	$ 2,611.7
2020	$ 0.7	$ 5.5	$ 7.6	$ 37.9	$ 96.2	$ 404.3	$ 268.2	$ 1,031.0	$ 834.3	$ 2,685.6
2021	$ 0.7	$ 5.6	$ 7.8	$ 39.0	$ 99.1	$ 414.4	$ 273.8	$ 1,050.1	$ 849.8	$ 2,740.2
2022	$ 0.7	$ 5.8	$ 8.0	$ 39.9	$ 101.2	$ 421.7	$ 277.7	$ 1,063.5	$ 860.6	$ 2,779.1
2023	$ 0.7	$ 5.8	$ 8.1	$ 40.5	$ 102.8	$ 426.8	$ 280.4	$ 1,072.1	$ 867.6	$ 2,804.8
2024	$ 0.7	$ 5.9	$ 8.2	$ 40.9	$ 103.8	$ 430.1	$ 281.9	$ 1,076.9	$ 871.4	$ 2,819.7
2025	$ 0.7	$ 5.9	$ 8.2	$ 41.1	$ 104.4	$ 431.7	$ 282.5	$ 1,078.3	$ 872.5	$ 2,825.5
2026	$ 0.7	$ 6.0	$ 8.2	$ 41.2	$ 104.7	$ 432.1	$ 282.4	$ 1,076.9	$ 871.5	$ 2,823.7
2027	$ 0.7	$ 6.0	$ 8.2	$ 41.2	$ 104.6	$ 431.4	$ 281.6	$ 1,073.2	$ 868.5	$ 2,815.5
2028	$ 0.7	$ 5.9	$ 8.1	$ 40.5	$ 102.9	$ 423.8	$ 276.3	$ 1,052.5	$ 851.7	$ 2,762.4
2029	$ 0.7	$ 5.8	$ 8.0	$ 40.3	$ 102.2	$ 420.3	$ 273.8	$ 1,042.6	$ 843.7	$ 2,737.4
Total	**$ 10.7**	**$ 87.5**	**$ 121.0**	**$ 606.2**	**$ 1,538.5**	**$ 6,547.9**	**$ 4,410.6**	**$ 17,106.9**	**$ 13,843.1**	**$ 44,272.4**
Ann.	**$ 0.6**	**$ 5.0**	**$ 6.9**	**$ 34.8**	**$ 88.4**	**$ 376.0**	**$ 253.3**	**$ 982.4**	**$ 795.0**	**$ 2,542.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.41d.

Exhibit F.9d Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size

(All Systems)

TTHM - Alternative 2

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.3	$ 1.6	$ 4.2	$ 20.1	$ 15.9	$ 67.7	$ 54.8	$ 164.9
2011	$ 0.1	$ 0.6	$ 0.8	$ 4.1	$ 10.4	$ 50.0	$ 39.5	$ 168.8	$ 136.6	$ 410.9
2012	$ 0.1	$ 1.0	$ 1.4	$ 7.0	$ 17.7	$ 85.3	$ 67.5	$ 288.1	$ 233.1	$ 701.2
2013	$ 0.2	$ 1.5	$ 2.0	$ 10.1	$ 25.5	$ 123.3	$ 97.5	$ 416.2	$ 336.8	$ 1,012.9
2014	$ 0.2	$ 1.9	$ 2.6	$ 13.2	$ 33.6	$ 162.0	$ 121.8	$ 492.8	$ 398.8	$ 1,226.9
2015	$ 0.3	$ 2.4	$ 3.3	$ 16.3	$ 41.5	$ 192.6	$ 136.6	$ 541.2	$ 438.0	$ 1,372.1
2016	$ 0.3	$ 2.7	$ 3.7	$ 18.8	$ 47.6	$ 211.0	$ 145.6	$ 570.4	$ 461.6	$ 1,461.8
2017	$ 0.4	$ 2.9	$ 4.0	$ 20.2	$ 51.2	$ 221.9	$ 150.7	$ 585.9	$ 474.1	$ 1,511.3
2018	$ 0.4	$ 3.0	$ 4.2	$ 21.0	$ 53.2	$ 227.5	$ 152.9	$ 591.4	$ 478.6	$ 1,532.2
2019	$ 0.4	$ 3.1	$ 4.3	$ 21.3	$ 54.2	$ 229.3	$ 153.0	$ 589.5	$ 477.1	$ 1,532.1
2020	$ 0.4	$ 3.1	$ 4.3	$ 21.4	$ 54.3	$ 228.3	$ 151.5	$ 582.2	$ 471.1	$ 1,516.5
2021	$ 0.4	$ 3.1	$ 4.2	$ 21.2	$ 53.9	$ 225.2	$ 148.8	$ 570.8	$ 461.9	$ 1,489.5
2022	$ 0.4	$ 3.0	$ 4.2	$ 20.9	$ 53.0	$ 220.7	$ 145.3	$ 556.5	$ 450.3	$ 1,454.1
2023	$ 0.4	$ 2.9	$ 4.1	$ 20.4	$ 51.8	$ 215.0	$ 141.2	$ 540.0	$ 437.0	$ 1,412.7
2024	$ 0.4	$ 2.9	$ 4.0	$ 19.8	$ 50.3	$ 208.5	$ 136.7	$ 522.1	$ 422.5	$ 1,367.1
2025	$ 0.3	$ 2.8	$ 3.8	$ 19.2	$ 48.7	$ 201.5	$ 131.9	$ 503.3	$ 407.2	$ 1,318.7
2026	$ 0.3	$ 2.7	$ 3.7	$ 18.5	$ 47.0	$ 194.2	$ 126.9	$ 483.8	$ 391.5	$ 1,268.6
2027	$ 0.3	$ 2.6	$ 3.6	$ 17.8	$ 45.3	$ 186.6	$ 121.8	$ 464.2	$ 375.6	$ 1,217.7
2028	$ 0.3	$ 2.4	$ 3.4	$ 16.9	$ 42.8	$ 176.4	$ 115.0	$ 438.2	$ 354.6	$ 1,150.1
2029	$ 0.3	$ 2.3	$ 3.2	$ 16.1	$ 40.9	$ 168.5	$ 109.7	$ 417.8	$ 338.1	$ 1,097.1
Total	**$ 5.8**	**$ 47.0**	**$ 65.0**	**$ 325.8**	**$ 827.0**	**$ 3,547.6**	**$ 2,409.7**	**$ 9,391.0**	**$ 7,599.3**	**$ 24,218.4**
Ann.	**$ 0.5**	**$ 4.0**	**$ 5.6**	**$ 28.0**	**$ 71.0**	**$ 304.4**	**$ 206.8**	**$ 805.8**	**$ 652.1**	**$ 2,078.2**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.41d.

Section F.10
Model Outputs - Alternative 3
TTHM as Indicator
Lymphoma for Non-Fatal Cases

Exhibit F.10a Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Smoking/Lung Cancer Cessation Lag Model)

TTHM - Alternative 3

Year	Surface Water Systems Mean Value	Surface Water Systems 90 Percent Confidence Bound Lower (5th %tile)	Surface Water Systems 90 Percent Confidence Bound Upper (95th %tile)	Ground Water Systems Mean Value	Ground Water Systems 90 Percent Confidence Bound Lower (5th %tile)	Ground Water Systems 90 Percent Confidence Bound Upper (95th %tile)	All Systems Mean Value	All Systems 90 Percent Confidence Bound Lower (5th %tile)	All Systems 90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 593.6	$ 90.9	$ 1,364.6	$ 50.6	$ 7.7	$ 116.3	$ 644.2	$ 98.6	$ 1,480.9
2011	$ 1,580.9	$ 242.1	$ 3,636.1	$ 134.7	$ 20.6	$ 309.9	$ 1,715.6	$ 262.7	$ 3,946.1
2012	$ 2,883.9	$ 441.3	$ 6,625.0	$ 245.8	$ 37.6	$ 564.7	$ 3,129.7	$ 478.9	$ 7,189.7
2013	$ 4,453.6	$ 681.7	$ 10,229.8	$ 379.6	$ 58.1	$ 871.9	$ 4,833.3	$ 739.8	$ 11,101.7
2014	$ 5,753.3	$ 879.5	$ 13,225.5	$ 505.1	$ 77.2	$ 1,161.1	$ 6,258.4	$ 956.8	$ 14,386.7
2015	$ 6,863.5	$ 1,049.5	$ 15,784.8	$ 616.6	$ 94.3	$ 1,418.2	$ 7,480.2	$ 1,143.8	$ 17,203.0
2016	$ 7,807.3	$ 1,192.7	$ 17,954.6	$ 710.0	$ 108.5	$ 1,632.8	$ 8,517.3	$ 1,301.1	$ 19,587.4
2017	$ 8,622.9	$ 1,316.7	$ 19,849.1	$ 789.9	$ 120.6	$ 1,818.3	$ 9,412.8	$ 1,437.3	$ 21,667.4
2018	$ 9,341.2	$ 1,424.3	$ 21,520.5	$ 859.9	$ 131.1	$ 1,981.1	$ 10,201.2	$ 1,555.5	$ 23,501.6
2019	$ 9,982.3	$ 1,520.6	$ 23,036.3	$ 922.1	$ 140.5	$ 2,128.0	$ 10,904.5	$ 1,661.1	$ 25,164.3
2020	$ 10,560.7	$ 1,608.1	$ 24,381.9	$ 978.1	$ 148.9	$ 2,258.1	$ 11,538.8	$ 1,757.0	$ 26,640.0
2021	$ 11,087.1	$ 1,686.3	$ 25,598.8	$ 1,028.8	$ 156.5	$ 2,375.4	$ 12,115.9	$ 1,842.7	$ 27,974.3
2022	$ 11,569.7	$ 1,759.3	$ 26,758.2	$ 1,075.3	$ 163.5	$ 2,486.8	$ 12,644.9	$ 1,922.8	$ 29,245.1
2023	$ 12,015.2	$ 1,827.4	$ 27,795.7	$ 1,118.0	$ 170.0	$ 2,586.4	$ 13,133.3	$ 1,997.5	$ 30,382.1
2024	$ 12,429.3	$ 1,889.4	$ 28,764.4	$ 1,157.7	$ 176.0	$ 2,679.2	$ 13,587.0	$ 2,065.4	$ 31,443.6
2025	$ 12,816.1	$ 1,945.4	$ 29,661.5	$ 1,194.7	$ 181.3	$ 2,765.1	$ 14,010.9	$ 2,126.7	$ 32,426.6
2026	$ 13,179.6	$ 1,997.8	$ 30,529.1	$ 1,229.4	$ 186.4	$ 2,847.9	$ 14,409.1	$ 2,184.2	$ 33,377.0
2027	$ 13,522.9	$ 2,047.5	$ 31,372.5	$ 1,262.2	$ 191.1	$ 2,928.2	$ 14,785.1	$ 2,238.6	$ 34,300.7
2028	$ 13,669.2	$ 2,071.5	$ 31,694.2	$ 1,276.5	$ 193.4	$ 2,959.7	$ 14,945.7	$ 2,264.9	$ 34,653.9
2029	$ 13,942.1	$ 2,109.9	$ 32,357.6	$ 1,302.5	$ 197.1	$ 3,022.9	$ 15,244.6	$ 2,307.0	$ 35,380.4
Total	**$ 182,674.6**	**$ 27,781.9**	**$ 422,140.2**	**$ 16,837.6**	**$ 2,560.6**	**$ 38,912.0**	**$ 199,512.2**	**$ 30,342.5**	**$ 461,052.1**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.42b, and E.42c.

Exhibit F.10b Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, Smoking/Lung Cancer Cessation Lag Model
(All Water Systems)

TTHM - Alternative 3

Year	3% Discount Rate			7% Discount Rate		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 555.7	$ 85.1	$ 1,277.4	$ 459.3	$ 70.3	$ 1,055.8
2011	$ 1,436.8	$ 220.0	$ 3,304.8	$ 1,143.2	$ 175.0	$ 2,629.4
2012	$ 2,544.7	$ 389.4	$ 5,845.9	$ 1,949.0	$ 298.3	$ 4,477.4
2013	$ 3,815.4	$ 584.0	$ 8,763.8	$ 2,813.0	$ 430.6	$ 6,461.3
2014	$ 4,796.5	$ 733.3	$ 11,026.2	$ 3,404.1	$ 520.4	$ 7,825.4
2015	$ 5,565.9	$ 851.1	$ 12,800.7	$ 3,802.5	$ 581.5	$ 8,745.1
2016	$ 6,153.1	$ 940.0	$ 14,150.4	$ 4,046.5	$ 618.2	$ 9,305.8
2017	$ 6,602.0	$ 1,008.1	$ 15,197.0	$ 4,179.4	$ 638.2	$ 9,620.6
2018	$ 6,946.5	$ 1,059.2	$ 16,003.4	$ 4,233.1	$ 645.5	$ 9,752.3
2019	$ 7,209.1	$ 1,098.2	$ 16,636.5	$ 4,228.9	$ 644.2	$ 9,759.1
2020	$ 7,406.3	$ 1,127.7	$ 17,099.2	$ 4,182.2	$ 636.8	$ 9,655.6
2021	$ 7,550.2	$ 1,148.3	$ 17,432.6	$ 4,104.1	$ 624.2	$ 9,475.9
2022	$ 7,650.4	$ 1,163.3	$ 17,693.7	$ 4,003.1	$ 608.7	$ 9,258.2
2023	$ 7,714.4	$ 1,173.3	$ 17,846.3	$ 3,885.7	$ 591.0	$ 8,989.0
2024	$ 7,748.5	$ 1,177.9	$ 17,931.9	$ 3,756.9	$ 571.1	$ 8,694.4
2025	$ 7,757.5	$ 1,177.5	$ 17,953.8	$ 3,620.7	$ 549.6	$ 8,379.6
2026	$ 7,745.6	$ 1,174.1	$ 17,941.8	$ 3,480.0	$ 527.5	$ 8,061.0
2027	$ 7,716.2	$ 1,168.3	$ 17,901.3	$ 3,337.2	$ 505.3	$ 7,742.1
2028	$ 7,572.9	$ 1,147.6	$ 17,558.8	$ 3,152.7	$ 477.8	$ 7,310.1
2029	$ 7,499.3	$ 1,134.9	$ 17,404.8	$ 3,005.4	$ 454.8	$ 6,975.1
Total	**$ 121,987.0**	**$ 18,561.3**	**$ 281,770.3**	**$ 66,787.0**	**$ 10,168.8**	**$ 154,173.3**
Ann.	**$ 7,005.5**	**$ 1,065.9**	**$ 16,181.5**	**$ 5,731.0**	**$ 872.6**	**$ 13,229.7**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.10a.

Exhibit F.10c Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size

(All Systems)

TTHM - Alternative 3

Smoking/Lung Cancer Cessation Lag Model

Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.6	$ 0.9	$ 4.8	$ 12.8	$ 69.9	$ 54.2	$ 229.2	$ 183.3	$ 555.7
2011	$ 0.2	$ 1.5	$ 2.2	$ 12.4	$ 33.1	$ 180.7	$ 140.0	$ 592.8	$ 473.9	$ 1,436.8
2012	$ 0.3	$ 2.7	$ 4.0	$ 22.0	$ 58.7	$ 320.0	$ 248.0	$ 1,049.8	$ 839.2	$ 2,544.7
2013	$ 0.5	$ 4.0	$ 6.0	$ 33.0	$ 88.0	$ 479.8	$ 371.8	$ 1,574.1	$ 1,258.3	$ 3,815.4
2014	$ 0.6	$ 5.4	$ 8.1	$ 44.9	$ 120.0	$ 654.3	$ 482.0	$ 1,934.5	$ 1,546.5	$ 4,796.5
2015	$ 0.8	$ 7.0	$ 10.4	$ 57.6	$ 153.9	$ 807.6	$ 561.0	$ 2,204.9	$ 1,762.6	$ 5,565.9
2016	$ 1.0	$ 8.3	$ 12.4	$ 68.7	$ 183.4	$ 918.2	$ 620.9	$ 2,412.0	$ 1,928.2	$ 6,153.1
2017	$ 1.1	$ 9.3	$ 13.9	$ 76.7	$ 204.8	$ 1,002.1	$ 666.9	$ 2,571.5	$ 2,055.7	$ 6,602.0
2018	$ 1.2	$ 10.0	$ 15.0	$ 82.8	$ 221.1	$ 1,066.5	$ 702.2	$ 2,694.1	$ 2,153.7	$ 6,946.5
2019	$ 1.3	$ 10.6	$ 15.8	$ 87.4	$ 233.5	$ 1,115.7	$ 729.2	$ 2,787.4	$ 2,228.3	$ 7,209.1
2020	$ 1.3	$ 11.0	$ 16.5	$ 90.9	$ 242.9	$ 1,153.0	$ 749.5	$ 2,857.1	$ 2,284.0	$ 7,406.3
2021	$ 1.3	$ 11.3	$ 17.0	$ 93.6	$ 250.0	$ 1,180.7	$ 764.3	$ 2,907.6	$ 2,324.4	$ 7,550.2
2022	$ 1.4	$ 11.6	$ 17.3	$ 95.5	$ 255.2	$ 1,200.6	$ 774.7	$ 2,942.1	$ 2,352.0	$ 7,650.4
2023	$ 1.4	$ 11.7	$ 17.6	$ 96.9	$ 258.8	$ 1,214.1	$ 781.3	$ 2,963.5	$ 2,369.1	$ 7,714.4
2024	$ 1.4	$ 11.9	$ 17.7	$ 97.8	$ 261.2	$ 1,222.3	$ 784.9	$ 2,973.9	$ 2,377.4	$ 7,748.5
2025	$ 1.4	$ 11.9	$ 17.8	$ 98.3	$ 262.5	$ 1,226.0	$ 786.0	$ 2,975.2	$ 2,378.4	$ 7,757.5
2026	$ 1.4	$ 11.9	$ 17.8	$ 98.4	$ 262.9	$ 1,226.0	$ 784.9	$ 2,968.8	$ 2,373.3	$ 7,745.6
2027	$ 1.4	$ 11.9	$ 17.8	$ 98.3	$ 262.6	$ 1,222.9	$ 782.0	$ 2,956.1	$ 2,363.1	$ 7,716.2
2028	$ 1.4	$ 11.7	$ 17.5	$ 96.7	$ 258.3	$ 1,201.5	$ 767.5	$ 2,899.9	$ 2,318.2	$ 7,572.9
2029	$ 1.4	$ 11.6	$ 17.4	$ 96.0	$ 256.3	$ 1,191.0	$ 760.1	$ 2,870.7	$ 2,294.9	$ 7,499.3
Total	**$ 20.8**	**$ 176.1**	**$ 263.3**	**$ 1,452.9**	**$ 3,880.1**	**$ 18,653.0**	**$12,311.3**	**$ 47,365.2**	**$ 37,864.4**	**$121,987.0**
Ann.	**$ 1.2**	**$ 10.1**	**$ 15.1**	**$ 83.4**	**$ 222.8**	**$ 1,071.2**	**$ 707.0**	**$ 2,720.1**	**$ 2,174.5**	**$ 7,005.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.

Ann. = value of total annualized at discount rate.

Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.42d.

Exhibit F.10d Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size
(All Systems)

TTHM - Alternative 3

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.5	$ 0.7	$ 4.0	$ 10.6	$ 57.8	$ 44.8	$ 189.5	$ 151.5	$ 459.3
2011	$ 0.1	$ 1.2	$ 1.8	$ 9.9	$ 26.4	$ 143.8	$ 111.4	$ 471.6	$ 377.0	$ 1,143.2
2012	$ 0.2	$ 2.0	$ 3.1	$ 16.8	$ 45.0	$ 245.1	$ 189.9	$ 804.1	$ 642.8	$ 1,949.0
2013	$ 0.3	$ 2.9	$ 4.4	$ 24.3	$ 64.9	$ 353.8	$ 274.1	$ 1,160.5	$ 927.7	$ 2,813.0
2014	$ 0.5	$ 3.9	$ 5.8	$ 31.9	$ 85.2	$ 464.4	$ 342.1	$ 1,372.9	$ 1,097.5	$ 3,404.1
2015	$ 0.6	$ 4.8	$ 7.1	$ 39.4	$ 105.2	$ 551.7	$ 383.3	$ 1,506.4	$ 1,204.2	$ 3,802.5
2016	$ 0.6	$ 5.5	$ 8.2	$ 45.2	$ 120.6	$ 603.8	$ 408.3	$ 1,586.2	$ 1,268.0	$ 4,046.5
2017	$ 0.7	$ 5.9	$ 8.8	$ 48.6	$ 129.7	$ 634.4	$ 422.2	$ 1,627.9	$ 1,301.4	$ 4,179.4
2018	$ 0.7	$ 6.1	$ 9.1	$ 50.4	$ 134.7	$ 649.9	$ 427.9	$ 1,641.7	$ 1,312.4	$ 4,233.1
2019	$ 0.7	$ 6.2	$ 9.3	$ 51.3	$ 136.9	$ 654.5	$ 427.8	$ 1,635.1	$ 1,307.1	$ 4,228.9
2020	$ 0.7	$ 6.2	$ 9.3	$ 51.4	$ 137.2	$ 651.1	$ 423.2	$ 1,613.4	$ 1,289.7	$ 4,182.2
2021	$ 0.7	$ 6.2	$ 9.2	$ 50.9	$ 135.9	$ 641.8	$ 415.5	$ 1,580.5	$ 1,263.4	$ 4,104.1
2022	$ 0.7	$ 6.1	$ 9.1	$ 50.0	$ 133.5	$ 628.2	$ 405.3	$ 1,539.5	$ 1,230.7	$ 4,003.1
2023	$ 0.7	$ 5.9	$ 8.8	$ 48.8	$ 130.4	$ 611.5	$ 393.5	$ 1,492.7	$ 1,193.3	$ 3,885.7
2024	$ 0.7	$ 5.7	$ 8.6	$ 47.4	$ 126.6	$ 592.6	$ 380.6	$ 1,441.9	$ 1,152.7	$ 3,756.9
2025	$ 0.7	$ 5.6	$ 8.3	$ 45.9	$ 122.5	$ 572.2	$ 366.8	$ 1,388.6	$ 1,110.1	$ 3,620.7
2026	$ 0.6	$ 5.4	$ 8.0	$ 44.2	$ 118.1	$ 550.8	$ 352.6	$ 1,333.9	$ 1,066.3	$ 3,480.0
2027	$ 0.6	$ 5.2	$ 7.7	$ 42.5	$ 113.6	$ 528.9	$ 338.2	$ 1,278.5	$ 1,022.0	$ 3,337.2
2028	$ 0.6	$ 4.9	$ 7.3	$ 40.3	$ 107.5	$ 500.2	$ 319.5	$ 1,207.3	$ 965.1	$ 3,152.7
2029	$ 0.6	$ 4.7	$ 7.0	$ 38.5	$ 102.7	$ 477.3	$ 304.6	$ 1,150.4	$ 919.7	$ 3,005.4
Total	**$ 11.2**	**$ 94.7**	**$ 141.6**	**$ 781.5**	**$ 2,087.2**	**$ 10,113.8**	**$ 6,731.7**	**$ 26,022.5**	**$ 20,802.8**	**$ 66,787.0**
Ann.	**$ 1.0**	**$ 8.1**	**$ 12.2**	**$ 67.1**	**$ 179.1**	**$ 867.9**	**$ 577.7**	**$ 2,233.0**	**$ 1,785.1**	**$ 5,731.0**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.42d.

Section F.11
Model Outputs - Alternative 3
TTHM as Indicator
Bronchitis for Non-Fatal Cases

Exhibit F.11a Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Smoking/Lung Cancer Cessation Lag Model)

TTHM - Alternative 3

Year	Surface Water Systems			Ground Water Systems			All Systems		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 293.2	$ 64.6	$ 644.8	$ 25.0	$ 5.5	$ 55.0	$ 318.2	$ 70.1	$ 699.7
2011	$ 781.5	$ 171.9	$ 1,721.3	$ 66.6	$ 14.6	$ 146.7	$ 848.1	$ 186.5	$ 1,868.0
2012	$ 1,426.6	$ 313.3	$ 3,140.1	$ 121.6	$ 26.7	$ 267.6	$ 1,548.2	$ 340.0	$ 3,407.7
2013	$ 2,204.7	$ 484.0	$ 4,850.9	$ 187.9	$ 41.3	$ 413.5	$ 2,392.7	$ 525.3	$ 5,264.3
2014	$ 2,850.2	$ 624.6	$ 6,274.3	$ 250.2	$ 54.8	$ 550.8	$ 3,100.4	$ 679.4	$ 6,825.1
2015	$ 3,402.8	$ 744.3	$ 7,503.4	$ 305.7	$ 66.9	$ 674.1	$ 3,708.5	$ 811.2	$ 8,177.5
2016	$ 3,873.7	$ 846.6	$ 8,539.5	$ 352.3	$ 77.0	$ 776.6	$ 4,225.9	$ 923.6	$ 9,316.1
2017	$ 4,281.6	$ 934.6	$ 9,456.2	$ 392.2	$ 85.6	$ 866.2	$ 4,673.9	$ 1,020.3	$ 10,322.4
2018	$ 4,641.9	$ 1,010.9	$ 10,255.3	$ 427.3	$ 93.1	$ 944.1	$ 5,069.3	$ 1,103.9	$ 11,199.4
2019	$ 4,964.5	$ 1,079.3	$ 10,993.3	$ 458.6	$ 99.7	$ 1,015.5	$ 5,423.1	$ 1,179.0	$ 12,008.8
2020	$ 5,256.4	$ 1,140.9	$ 11,648.8	$ 486.8	$ 105.7	$ 1,078.8	$ 5,743.2	$ 1,246.5	$ 12,727.7
2021	$ 5,522.8	$ 1,197.2	$ 12,254.1	$ 512.5	$ 111.1	$ 1,137.1	$ 6,035.3	$ 1,308.3	$ 13,391.2
2022	$ 5,768.0	$ 1,247.9	$ 12,823.5	$ 536.1	$ 116.0	$ 1,191.8	$ 6,304.1	$ 1,363.9	$ 14,015.3
2023	$ 5,995.2	$ 1,293.5	$ 13,330.2	$ 557.9	$ 120.4	$ 1,240.4	$ 6,553.0	$ 1,413.9	$ 14,570.6
2024	$ 6,207.0	$ 1,338.1	$ 13,808.0	$ 578.1	$ 124.6	$ 1,286.1	$ 6,785.2	$ 1,462.7	$ 15,094.1
2025	$ 6,405.7	$ 1,378.0	$ 14,259.0	$ 597.1	$ 128.5	$ 1,329.2	$ 7,002.8	$ 1,506.4	$ 15,588.2
2026	$ 6,593.1	$ 1,416.5	$ 14,680.4	$ 615.0	$ 132.1	$ 1,369.4	$ 7,208.1	$ 1,548.6	$ 16,049.9
2027	$ 6,770.7	$ 1,452.2	$ 15,113.8	$ 632.0	$ 135.5	$ 1,410.7	$ 7,402.7	$ 1,587.7	$ 16,524.4
2028	$ 6,841.9	$ 1,468.3	$ 15,258.9	$ 638.9	$ 137.1	$ 1,424.9	$ 7,480.8	$ 1,605.4	$ 16,683.8
2029	$ 6,983.1	$ 1,496.7	$ 15,601.1	$ 652.4	$ 139.8	$ 1,457.5	$ 7,635.4	$ 1,636.5	$ 17,058.6
Total	**$ 91,064.7**	**$ 19,703.2**	**$ 202,156.8**	**$ 8,394.2**	**$ 1,816.0**	**$ 18,636.1**	**$ 99,458.9**	**$ 21,519.2**	**$ 220,792.9**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.42b, and E.42c.

Exhibit F.11b Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, Smoking/Lung Cancer Cessation Lag Model (All Water Systems)

TTHM - Alternative 3

Year	3% Discount Rate			7% Discount Rate		
		90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 274.5	$ 60.4	$ 603.6	$ 226.9	$ 49.9	$ 498.9
2011	$ 710.2	$ 156.2	$ 1,564.4	$ 565.1	$ 124.3	$ 1,244.7
2012	$ 1,258.8	$ 276.5	$ 2,770.8	$ 964.1	$ 211.8	$ 2,122.1
2013	$ 1,888.8	$ 414.7	$ 4,155.7	$ 1,392.6	$ 305.7	$ 3,063.9
2014	$ 2,376.2	$ 520.7	$ 5,230.9	$ 1,686.4	$ 369.6	$ 3,712.4
2015	$ 2,759.5	$ 603.6	$ 6,084.8	$ 1,885.2	$ 412.4	$ 4,157.0
2016	$ 3,052.9	$ 667.2	$ 6,730.2	$ 2,007.7	$ 438.8	$ 4,426.0
2017	$ 3,278.2	$ 715.6	$ 7,239.9	$ 2,075.2	$ 453.0	$ 4,583.3
2018	$ 3,451.9	$ 751.7	$ 7,626.2	$ 2,103.6	$ 458.1	$ 4,647.3
2019	$ 3,585.3	$ 779.5	$ 7,939.2	$ 2,103.2	$ 457.2	$ 4,657.2
2020	$ 3,686.3	$ 800.1	$ 8,169.4	$ 2,081.6	$ 451.8	$ 4,613.1
2021	$ 3,761.0	$ 815.3	$ 8,345.0	$ 2,044.4	$ 443.2	$ 4,536.1
2022	$ 3,814.1	$ 825.2	$ 8,479.5	$ 1,995.7	$ 431.8	$ 4,436.9
2023	$ 3,849.2	$ 830.5	$ 8,558.7	$ 1,938.8	$ 418.3	$ 4,310.9
2024	$ 3,869.5	$ 834.2	$ 8,608.0	$ 1,876.2	$ 404.5	$ 4,173.7
2025	$ 3,877.3	$ 834.1	$ 8,630.8	$ 1,809.7	$ 389.3	$ 4,028.3
2026	$ 3,874.7	$ 832.5	$ 8,627.6	$ 1,740.9	$ 374.0	$ 3,876.3
2027	$ 3,863.4	$ 828.6	$ 8,624.0	$ 1,670.9	$ 358.4	$ 3,729.8
2028	$ 3,790.5	$ 813.4	$ 8,453.5	$ 1,578.0	$ 338.6	$ 3,519.4
2029	$ 3,756.1	$ 805.1	$ 8,391.7	$ 1,505.3	$ 322.6	$ 3,363.0
Total	**$ 60,778.5**	**$ 13,164.9**	**$ 134,833.9**	**$ 33,251.4**	**$ 7,213.2**	**$ 73,700.3**
Ann.	**$ 3,490.4**	**$ 756.0**	**$ 7,743.2**	**$ 2,853.3**	**$ 619.0**	**$ 6,324.3**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.11a.

Exhibit F.11c Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size
(All Systems)

TTHM - Alternative 3

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.3	$ 0.4	$ 2.4	$ 6.3	$ 34.5	$ 26.7	$ 113.2	$ 90.5	$ 274.5
2011	$ 0.1	$ 0.7	$ 1.1	$ 6.1	$ 16.4	$ 89.3	$ 69.2	$ 293.0	$ 234.2	$ 710.2
2012	$ 0.2	$ 1.3	$ 2.0	$ 10.9	$ 29.0	$ 158.3	$ 122.7	$ 519.3	$ 415.2	$ 1,258.8
2013	$ 0.2	$ 2.0	$ 3.0	$ 16.3	$ 43.6	$ 237.5	$ 184.1	$ 779.2	$ 622.9	$ 1,888.8
2014	$ 0.3	$ 2.7	$ 4.0	$ 22.3	$ 59.5	$ 324.2	$ 238.8	$ 958.4	$ 766.1	$ 2,376.2
2015	$ 0.4	$ 3.5	$ 5.2	$ 28.6	$ 76.3	$ 400.4	$ 278.1	$ 1,093.2	$ 873.9	$ 2,759.5
2016	$ 0.5	$ 4.1	$ 6.2	$ 34.1	$ 91.0	$ 455.6	$ 308.1	$ 1,196.7	$ 956.7	$ 3,052.9
2017	$ 0.5	$ 4.6	$ 6.9	$ 38.1	$ 101.7	$ 497.6	$ 331.1	$ 1,276.8	$ 1,020.7	$ 3,278.2
2018	$ 0.6	$ 5.0	$ 7.5	$ 41.1	$ 109.8	$ 530.0	$ 349.0	$ 1,338.8	$ 1,070.2	$ 3,451.9
2019	$ 0.6	$ 5.3	$ 7.9	$ 43.5	$ 116.1	$ 554.9	$ 362.6	$ 1,386.2	$ 1,108.2	$ 3,585.3
2020	$ 0.6	$ 5.5	$ 8.2	$ 45.3	$ 120.9	$ 573.9	$ 373.0	$ 1,422.1	$ 1,136.8	$ 3,686.3
2021	$ 0.7	$ 5.7	$ 8.5	$ 46.6	$ 124.5	$ 588.2	$ 380.7	$ 1,448.4	$ 1,157.8	$ 3,761.0
2022	$ 0.7	$ 5.8	$ 8.6	$ 47.6	$ 127.2	$ 598.6	$ 386.2	$ 1,466.8	$ 1,172.6	$ 3,814.1
2023	$ 0.7	$ 5.9	$ 8.8	$ 48.4	$ 129.1	$ 605.8	$ 389.9	$ 1,478.7	$ 1,182.1	$ 3,849.2
2024	$ 0.7	$ 5.9	$ 8.9	$ 48.8	$ 130.4	$ 610.4	$ 392.0	$ 1,485.1	$ 1,187.2	$ 3,869.5
2025	$ 0.7	$ 6.0	$ 8.9	$ 49.1	$ 131.2	$ 612.8	$ 392.8	$ 1,487.1	$ 1,188.8	$ 3,877.3
2026	$ 0.7	$ 6.0	$ 8.9	$ 49.2	$ 131.5	$ 613.3	$ 392.6	$ 1,485.2	$ 1,187.3	$ 3,874.7
2027	$ 0.7	$ 6.0	$ 8.9	$ 49.2	$ 131.5	$ 612.3	$ 391.5	$ 1,480.1	$ 1,183.2	$ 3,863.4
2028	$ 0.7	$ 5.9	$ 8.8	$ 48.4	$ 129.3	$ 601.4	$ 384.2	$ 1,451.5	$ 1,160.3	$ 3,790.5
2029	$ 0.7	$ 5.8	$ 8.7	$ 48.1	$ 128.4	$ 596.5	$ 380.7	$ 1,437.8	$ 1,149.4	$ 3,756.1
Total	**$ 10.4**	**$ 87.7**	**$ 131.2**	**$ 724.1**	**$ 1,933.9**	**$ 9,295.3**	**$ 6,134.1**	**$ 23,597.5**	**$ 18,864.2**	**$ 60,778.5**
Ann.	**$ 0.6**	**$ 5.0**	**$ 7.5**	**$ 41.6**	**$ 111.1**	**$ 533.8**	**$ 352.3**	**$ 1,355.2**	**$ 1,083.3**	**$ 3,490.4**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f and E.42d.

Exhibit F.11d Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size
(All Systems)

TTHM - Alternative 3

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.4	$ 2.0	$ 5.2	$ 28.5	$ 22.1	$ 93.6	$ 74.8	$ 226.9
2011	$ 0.1	$ 0.6	$ 0.9	$ 4.9	$ 13.0	$ 71.1	$ 55.1	$ 233.1	$ 186.4	$ 565.1
2012	$ 0.1	$ 1.0	$ 1.5	$ 8.3	$ 22.2	$ 121.3	$ 94.0	$ 397.8	$ 318.0	$ 964.1
2013	$ 0.2	$ 1.5	$ 2.2	$ 12.0	$ 32.1	$ 175.1	$ 135.7	$ 574.5	$ 459.3	$ 1,392.6
2014	$ 0.2	$ 1.9	$ 2.9	$ 15.8	$ 42.2	$ 230.1	$ 169.5	$ 680.2	$ 543.7	$ 1,686.4
2015	$ 0.3	$ 2.4	$ 3.5	$ 19.5	$ 52.1	$ 273.5	$ 190.0	$ 746.8	$ 597.0	$ 1,885.2
2016	$ 0.3	$ 2.7	$ 4.1	$ 22.4	$ 59.9	$ 299.6	$ 202.6	$ 787.0	$ 629.1	$ 2,007.7
2017	$ 0.3	$ 2.9	$ 4.4	$ 24.1	$ 64.4	$ 315.0	$ 209.6	$ 808.3	$ 646.2	$ 2,075.2
2018	$ 0.4	$ 3.0	$ 4.5	$ 25.1	$ 66.9	$ 322.9	$ 212.6	$ 815.8	$ 652.2	$ 2,103.6
2019	$ 0.4	$ 3.1	$ 4.6	$ 25.5	$ 68.1	$ 325.5	$ 212.7	$ 813.2	$ 650.1	$ 2,103.2
2020	$ 0.4	$ 3.1	$ 4.6	$ 25.6	$ 68.3	$ 324.1	$ 210.6	$ 803.0	$ 641.9	$ 2,081.6
2021	$ 0.4	$ 3.1	$ 4.6	$ 25.3	$ 67.7	$ 319.7	$ 207.0	$ 787.3	$ 629.4	$ 2,044.4
2022	$ 0.4	$ 3.0	$ 4.5	$ 24.9	$ 66.6	$ 313.2	$ 202.1	$ 767.5	$ 613.5	$ 1,995.7
2023	$ 0.3	$ 3.0	$ 4.4	$ 24.4	$ 65.0	$ 305.1	$ 196.4	$ 744.8	$ 595.4	$ 1,938.8
2024	$ 0.3	$ 2.9	$ 4.3	$ 23.7	$ 63.2	$ 295.9	$ 190.1	$ 720.1	$ 575.6	$ 1,876.2
2025	$ 0.3	$ 2.8	$ 4.2	$ 22.9	$ 61.2	$ 286.0	$ 183.4	$ 694.1	$ 554.8	$ 1,809.7
2026	$ 0.3	$ 2.7	$ 4.0	$ 22.1	$ 59.1	$ 275.5	$ 176.4	$ 667.3	$ 533.4	$ 1,740.9
2027	$ 0.3	$ 2.6	$ 3.9	$ 21.3	$ 56.9	$ 264.8	$ 169.3	$ 640.1	$ 511.7	$ 1,670.9
2028	$ 0.3	$ 2.4	$ 3.7	$ 20.2	$ 53.8	$ 250.4	$ 159.9	$ 604.3	$ 483.1	$ 1,578.0
2029	$ 0.3	$ 2.3	$ 3.5	$ 19.3	$ 51.4	$ 239.1	$ 152.6	$ 576.2	$ 460.6	$ 1,505.3
Total	**$ 5.6**	**$ 47.2**	**$ 70.5**	**$ 389.2**	**$ 1,039.5**	**$ 5,036.5**	**$ 3,351.6**	**$ 12,954.9**	**$ 10,356.3**	**$ 33,251.4**
Ann.	**$ 0.5**	**$ 4.0**	**$ 6.1**	**$ 33.4**	**$ 89.2**	**$ 432.2**	**$ 287.6**	**$ 1,111.7**	**$ 888.7**	**$ 2,853.3**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.42d.

Section F.12
Model Outputs - Colorectal Cancer Sensitivity Analysis
TTHM as Indicator
Lymphoma for Non-Fatal Cases

Exhibit F.12a Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Smoking/Lung Cancer Cessation Lag Model)

TTHM - Colorectal Cancer Sensitivity Analysis

Year	Surface Water Systems			Ground Water Systems			All Systems		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 701.7	$ 107.4	$ 1,613.2	$ 58.0	$ 8.9	$ 133.3	$ 759.7	$ 116.3	$ 1,746.5
2011	$ 1,817.3	$ 278.3	$ 4,180.0	$ 150.2	$ 23.0	$ 345.5	$ 1,967.5	$ 301.3	$ 4,525.4
2012	$ 3,290.0	$ 503.5	$ 7,558.0	$ 271.9	$ 41.6	$ 624.6	$ 3,561.9	$ 545.1	$ 8,182.6
2013	$ 5,098.5	$ 780.4	$ 11,711.0	$ 421.4	$ 64.5	$ 967.8	$ 5,519.9	$ 844.9	$ 12,678.8
2014	$ 6,650.6	$ 1,016.7	$ 15,288.3	$ 575.1	$ 87.9	$ 1,322.1	$ 7,225.7	$ 1,104.6	$ 16,610.4
2015	$ 8,101.2	$ 1,238.8	$ 18,631.4	$ 730.9	$ 111.8	$ 1,681.0	$ 8,832.1	$ 1,350.5	$ 20,312.4
2016	$ 9,425.6	$ 1,439.9	$ 21,676.2	$ 873.6	$ 133.5	$ 2,009.1	$ 10,299.2	$ 1,573.3	$ 23,685.3
2017	$ 10,622.4	$ 1,622.0	$ 24,451.6	$ 999.5	$ 152.6	$ 2,300.7	$ 11,621.9	$ 1,774.6	$ 26,752.3
2018	$ 11,676.4	$ 1,780.4	$ 26,900.2	$ 1,112.0	$ 169.6	$ 2,561.9	$ 12,788.4	$ 1,950.0	$ 29,462.1
2019	$ 12,583.6	$ 1,916.9	$ 29,039.2	$ 1,211.4	$ 184.5	$ 2,795.5	$ 13,795.0	$ 2,101.4	$ 31,834.7
2020	$ 13,374.2	$ 2,036.5	$ 30,877.5	$ 1,298.6	$ 197.7	$ 2,998.2	$ 14,672.8	$ 2,234.2	$ 33,875.7
2021	$ 14,071.7	$ 2,140.2	$ 32,490.1	$ 1,374.9	$ 209.1	$ 3,174.6	$ 15,446.6	$ 2,349.3	$ 35,664.7
2022	$ 14,695.3	$ 2,234.6	$ 33,987.2	$ 1,442.4	$ 219.3	$ 3,335.9	$ 16,137.7	$ 2,453.9	$ 37,323.1
2023	$ 15,259.6	$ 2,320.9	$ 35,301.0	$ 1,502.8	$ 228.6	$ 3,476.6	$ 16,762.4	$ 2,549.5	$ 38,777.6
2024	$ 15,775.5	$ 2,398.1	$ 36,508.4	$ 1,557.7	$ 236.8	$ 3,605.0	$ 17,333.2	$ 2,634.9	$ 40,113.4
2025	$ 16,251.8	$ 2,466.8	$ 37,612.9	$ 1,608.1	$ 244.1	$ 3,721.7	$ 17,859.8	$ 2,710.9	$ 41,334.6
2026	$ 16,695.2	$ 2,530.7	$ 38,672.6	$ 1,654.7	$ 250.8	$ 3,832.9	$ 18,349.9	$ 2,781.6	$ 42,505.5
2027	$ 17,111.4	$ 2,590.8	$ 39,697.5	$ 1,698.2	$ 257.1	$ 3,939.8	$ 18,809.6	$ 2,847.9	$ 43,637.3
2028	$ 17,277.8	$ 2,618.3	$ 40,061.2	$ 1,716.6	$ 260.1	$ 3,980.2	$ 18,994.4	$ 2,878.5	$ 44,041.4
2029	$ 17,604.3	$ 2,664.1	$ 40,856.9	$ 1,750.6	$ 264.9	$ 4,063.0	$ 19,354.9	$ 2,929.1	$ 44,919.9
Total	**$ 228,084.1**	**$ 34,685.3**	**$ 527,114.3**	**$ 22,008.7**	**$ 3,346.5**	**$ 50,869.2**	**$ 250,092.8**	**$ 38,031.8**	**$ 577,983.5**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.43b, and E.43c.

Exhibit F.12b Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, Smoking/Lung Cancer Cessation Lag Model (All Water Systems)

TTHM - Colorectal Cancer Sensitivity Analysis

Year	3% Discount Rate			7% Discount Rate		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 655.4	$ 100.3	$ 1,506.5	$ 541.7	$ 82.9	$ 1,245.2
2011	$ 1,647.8	$ 252.3	$ 3,790.0	$ 1,311.0	$ 200.7	$ 3,015.5
2012	$ 2,896.1	$ 443.2	$ 6,653.2	$ 2,218.2	$ 339.4	$ 5,095.7
2013	$ 4,357.4	$ 667.0	$ 10,008.8	$ 3,212.6	$ 491.7	$ 7,379.2
2014	$ 5,537.9	$ 846.6	$ 12,730.5	$ 3,930.3	$ 600.9	$ 9,035.0
2015	$ 6,571.9	$ 1,004.9	$ 15,114.3	$ 4,489.8	$ 686.5	$ 10,325.8
2016	$ 7,440.4	$ 1,136.6	$ 17,110.8	$ 4,893.1	$ 747.5	$ 11,252.7
2017	$ 8,151.3	$ 1,244.7	$ 18,763.5	$ 5,160.2	$ 787.9	$ 11,878.3
2018	$ 8,708.3	$ 1,327.8	$ 20,062.3	$ 5,306.7	$ 809.2	$ 12,225.7
2019	$ 9,120.1	$ 1,389.3	$ 21,046.5	$ 5,349.9	$ 815.0	$ 12,346.1
2020	$ 9,417.9	$ 1,434.1	$ 21,743.5	$ 5,318.1	$ 809.8	$ 12,278.1
2021	$ 9,625.8	$ 1,464.0	$ 22,225.0	$ 5,232.3	$ 795.8	$ 12,080.9
2022	$ 9,763.6	$ 1,484.7	$ 22,581.1	$ 5,108.8	$ 776.8	$ 11,815.5
2023	$ 9,846.1	$ 1,497.5	$ 22,777.7	$ 4,959.4	$ 754.3	$ 11,472.9
2024	$ 9,884.9	$ 1,502.7	$ 22,876.1	$ 4,792.8	$ 728.6	$ 11,091.7
2025	$ 9,888.6	$ 1,501.0	$ 22,886.0	$ 4,615.3	$ 700.6	$ 10,681.6
2026	$ 9,864.0	$ 1,495.2	$ 22,848.8	$ 4,431.8	$ 671.8	$ 10,265.6
2027	$ 9,816.6	$ 1,486.3	$ 22,774.0	$ 4,245.6	$ 642.8	$ 9,849.5
2028	$ 9,624.3	$ 1,458.5	$ 22,315.4	$ 4,006.8	$ 607.2	$ 9,290.4
2029	$ 9,521.4	$ 1,440.9	$ 22,097.6	$ 3,815.8	$ 577.5	$ 8,855.8
Total	**$ 152,339.8**	**$ 23,177.6**	**$ 351,911.5**	**$ 82,940.2**	**$ 12,626.9**	**$ 191,481.2**
Ann.	**$ 8,748.6**	**$ 1,331.0**	**$ 20,209.5**	**$ 7,117.1**	**$ 1,083.5**	**$ 16,431.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.12a.

Exhibit F.12c Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size
(All Systems)

TTHM - Colorectal Cancer Sensitivity Analysis

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.2	$ 1.9	$ 2.3	$ 9.5	$ 21.2	$ 77.5	$ 61.9	$ 265.1	$ 215.7	$ 655.4
2011	$ 0.6	$ 4.7	$ 5.8	$ 23.9	$ 53.3	$ 194.9	$ 155.6	$ 666.6	$ 542.3	$ 1,647.8
2012	$ 1.1	$ 8.3	$ 10.2	$ 42.0	$ 93.7	$ 342.5	$ 273.5	$ 1,171.6	$ 953.2	$ 2,896.1
2013	$ 1.6	$ 12.6	$ 15.3	$ 63.3	$ 140.9	$ 515.3	$ 411.5	$ 1,762.8	$ 1,434.1	$ 4,357.4
2014	$ 2.2	$ 17.3	$ 21.2	$ 87.3	$ 194.4	$ 710.8	$ 539.1	$ 2,186.7	$ 1,778.9	$ 5,537.9
2015	$ 2.9	$ 22.6	$ 27.5	$ 113.6	$ 253.1	$ 890.2	$ 639.0	$ 2,549.2	$ 2,073.9	$ 6,571.9
2016	$ 3.5	$ 27.2	$ 33.3	$ 137.2	$ 305.6	$ 1,029.0	$ 722.9	$ 2,857.2	$ 2,324.5	$ 7,440.4
2017	$ 4.0	$ 30.8	$ 37.7	$ 155.3	$ 346.0	$ 1,143.8	$ 792.4	$ 3,110.7	$ 2,530.6	$ 8,151.3
2018	$ 4.4	$ 33.8	$ 41.2	$ 170.2	$ 379.1	$ 1,237.6	$ 847.5	$ 3,305.4	$ 2,689.1	$ 8,708.3
2019	$ 4.7	$ 36.2	$ 44.2	$ 182.2	$ 405.9	$ 1,311.2	$ 888.5	$ 3,444.9	$ 2,802.5	$ 9,120.1
2020	$ 4.9	$ 38.0	$ 46.4	$ 191.5	$ 426.7	$ 1,365.4	$ 917.6	$ 3,544.1	$ 2,883.2	$ 9,417.9
2021	$ 5.1	$ 39.4	$ 48.1	$ 198.4	$ 441.9	$ 1,403.6	$ 937.9	$ 3,612.5	$ 2,938.9	$ 9,625.8
2022	$ 5.2	$ 40.3	$ 49.2	$ 203.1	$ 452.5	$ 1,429.7	$ 951.4	$ 3,657.0	$ 2,975.1	$ 9,763.6
2023	$ 5.3	$ 41.0	$ 50.0	$ 206.3	$ 459.5	$ 1,446.4	$ 959.5	$ 3,682.4	$ 2,995.8	$ 9,846.1
2024	$ 5.3	$ 41.3	$ 50.5	$ 208.2	$ 463.8	$ 1,455.7	$ 963.4	$ 3,692.6	$ 3,004.1	$ 9,884.9
2025	$ 5.4	$ 41.5	$ 50.7	$ 209.1	$ 465.9	$ 1,459.1	$ 963.8	$ 3,690.6	$ 3,002.4	$ 9,888.6
2026	$ 5.4	$ 41.6	$ 50.7	$ 209.3	$ 466.3	$ 1,457.8	$ 961.4	$ 3,678.7	$ 2,992.8	$ 9,864.0
2027	$ 5.4	$ 41.5	$ 50.6	$ 208.9	$ 465.4	$ 1,452.6	$ 956.8	$ 3,658.8	$ 2,976.6	$ 9,816.6
2028	$ 5.3	$ 40.8	$ 49.8	$ 205.2	$ 457.3	$ 1,425.7	$ 938.1	$ 3,585.4	$ 2,916.8	$ 9,624.3
2029	$ 5.2	$ 40.4	$ 49.3	$ 203.4	$ 453.2	$ 1,411.7	$ 928.1	$ 3,545.6	$ 2,884.4	$ 9,521.4
Total	**$ 77.8**	**$ 601.3**	**$ 734.0**	**$ 3,027.9**	**$ 6,745.7**	**$ 21,760.3**	**$ 14,809.9**	**$ 57,667.9**	**$ 46,915.0**	**$ 152,339.8**
Ann.	**$ 4.5**	**$ 34.5**	**$ 42.2**	**$ 173.9**	**$ 387.4**	**$ 1,249.7**	**$ 850.5**	**$ 3,311.7**	**$ 2,694.2**	**$ 8,748.6**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.43d.

Exhibit F.12d Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size

(All Systems)

TTHM - Colorectal Cancer Sensitivity Analysis

Smoking/Lung Cancer Cessation Lag Model										
Year	**<100**	**100-499**	**500-999**	**1,000-3,299**	**3,300-9,999**	**10,000-49,999**	**50,000-99,999**	**100,000-999,999**	**≥1,000,000**	**Total**
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.2	$ 1.6	$ 1.9	$ 7.9	$ 17.5	$ 64.1	$ 51.2	$ 219.1	$ 178.3	$ 541.7
2011	$ 0.5	$ 3.8	$ 4.6	$ 19.0	$ 42.4	$ 155.0	$ 123.8	$ 530.4	$ 431.5	$ 1,311.0
2012	$ 0.8	$ 6.4	$ 7.8	$ 32.2	$ 71.7	$ 262.3	$ 209.5	$ 897.4	$ 730.0	$ 2,218.2
2013	$ 1.2	$ 9.3	$ 11.3	$ 46.6	$ 103.9	$ 379.9	$ 303.4	$ 1,299.7	$ 1,057.3	$ 3,212.6
2014	$ 1.6	$ 12.3	$ 15.0	$ 61.9	$ 138.0	$ 504.5	$ 382.6	$ 1,551.9	$ 1,262.5	$ 3,930.3
2015	$ 2.0	$ 15.4	$ 18.8	$ 77.6	$ 172.9	$ 608.2	$ 436.5	$ 1,741.6	$ 1,416.8	$ 4,489.8
2016	$ 2.3	$ 17.9	$ 21.9	$ 90.2	$ 201.0	$ 676.7	$ 475.4	$ 1,879.0	$ 1,528.7	$ 4,893.1
2017	$ 2.5	$ 19.5	$ 23.8	$ 98.3	$ 219.1	$ 724.1	$ 501.6	$ 1,969.2	$ 1,602.0	$ 5,160.2
2018	$ 2.7	$ 20.6	$ 25.1	$ 103.7	$ 231.0	$ 754.2	$ 516.5	$ 2,014.3	$ 1,638.7	$ 5,306.7
2019	$ 2.7	$ 21.2	$ 25.9	$ 106.9	$ 238.1	$ 769.1	$ 521.2	$ 2,020.8	$ 1,644.0	$ 5,349.9
2020	$ 2.8	$ 21.5	$ 26.2	$ 108.2	$ 241.0	$ 771.0	$ 518.1	$ 2,001.3	$ 1,628.1	$ 5,318.1
2021	$ 2.8	$ 21.4	$ 26.1	$ 107.8	$ 240.2	$ 763.0	$ 509.8	$ 1,963.7	$ 1,597.5	$ 5,232.3
2022	$ 2.7	$ 21.1	$ 25.8	$ 106.3	$ 236.8	$ 748.1	$ 497.8	$ 1,913.5	$ 1,556.7	$ 5,108.8
2023	$ 2.7	$ 20.6	$ 25.2	$ 103.9	$ 231.4	$ 728.5	$ 483.3	$ 1,854.8	$ 1,508.9	$ 4,959.4
2024	$ 2.6	$ 20.0	$ 24.5	$ 100.9	$ 224.9	$ 705.8	$ 467.1	$ 1,790.4	$ 1,456.6	$ 4,792.8
2025	$ 2.5	$ 19.4	$ 23.7	$ 97.6	$ 217.5	$ 681.0	$ 449.8	$ 1,722.5	$ 1,401.3	$ 4,615.3
2026	$ 2.4	$ 18.7	$ 22.8	$ 94.0	$ 209.5	$ 655.0	$ 431.9	$ 1,652.8	$ 1,344.6	$ 4,431.8
2027	$ 2.3	$ 17.9	$ 21.9	$ 90.3	$ 201.3	$ 628.2	$ 413.8	$ 1,582.4	$ 1,287.3	$ 4,245.6
2028	$ 2.2	$ 17.0	$ 20.7	$ 85.4	$ 190.4	$ 593.5	$ 390.6	$ 1,492.7	$ 1,214.3	$ 4,006.8
2029	$ 2.1	$ 16.2	$ 19.8	$ 81.5	$ 181.6	$ 565.7	$ 371.9	$ 1,420.9	$ 1,156.0	$ 3,815.8
Total	**$ 41.6**	**$ 321.8**	**$ 392.8**	**$ 1,620.4**	**$ 3,610.1**	**$ 11,738.0**	**$ 8,056.0**	**$ 31,518.3**	**$ 25,641.3**	**$ 82,940.2**
Ann.	**$ 3.6**	**$ 27.6**	**$ 33.7**	**$ 139.0**	**$ 309.8**	**$ 1,007.2**	**$ 691.3**	**$ 2,704.6**	**$ 2,200.3**	**$ 7,117.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.43d.

Section F.13
Model Outputs - Colorectal Cancer Sensitivity Analysis
TTHM as Indicator
Bronchitis for Non-Fatal Cases

Exhibit F.13a Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Smoking/Lung Cancer Cessation Lag Model)

TTHM - Colorectal Cancer Sensitivity Analysis

Year	Surface Water Systems			Ground Water Systems			All Systems		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 346.6	$ 76.3	$ 762.3	$ 28.6	$ 6.3	$ 63.0	$ 375.3	$ 82.6	$ 825.3
2011	$ 898.3	$ 197.6	$ 1,978.7	$ 74.2	$ 16.3	$ 163.5	$ 972.6	$ 213.9	$ 2,142.3
2012	$ 1,627.5	$ 357.4	$ 3,582.3	$ 134.5	$ 29.5	$ 296.1	$ 1,762.0	$ 387.0	$ 3,878.3
2013	$ 2,524.0	$ 554.1	$ 5,553.2	$ 208.6	$ 45.8	$ 458.9	$ 2,732.6	$ 599.9	$ 6,012.2
2014	$ 3,294.8	$ 722.0	$ 7,252.9	$ 284.9	$ 62.4	$ 627.2	$ 3,579.7	$ 784.4	$ 7,880.1
2015	$ 4,016.4	$ 878.6	$ 8,856.5	$ 362.4	$ 79.3	$ 799.1	$ 4,378.8	$ 957.8	$ 9,655.5
2016	$ 4,676.6	$ 1,022.1	$ 10,309.6	$ 433.5	$ 94.7	$ 955.5	$ 5,110.0	$ 1,116.8	$ 11,265.2
2017	$ 5,274.4	$ 1,151.4	$ 11,648.8	$ 496.3	$ 108.3	$ 1,096.1	$ 5,770.7	$ 1,259.7	$ 12,744.9
2018	$ 5,802.3	$ 1,263.5	$ 12,819.0	$ 552.6	$ 120.3	$ 1,220.8	$ 6,354.9	$ 1,383.9	$ 14,039.8
2019	$ 6,258.1	$ 1,360.6	$ 13,857.9	$ 602.5	$ 131.0	$ 1,334.1	$ 6,860.6	$ 1,491.5	$ 15,192.0
2020	$ 6,656.7	$ 1,444.8	$ 14,752.2	$ 646.4	$ 140.3	$ 1,432.4	$ 7,303.1	$ 1,585.1	$ 16,184.6
2021	$ 7,009.6	$ 1,519.5	$ 15,552.9	$ 684.9	$ 148.5	$ 1,519.7	$ 7,694.5	$ 1,667.9	$ 17,072.6
2022	$ 7,326.3	$ 1,585.0	$ 16,287.9	$ 719.1	$ 155.6	$ 1,598.7	$ 8,045.4	$ 1,740.6	$ 17,886.5
2023	$ 7,614.0	$ 1,642.8	$ 16,929.6	$ 749.9	$ 161.8	$ 1,667.3	$ 8,363.8	$ 1,804.6	$ 18,596.9
2024	$ 7,878.1	$ 1,698.3	$ 17,525.4	$ 777.9	$ 167.7	$ 1,730.5	$ 8,656.0	$ 1,866.0	$ 19,255.9
2025	$ 8,122.9	$ 1,747.4	$ 18,081.4	$ 803.7	$ 172.9	$ 1,789.1	$ 8,926.6	$ 1,920.3	$ 19,870.5
2026	$ 8,351.8	$ 1,794.3	$ 18,596.4	$ 827.8	$ 177.8	$ 1,843.1	$ 9,179.5	$ 1,972.2	$ 20,439.5
2027	$ 8,567.5	$ 1,837.6	$ 19,124.4	$ 850.3	$ 182.4	$ 1,898.0	$ 9,417.7	$ 2,019.9	$ 21,022.4
2028	$ 8,648.1	$ 1,855.9	$ 19,287.1	$ 859.2	$ 184.4	$ 1,916.2	$ 9,507.3	$ 2,040.3	$ 21,203.4
2029	$ 8,817.3	$ 1,889.8	$ 19,699.1	$ 876.8	$ 187.9	$ 1,959.0	$ 9,694.1	$ 2,077.8	$ 21,658.0
Total	**$ 113,711.3**	**$ 24,598.9**	**$ 252,457.6**	**$ 10,974.0**	**$ 2,373.3**	**$ 24,368.3**	**$ 124,685.3**	**$ 26,972.2**	**$ 276,825.8**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.43b, and E.43c.

Exhibit F.13b Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, Smoking/Lung Cancer Cessation Lag Model (All Water Systems)

TTHM - Colorectal Cancer Sensitivity Analysis

Year	3% Discount Rate Mean Value	3% 90 Percent Confidence Bound Lower (5th %tile)	3% 90 Percent Confidence Bound Upper (95th %tile)	7% Discount Rate Mean Value	7% 90 Percent Confidence Bound Lower (5th %tile)	7% 90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 323.7	$ 71.3	$ 711.9	$ 267.6	$ 58.9	$ 588.4
2011	$ 814.5	$ 179.1	$ 1,794.1	$ 648.1	$ 142.5	$ 1,427.5
2012	$ 1,432.7	$ 314.7	$ 3,153.4	$ 1,097.3	$ 241.0	$ 2,415.2
2013	$ 2,157.1	$ 473.6	$ 4,746.1	$ 1,590.4	$ 349.2	$ 3,499.1
2014	$ 2,743.5	$ 601.2	$ 6,039.5	$ 1,947.1	$ 426.7	$ 4,286.3
2015	$ 3,258.2	$ 712.7	$ 7,184.6	$ 2,226.0	$ 486.9	$ 4,908.4
2016	$ 3,691.6	$ 806.8	$ 8,138.2	$ 2,427.7	$ 530.6	$ 5,352.0
2017	$ 4,047.5	$ 883.5	$ 8,939.0	$ 2,562.3	$ 559.3	$ 5,658.9
2018	$ 4,327.4	$ 942.4	$ 9,560.4	$ 2,637.1	$ 574.3	$ 5,826.0
2019	$ 4,535.7	$ 986.1	$ 10,043.7	$ 2,660.7	$ 578.4	$ 5,891.7
2020	$ 4,687.6	$ 1,017.4	$ 10,388.3	$ 2,647.0	$ 574.5	$ 5,866.1
2021	$ 4,795.0	$ 1,039.4	$ 10,639.1	$ 2,606.4	$ 565.0	$ 5,783.1
2022	$ 4,867.6	$ 1,053.1	$ 10,821.6	$ 2,547.0	$ 551.0	$ 5,662.4
2023	$ 4,912.9	$ 1,060.0	$ 10,923.7	$ 2,474.6	$ 533.9	$ 5,502.1
2024	$ 4,936.4	$ 1,064.2	$ 10,981.4	$ 2,393.5	$ 516.0	$ 5,324.4
2025	$ 4,942.5	$ 1,063.2	$ 11,001.8	$ 2,306.8	$ 496.2	$ 5,134.9
2026	$ 4,934.5	$ 1,060.1	$ 10,987.2	$ 2,217.0	$ 476.3	$ 4,936.4
2027	$ 4,915.0	$ 1,054.2	$ 10,971.4	$ 2,125.7	$ 455.9	$ 4,745.0
2028	$ 4,817.3	$ 1,033.8	$ 10,743.6	$ 2,005.5	$ 430.4	$ 4,472.8
2029	$ 4,768.9	$ 1,022.1	$ 10,654.3	$ 1,911.2	$ 409.6	$ 4,269.8
Total	**$ 75,909.4**	**$ 16,438.8**	**$ 168,423.3**	**$ 41,298.7**	**$ 8,956.7**	**$ 91,550.6**
Ann.	**$ 4,359.3**	**$ 944.0**	**$ 9,672.2**	**$ 3,543.9**	**$ 768.6**	**$ 7,856.0**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.13a.

Exhibit F.13c Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size
(All Systems)

TTHM - Colorectal Cancer Sensitivity Analysis

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.9	$ 1.1	$ 4.7	$ 10.5	$ 38.3	$ 30.6	$ 131.0	$ 106.5	$ 323.7
2011	$ 0.3	$ 2.3	$ 2.9	$ 11.8	$ 26.3	$ 96.3	$ 76.9	$ 329.5	$ 268.1	$ 814.5
2012	$ 0.5	$ 4.1	$ 5.0	$ 20.8	$ 46.3	$ 169.4	$ 135.3	$ 579.6	$ 471.5	$ 1,432.7
2013	$ 0.8	$ 6.2	$ 7.6	$ 31.3	$ 69.8	$ 255.1	$ 203.7	$ 872.7	$ 709.9	$ 2,157.1
2014	$ 1.1	$ 8.6	$ 10.5	$ 43.2	$ 96.3	$ 352.2	$ 267.1	$ 1,083.3	$ 881.3	$ 2,743.5
2015	$ 1.4	$ 11.2	$ 13.7	$ 56.3	$ 125.5	$ 441.3	$ 316.8	$ 1,263.8	$ 1,028.2	$ 3,258.2
2016	$ 1.7	$ 13.5	$ 16.5	$ 68.1	$ 151.6	$ 510.6	$ 358.7	$ 1,417.6	$ 1,153.3	$ 3,691.6
2017	$ 2.0	$ 15.3	$ 18.7	$ 77.1	$ 171.8	$ 567.9	$ 393.5	$ 1,544.6	$ 1,256.6	$ 4,047.5
2018	$ 2.2	$ 16.8	$ 20.5	$ 84.6	$ 188.4	$ 615.0	$ 421.2	$ 1,642.6	$ 1,336.3	$ 4,327.4
2019	$ 2.3	$ 18.0	$ 22.0	$ 90.6	$ 201.9	$ 652.1	$ 441.9	$ 1,713.2	$ 1,393.8	$ 4,535.7
2020	$ 2.4	$ 18.9	$ 23.1	$ 95.3	$ 212.4	$ 679.6	$ 456.7	$ 1,764.0	$ 1,435.1	$ 4,687.6
2021	$ 2.5	$ 19.6	$ 24.0	$ 98.8	$ 220.1	$ 699.2	$ 467.2	$ 1,799.5	$ 1,464.0	$ 4,795.0
2022	$ 2.6	$ 20.1	$ 24.5	$ 101.3	$ 225.6	$ 712.8	$ 474.3	$ 1,823.2	$ 1,483.2	$ 4,867.6
2023	$ 2.6	$ 20.4	$ 24.9	$ 102.9	$ 229.3	$ 721.7	$ 478.8	$ 1,837.4	$ 1,494.8	$ 4,912.9
2024	$ 2.7	$ 20.6	$ 25.2	$ 104.0	$ 231.6	$ 727.0	$ 481.1	$ 1,844.0	$ 1,500.2	$ 4,936.4
2025	$ 2.7	$ 20.8	$ 25.3	$ 104.5	$ 232.9	$ 729.3	$ 481.7	$ 1,844.6	$ 1,500.7	$ 4,942.5
2026	$ 2.7	$ 20.8	$ 25.4	$ 104.7	$ 233.3	$ 729.3	$ 480.9	$ 1,840.3	$ 1,497.1	$ 4,934.5
2027	$ 2.7	$ 20.8	$ 25.4	$ 104.6	$ 233.0	$ 727.3	$ 479.1	$ 1,831.9	$ 1,490.3	$ 4,915.0
2028	$ 2.6	$ 20.4	$ 24.9	$ 102.7	$ 228.9	$ 713.6	$ 469.6	$ 1,794.6	$ 1,460.0	$ 4,817.3
2029	$ 2.6	$ 20.2	$ 24.7	$ 101.9	$ 227.0	$ 707.0	$ 464.9	$ 1,775.8	$ 1,444.7	$ 4,768.9
Total	**$ 38.8**	**$ 299.7**	**$ 365.8**	**$ 1,509.3**	**$ 3,362.4**	**$ 10,844.9**	**$ 7,379.8**	**$ 28,733.2**	**$ 23,375.6**	**$ 75,909.4**
Ann.	**$ 2.2**	**$ 17.2**	**$ 21.0**	**$ 86.7**	**$ 193.1**	**$ 622.8**	**$ 423.8**	**$ 1,650.1**	**$ 1,342.4**	**$ 4,359.3**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.43d.

Exhibit F.13d Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size
(All Systems)

TTHM - Colorectal Cancer Sensitivity Analysis

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.1	$ 0.8	$ 0.9	$ 3.9	$ 8.7	$ 31.6	$ 25.3	$ 108.2	$ 88.1	$ 267.6
2011	$ 0.2	$ 1.9	$ 2.3	$ 9.4	$ 21.0	$ 76.6	$ 61.2	$ 262.2	$ 213.3	$ 648.1
2012	$ 0.4	$ 3.2	$ 3.9	$ 15.9	$ 35.5	$ 129.8	$ 103.6	$ 443.9	$ 361.1	$ 1,097.3
2013	$ 0.6	$ 4.6	$ 5.6	$ 23.1	$ 51.4	$ 188.1	$ 150.2	$ 643.4	$ 523.4	$ 1,590.4
2014	$ 0.8	$ 6.1	$ 7.4	$ 30.7	$ 68.4	$ 249.9	$ 189.5	$ 768.8	$ 625.5	$ 1,947.1
2015	$ 1.0	$ 7.6	$ 9.3	$ 38.5	$ 85.7	$ 301.5	$ 216.4	$ 863.4	$ 702.4	$ 2,226.0
2016	$ 1.2	$ 8.9	$ 10.8	$ 44.8	$ 99.7	$ 335.8	$ 235.9	$ 932.3	$ 758.5	$ 2,427.7
2017	$ 1.3	$ 9.7	$ 11.8	$ 48.8	$ 108.8	$ 359.5	$ 249.1	$ 977.8	$ 795.5	$ 2,562.3
2018	$ 1.3	$ 10.2	$ 12.5	$ 51.5	$ 114.8	$ 374.8	$ 256.7	$ 1,001.0	$ 814.3	$ 2,637.1
2019	$ 1.4	$ 10.6	$ 12.9	$ 53.1	$ 118.4	$ 382.5	$ 259.2	$ 1,005.0	$ 817.6	$ 2,660.7
2020	$ 1.4	$ 10.7	$ 13.0	$ 53.8	$ 119.9	$ 383.8	$ 257.9	$ 996.1	$ 810.3	$ 2,647.0
2021	$ 1.4	$ 10.7	$ 13.0	$ 53.7	$ 119.7	$ 380.1	$ 254.0	$ 978.2	$ 795.8	$ 2,606.4
2022	$ 1.4	$ 10.5	$ 12.8	$ 53.0	$ 118.0	$ 373.0	$ 248.2	$ 954.0	$ 776.1	$ 2,547.0
2023	$ 1.3	$ 10.3	$ 12.6	$ 51.8	$ 115.5	$ 363.5	$ 241.1	$ 925.5	$ 752.9	$ 2,474.6
2024	$ 1.3	$ 10.0	$ 12.2	$ 50.4	$ 112.3	$ 352.5	$ 233.3	$ 894.1	$ 727.4	$ 2,393.5
2025	$ 1.3	$ 9.7	$ 11.8	$ 48.8	$ 108.7	$ 340.4	$ 224.8	$ 860.9	$ 700.4	$ 2,306.8
2026	$ 1.2	$ 9.3	$ 11.4	$ 47.0	$ 104.8	$ 327.6	$ 216.1	$ 826.8	$ 672.6	$ 2,217.0
2027	$ 1.2	$ 9.0	$ 11.0	$ 45.2	$ 100.8	$ 314.6	$ 207.2	$ 792.3	$ 644.6	$ 2,125.7
2028	$ 1.1	$ 8.5	$ 10.4	$ 42.8	$ 95.3	$ 297.1	$ 195.5	$ 747.1	$ 607.8	$ 2,005.5
2029	$ 1.0	$ 8.1	$ 9.9	$ 40.8	$ 91.0	$ 283.4	$ 186.3	$ 711.7	$ 579.0	$ 1,911.2
Total	**$ 20.7**	**$ 160.3**	**$ 195.7**	**$ 807.2**	**$ 1,798.2**	**$ 5,845.9**	**$ 4,011.4**	**$ 15,692.7**	**$ 12,766.6**	**$ 41,298.7**
Ann.	**$ 1.8**	**$ 13.8**	**$ 16.8**	**$ 69.3**	**$ 154.3**	**$ 501.6**	**$ 344.2**	**$ 1,346.6**	**$ 1,095.5**	**$ 3,543.9**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.43d.

Section F.14
Model Outputs - Preferred Alternative
20% Safety Margin
TTHM as Indicator
Lymphoma for Non-Fatal Cases

Exhibit F.14a Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Smoking/Lung Cancer Cessation Lag Model)

TTHM - Preferred Alternative, 20% Safety Margin

Year	Surface Water Systems			Ground Water Systems			All Systems		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 102.8	$ 15.7	$ 236.2	$ 6.7	$ 1.0	$ 15.3	$ 109.4	$ 16.8	$ 251.6
2011	$ 274.0	$ 42.0	$ 630.3	$ 17.8	$ 2.7	$ 40.9	$ 291.8	$ 44.7	$ 671.2
2012	$ 500.3	$ 76.6	$ 1,149.4	$ 32.5	$ 5.0	$ 74.6	$ 532.8	$ 81.5	$ 1,224.0
2013	$ 773.1	$ 118.3	$ 1,775.8	$ 50.2	$ 7.7	$ 115.3	$ 823.3	$ 126.0	$ 1,891.1
2014	$ 999.4	$ 152.8	$ 2,297.5	$ 68.1	$ 10.4	$ 156.6	$ 1,067.6	$ 163.2	$ 2,454.1
2015	$ 1,192.9	$ 182.4	$ 2,743.5	$ 85.6	$ 13.1	$ 196.8	$ 1,278.5	$ 195.5	$ 2,940.4
2016	$ 1,357.5	$ 207.4	$ 3,121.9	$ 101.0	$ 15.4	$ 232.3	$ 1,458.5	$ 222.8	$ 3,354.2
2017	$ 1,499.8	$ 229.0	$ 3,452.4	$ 113.9	$ 17.4	$ 262.1	$ 1,613.7	$ 246.4	$ 3,714.5
2018	$ 1,625.1	$ 247.8	$ 3,744.0	$ 125.0	$ 19.1	$ 288.1	$ 1,750.1	$ 266.9	$ 4,032.0
2019	$ 1,737.0	$ 264.6	$ 4,008.4	$ 134.9	$ 20.5	$ 311.3	$ 1,871.9	$ 285.1	$ 4,319.7
2020	$ 1,837.9	$ 279.9	$ 4,243.2	$ 143.7	$ 21.9	$ 331.7	$ 1,981.6	$ 301.7	$ 4,574.9
2021	$ 1,929.7	$ 293.5	$ 4,455.6	$ 151.6	$ 23.1	$ 350.1	$ 2,081.4	$ 316.6	$ 4,805.7
2022	$ 2,014.0	$ 306.2	$ 4,657.9	$ 158.9	$ 24.2	$ 367.5	$ 2,172.8	$ 330.4	$ 5,025.3
2023	$ 2,091.7	$ 318.1	$ 4,838.9	$ 165.5	$ 25.2	$ 383.0	$ 2,257.2	$ 343.3	$ 5,221.8
2024	$ 2,163.9	$ 329.0	$ 5,007.9	$ 171.7	$ 26.1	$ 397.3	$ 2,335.6	$ 355.1	$ 5,405.2
2025	$ 2,231.4	$ 338.7	$ 5,164.4	$ 177.4	$ 26.9	$ 410.6	$ 2,408.9	$ 365.6	$ 5,575.1
2026	$ 2,294.9	$ 347.9	$ 5,315.8	$ 182.8	$ 27.7	$ 423.4	$ 2,477.6	$ 375.6	$ 5,739.2
2027	$ 2,354.7	$ 356.5	$ 5,462.9	$ 187.8	$ 28.4	$ 435.7	$ 2,542.6	$ 385.0	$ 5,898.6
2028	$ 2,380.3	$ 360.7	$ 5,519.2	$ 190.1	$ 28.8	$ 440.8	$ 2,570.4	$ 389.5	$ 5,959.9
2029	$ 2,427.9	$ 367.4	$ 5,634.9	$ 194.1	$ 29.4	$ 450.5	$ 2,622.0	$ 396.8	$ 6,085.4
Total	**$ 31,788.6**	**$ 4,834.5**	**$ 73,460.0**	**$ 2,459.3**	**$ 374.0**	**$ 5,684.0**	**$ 34,247.9**	**$ 5,208.5**	**$ 79,144.0**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.44b, and E.44c.

Exhibit F.14b Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, Smoking/Lung Cancer Cessation Lag Model
(All Water Systems)

TTHM - Preferred Alternative, 20% Safety Margin

Year	3% Discount Rate			7% Discount Rate		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 94.4	$ 14.5	$ 217.0	$ 78.0	$ 11.9	$ 179.4
2011	$ 244.4	$ 37.4	$ 562.2	$ 194.5	$ 29.8	$ 447.3
2012	$ 433.2	$ 66.3	$ 995.2	$ 331.8	$ 50.8	$ 762.3
2013	$ 649.9	$ 99.5	$ 1,492.9	$ 479.2	$ 73.3	$ 1,100.7
2014	$ 818.2	$ 125.1	$ 1,880.8	$ 580.7	$ 88.8	$ 1,334.9
2015	$ 951.3	$ 145.5	$ 2,187.9	$ 649.9	$ 99.4	$ 1,494.7
2016	$ 1,053.7	$ 161.0	$ 2,423.1	$ 692.9	$ 105.9	$ 1,593.5
2017	$ 1,131.8	$ 172.8	$ 2,605.3	$ 716.5	$ 109.4	$ 1,649.3
2018	$ 1,191.8	$ 181.7	$ 2,745.6	$ 726.2	$ 110.7	$ 1,673.1
2019	$ 1,237.5	$ 188.5	$ 2,855.8	$ 725.9	$ 110.6	$ 1,675.2
2020	$ 1,271.9	$ 193.7	$ 2,936.5	$ 718.2	$ 109.4	$ 1,658.2
2021	$ 1,297.0	$ 197.3	$ 2,994.7	$ 705.0	$ 107.2	$ 1,627.8
2022	$ 1,314.6	$ 199.9	$ 3,040.4	$ 687.9	$ 104.6	$ 1,590.9
2023	$ 1,325.9	$ 201.7	$ 3,067.3	$ 667.8	$ 101.6	$ 1,545.0
2024	$ 1,332.0	$ 202.5	$ 3,082.5	$ 645.8	$ 98.2	$ 1,494.6
2025	$ 1,333.7	$ 202.4	$ 3,086.8	$ 622.5	$ 94.5	$ 1,440.7
2026	$ 1,331.9	$ 201.9	$ 3,085.1	$ 598.4	$ 90.7	$ 1,386.1
2027	$ 1,326.9	$ 200.9	$ 3,078.5	$ 573.9	$ 86.9	$ 1,331.4
2028	$ 1,302.4	$ 197.4	$ 3,019.8	$ 542.2	$ 82.2	$ 1,257.2
2029	$ 1,289.9	$ 195.2	$ 2,993.6	$ 516.9	$ 78.2	$ 1,199.7
Total	**$ 20,932.5**	**$ 3,185.0**	**$ 48,351.1**	**$ 11,454.4**	**$ 1,744.0**	**$ 26,442.0**
Ann.	**$ 1,202.1**	**$ 182.9**	**$ 2,776.7**	**$ 982.9**	**$ 149.7**	**$ 2,269.0**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.12a.

Exhibit F.14c Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size
(All Systems)

TTHM - Preferred Alternative, 20% Safety Margin

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.3	$ 0.3	$ 1.4	$ 3.1	$ 10.8	$ 8.8	$ 38.2	$ 31.5	$ 94.4
2011	$ 0.1	$ 0.7	$ 0.9	$ 3.5	$ 7.9	$ 28.0	$ 22.9	$ 98.9	$ 81.5	$ 244.4
2012	$ 0.2	$ 1.2	$ 1.5	$ 6.3	$ 14.1	$ 49.6	$ 40.6	$ 175.3	$ 144.5	$ 433.2
2013	$ 0.2	$ 1.8	$ 2.3	$ 9.4	$ 21.1	$ 74.5	$ 60.8	$ 263.0	$ 216.7	$ 649.9
2014	$ 0.3	$ 2.5	$ 3.1	$ 12.9	$ 28.8	$ 101.6	$ 78.9	$ 323.5	$ 266.6	$ 818.2
2015	$ 0.4	$ 3.2	$ 4.0	$ 16.5	$ 37.0	$ 125.4	$ 91.9	$ 368.9	$ 304.0	$ 951.3
2016	$ 0.5	$ 3.9	$ 4.7	$ 19.7	$ 44.1	$ 142.7	$ 101.8	$ 403.7	$ 332.7	$ 1,053.7
2017	$ 0.6	$ 4.3	$ 5.3	$ 22.0	$ 49.2	$ 155.8	$ 109.3	$ 430.5	$ 354.8	$ 1,131.8
2018	$ 0.6	$ 4.6	$ 5.7	$ 23.7	$ 53.2	$ 165.8	$ 115.2	$ 451.2	$ 371.8	$ 1,191.8
2019	$ 0.6	$ 4.9	$ 6.0	$ 25.0	$ 56.2	$ 173.5	$ 119.6	$ 466.9	$ 384.7	$ 1,237.5
2020	$ 0.7	$ 5.1	$ 6.3	$ 26.1	$ 58.4	$ 179.4	$ 123.0	$ 478.6	$ 394.4	$ 1,271.9
2021	$ 0.7	$ 5.3	$ 6.4	$ 26.8	$ 60.2	$ 183.7	$ 125.4	$ 487.1	$ 401.4	$ 1,297.0
2022	$ 0.7	$ 5.4	$ 6.6	$ 27.4	$ 61.4	$ 186.8	$ 127.1	$ 493.0	$ 406.2	$ 1,314.6
2023	$ 0.7	$ 5.4	$ 6.7	$ 27.8	$ 62.3	$ 188.9	$ 128.2	$ 496.6	$ 409.2	$ 1,325.9
2024	$ 0.7	$ 5.5	$ 6.7	$ 28.0	$ 62.9	$ 190.2	$ 128.8	$ 498.4	$ 410.7	$ 1,332.0
2025	$ 0.7	$ 5.5	$ 6.8	$ 28.2	$ 63.2	$ 190.8	$ 129.0	$ 498.6	$ 410.9	$ 1,333.7
2026	$ 0.7	$ 5.5	$ 6.8	$ 28.2	$ 63.3	$ 190.8	$ 128.8	$ 497.6	$ 410.0	$ 1,331.9
2027	$ 0.7	$ 5.5	$ 6.8	$ 28.2	$ 63.2	$ 190.4	$ 128.4	$ 495.5	$ 408.3	$ 1,326.9
2028	$ 0.7	$ 5.4	$ 6.7	$ 27.7	$ 62.2	$ 187.1	$ 126.0	$ 486.1	$ 400.6	$ 1,302.4
2029	$ 0.7	$ 5.4	$ 6.6	$ 27.5	$ 61.7	$ 185.4	$ 124.8	$ 481.2	$ 396.5	$ 1,289.9
Total	**$ 10.5**	**$ 81.6**	**$ 100.0**	**$ 416.3**	**$ 933.4**	**$ 2,901.4**	**$ 2,019.5**	**$ 7,932.6**	**$ 6,537.2**	**$ 20,932.5**
Ann.	**$ 0.6**	**$ 4.7**	**$ 5.7**	**$ 23.9**	**$ 53.6**	**$ 166.6**	**$ 116.0**	**$ 455.6**	**$ 375.4**	**$ 1,202.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f and E.44d.

Exhibit F.14d Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size

(All Systems)

TTHM - Preferred Alternative, 20% Safety Margin

Smoking/Lung Cancer Cessation Lag Model										
Year	**<100**	**100-499**	**500-999**	**1,000-3,299**	**3,300-9,999**	**10,000-49,999**	**50,000-99,999**	**100,000-999,999**	**≥1,000,000**	**Total**
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.3	$ 1.1	$ 2.5	$ 8.9	$ 7.3	$ 31.6	$ 26.0	$ 78.0
2011	$ 0.1	$ 0.6	$ 0.7	$ 2.8	$ 6.3	$ 22.3	$ 18.2	$ 78.7	$ 64.8	$ 194.5
2012	$ 0.1	$ 0.9	$ 1.2	$ 4.8	$ 10.8	$ 38.0	$ 31.1	$ 134.3	$ 110.7	$ 331.8
2013	$ 0.2	$ 1.4	$ 1.7	$ 6.9	$ 15.6	$ 54.9	$ 44.9	$ 193.9	$ 159.8	$ 479.2
2014	$ 0.2	$ 1.8	$ 2.2	$ 9.1	$ 20.5	$ 72.1	$ 56.0	$ 229.6	$ 189.2	$ 580.7
2015	$ 0.3	$ 2.2	$ 2.7	$ 11.3	$ 25.3	$ 85.7	$ 62.8	$ 252.0	$ 207.7	$ 649.9
2016	$ 0.3	$ 2.5	$ 3.1	$ 12.9	$ 29.0	$ 93.8	$ 66.9	$ 265.5	$ 218.8	$ 692.9
2017	$ 0.4	$ 2.7	$ 3.3	$ 13.9	$ 31.2	$ 98.6	$ 69.2	$ 272.5	$ 224.6	$ 716.5
2018	$ 0.4	$ 2.8	$ 3.5	$ 14.4	$ 32.4	$ 101.1	$ 70.2	$ 274.9	$ 226.6	$ 726.2
2019	$ 0.4	$ 2.9	$ 3.5	$ 14.7	$ 32.9	$ 101.8	$ 70.2	$ 273.9	$ 225.7	$ 725.9
2020	$ 0.4	$ 2.9	$ 3.5	$ 14.7	$ 33.0	$ 101.3	$ 69.4	$ 270.3	$ 222.7	$ 718.2
2021	$ 0.4	$ 2.9	$ 3.5	$ 14.6	$ 32.7	$ 99.9	$ 68.2	$ 264.8	$ 218.2	$ 705.0
2022	$ 0.4	$ 2.8	$ 3.4	$ 14.3	$ 32.1	$ 97.8	$ 66.5	$ 257.9	$ 212.6	$ 687.9
2023	$ 0.4	$ 2.7	$ 3.4	$ 14.0	$ 31.4	$ 95.2	$ 64.6	$ 250.1	$ 206.1	$ 667.8
2024	$ 0.3	$ 2.7	$ 3.3	$ 13.6	$ 30.5	$ 92.2	$ 62.5	$ 241.6	$ 199.1	$ 645.8
2025	$ 0.3	$ 2.6	$ 3.2	$ 13.2	$ 29.5	$ 89.1	$ 60.2	$ 232.7	$ 191.8	$ 622.5
2026	$ 0.3	$ 2.5	$ 3.0	$ 12.7	$ 28.4	$ 85.7	$ 57.9	$ 223.6	$ 184.2	$ 598.4
2027	$ 0.3	$ 2.4	$ 2.9	$ 12.2	$ 27.3	$ 82.3	$ 55.5	$ 214.3	$ 176.6	$ 573.9
2028	$ 0.3	$ 2.3	$ 2.8	$ 11.5	$ 25.9	$ 77.9	$ 52.5	$ 202.4	$ 166.8	$ 542.2
2029	$ 0.3	$ 2.2	$ 2.6	$ 11.0	$ 24.7	$ 74.3	$ 50.0	$ 192.8	$ 158.9	$ 516.9
Total	**$ 5.7**	**$ 43.9**	**$ 53.8**	**$ 223.9**	**$ 502.0**	**$ 1,572.9**	**$ 1,104.0**	**$ 4,357.4**	**$ 3,590.9**	**$ 11,454.4**
Ann.	**$ 0.5**	**$ 3.8**	**$ 4.6**	**$ 19.2**	**$ 43.1**	**$ 135.0**	**$ 94.7**	**$ 373.9**	**$ 308.1**	**$ 982.9**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.44d.

Section F.15
Model Outputs - Preferred Alternative
20% Safety Margin
TTHM as Indicator
Bronchitis for Non-Fatal Cases

Exhibit F.15a Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Smoking/Lung Cancer Cessation Lag Model)

TTHM - Preferred Alternative, 20% Safety Margin

Year	Surface Water Systems			Ground Water Systems			All Systems		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 50.8	$ 11.2	$ 111.6	$ 3.3	$ 0.7	$ 7.2	$ 54.1	$ 11.9	$ 118.9
2011	$ 135.5	$ 29.8	$ 298.4	$ 8.8	$ 1.9	$ 19.4	$ 144.3	$ 31.7	$ 317.8
2012	$ 247.5	$ 54.4	$ 544.8	$ 16.1	$ 3.5	$ 35.4	$ 263.6	$ 57.9	$ 580.2
2013	$ 382.7	$ 84.0	$ 842.1	$ 24.9	$ 5.5	$ 54.7	$ 407.6	$ 89.5	$ 896.8
2014	$ 495.1	$ 108.5	$ 1,090.0	$ 33.7	$ 7.4	$ 74.3	$ 528.9	$ 115.9	$ 1,164.2
2015	$ 591.4	$ 129.4	$ 1,304.1	$ 42.4	$ 9.3	$ 93.6	$ 633.9	$ 138.7	$ 1,397.7
2016	$ 673.5	$ 147.2	$ 1,484.8	$ 50.1	$ 11.0	$ 110.5	$ 723.7	$ 158.2	$ 1,595.3
2017	$ 744.7	$ 162.6	$ 1,644.7	$ 56.5	$ 12.3	$ 124.9	$ 801.3	$ 174.9	$ 1,769.6
2018	$ 807.6	$ 175.9	$ 1,784.1	$ 62.1	$ 13.5	$ 137.3	$ 869.7	$ 189.4	$ 1,921.4
2019	$ 863.8	$ 187.8	$ 1,912.9	$ 67.1	$ 14.6	$ 148.5	$ 930.9	$ 202.4	$ 2,061.4
2020	$ 914.8	$ 198.5	$ 2,027.3	$ 71.5	$ 15.5	$ 158.5	$ 986.3	$ 214.1	$ 2,185.8
2021	$ 961.3	$ 208.4	$ 2,132.9	$ 75.5	$ 16.4	$ 167.6	$ 1,036.8	$ 224.7	$ 2,300.5
2022	$ 1,004.1	$ 217.2	$ 2,232.2	$ 79.2	$ 17.1	$ 176.1	$ 1,083.3	$ 234.4	$ 2,408.3
2023	$ 1,043.7	$ 225.2	$ 2,320.6	$ 82.6	$ 17.8	$ 183.7	$ 1,126.3	$ 243.0	$ 2,504.3
2024	$ 1,080.6	$ 233.0	$ 2,404.0	$ 85.7	$ 18.5	$ 190.7	$ 1,166.4	$ 251.4	$ 2,594.7
2025	$ 1,115.3	$ 239.9	$ 2,482.7	$ 88.7	$ 19.1	$ 197.4	$ 1,204.0	$ 259.0	$ 2,680.1
2026	$ 1,148.0	$ 246.6	$ 2,556.2	$ 91.4	$ 19.6	$ 203.6	$ 1,239.4	$ 266.3	$ 2,759.8
2027	$ 1,179.0	$ 252.9	$ 2,631.8	$ 94.0	$ 20.2	$ 209.9	$ 1,273.0	$ 273.0	$ 2,841.7
2028	$ 1,191.4	$ 255.7	$ 2,657.2	$ 95.1	$ 20.4	$ 212.2	$ 1,286.6	$ 276.1	$ 2,869.4
2029	$ 1,216.1	$ 260.6	$ 2,716.9	$ 97.2	$ 20.8	$ 217.2	$ 1,313.3	$ 281.5	$ 2,934.0
Total	**$ 15,846.9**	**$ 3,428.7**	**$ 35,179.1**	**$ 1,226.2**	**$ 265.2**	**$ 2,722.6**	**$ 17,073.1**	**$ 3,693.9**	**$ 37,901.7**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.44b, and E.44c.

Exhibit F.15b Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, Smoking/Lung Cancer Cessation Lag Model
(All Water Systems)

TTHM - Preferred Alternative, 20% Safety Margin

Year	3% Discount Rate			7% Discount Rate		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 46.6	$ 10.3	$ 102.5	$ 38.5	$ 8.5	$ 84.8
2011	$ 120.8	$ 26.6	$ 266.1	$ 96.1	$ 21.1	$ 211.7
2012	$ 214.3	$ 47.1	$ 471.7	$ 164.1	$ 36.1	$ 361.3
2013	$ 321.8	$ 70.6	$ 707.9	$ 237.2	$ 52.1	$ 521.9
2014	$ 405.3	$ 88.8	$ 892.3	$ 287.7	$ 63.0	$ 633.3
2015	$ 471.7	$ 103.2	$ 1,040.0	$ 322.2	$ 70.5	$ 710.5
2016	$ 522.8	$ 114.3	$ 1,152.5	$ 343.8	$ 75.1	$ 757.9
2017	$ 562.0	$ 122.7	$ 1,241.2	$ 355.8	$ 77.7	$ 785.7
2018	$ 592.2	$ 129.0	$ 1,308.4	$ 360.9	$ 78.6	$ 797.3
2019	$ 615.4	$ 133.8	$ 1,362.8	$ 361.0	$ 78.5	$ 799.5
2020	$ 633.1	$ 137.4	$ 1,402.9	$ 357.5	$ 77.6	$ 792.2
2021	$ 646.1	$ 140.1	$ 1,433.6	$ 351.2	$ 76.1	$ 779.2
2022	$ 655.4	$ 141.8	$ 1,457.1	$ 342.9	$ 74.2	$ 762.4
2023	$ 661.6	$ 142.7	$ 1,471.0	$ 333.2	$ 71.9	$ 740.9
2024	$ 665.2	$ 143.4	$ 1,479.7	$ 322.5	$ 69.5	$ 717.5
2025	$ 666.6	$ 143.4	$ 1,483.9	$ 311.1	$ 66.9	$ 692.6
2026	$ 666.3	$ 143.1	$ 1,483.5	$ 299.3	$ 64.3	$ 666.5
2027	$ 664.4	$ 142.5	$ 1,483.1	$ 287.3	$ 61.6	$ 641.4
2028	$ 651.9	$ 139.9	$ 1,453.9	$ 271.4	$ 58.2	$ 605.3
2029	$ 646.0	$ 138.5	$ 1,443.4	$ 258.9	$ 55.5	$ 578.4
Total	**$ 10,429.5**	**$ 2,259.0**	**$ 23,137.5**	**$ 5,702.9**	**$ 1,237.1**	**$ 12,640.4**
Ann.	**$ 598.9**	**$ 129.7**	**$ 1,328.7**	**$ 489.4**	**$ 106.2**	**$ 1,084.7**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.13a.

Exhibit F.15c Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size

(All Systems)

TTHM - Preferred Alternative, 20% Safety Margin

Smoking/Lung Cancer Cessation Lag Model										
Year	**<100**	**100-499**	**500-999**	**1,000-3,299**	**3,300-9,999**	**10,000-49,999**	**50,000-99,999**	**100,000-999,999**	**≥1,000,000**	**Total**
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.2	$ 0.7	$ 1.5	$ 5.3	$ 4.4	$ 18.9	$ 15.5	$ 46.6
2011	$ 0.0	$ 0.3	$ 0.4	$ 1.8	$ 3.9	$ 13.8	$ 11.3	$ 48.9	$ 40.3	$ 120.8
2012	$ 0.1	$ 0.6	$ 0.7	$ 3.1	$ 7.0	$ 24.6	$ 20.1	$ 86.7	$ 71.5	$ 214.3
2013	$ 0.1	$ 0.9	$ 1.1	$ 4.7	$ 10.5	$ 36.9	$ 30.1	$ 130.2	$ 107.3	$ 321.8
2014	$ 0.2	$ 1.2	$ 1.5	$ 6.4	$ 14.3	$ 50.3	$ 39.1	$ 160.3	$ 132.1	$ 405.3
2015	$ 0.2	$ 1.6	$ 2.0	$ 8.2	$ 18.3	$ 62.2	$ 45.6	$ 182.9	$ 150.7	$ 471.7
2016	$ 0.2	$ 1.9	$ 2.3	$ 9.8	$ 21.9	$ 70.8	$ 50.5	$ 200.3	$ 165.1	$ 522.8
2017	$ 0.3	$ 2.1	$ 2.6	$ 10.9	$ 24.4	$ 77.4	$ 54.3	$ 213.8	$ 176.2	$ 562.0
2018	$ 0.3	$ 2.3	$ 2.8	$ 11.8	$ 26.4	$ 82.4	$ 57.2	$ 224.2	$ 184.8	$ 592.2
2019	$ 0.3	$ 2.4	$ 3.0	$ 12.5	$ 27.9	$ 86.3	$ 59.5	$ 232.2	$ 191.3	$ 615.4
2020	$ 0.3	$ 2.5	$ 3.1	$ 13.0	$ 29.1	$ 89.3	$ 61.2	$ 238.2	$ 196.3	$ 633.1
2021	$ 0.3	$ 2.6	$ 3.2	$ 13.4	$ 30.0	$ 91.5	$ 62.5	$ 242.7	$ 200.0	$ 646.1
2022	$ 0.3	$ 2.7	$ 3.3	$ 13.7	$ 30.6	$ 93.1	$ 63.4	$ 245.8	$ 202.5	$ 655.4
2023	$ 0.4	$ 2.7	$ 3.3	$ 13.9	$ 31.1	$ 94.3	$ 64.0	$ 247.8	$ 204.2	$ 661.6
2024	$ 0.4	$ 2.7	$ 3.4	$ 14.0	$ 31.4	$ 95.0	$ 64.3	$ 248.9	$ 205.1	$ 665.2
2025	$ 0.4	$ 2.8	$ 3.4	$ 14.1	$ 31.6	$ 95.4	$ 64.5	$ 249.2	$ 205.4	$ 666.6
2026	$ 0.4	$ 2.8	$ 3.4	$ 14.1	$ 31.7	$ 95.5	$ 64.5	$ 248.9	$ 205.1	$ 666.3
2027	$ 0.4	$ 2.8	$ 3.4	$ 14.1	$ 31.7	$ 95.3	$ 64.3	$ 248.1	$ 204.4	$ 664.4
2028	$ 0.4	$ 2.7	$ 3.3	$ 13.9	$ 31.1	$ 93.6	$ 63.1	$ 243.3	$ 200.5	$ 651.9
2029	$ 0.3	$ 2.7	$ 3.3	$ 13.8	$ 30.9	$ 92.9	$ 62.5	$ 241.0	$ 198.6	$ 646.0
Total	**$ 5.2**	**$ 40.7**	**$ 49.8**	**$ 207.5**	**$ 465.2**	**$ 1,445.9**	**$ 1,006.2**	**$ 3,952.1**	**$ 3,256.9**	**$ 10,429.5**
Ann.	**$ 0.3**	**$ 2.3**	**$ 2.9**	**$ 11.9**	**$ 26.7**	**$ 83.0**	**$ 57.8**	**$ 227.0**	**$ 187.0**	**$ 598.9**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.44d.

Exhibit F.15d Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size

(All Systems)

TTHM - Preferred Alternative, 20% Safety Margin

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.1	$ 0.6	$ 1.3	$ 4.4	$ 3.6	$ 15.6	$ 12.9	$ 38.5
2011	$ 0.0	$ 0.3	$ 0.3	$ 1.4	$ 3.1	$ 11.0	$ 9.0	$ 38.9	$ 32.1	$ 96.1
2012	$ 0.1	$ 0.5	$ 0.6	$ 2.4	$ 5.3	$ 18.8	$ 15.4	$ 66.4	$ 54.7	$ 164.1
2013	$ 0.1	$ 0.7	$ 0.8	$ 3.4	$ 7.7	$ 27.2	$ 22.2	$ 96.0	$ 79.1	$ 237.2
2014	$ 0.1	$ 0.9	$ 1.1	$ 4.5	$ 10.1	$ 35.7	$ 27.8	$ 113.7	$ 93.7	$ 287.7
2015	$ 0.1	$ 1.1	$ 1.3	$ 5.6	$ 12.5	$ 42.5	$ 31.1	$ 124.9	$ 103.0	$ 322.2
2016	$ 0.2	$ 1.3	$ 1.5	$ 6.4	$ 14.4	$ 46.6	$ 33.2	$ 131.7	$ 108.6	$ 343.8
2017	$ 0.2	$ 1.4	$ 1.7	$ 6.9	$ 15.5	$ 49.0	$ 34.4	$ 135.3	$ 111.5	$ 355.8
2018	$ 0.2	$ 1.4	$ 1.7	$ 7.2	$ 16.1	$ 50.2	$ 34.9	$ 136.6	$ 112.6	$ 360.9
2019	$ 0.2	$ 1.4	$ 1.8	$ 7.3	$ 16.4	$ 50.6	$ 34.9	$ 136.2	$ 112.2	$ 361.0
2020	$ 0.2	$ 1.4	$ 1.8	$ 7.3	$ 16.4	$ 50.4	$ 34.6	$ 134.5	$ 110.9	$ 357.5
2021	$ 0.2	$ 1.4	$ 1.7	$ 7.3	$ 16.3	$ 49.7	$ 34.0	$ 131.9	$ 108.7	$ 351.2
2022	$ 0.2	$ 1.4	$ 1.7	$ 7.1	$ 16.0	$ 48.7	$ 33.2	$ 128.6	$ 106.0	$ 342.9
2023	$ 0.2	$ 1.4	$ 1.7	$ 7.0	$ 15.7	$ 47.5	$ 32.2	$ 124.8	$ 102.8	$ 333.2
2024	$ 0.2	$ 1.3	$ 1.6	$ 6.8	$ 15.2	$ 46.1	$ 31.2	$ 120.7	$ 99.4	$ 322.5
2025	$ 0.2	$ 1.3	$ 1.6	$ 6.6	$ 14.7	$ 44.5	$ 30.1	$ 116.3	$ 95.9	$ 311.1
2026	$ 0.2	$ 1.2	$ 1.5	$ 6.3	$ 14.2	$ 42.9	$ 29.0	$ 111.8	$ 92.2	$ 299.3
2027	$ 0.2	$ 1.2	$ 1.5	$ 6.1	$ 13.7	$ 41.2	$ 27.8	$ 107.3	$ 88.4	$ 287.3
2028	$ 0.1	$ 1.1	$ 1.4	$ 5.8	$ 13.0	$ 39.0	$ 26.3	$ 101.3	$ 83.5	$ 271.4
2029	$ 0.1	$ 1.1	$ 1.3	$ 5.5	$ 12.4	$ 37.2	$ 25.0	$ 96.6	$ 79.6	$ 258.9
Total	**$ 2.8**	**$ 21.9**	**$ 26.8**	**$ 111.5**	**$ 250.0**	**$ 783.3**	**$ 549.7**	**$ 2,169.3**	**$ 1,787.7**	**$ 5,702.9**
Ann.	**$ 0.2**	**$ 1.9**	**$ 2.3**	**$ 9.6**	**$ 21.5**	**$ 67.2**	**$ 47.2**	**$ 186.1**	**$ 153.4**	**$ 489.4**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f and E.44d.

Section F.16
Model Outputs - Preferred Alternative
25% Safety Margin
TTHM as Indicator
Lymphoma for Non-Fatal Cases

Exhibit F.16a Projections of Yearly Benefits, WTP for Lymphoma as Basis for Non-Fatal Cases (Smoking/Lung Cancer Cessation Lag Model)

TTHM - Preferred Alternative, 25% Safety Margin

Year	Surface Water Systems			Ground Water Systems			All Systems		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 147.7	$ 22.6	$ 339.5	$ 5.5	$ 0.8	$ 12.6	$ 153.2	$ 23.5	$ 352.2
2011	$ 378.6	$ 58.0	$ 870.9	$ 14.1	$ 2.2	$ 32.3	$ 392.7	$ 60.1	$ 903.2
2012	$ 684.9	$ 104.8	$ 1,573.4	$ 25.4	$ 3.9	$ 58.4	$ 710.3	$ 108.7	$ 1,631.8
2013	$ 1,065.8	$ 163.1	$ 2,448.1	$ 39.6	$ 6.1	$ 90.9	$ 1,105.4	$ 169.2	$ 2,539.0
2014	$ 1,399.6	$ 214.0	$ 3,217.4	$ 54.7	$ 8.4	$ 125.7	$ 1,454.3	$ 222.3	$ 3,343.2
2015	$ 1,725.1	$ 263.8	$ 3,967.3	$ 70.7	$ 10.8	$ 162.5	$ 1,795.7	$ 274.6	$ 4,129.8
2016	$ 2,031.1	$ 310.3	$ 4,671.0	$ 85.7	$ 13.1	$ 197.2	$ 2,116.9	$ 323.4	$ 4,868.2
2017	$ 2,312.3	$ 353.1	$ 5,322.7	$ 99.2	$ 15.2	$ 228.4	$ 2,411.6	$ 368.2	$ 5,551.1
2018	$ 2,558.6	$ 390.1	$ 5,894.6	$ 111.5	$ 17.0	$ 256.8	$ 2,670.1	$ 407.1	$ 6,151.4
2019	$ 2,765.6	$ 421.3	$ 6,382.3	$ 122.2	$ 18.6	$ 282.1	$ 2,887.9	$ 439.9	$ 6,664.4
2020	$ 2,942.1	$ 448.0	$ 6,792.5	$ 131.6	$ 20.0	$ 303.8	$ 3,073.7	$ 468.0	$ 7,096.3
2021	$ 3,095.2	$ 470.8	$ 7,146.4	$ 139.6	$ 21.2	$ 322.4	$ 3,234.8	$ 492.0	$ 7,468.8
2022	$ 3,230.6	$ 491.2	$ 7,471.7	$ 146.6	$ 22.3	$ 339.1	$ 3,377.2	$ 513.5	$ 7,810.8
2023	$ 3,352.3	$ 509.9	$ 7,755.0	$ 152.8	$ 23.2	$ 353.5	$ 3,505.1	$ 533.1	$ 8,108.5
2024	$ 3,463.1	$ 526.4	$ 8,014.4	$ 158.3	$ 24.1	$ 366.5	$ 3,621.4	$ 550.5	$ 8,380.8
2025	$ 3,565.0	$ 541.1	$ 8,250.9	$ 163.4	$ 24.8	$ 378.2	$ 3,728.5	$ 565.9	$ 8,629.1
2026	$ 3,659.8	$ 554.8	$ 8,477.6	$ 168.1	$ 25.5	$ 389.4	$ 3,827.9	$ 580.3	$ 8,866.9
2027	$ 3,748.7	$ 567.6	$ 8,696.8	$ 172.4	$ 26.1	$ 400.0	$ 3,921.1	$ 593.7	$ 9,096.9
2028	$ 3,783.0	$ 573.3	$ 8,771.5	$ 174.2	$ 26.4	$ 404.0	$ 3,957.2	$ 599.7	$ 9,175.5
2029	$ 3,852.5	$ 583.0	$ 8,941.0	$ 177.6	$ 26.9	$ 412.2	$ 4,030.1	$ 609.9	$ 9,353.3
Total	**$ 49,761.7**	**$ 7,567.2**	**$ 115,005.0**	**$ 2,213.4**	**$ 336.5**	**$ 5,116.0**	**$ 51,975.0**	**$ 7,903.7**	**$ 120,121.1**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.45b, and E.45c.

Exhibit F.16b Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, Smoking/Lung Cancer Cessation Lag Model
(All Water Systems)

TTHM - Preferred Alternative, 25% Safety Margin

Year	3% Discount Rate			7% Discount Rate		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 132.1	$ 20.2	$ 303.8	$ 109.2	$ 16.7	$ 251.1
2011	$ 328.9	$ 50.4	$ 756.5	$ 261.7	$ 40.1	$ 601.9
2012	$ 577.6	$ 88.4	$ 1,326.8	$ 442.4	$ 67.7	$ 1,016.2
2013	$ 872.6	$ 133.6	$ 2,004.3	$ 643.3	$ 98.5	$ 1,477.7
2014	$ 1,114.6	$ 170.4	$ 2,562.2	$ 791.0	$ 120.9	$ 1,818.5
2015	$ 1,336.2	$ 204.3	$ 3,073.0	$ 912.9	$ 139.6	$ 2,099.4
2016	$ 1,529.3	$ 233.6	$ 3,516.9	$ 1,005.7	$ 153.6	$ 2,312.8
2017	$ 1,691.4	$ 258.3	$ 3,893.5	$ 1,070.8	$ 163.5	$ 2,464.8
2018	$ 1,818.2	$ 277.2	$ 4,188.8	$ 1,108.0	$ 168.9	$ 2,552.6
2019	$ 1,909.2	$ 290.8	$ 4,405.9	$ 1,120.0	$ 170.6	$ 2,584.6
2020	$ 1,972.9	$ 300.4	$ 4,554.9	$ 1,114.0	$ 169.6	$ 2,572.0
2021	$ 2,015.8	$ 306.6	$ 4,654.3	$ 1,095.7	$ 166.7	$ 2,530.0
2022	$ 2,043.3	$ 310.7	$ 4,725.6	$ 1,069.1	$ 162.6	$ 2,472.7
2023	$ 2,058.9	$ 313.1	$ 4,762.9	$ 1,037.0	$ 157.7	$ 2,399.0
2024	$ 2,065.2	$ 313.9	$ 4,779.5	$ 1,001.3	$ 152.2	$ 2,317.4
2025	$ 2,064.4	$ 313.3	$ 4,777.7	$ 963.5	$ 146.2	$ 2,229.9
2026	$ 2,057.7	$ 311.9	$ 4,766.4	$ 924.5	$ 140.1	$ 2,141.5
2027	$ 2,046.4	$ 309.8	$ 4,747.6	$ 885.1	$ 134.0	$ 2,053.3
2028	$ 2,005.1	$ 303.9	$ 4,649.1	$ 834.8	$ 126.5	$ 1,935.5
2029	$ 1,982.5	$ 300.0	$ 4,601.2	$ 794.5	$ 120.2	$ 1,844.0
Total	**$ 31,622.3**	**$ 4,811.0**	**$ 73,050.8**	**$ 17,184.6**	**$ 2,616.1**	**$ 39,674.7**
Ann.	**$ 1,816.0**	**$ 276.3**	**$ 4,195.2**	**$ 1,474.6**	**$ 224.5**	**$ 3,404.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibit F.12a.

Exhibit F.16c Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size
(All Systems)

TTHM - Preferred Alternative, 25% Safety Margin

Smoking/Lung Cancer Cessation Lag Model										
Year	**<100**	**100-499**	**500-999**	**1,000-3,299**	**3,300-9,999**	**10,000-49,999**	**50,000-99,999**	**100,000-999,999**	**≥1,000,000**	**Total**
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.3	$ 1.1	$ 2.5	$ 14.9	$ 12.5	$ 54.7	$ 45.7	$ 132.1
2011	$ 0.1	$ 0.5	$ 0.7	$ 2.8	$ 6.3	$ 37.2	$ 31.2	$ 136.2	$ 113.8	$ 328.9
2012	$ 0.1	$ 1.0	$ 1.2	$ 4.9	$ 11.0	$ 65.3	$ 54.8	$ 239.3	$ 199.9	$ 577.6
2013	$ 0.2	$ 1.5	$ 1.8	$ 7.4	$ 16.7	$ 98.7	$ 82.8	$ 361.5	$ 302.1	$ 872.6
2014	$ 0.3	$ 2.0	$ 2.5	$ 10.3	$ 23.2	$ 137.2	$ 109.4	$ 452.0	$ 377.7	$ 1,114.6
2015	$ 0.3	$ 2.7	$ 3.3	$ 13.6	$ 30.5	$ 173.5	$ 131.2	$ 534.5	$ 446.6	$ 1,336.2
2016	$ 0.4	$ 3.2	$ 4.0	$ 16.6	$ 37.1	$ 202.7	$ 150.3	$ 607.4	$ 507.5	$ 1,529.3
2017	$ 0.5	$ 3.7	$ 4.5	$ 18.9	$ 42.4	$ 227.6	$ 166.6	$ 668.6	$ 558.7	$ 1,691.4
2018	$ 0.5	$ 4.1	$ 5.0	$ 20.9	$ 46.8	$ 248.4	$ 179.6	$ 715.3	$ 597.7	$ 1,818.2
2019	$ 0.6	$ 4.4	$ 5.4	$ 22.5	$ 50.4	$ 264.7	$ 189.0	$ 747.5	$ 624.7	$ 1,909.2
2020	$ 0.6	$ 4.7	$ 5.7	$ 23.8	$ 53.3	$ 276.5	$ 195.5	$ 769.7	$ 643.2	$ 1,972.9
2021	$ 0.6	$ 4.8	$ 5.9	$ 24.7	$ 55.3	$ 284.6	$ 199.9	$ 784.5	$ 655.5	$ 2,015.8
2022	$ 0.6	$ 5.0	$ 6.1	$ 25.3	$ 56.7	$ 289.9	$ 202.7	$ 793.8	$ 663.3	$ 2,043.3
2023	$ 0.6	$ 5.0	$ 6.2	$ 25.7	$ 57.6	$ 293.1	$ 204.3	$ 798.8	$ 667.5	$ 2,058.9
2024	$ 0.7	$ 5.1	$ 6.2	$ 25.9	$ 58.1	$ 294.9	$ 205.0	$ 800.5	$ 668.9	$ 2,065.2
2025	$ 0.7	$ 5.1	$ 6.3	$ 26.0	$ 58.3	$ 295.4	$ 204.9	$ 799.6	$ 668.1	$ 2,064.4
2026	$ 0.7	$ 5.1	$ 6.3	$ 26.0	$ 58.3	$ 294.9	$ 204.3	$ 796.5	$ 665.6	$ 2,057.7
2027	$ 0.7	$ 5.1	$ 6.2	$ 25.9	$ 58.2	$ 293.7	$ 203.2	$ 791.8	$ 661.6	$ 2,046.4
2028	$ 0.6	$ 5.0	$ 6.1	$ 25.5	$ 57.1	$ 288.1	$ 199.1	$ 775.5	$ 648.0	$ 2,005.1
2029	$ 0.6	$ 4.9	$ 6.1	$ 25.2	$ 56.6	$ 285.1	$ 196.9	$ 766.5	$ 640.5	$ 1,982.5
Total	**$ 9.4**	**$ 73.2**	**$ 89.7**	**$ 373.1**	**$ 836.4**	**$ 4,366.5**	**$ 3,123.3**	**$ 12,394.1**	**$ 10,356.7**	**$ 31,622.3**
Ann.	**$ 0.5**	**$ 4.2**	**$ 5.1**	**$ 21.4**	**$ 48.0**	**$ 250.8**	**$ 179.4**	**$ 711.8**	**$ 594.8**	**$ 1,816.0**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.45d.

Exhibit F.16d Mean Present Value of Benefits Yearly Projections, WTP for Lymphoma as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size
(All Systems)

TTHM - Preferred Alternative, 25% Safety Margin

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.2	$ 0.2	$ 0.9	$ 2.1	$ 12.4	$ 10.4	$ 45.2	$ 37.8	$ 109.2
2011	$ 0.1	$ 0.4	$ 0.5	$ 2.2	$ 5.0	$ 29.6	$ 24.8	$ 108.4	$ 90.6	$ 261.7
2012	$ 0.1	$ 0.7	$ 0.9	$ 3.8	$ 8.5	$ 50.0	$ 42.0	$ 183.3	$ 153.1	$ 442.4
2013	$ 0.1	$ 1.1	$ 1.3	$ 5.5	$ 12.3	$ 72.8	$ 61.1	$ 266.5	$ 222.7	$ 643.3
2014	$ 0.2	$ 1.4	$ 1.8	$ 7.3	$ 16.5	$ 97.4	$ 77.6	$ 320.8	$ 268.1	$ 791.0
2015	$ 0.2	$ 1.8	$ 2.2	$ 9.3	$ 20.8	$ 118.6	$ 89.6	$ 365.2	$ 305.1	$ 912.9
2016	$ 0.3	$ 2.1	$ 2.6	$ 10.9	$ 24.4	$ 133.3	$ 98.9	$ 399.4	$ 333.8	$ 1,005.7
2017	$ 0.3	$ 2.3	$ 2.9	$ 12.0	$ 26.8	$ 144.1	$ 105.5	$ 423.2	$ 353.7	$ 1,070.8
2018	$ 0.3	$ 2.5	$ 3.1	$ 12.7	$ 28.5	$ 151.3	$ 109.4	$ 435.9	$ 364.2	$ 1,108.0
2019	$ 0.3	$ 2.6	$ 3.2	$ 13.2	$ 29.6	$ 155.3	$ 110.9	$ 438.5	$ 366.4	$ 1,120.0
2020	$ 0.3	$ 2.6	$ 3.2	$ 13.4	$ 30.1	$ 156.2	$ 110.4	$ 434.6	$ 363.2	$ 1,114.0
2021	$ 0.3	$ 2.6	$ 3.2	$ 13.4	$ 30.1	$ 154.7	$ 108.6	$ 426.4	$ 356.3	$ 1,095.7
2022	$ 0.3	$ 2.6	$ 3.2	$ 13.2	$ 29.7	$ 151.7	$ 106.0	$ 415.3	$ 347.1	$ 1,069.1
2023	$ 0.3	$ 2.5	$ 3.1	$ 12.9	$ 29.0	$ 147.7	$ 102.9	$ 402.4	$ 336.2	$ 1,037.0
2024	$ 0.3	$ 2.5	$ 3.0	$ 12.6	$ 28.2	$ 143.0	$ 99.4	$ 388.1	$ 324.3	$ 1,001.3
2025	$ 0.3	$ 2.4	$ 2.9	$ 12.1	$ 27.2	$ 137.9	$ 95.7	$ 373.2	$ 311.8	$ 963.5
2026	$ 0.3	$ 2.3	$ 2.8	$ 11.7	$ 26.2	$ 132.5	$ 91.8	$ 357.9	$ 299.0	$ 924.5
2027	$ 0.3	$ 2.2	$ 2.7	$ 11.2	$ 25.2	$ 127.0	$ 87.9	$ 342.4	$ 286.1	$ 885.1
2028	$ 0.3	$ 2.1	$ 2.5	$ 10.6	$ 23.8	$ 119.9	$ 82.9	$ 322.8	$ 269.8	$ 834.8
2029	$ 0.3	$ 2.0	$ 2.4	$ 10.1	$ 22.7	$ 114.3	$ 78.9	$ 307.2	$ 256.7	$ 794.5
Total	**$ 5.0**	**$ 39.1**	**$ 47.9**	**$ 199.2**	**$ 446.5**	**$ 2,349.4**	**$ 1,694.6**	**$ 6,756.8**	**$ 5,646.1**	**$ 17,184.6**
Ann.	**$ 0.4**	**$ 3.4**	**$ 4.1**	**$ 17.1**	**$ 38.3**	**$ 201.6**	**$ 145.4**	**$ 579.8**	**$ 484.5**	**$ 1,474.6**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f and E.45d.

Section F.17
Model Outputs - Preferred Alternative
25% Safety Margin
TTHM as Indicator
Bronchitis for Non-Fatal Cases

Exhibit F.17a Projections of Yearly Benefits, WTP for Bronchitis as Basis for Non-Fatal Cases (Smoking/Lung Cancer Cessation Lag Model)

TTHM - Preferred Alternative, 25% Safety Margin

	Surface Water Systems			Ground Water Systems			All Systems		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 73.0	$ 16.1	$ 160.4	$ 2.7	$ 0.6	$ 6.0	$ 75.7	$ 16.7	$ 166.4
2011	$ 187.2	$ 41.2	$ 412.3	$ 7.0	$ 1.5	$ 15.3	$ 194.1	$ 42.7	$ 427.6
2012	$ 338.8	$ 74.4	$ 745.8	$ 12.6	$ 2.8	$ 27.7	$ 351.4	$ 77.2	$ 773.4
2013	$ 527.6	$ 115.8	$ 1,160.9	$ 19.6	$ 4.3	$ 43.1	$ 547.2	$ 120.1	$ 1,204.0
2014	$ 693.4	$ 151.9	$ 1,526.4	$ 27.1	$ 5.9	$ 59.6	$ 720.5	$ 157.9	$ 1,586.0
2015	$ 855.2	$ 187.1	$ 1,885.9	$ 35.0	$ 7.7	$ 77.2	$ 890.3	$ 194.7	$ 1,963.1
2016	$ 1,007.8	$ 220.3	$ 2,221.6	$ 42.5	$ 9.3	$ 93.8	$ 1,050.3	$ 229.5	$ 2,315.4
2017	$ 1,148.2	$ 250.6	$ 2,535.8	$ 49.3	$ 10.8	$ 108.8	$ 1,197.4	$ 261.4	$ 2,644.6
2018	$ 1,271.5	$ 276.9	$ 2,809.0	$ 55.4	$ 12.1	$ 122.4	$ 1,326.8	$ 288.9	$ 2,931.4
2019	$ 1,375.4	$ 299.0	$ 3,045.7	$ 60.8	$ 13.2	$ 134.6	$ 1,436.2	$ 312.2	$ 3,180.3
2020	$ 1,464.4	$ 317.8	$ 3,245.2	$ 65.5	$ 14.2	$ 145.2	$ 1,529.9	$ 332.1	$ 3,390.4
2021	$ 1,541.8	$ 334.2	$ 3,421.0	$ 69.6	$ 15.1	$ 154.3	$ 1,611.4	$ 349.3	$ 3,575.3
2022	$ 1,610.6	$ 348.4	$ 3,580.7	$ 73.1	$ 15.8	$ 162.5	$ 1,683.7	$ 364.3	$ 3,743.2
2023	$ 1,672.7	$ 360.9	$ 3,719.1	$ 76.2	$ 16.4	$ 169.5	$ 1,748.9	$ 377.3	$ 3,888.7
2024	$ 1,729.4	$ 372.8	$ 3,847.2	$ 79.1	$ 17.0	$ 175.9	$ 1,808.5	$ 389.9	$ 4,023.1
2025	$ 1,781.9	$ 383.3	$ 3,966.4	$ 81.7	$ 17.6	$ 181.8	$ 1,863.5	$ 400.9	$ 4,148.2
2026	$ 1,830.8	$ 393.3	$ 4,076.6	$ 84.1	$ 18.1	$ 187.2	$ 1,914.9	$ 411.4	$ 4,263.8
2027	$ 1,876.9	$ 402.6	$ 4,189.7	$ 86.3	$ 18.5	$ 192.7	$ 1,963.3	$ 421.1	$ 4,382.4
2028	$ 1,893.5	$ 406.3	$ 4,222.9	$ 87.2	$ 18.7	$ 194.5	$ 1,980.7	$ 425.1	$ 4,417.4
2029	$ 1,929.6	$ 413.6	$ 4,310.9	$ 89.0	$ 19.1	$ 198.8	$ 2,018.5	$ 432.6	$ 4,509.7
Total	**$ 24,809.5**	**$ 5,366.6**	**$ 55,083.4**	**$ 1,103.7**	**$ 238.7**	**$ 2,451.0**	**$ 25,913.2**	**$ 5,605.3**	**$ 57,534.4**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f, E.45b, and E.45c.

Exhibit F.17b Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, Smoking/Lung Cancer Cessation Lag Model
(All Water Systems)

TTHM - Preferred Alternative, 25% Safety Margin

Year	3% Discount Rate			7% Discount Rate		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 65.3	$ 14.4	$ 143.5	$ 54.0	$ 11.9	$ 118.6
2011	$ 162.6	$ 35.8	$ 358.1	$ 129.4	$ 28.4	$ 284.9
2012	$ 285.7	$ 62.8	$ 628.9	$ 218.8	$ 48.1	$ 481.7
2013	$ 432.0	$ 94.8	$ 950.4	$ 318.5	$ 69.9	$ 700.7
2014	$ 552.2	$ 121.0	$ 1,215.6	$ 391.9	$ 85.9	$ 862.7
2015	$ 662.5	$ 144.9	$ 1,460.8	$ 452.6	$ 99.0	$ 998.0
2016	$ 758.8	$ 165.8	$ 1,672.7	$ 499.0	$ 109.1	$ 1,100.0
2017	$ 839.9	$ 183.3	$ 1,854.9	$ 531.7	$ 116.1	$ 1,174.2
2018	$ 903.5	$ 196.8	$ 1,996.1	$ 550.6	$ 119.9	$ 1,216.4
2019	$ 949.5	$ 206.4	$ 2,102.6	$ 557.0	$ 121.1	$ 1,233.4
2020	$ 982.0	$ 213.1	$ 2,176.2	$ 554.5	$ 120.4	$ 1,228.8
2021	$ 1,004.2	$ 217.7	$ 2,228.0	$ 545.8	$ 118.3	$ 1,211.1
2022	$ 1,018.7	$ 220.4	$ 2,264.7	$ 533.0	$ 115.3	$ 1,185.0
2023	$ 1,027.3	$ 221.6	$ 2,284.2	$ 517.4	$ 111.6	$ 1,150.5
2024	$ 1,031.4	$ 222.3	$ 2,294.3	$ 500.1	$ 107.8	$ 1,112.4
2025	$ 1,031.8	$ 222.0	$ 2,296.8	$ 481.6	$ 103.6	$ 1,072.0
2026	$ 1,029.4	$ 221.2	$ 2,292.0	$ 462.5	$ 99.4	$ 1,029.8
2027	$ 1,024.6	$ 219.8	$ 2,287.2	$ 443.1	$ 95.0	$ 989.2
2028	$ 1,003.6	$ 215.4	$ 2,238.3	$ 417.8	$ 89.7	$ 931.8
2029	$ 993.0	$ 212.8	$ 2,218.5	$ 397.9	$ 85.3	$ 889.1
Total	**$ 15,757.6**	**$ 3,412.2**	**$ 34,963.5**	**$ 8,557.1**	**$ 1,855.7**	**$ 18,970.3**
Ann.	**$ 904.9**	**$ 196.0**	**$ 2,007.9**	**$ 734.3**	**$ 159.2**	**$ 1,627.9**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibit F.13a.

Exhibit F.17c Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 3% Discount Rate, by System Size
(All Systems)

TTHM - Preferred Alternative, 25% Safety Margin

Smoking/Lung Cancer Cessation Lag Model										
Year	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	≥1,000,000	Total
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.1	$ 0.6	$ 1.2	$ 7.4	$ 6.2	$ 27.0	$ 22.6	$ 65.3
2011	$ 0.0	$ 0.3	$ 0.3	$ 1.4	$ 3.1	$ 18.4	$ 15.4	$ 67.3	$ 56.3	$ 162.6
2012	$ 0.1	$ 0.5	$ 0.6	$ 2.4	$ 5.5	$ 32.3	$ 27.1	$ 118.4	$ 98.9	$ 285.7
2013	$ 0.1	$ 0.7	$ 0.9	$ 3.7	$ 8.3	$ 48.9	$ 41.0	$ 179.0	$ 149.5	$ 432.0
2014	$ 0.1	$ 1.0	$ 1.2	$ 5.1	$ 11.5	$ 68.0	$ 54.2	$ 223.9	$ 187.1	$ 552.2
2015	$ 0.2	$ 1.3	$ 1.6	$ 6.7	$ 15.1	$ 86.0	$ 65.0	$ 265.0	$ 221.4	$ 662.5
2016	$ 0.2	$ 1.6	$ 2.0	$ 8.2	$ 18.4	$ 100.6	$ 74.6	$ 301.4	$ 251.8	$ 758.8
2017	$ 0.2	$ 1.8	$ 2.3	$ 9.4	$ 21.0	$ 113.0	$ 82.7	$ 332.0	$ 277.4	$ 839.9
2018	$ 0.3	$ 2.0	$ 2.5	$ 10.4	$ 23.3	$ 123.4	$ 89.2	$ 355.4	$ 297.0	$ 903.5
2019	$ 0.3	$ 2.2	$ 2.7	$ 11.2	$ 25.1	$ 131.6	$ 94.0	$ 371.8	$ 310.7	$ 949.5
2020	$ 0.3	$ 2.3	$ 2.8	$ 11.8	$ 26.5	$ 137.6	$ 97.3	$ 383.1	$ 320.1	$ 982.0
2021	$ 0.3	$ 2.4	$ 3.0	$ 12.3	$ 27.6	$ 141.8	$ 99.6	$ 390.8	$ 326.5	$ 1,004.2
2022	$ 0.3	$ 2.5	$ 3.0	$ 12.6	$ 28.3	$ 144.5	$ 101.0	$ 395.7	$ 330.7	$ 1,018.7
2023	$ 0.3	$ 2.5	$ 3.1	$ 12.8	$ 28.7	$ 146.3	$ 101.9	$ 398.6	$ 333.1	$ 1,027.3
2024	$ 0.3	$ 2.5	$ 3.1	$ 12.9	$ 29.0	$ 147.3	$ 102.4	$ 399.8	$ 334.1	$ 1,031.4
2025	$ 0.3	$ 2.5	$ 3.1	$ 13.0	$ 29.1	$ 147.6	$ 102.4	$ 399.6	$ 333.9	$ 1,031.8
2026	$ 0.3	$ 2.6	$ 3.1	$ 13.0	$ 29.2	$ 147.5	$ 102.2	$ 398.5	$ 333.0	$ 1,029.4
2027	$ 0.3	$ 2.5	$ 3.1	$ 13.0	$ 29.1	$ 147.1	$ 101.8	$ 396.4	$ 331.3	$ 1,024.6
2028	$ 0.3	$ 2.5	$ 3.1	$ 12.8	$ 28.6	$ 144.2	$ 99.7	$ 388.1	$ 324.3	$ 1,003.6
2029	$ 0.3	$ 2.5	$ 3.0	$ 12.6	$ 28.3	$ 142.8	$ 98.6	$ 383.9	$ 320.8	$ 993.0
Total	**$ 4.7**	**$ 36.5**	**$ 44.7**	**$ 186.0**	**$ 416.9**	**$ 2,176.3**	**$ 1,556.4**	**$ 6,175.7**	**$ 5,160.5**	**$ 15,757.6**
Ann.	**$ 0.3**	**$ 2.1**	**$ 2.6**	**$ 10.7**	**$ 23.9**	**$ 125.0**	**$ 89.4**	**$ 354.7**	**$ 296.4**	**$ 904.9**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.
Source: Derived from Exhibits F.1f and E.45d.

Exhibit F.17d Mean Present Value of Benefits Yearly Projections, WTP for Bronchitis as Basis for Non-Fatal Cases, at 7% Discount Rate, by System Size

(All Systems)

TTHM - Preferred Alternative, 25% Safety Margin

Smoking/Lung Cancer Cessation Lag Model										
Year	**<100**	**100-499**	**500-999**	**1,000-3,299**	**3,300-9,999**	**10,000-49,999**	**50,000-99,999**	**100,000-999,999**	**≥1,000,000**	**Total**
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.1	$ 0.1	$ 0.5	$ 1.0	$ 6.1	$ 5.1	$ 22.4	$ 18.7	$ 54.0
2011	$ 0.0	$ 0.2	$ 0.3	$ 1.1	$ 2.5	$ 14.6	$ 12.3	$ 53.6	$ 44.8	$ 129.4
2012	$ 0.0	$ 0.4	$ 0.4	$ 1.9	$ 4.2	$ 24.7	$ 20.8	$ 90.7	$ 75.8	$ 218.8
2013	$ 0.1	$ 0.5	$ 0.7	$ 2.7	$ 6.1	$ 36.0	$ 30.2	$ 131.9	$ 110.2	$ 318.5
2014	$ 0.1	$ 0.7	$ 0.9	$ 3.6	$ 8.2	$ 48.2	$ 38.4	$ 158.9	$ 132.8	$ 391.9
2015	$ 0.1	$ 0.9	$ 1.1	$ 4.6	$ 10.3	$ 58.8	$ 44.4	$ 181.0	$ 151.3	$ 452.6
2016	$ 0.1	$ 1.1	$ 1.3	$ 5.4	$ 12.1	$ 66.1	$ 49.1	$ 198.2	$ 165.6	$ 499.0
2017	$ 0.2	$ 1.2	$ 1.4	$ 5.9	$ 13.3	$ 71.5	$ 52.4	$ 210.2	$ 175.6	$ 531.7
2018	$ 0.2	$ 1.2	$ 1.5	$ 6.3	$ 14.2	$ 75.2	$ 54.4	$ 216.6	$ 181.0	$ 550.6
2019	$ 0.2	$ 1.3	$ 1.6	$ 6.6	$ 14.7	$ 77.2	$ 55.1	$ 218.1	$ 182.2	$ 557.0
2020	$ 0.2	$ 1.3	$ 1.6	$ 6.7	$ 15.0	$ 77.7	$ 54.9	$ 216.3	$ 180.8	$ 554.5
2021	$ 0.2	$ 1.3	$ 1.6	$ 6.7	$ 15.0	$ 77.1	$ 54.1	$ 212.4	$ 177.5	$ 545.8
2022	$ 0.2	$ 1.3	$ 1.6	$ 6.6	$ 14.8	$ 75.6	$ 52.9	$ 207.1	$ 173.0	$ 533.0
2023	$ 0.2	$ 1.3	$ 1.6	$ 6.5	$ 14.5	$ 73.7	$ 51.3	$ 200.8	$ 167.8	$ 517.4
2024	$ 0.2	$ 1.2	$ 1.5	$ 6.3	$ 14.1	$ 71.4	$ 49.6	$ 193.8	$ 162.0	$ 500.1
2025	$ 0.2	$ 1.2	$ 1.5	$ 6.1	$ 13.6	$ 68.9	$ 47.8	$ 186.5	$ 155.9	$ 481.6
2026	$ 0.1	$ 1.1	$ 1.4	$ 5.8	$ 13.1	$ 66.3	$ 45.9	$ 179.0	$ 149.6	$ 462.5
2027	$ 0.1	$ 1.1	$ 1.4	$ 5.6	$ 12.6	$ 63.6	$ 44.0	$ 171.5	$ 143.3	$ 443.1
2028	$ 0.1	$ 1.0	$ 1.3	$ 5.3	$ 11.9	$ 60.0	$ 41.5	$ 161.6	$ 135.0	$ 417.8
2029	$ 0.1	$ 1.0	$ 1.2	$ 5.1	$ 11.4	$ 57.2	$ 39.5	$ 153.9	$ 128.6	$ 397.9
Total	**$ 2.5**	**$ 19.5**	**$ 23.8**	**$ 99.2**	**$ 222.4**	**$ 1,170.2**	**$ 843.9**	**$ 3,364.4**	**$ 2,811.3**	**$ 8,557.1**
Ann.	**$ 0.2**	**$ 1.7**	**$ 2.0**	**$ 8.5**	**$ 19.1**	**$ 100.4**	**$ 72.4**	**$ 288.7**	**$ 241.2**	**$ 734.3**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Ann. = value of total annualized at discount rate.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits F.1f and E.45d.

Appendix G

Illustrative Calculation for Quantifying Reproductive/Developmental Benefits of the Stage 2 DBPR

Appendix G
Illustrative Calculation for Quantifying Reproductive/Developmental Benefits of the Stage 2 DBPR

G.1 Introduction and Purpose

The purpose of this Appendix is to support Section 6.8.1 by providing details for an illustrative calculation that quantifies the benefits of reduced fetal losses (miscarriage and stillbirth) potentially attributable to the reduction in elevated disinfection byproduct (DBP) levels from the Stage 2 Disinfection Byproduct Rule (DBPR). Fetal loss was chosen from among the reported reproductive and developmental health endpoints (including neural tube defects, low birth weight, cardiovascular effects, intrauterine growth retardation and cleft palate, etc.) because there are relatively more epidemiological data for it in comparison to the other endpoints. In addition, fetal loss occurs at a high incidence rate in the United States; of the approximately 6 million pregnancies experienced in the United States each year, approximately 1 million end as fetal losses (Ventura et al. 2000). Consequently, even a small risk attributable to DBPs (e.g., 0.1 percent) may result in a large number of fetal losses (n=1,000) and, thus, increase potential benefits from avoided cases of fetal losses for the Stage 2 DBPR.

Section G.2 describes the derivation of Population Attributable Risk (PAR) values relating fetal losses to DBP exposure. Section G.3 presents the calculation of fetal losses avoided as a result of the Stage 2 DBPR. Assumptions and uncertainties in these calculations are summarized in Section G.4. Detailed tables supported the estimated reduction in occurrence of DBP peaks are provided in Section G.5

G.2 Derivation of PARs from Three Studies

Fetal losses potentially attributable to DBPs in drinking water were estimated use the PAR approach, similar to the approach used to quantify benefits associated with reduced incidence of bladder cancer cases in the main benefits analysis. PAR is a measure of the fraction of a disease that occurs in the population that is attributable to some specified risk factor. By extension, it also implies the fraction of that disease that would be eliminated from the population if the specified risk factor was eliminated.

To derive PAR, the Environmental Protection Agency (EPA) evaluated three published population-based human epidemiology studies:

- Waller et al. 2001
- King et al. 2000a
- Savitz et al. 1995

Exhibit G.1 summarizes the key characteristics of these studies. All three are considered high quality studies as they conform to the following criteria: 1) population-based-case-control or cohort study that ascertained exposure to chlorinated surface water, 2) high quality, well-designed study that had sufficient sample sizes, high response rates[1], and adjusted for known confounding factors, and 3) exposure assessment using information from water treatment data, residential histories, and trihalomethane (THM) measurement data. These are the same criteria used to select the bladder cancer studies for the primary benefits analysis for both Stage 1 and Stage 2 DBPR.

Exhibit G.1 Summary of the Fetal Loss Human Epidemiology Studies

Study	Type of Study and Population	Exposure Assessment	Outcome	Potential Confounders
Waller et al. 2001	Prospective cohort of 4,209 pregnant women in prepaid health plan in CA 1989-91	Estimated TTHM levels during first trimester of pregnancy via ingestion and showering.	Spontaneous abortion ($\leq$20 weeks of gestation)	Gestational age at interview, maternal age, cigarette smoking, history of pregnancy loss, maternal race, employment during pregnancy
King et al. 2000a	Population-based retrospective cohort of 47,275 births in Nova Scotia, Canada 1988-1995	Linked mother's residence at time of delivery to the levels of specific TTHMs monitored in the PWS and averaged predicted values of byproduct level for the months covering the pregnancy.	Stillbirth	Smoking, maternal age
Savitz et al. 1995	Population-based case-control study of 126 cases and 122 controls in NC 1988-91	Examined TTHM concentration at residences and water consumption (during first and third trimesters). Fourth week of pregnancy used to assign the reported quarterly average TTHM.	Spontaneous abortion	Maternal age, race, education, marital status, poverty level, smoking, alcohol use, nausea, employment

The PARs were derived using the risk Odds Ratios (ORs) or Relative Risks (RRs) from the three studies. To determine the fraction of cases within the exposed population that would be attributable to a specific exposure (i.e., PAR value), the proportion of exposed cases can be derived from either the study population or national occurrence information. To calculate a PAR value using the study-exposed fraction, Equation G.1 would be used. Equation G.2, which is mathematically equivalent to Equation G.1, would be used when adjusting the exposed fraction using the national occurrence data. RR refers to the relative risk, P_c refers to the prevalence of exposure in the cases (the total number of exposed cases/total number of cases), and P_e refer to the exposed population.

$$PAR = 100 \times P_c \times \frac{(RR-1)}{RR} \qquad \text{(Equation G.1)}$$

[1] *Note:* The Savitz et al. 1995 study had a response rate of 62 percent for miscarriage cases which is not unexpected due to the highly sensitive nature of this event.

$$PAR = 100 \times \frac{P_e \times (RR-1)}{[P_e \times (RR-1)) + 1]} \quad \text{(Equation G.2)}$$

It is common practice to use the study population derived exposed fraction of cases to calculate the PAR estimate (Equation G.1) by making the assumption that the study populations is representative of the general U.S. population. However, analysis of Information Collection Rule (ICR) occurrence data show that study populations have higher DBP exposures than the general U.S. population. National DBP exposure is compared to study population exposure in Section G.2.1. Section G.2.2 follows with detailed derivation of PAR using Equation G.2 (adjusted to be more representative of national exposure levels).

G.2.1 DBP Exposure for Study Populations Compared to National Data

Section 5.2.3 provides a basis for why ICR data can be used to represent national exposure to DBPs. Below is a discussion of how EPA compared ICR data to the exposure characterizations of three epidemiology studies. The data are presented in a different manner than in 5.2.3 to reflect the specific methodologies used in the epidemiology studies to characterize exposure.

Summary of exposure characterizations from epidemiological studies

The three epidemiological studies used in this analysis differ in geographic location, health endpoints, study type, and exposure classification. Major features of the studies are summarized in Exhibit G.1. The three studies assigned pregnancies to multiple exposure categories, but the categorizations most closely related to the Stage 2 DBP maximum contaminant level (MCL) are those closest to the MCL (80 micrograms per liter (μg/L)). Exhibits G.2 and G.3 presents the study data that are used to assess representativeness of national exposure in this appendix.

Exhibit G.2 DBP Exposure Data for Cohort Studies (Waller et al. 2001 and King et al. 2000a)

Study	Exposure	Cases	Non-Cases	Total	Percent of Population
Waller et al. 2001, Table 2	1st Trimester Mean TTHM > 80 µg/L	74	578	652	15.5% [1]
	1st Trimester Mean TTHM ≤ 80 µg/L	322	3,238	3,560	84.5%
King et al. 2000a, Table 3	Pregnancy Mean TTHM ≥ 75 µg/L	75	15,163	15,238	32.4% [2]
	Pregnancy Mean TTHM < 75 µg/L	122	31,718	31,840	67.5%

Notes:
1. As derived from original study data: (488+164)/(488+164+488+1139+715+654+564) =652/(652+3650) =15.5 percent
2. As derived from original study data: (31+44+7350+7813)/(31+44+7350+7813+43+79+12987+18730)= 15,258/(15,258+31,840)=32.4 percent

Exhibit G.3 DBP Exposure Data for Case-Control Study (Savitz et al. 1995, Table 2)

Exposure	Cases	Controls	Percent of Population [1]
1st Trimester Mean TTHM > 81 µg/L	46	43	35.2% [2]
1st Trimester Mean TTHM ≤ 81 µg/L	80	79	64.8%
TOTAL	126	122	

Notes
1. For case-control studies, the distribution of population exposure is most appropriately represented by the control group only.
2. 43/(43+79) = 35.2 percent

Comparison of exposure between ICR data and study populations

EPA derived national exposure estimates based on the ICR data using the exposure study definitions by Waller et al. 2001, Savitz et al. 1995, and King et al. 2000b. For the Waller study, EPA used the first trimester utility wide average, rather than the closest-site estimate, as only this definition could be applied to the ICR data. This assumption is supported by the Waller et al. 2001 comment that there is little difference between the exposure estimates derived from the utility-wide average versus the closest-site estimates. In analyzing the ICR data for purpose of exposure comparison with the Waller study, EPA considered the plants having data from at least 3 distribution system locations with at least three valid results for both total trihalomethanes (TTHM) and haloacetic acid (HAA5) during the final year of the ICR survey, i.e., ICR quarters 3, 4, 5, and 6. Among these plants, 77 out of 1,130 plant-quarters (6.8 percent) had distribution system averages greater than 80 µg/L, and therefore are categorized as high-exposure per Waller. The Savitz study also used utility wide averages in a given quarter as the basis for the exposure estimates. Thus, the 6.8 percent exposure estimate from the ICR data for Savitz is essentially the same as for Waller since the population cutoffs are only different by 1 µg/L, i.e., 80 vs 81 µg/L.

For the King study, exposure was estimated by averaging predicted TTHM values for the months covering the duration of the mother's pregnancy and using 75 µg/L as the exposure concentration for comparisons. To relate the King exposure estimate to the ICR data, EPA calculated locational nine month running averages from the ICR data; i.e., locational averages for 3 consecutive quarters. Each ICR plant location provided three or four nine-month averages, taking quarters (3,4,5), (3,4,6), (3,5,6), or (4,5,6). Of the 4,917 location-nine-month averages from the ICR data, 314 (6.4 percent) exceeded 75 µg/L, and therefore are categorized as high-exposure per King.

Exhibit G.4 compares DBP exposures for the studies and ICR data using the study exposure definitions. The fraction of cases among the study population experiencing TTHM occurrences over 80 µg/L (current TTHM MCL) is 15 percent to 35 percent. National ICR DBP occurrence data indicate that approximately 6.8 percent of the U.S. population are potentially exposed to TTHM levels higher than the current MCL of 80 µg/L during any of the four quarters during the last 12 months of the ICR.

Exhibit G.4: Comparison of DBP Peak Exposures: Fractions Exposed in Study and ICR Populations

Data Source	Waller et al. (1st trimester > 80)	Savitz et al. (1st trimester > 81)	King et al. (pregnancy mean > 75)
Study Population	15%	35%	32%
ICR Population	6.8%	6.8%	6.4%

Note: The King et al. estimate is based on running average values over nine months whereas the Waller et al. and Savitz et al. studies are based on averages for three month periods (quarters) and thus, would include systems that exceeded the threshold for one three month period over nine months.

G.2.2 PAR Results Using OR or RR and Scaling to National Exposure

PAR estimates were derived using risk estimates and odds ratios calculated from the studies (summarized in Exhibit G.5). Each study assigned pregnancies to multiple exposure categories, but the exposure category closest to the Stage 2 DBP TTHM MCL (80 µg/L) was used to recalculate Odds Ratio (OR)/Relative Risk (RR). For the Waller et al. 2001 and Savitz et al.1995 studies, persons with exposure to greater than or equal to 80 µg/L and 81 µg/L, respectively, were defined as "exposed." For the King et al. study, the cut-off was established at 75 µg/L. In addition, to make the results from the Waller et. al. 2001 study comparable to the other studies, the utility-wide, unweighted average TTHM concentrations were used, disregarding the number of glasses of water consumed per day. For this analysis, crude odds ratios were used because it was not possible to calculate adjusted odds ratios for the referent unexposed group with the limited information provided in the underlying studies. Hence, not all confounding variables have been considered.

PAR results were derived using Equation G.2, i.e., adjusting the exposed fraction in the study population to reflect national exposure levels. Note that the lower 95 percent confidence bound, which are calculated to be less than zero for all studies, were truncated to zero to reflect biological plausibility.

Exhibit G.5 RR, OR and PAR Estimates for Three Epidemiological Studies

Study	Calculated RR and ORs [1]		PAR Estimates [2]	
	Median	95% Confidence Interval	Median	95% Confidence Interval [3]
Waller et al. 2001	RR = 1.25	0.99 - 1.6	1.7 %	0 - 4%
Savitz et al. 1995	OR = 1.06	0.6 - 1.8	0.4 %	0 - 4%
King et al. 2000a	RR = 1.28	0.98 - 1.7	1.7 %	0 - 4%

Notes:
1. Re-calculated by EPA for exposure levels as described in Section 2.2.1 using crude odds ratios reported in the studies
2. Based on Equation G.2: % PAR = 100% * (Pe)* (RR-1) / [(RR-1)* Pe + 1] where Pe is the fraction of the exposed population and RR is Relative Risks or Odds Ratio
3. Lower confidence bounds were truncated to zero to reflect biological plausibility

G.3 Estimate of Annual Fetal Losses Avoided as a Result of the Stage 2 DBPR

All three epidemiology studies covered exposure periods that occurred between 1988 and 1995, before implementation of the Stage 1 DBPR. To calculate the number of fetal losses avoided as a consequence of the Stage 2 DBPR, TTHM quarterly distribution system data collected during the ICR were used to estimate the fraction of locations with peak exposures for pre-Stage 1, pre-Stage 2 (post-Stage 1), and post-Stage 2 scenarios[2]. From these fractions, the percent reduction in peak exposures attributed to the Stage 2 DBPR can be calculated (see Section 5.5 for a discussion of this analysis). Although EPA recognizes that the developmental and reproductive health data described in section 6.2 does not conclusively identify the peak level of concern, a peak TTHM concentration of 80 μg/L was assumed for all analyses, since this was closest to the level evaluated in the studies.

EPA made several assumptions for this analysis. For example, each ICR plant-location (Distribution System Equivalent Sample Point (DSE), Average Sample Point Number 1 (AVG1), Average

[2]Note that EPA uses the unadjusted compliance forecast analysis for this illustrative calculation. For the benefits and cost analyses, an alternative compliance forecast was developed to account for the potential impacts of the IDSE. By using the unadjusted compliance forecast results, this illustrative analysis is potentially biased low.

Sample Point Number 2 (AVG2), and Distribution System Maximum Sample Point (DS Maximum)) was assumed to represent an equal portion of the population. Also, TTHM occurrence for ICR plants evaluated are assumed to represent national occurrence. Section G.4 provides a full discussion of the assumptions and uncertainties for the derivation of fetal losses avoided as a result of the Stage 2 DBPR

EPA estimates that approximately 250 to 4,100 fetal losses could be avoided per year as a result of the Stage 2 DBPR based on PAR values of 0.4 and 1.7 percent, respectively. The following four steps show the derivation of fetal losses avoided as a result of the Stage 2 DBPR for a PAR value of 1.7 percent. The same steps can be used to derive the results for the PAR value of 0.4 percent.

Step 1: Estimate the baseline number of fetal losses (pre-Stage 1 conditions) attributable to exposure to peak DBPs by multiplying the PAR value by the total number of fetal losses per year (983,000 from Ventura et al. 2000):

1.7% PAR x 983,000 = 16,711

Exhibit G.6 shows the range of baseline fetal losses attributable to DBPs for PAR values of 0 to 4.0 percent (95 confidence bounds based on the three studies).

Step 2: Estimate the percent of population exposed to peaks for Pre-Stage 1, Pre-Stage 2 and Post-Stage 2 conditions (derived in Section 5.5). Results for a TTHM study level of 80 μg/L are shown in Exhibit G.6.

Step 3: Estimate the fetal losses remaining for Pre-Stage 2 conditions. First, estimate the fetal losses avoided by the Stage 1 DBPR by multiplying the Pre-Stage 1 cases by the percent reduction in peak DBP exposure as a result of the Stage 1 DBPR (shown in Exhibit G.6):

16,711 x ([17.5% - 6.0%]/17.5%) = 10,981

Subtract the fetal losses avoided as a result of the Stage 1 DBPR from the pre-Stage 1 baseline number of fetal losses attributable to DBPs to produce the fetal losses remaining that are attributable to DBPs for Pre-Stage 2 conditions:

16,711 - 10,981 = 5,730

Step 4: Calculate the fetal losses avoided as a result of the Stage 2 DBPR. Similarly to Step 3, multiply the fetal losses remaining after the Stage 1 DBPR by the percent reduction in peak DBP exposure as a result of the Stage 1 DBPR (shown in Exhibit G.7):

5,730 x ([6.0% - 1.7%]/6.0%] = **4,105**

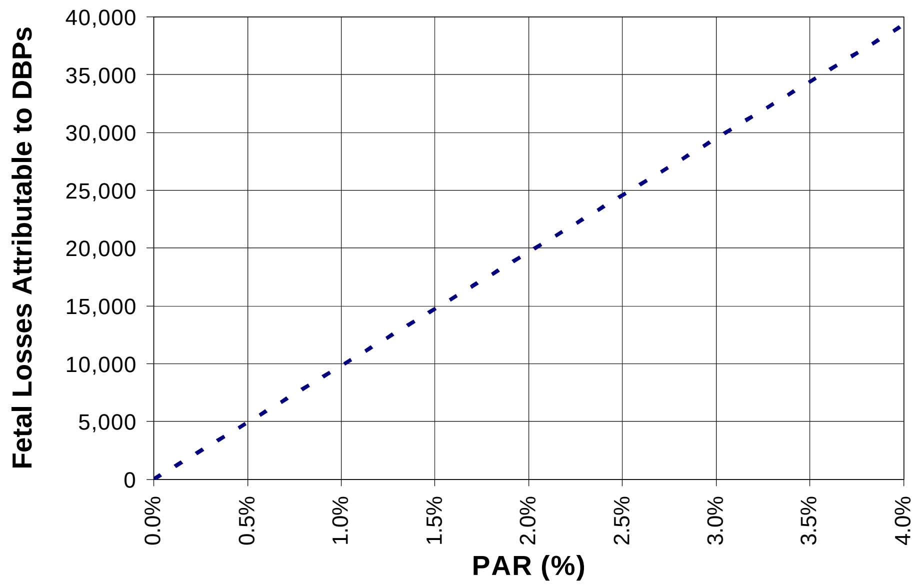
Exhibit G.6 Exposure to Peaks Based on ICR Data, TTHM Study Level of 80 μg/L

	Pre-Stage 1	Pre-Stage 2 (Post-Stage 1)	Post-Stage 2[1]
Locations with Peaks / Total Locations	215 / 1230	74 /1230	21 / 1230
Prevalence of Exposure (Locations with Peaks / Locations)	17.5%	6.0%	1.7%

Source: Exhibit 5.21

Note: [1]Stage 2 data is based on the unadjusted compliance forecast (20 percent safety margin)

Exhibit G.7 Baseline Annual Fetal Losses Attributable to DBPs Based on Different PAR Values



G.4 Summary of Assumptions and Uncertainties

There are a number of uncertainties and assumptions associated with calculating PAR and deriving the estimate of Fetal Losses that could be attributable to DBP exposure. The assumptions are necessary, however, for predicting exposure changes given the limited data on DBP occurrence in small systems and in distribution systems in general. These include:

- DBPs may not be the causative agent for these fetal losses.

- All confounding factors may not have been considered in these three studies.

- By using the crude odds ratios to recalculate the risk estimates, the PAR estimates may not have captured the true risk estimate.

- The total incidence for all fetal losses (n=983,000) was used to represent both spontaneous abortion and stillbirth because there is insufficient data to distinguish the number of miscarriages vs. number of stillbirths per year.

These assumptions and uncertainties are not all specific to this analysis; they would be true for many environmental epidemiology studies and population attributable risk calculations.

There are other uncertainties and assumptions associated with calculating the reduction in fetal losses that could be attributable to the Stage 2 DBPR. To translate DBP occurrence to DBP exposure, two assumptions were used.

- Each plant-location (DSE, AVG1, AVG2, and DS Maximum) represents an equal portion (25 percent) of the total population served by the plant.

- Peak DBP occurrence for 311 large ICR plants evaluated is representative of the peak DBP occurrence for all plants (large and small).

Section 5.5 provides an assessment of the validity and impact of these assumptions.

Because DBP concentrations are highly variable in distribution systems, it is possible that the exposure analysis in Section 5.5 does not capture true variability in exposure to peaks. Uncertainties with interpretation of ICR data for the purposes of this exposure assessment include:

- The extent to which small system occurrence is represented

- Year to year variability of DBP occurrence data that might be affected by changes in source water quality (e.g., drought years versus non-drought years)

- The extent to which each ICR sampling point represents an equal fraction of the population served

- The extent to which ICR sampling locations represent compliance monitoring locations when trying to estimate reductions in exposure resulting from compliance with Stage 1 and Stage 2 DBPRs.

Appendix H

National Costs for Non-Treatment-Related Rule Activities

Appendix H
National Costs for Non-Treatment-Related Rule Activities

This appendix presents calculation summaries and cost tables for activities under the Stage 2 Disinfectants and Disinfection Byproducts Rule (DBPR) associated with rule implementation, Initial Distribution System Evaluations (IDSEs), Stage 2 DBPR monitoring plans, additional routine monitoring, and operational evaluations. It supports the discussion of these rule activities in Chapter 7. For systems, each activity is described separately in sections H.2 through H.6. A summary of all non-treatment activities and costs for systems is presented in H.7. State/Primacy Agency activities are described in section H.8.

Each cost summary presented in this appendix details the labor hours and corresponding labor costs for a given activity. The derivation of the public water system (PWS) and State labor rates used for each activity is discussed in further detail in Chapter 7 (section 7.2).

H.1 Derivation of the Stage 2 Monitoring Baseline

The Stage 2 DBPR monitoring requirements (both IDSE and compliance monitoring) are based on 8 surface water and 5 ground water population size categories. The Environmental Protection Agency (EPA) believes these to be more appropriate for specifying the numbers of samples per system than the standard nine system size categories that are used to generate treatment costs in this Economic Analysis (EA). Thus, a separate Stage 2 monitoring baseline for systems is needed. The final Stage 2 DBPR monitoring baseline, as presented in Column K in Exhibit H.1, is derived as described below.

Exhibit H.1 begins with the total number of systems according to the monitoring size categories. The data is obtained from the 2003 4th quarter Safe Drinking Water Information System (SDWIS) frozen database (USEPA 2003t), as explained in section 3.4 of this EA. Systems are categorized by source and system type as well as by purchasing and nonpurchasing systems. The purchasing or nonpurchasing designation is important because systems that purchase all their water may not have monitored for the Stage 1 DBPR, so they may not have the data available to take advantage of some IDSE options such as 40/30 certification or very small system waivers (see section 7.3 of this EA). The purchased designation in SDWIS, however, includes systems that treat their own water as well as purchase some of their water from another system. These producing systems would be required to monitor for the Stage 1 DBPR and so should be included with the nonpurchasing systems for determining which monitoring options are available to them. To estimate inputs for these types of systems separately, estimates of “100% purchasing” and “Producing” systems are needed.

To determine the percent of purchasing systems in SDWIS that purchase100 percent of their water, EPA examined SDWIS purchasing system inventory data. As explained in Chapter 3 of this EA, in SDWIS and the Baseline Handbook (USEPA 2001c), systems are assigned a source type using the following hierarchy, in descending order: Surface water[1], Purchased Surface water, Ground Water, and

[1] For the purposes of this EA, systems supplying ground water under the influence of surface water (GWUDI) are included with surface water systems. EPA also refers to the grouping of surface water and GWUDI

Purchased Ground Water. The presence of the first source in this list determines the source assignment for that system. As a result, all purchasing ground water community water systems (CWSs) and nontransient noncommunity water systems (NTNCWSs) are, by SDWIS definition, 100 percent purchasing systems.

Unlike purchasing ground water systems, purchasing surface water systems may have non-purchasing supplies. To determine how many purchasing surface water CWSs buy 100 percent of their water, EPA reviewed the results of the system linking exercise presented in section 3.4.2.2 of this EA. As explained in that section, the "linked" surface water system inventory was created by adding the population of 100 percent purchasing systems to their sellers and removing those systems from the inventory. A system was not "linked" to its seller if it had its own treatment plant or bought water from a system of a different type (e.g., a CWS buying water from a NTNCWS). Thus, remaining unlinked purchasing surface water systems (shown in Exhibit 3.2 of this EA, columns A and B) represent either systems that purchase finished water *and* have their own source, systems that buy from a different system type (e.g., a purchasing surface water plant that has its own ground water wells), or systems with missing seller information. In other words, those purchasing surface water systems that were able to be linked represents the minimum number of 100 percent purchasing systems. Using the percentage of purchasing systems that could be linked to estimate 100 percent purchasing systems may create a bias in the number of estimated 100 percent purchasing systems, but the error introduced is expected to be minimal since the number of remaining unlinked surface water CWSs is small.

From Exhibits 3.2 and 3.3 of this EA, the total number SDWIS purchasing surface water CWSs that could be linked is 5,124 (4130+994), and the percent of the total is 94 [5124/(4130+994+232+83)]. Note that this calculation was not performed for each Stage 2 DBPR monitoring size category because inventory data in Chapter 3 is organized according to the standard nine size categories (not the Stage 2 DBPR monitoring categories). The percentage of all purchasing surface water systems that could be linked (94 percent) was used in Exhibit H.1 to estimate the baseline number of purchasing surface water CWSs that buy 100 percent of their water (see column D).

A large portion of NTNCWSs could not be linked because they purchase water from different system types (in many cases, a NTNCWS purchases water from a CWS and was therefore, not linked). Therefore, a different methodology was used to estimate the percent of purchasing surface water NTNCWS that buy 100 percent of their water. All NTNCWSs are assumed to have just one entry point per system (as explained in section 3.4.2.2, these systems are most often a single building or located in a small area). Following this logic, a purchasing surface water NTNCWS is unlikely to have a second treated source—all are assumed to be 100 percent purchasing systems.

Only systems that disinfect or deliver disinfected water will be required to meet the requirements of the Stage 2 DBPR. Therefore, to determine the appropriate baseline for nontreatment costs, the number of disinfecting systems is determined. As with the treatment plant baseline, all surface water systems are assumed to be disinfecting. The percent of disinfecting ground water systems was obtained from the Third Edition of the Baseline Handbook, which is derived from the 1995 Community Water Systems Survey (CWSS). Column H of Exhibit H.1 displays the percentage disinfecting.

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systems as "subpart H" systems in the Stage 2 DBPR rule language. Surface water and GWUDI systems are grouped together because they fall under the same requirements in the Safe Drinking Water Act (SDWA) regulations.

Exhibit H.1 Baseline Number of Disinfecting Systems by Monitoring Size Categories

Size Category	Number of Systems			Percent of Purchased Systems that Purchase 100% of Their Water	Number of Systems			Percent Disinfecting	Number of Disinfecting Systems		
	Purchased	Nonpurchased	Total		100% Purchasing	Producing	Total		100% Purchasing	Producing	Total
	A	B	C	D	E = A*D	F = C - E	G = E + F	H	I = E*H	J = F*H	K = I + J
Surface Water and Mixed CWSs											
<500	2,191	1,106	3,297	94.00%	2,060	1,237	3,297	100.00%	2,060	1,237	3,297
500-3,300	2,531	1,527	4,058	94.00%	2,379	1,679	4,058	100.00%	2,379	1,679	4,058
3,301-9,999	1,001	1,041	2,042	94.00%	941	1,101	2,042	100.00%	941	1,101	2,042
10,000-49,999	795	978	1,773	94.00%	747	1,026	1,773	100.00%	747	1,026	1,773
50,000-249,999	188	346	534	94.00%	177	357	534	100.00%	177	357	534
250,000-999,999	9	72	81	94.00%	8	73	81	100.00%	8	73	81
1,000,000-4,999,999	-	17	17	94.00%	0	17	17	100.00%	0	17	17
≥5 M	-	1	1	94.00%	0	1	1	100.00%	0	1	1
National Totals	**6,715**	**5,088**	**11,803**		**6,312**	**5,491**	**11,803**		**6,312**	**5,491**	**11,803**
Disinfecting Ground Water Only CWSs											
<500	1,127	25,501	26,628	100.00%	1,127	25,501	26,628	66.68%	752	17,005	17,756
500-9,999	976	12,390	13,366	100.00%	976	12,390	13,366	82.67%	807	10,243	11,050
10,000-99,999	41	1,381	1,422	100.00%	41	1,381	1,422	95.48%	39	1,319	1,358
100,000-499,999	1	61	62	100.00%	1	61	62	96.40%	1	59	60
> 500,000	-	6	6	100.00%	0	6	6	98.19%	0	6	6
National Totals	**2,145**	**39,339**	**41,484**		**2,145**	**39,339**	**41,484**		**1,598**	**28,631**	**30,229**
Surface Water and Mixed NTNCWSs											
<500	126	422	548	100.00%	126	422	548	100.00%	126	422	548
500-3,300	55	144	199	100.00%	55	144	199	100.00%	55	144	199
3,301-9,999	11	13	24	100.00%	11	13	24	100.00%	11	13	24
10,000-49,999	4	1	5	100.00%	4	1	5	100.00%	4	1	5
50,000-249,999	1	-	1	100.00%	1	0	1	100.00%	1	0	1
250,000-999,999	-	-	-	100.00%	0	0	0	100.00%	0	0	0
1,000,000-4,999,999	-	-	-	100.00%	0	0	0	100.00%	0	0	0
≥5 M	-	-	-	100.00%	0	0	0	100.00%	0	0	0
National Totals	**197**	**580**	**777**		**197**	**580**	**777**		**197**	**580**	**777**
Disinfecting Ground Water Only NTNCWSs											
<500	55	15,882	15,937	100.00%	55	15,882	15,937	29.00%	16	4,606	4,622
500-9,999	25	2,933	2,958	100.00%	25	2,933	2,958	29.00%	7	851	858
10,000-99,999	3	9	12	100.00%	3	9	12	29.00%	1	3	3
100,000-499,999	-	1	1	100.00%	0	1	1	29.00%	0	0	0
> 500,000	-	-	-	100.00%	0	0	0	29.00%	0	0	0
National Totals	**83**	**18,825**	**18,908**		**83**	**18,825**	**18,908**		**24**	**5,459**	**5,483**
Grand Totals	**9,140**	**63,832**	**72,972**		**8,737**	**64,235**	**72,972**		**8,132**	**40,161**	**48,293**

Sources:

(A), (B) 2003 4th quarter SDWIS frozen database (USEPA 2003t).

(D) Percentage of purchased systems that are 100% purchasing is estimated from SDWIS data

(H) Percent disinfecting is estimated from the Third Edition of the Baseline Handbook (Table B1.3.3) originally derived from the 1995 CWSS.

H.2 Rule Implementation Activities for Systems

Exhibit H.2 presents the costs and burden[2] for systems to perform implementation activities associated with the Stage 2 DBPR. These costs represent the labor hours incurred by PWSs to read the appropriate Stage 2 DBPR documents and train staff in their requirements. All systems subject to the Stage 2 DBPR are expected to undertake these implementation activities. Exhibit H.2 presents estimates of implementation hours and costs by system type, system size, and source water type.

[2] Burden means the total time, effort, or resources expended by persons to generate, maintain, retain, disclose, or provide information to or for a federal agency. This includes the time needed to review instructions; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

Exhibit H.2 Rule Implementation Burden and Costs for Systems

Size Category	Total Number of Systems	Read Hours per PWS	Train Hours per PWS	Cost per Labor Hour	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D	E = A*(B+C)*D	F = A*(B+C)	G = F/2,080
Surface Water and Mixed CWSs							
<500	3,297	8	2	$ 22.55	$ 743,375	32,970	15.85
500-3,300	4,058	8	2	$ 24.74	$ 1,003,949	40,580	19.51
3,301-9,999	2,042	8	2	$ 30.51	$ 623,055	20,420	9.82
10,000-49,999	1,773	20	2	$ 31.08	$ 1,212,306	39,006	18.75
50,000-249,999	534	20	2	$ 32.64	$ 383,467	11,748	5.65
250,000-999,999	81	20	4	$ 35.25	$ 68,522	1,944	0.93
1,000,000-4,999,999	17	20	4	$ 35.25	$ 14,381	408	0.20
≥5 M	1	20	4	$ 35.25	$ 846	24	0.01
National Totals	**11,803**				**$ 4,049,902**	**147,100**	**70.72**
Disinfecting Ground Water Only CWSs							
<500	17,756	8	1	$ 22.35	$ 3,572,101	159,807	76.83
500-9,999	11,050	8	1	$ 24.86	$ 2,472,179	99,446	47.81
10,000-99,999	1,358	20	1	$ 31.08	$ 886,174	28,513	13.71
100,000-499,999	60	20	1	$ 35.25	$ 44,241	1,255	0.60
> 500,000	6	20	1	$ 35.25	$ 4,361	124	0.06
National Totals	**30,229**				**$ 6,979,054**	**289,145**	**139.01**
Surface Water and Mixed NTNCWSs							
<500	548	8	1	$ 22.39	$ 110,450	4,932	2.37
500-3,300	199	8	1	$ 24.74	$ 44,309	1,791	0.86
3,301-9,999	24	8	1	$ 30.51	$ 6,591	216	0.10
10,000-49,999	5	20	1	$ 31.08	$ 3,263	105	0.05
50,000-249,999	1	20	1	$ 35.25	$ 740	21	0.01
250,000-999,999	-	20	2	N/A	$ -	-	-
1,000,000-4,999,999	-	20	2	N/A	$ -	-	-
≥5 M	-	20	2	N/A	$ -	-	-
National Totals	**777**				**$ 165,353**	**7,065**	**3.40**
Disinfecting Ground Water Only NTNCWSs							
<500	4,622	8	1	$ 22.20	$ 923,423	41,596	20.00
500-9,999	858	8	1	$ 24.76	$ 191,118	7,720	3.71
10,000-99,999	3	20	1	$ 31.08	$ 2,271	73	0.04
100,000-499,999	0.3	20	1	$ 35.25	$ 215	6	0.00
500,000-1,499,999	-	20	1	N/A	$ -	-	-
National Totals	**5,483**				**$ 1,117,027**	**49,395**	**23.75**
Grand Totals	**48,293**				**$ 12,311,336**	**492,705**	**236.88**

Notes: Detail may not add due to independent rounding.

1 FTE=2,080 hours (40 hours/week; 52 weeks/year).

Sources: (A) Number of disinfecting systems (column K) from Exhibit H.1.

(B and C) Hours for reading the rule and training appropriate personel are estimated based on EPA experience implementing previous regulations.

(D) Labor rates from the *Labor Costs for National Drinking Water Rules* (USEPA, 2003s). An 80:20 split between technical and managerial labor rates was assumed, except for systems serving 500 or fewer people, for which only a technical rate was applied.

H.3 IDSE Activities for Systems

The purpose of the IDSE is to aid PWSs in identifying sample locations for Stage 2 compliance monitoring that represent distribution system sites with high TTHM and HAA5 levels. Some systems are not subject to IDSE requirements or may receive waivers. The first step in estimating costs for the IDSE is to categorize the systems into one of the five IDSE options listed below.

Systems Performing the IDSE:

- Systems conducting standard monitoring
- Systems using system specific studies (SSS)

Systems Not Performing the IDSE:

- All NTNCWSs serving fewer than 10,000 people.
- Systems serving fewer than 500 people that receive a very small system waiver.
- Systems eligible for the 40/30 certification.

Costs and burden associated with IDSE activities differ depending on whether or not the system performs the IDSE and, if so, which option a system chooses. All systems performing the IDSE are expected to incur some costs, as are those that are eligible for the 40/30 certification.

Section H.3.1 describes the assumptions for allocating systems to the five categories. Section H.3.2 provides cost estimates for those systems performing the IDSE (Standard Monitoring or SSS option). Section H.3.3 provides the rationale and, if appropriate, cost estimates for systems not performing the IDSE (NTNCWSs serving < 10,000; systems serving < 500 that receive a waiver; and systems that qualify for the 40/30 certification).

H.3.1 Categorization of Systems

Exhibits H.3a and H.3b summarize the percentages and estimated number of systems that will conduct each IDSE activity for 100 percent purchasing and producing systems, respectively. The percentages associated with each IDSE activity, listed in columns B-D of these exhibits, have been derived for the total population served in each size category, but are applied to the number of systems in a size category sequentially. For example, the very small system waiver is applied to the total number of systems (3,297); then the percentage of systems qualifying for the 40/30 certification is applied to the remaining systems; finally, the percentage of systems conducting an SSS is applied to the systems that cannot be granted either the waiver or certification. The assumptions underlying the percentages are discussed in detail in the remainder of this section. The number of systems in the IDSE categories that are expected to incur system costs (standard monitoring, SSS, and 40/30 certification) are presented in the last three columns of these exhibits.

NTNCWSs Serving < 10,000 People

None of the NTNCWSs serving fewer than 10,000 people are subject to the IDSE requirements. The exhibits in this appendix note “N/A” for these NTNCWS population categories.

Exhibit H.3a Percent and Number of 100 % Purchasing Systems in Each IDSE Category

Size Category	Total Number of 100% Purchasing Systems	Percentage Receiving a Very Small System Waiver	Percentage Having Concentrations Less than or Equal to 40/30	Percentage Using Studies	Systems Conducting IDSE Standard Monitoring	Systems Receiving the 40/30 Certification	Systems Using Studies
	A	B	C	D	E=A*(1-B)-F-G	F=Round [A*(1-B)*C]	G=Round [A*(1-B)*(1-C)*D]
Surface Water and Mixed CWSs							
<500	2,060	0%	0%	0%	2,060	-	-
500-3,300	2,379	0%	0%	0%	2,379	-	-
3,301-9,999	941	0%	0%	0%	941	-	-
10,000-49,999	747	0%	14%	0%	642	105	-
50,000-249,999	177	0%	14%	5%	144	25	8
250,000-999,999	8	0%	14%	10%	6	1	1
1,000,000-4,999,999	-	0%	14%	10%	-	-	-
≥5 M	-	0%	14%	10%	-	-	-
National Totals	**6,312**				**6,172**	**131**	**9**
Disinfecting Ground Water Only CWSs							
<500	752	0%	0%	0%	752	-	-
500-9,999	807	0%	0%	0%	807	-	-
10,000-99,999	39	0%	82%	0%	7	32	-
100,000-499,999	1	0%	66%	10%	-	1	-
> 500,000	-	0%	79%	10%	-	-	-
National Totals	**1,598**				**1,566**	**33**	**0**
Surface Water and Mixed NTNCWSs							
<500	126	N/A	N/A	N/A	N/A	N/A	N/A
500-3,300	55	N/A	N/A	N/A	N/A	N/A	N/A
3,301-9,999	11	N/A	N/A	N/A	N/A	N/A	N/A
10,000-49,999	4	0%	14%	0%	3	1	-
50,000-249,999	1	0%	14%	0%	1	-	-
250,000-999,999	-	0%	14%	0%	-	-	-
1,000,000-4,999,999	-	0%	14%	0%	-	-	-
≥5 M	-	0%	14%	0%	-	-	-
National Totals	**197**				**4**	**1**	**0**
Disinfecting Ground Water Only NTNCWSs							
<500	16	N/A	N/A	N/A	N/A	N/A	N/A
500-9,999	7	N/A	N/A	N/A	N/A	N/A	N/A
10,000-99,999	1	0%	92%	0%	-	1	-
100,000-499,999	-	0%	92%	0%	-	-	-
> 500,000	-	0%	92%	0%	-	-	-
National Totals	**24**				**0**	**1**	**0**
Grand Totals	**8,132**				**7,742**	**166**	**9**

Notes: Detail may not add due to independent rounding.
Results in columns F and G are rounded to whole systems.
Column C is percent of systems with TTHM concentrations less than or equal to 40 ug/L and HAA5 concentrations less than or equal to 30 ug/L for Stage 1 DBPR monitoring.

Sources: (A) Number of disinfecting 100% purchasing systems (Exhibit H.1, column I).
(B)-(C) 100% purchasing systems may not have DBP data with which to qualify for the waiver or certification. As a conservative assumption, 0% is used.
(D) Percentage of systems able to use historical data based on expert opinion.

Exhibit H.3b Percent and Number of Producing Systems in Each IDSE Category

	Total Number of Producing Systems	Percentage Receiving a Very Small System Waiver	Percentage Having Concentrations Less than or Equal to 40/30	Percentage Using Studies	Systems Conducting IDSE Standard Monitoring	Systems Receiving the 40/30 Certification	Systems Using Studies
Size Category	**A**	**B**	**C**	**D**	**E=A*(1-B)-F-G**	**F=Round [A*(1-B)*C]**	**G=Round [A*(1-B)*(1-C)*D]**
Surface Water and Mixed CWSs							
<500	1,237	100%	0%	0%	-	-	-
500-3,300	1,679	0%	14%	0%	1,444	235	-
3,301-9,999	1,101	0%	14%	0%	947	154	-
10,000-49,999	1,026	0%	14%	0%	882	144	-
50,000-249,999	357	0%	14%	5%	292	50	15
250,000-999,999	73	0%	14%	10%	57	10	6
1,000,000-4,999,999	17	0%	14%	10%	14	2	1
≥5 M	1	0%	14%	10%	1	-	-
National Totals	**5,491**				**3,636**	**595**	**22**
Disinfecting Ground Water Only CWSs							
<500	17,005	100%	0%	0%	-	-	-
500-9,999	10,243	0%	89%	0%	1,149	9,094	-
10,000-99,999	1,319	0%	82%	0%	233	1,086	-
100,000-499,999	59	0%	66%	10%	18	39	2
> 500,000	6	0%	79%	10%	1	5	-
National Totals	**28,631**				**1,400**	**10,224**	**2**
Surface Water and Mixed NTNCWSs							
<500	422	N/A	N/A	N/A	N/A	N/A	N/A
500-3,300	144	N/A	N/A	N/A	N/A	N/A	N/A
3,301-9,999	13	N/A	N/A	N/A	N/A	N/A	N/A
10,000-49,999	1	0%	14%	0%	1	-	-
50,000-249,999	-	0%	14%	0%	-	-	-
250,000-999,999	-	0%	14%	0%	-	-	-
1,000,000-4,999,999	-	0%	14%	0%	-	-	-
≥5 M	-	0%	14%	0%	-	-	-
National Totals	**580**				**1**	**0**	**0**
Disinfecting Ground Water Only NTNCWSs							
<500	4,606	N/A	N/A	N/A	N/A	N/A	N/A
500-9,999	851	N/A	N/A	N/A	N/A	N/A	N/A
10,000-99,999	3	0%	92%	0%	1	2	-
100,000-499,999	0	0%	92%	0%	0	-	-
> 500,000	-	0%	92%	0%	-	-	-
National Totals	**5,459**				**1**	**2**	**0**
Grand Totals	**40,161**				**5,038**	**10,821**	**24**

Notes: Detail may not add due to independent rounding.

Results in columns F and G are rounded to whole systems.

Column C is percent of systems with TTHM concentrations less than or equal to 40 ug/L and HAA5 concentrations less than or equal to 30 ug/L for Stage 1 DBPR monitoring.

Sources: (A) Number of producing disinfecting systems (Exhibit H.1, column J).

(B) The percentage of small systems to receive a very small system waiver is an assumption based on EPA experience with small systems. 100% purchasing systems may not have DBP data with which to qualify for small system waivers. As a conservative estimate 0% is assumed.

(C) Percentage of systems with all data less than or equal to 40/30 for Surface Water and Mixed systems based on ICR and NRWA data.

(D) Percentage of systems able to use historical data based on expert opinion.

Systems Receiving a Very Small System Waiver

Systems serving fewer than 500 people that have conducted Stage 1 monitoring are eligible for a very small system waiver from the IDSE requirements. These systems must conduct IDSE monitoring or an SSS, however, if they have not monitored for Stage 1 or if the State directs them to do so. Since small 100 percent purchasing systems are assumed not to have monitored for the Stage 1 DBPR, they will not be eligible for the very small system waiver. Therefore, no 100 percent purchasing systems are assumed to obtain the very small system waiver. This is a conservative estimate, as some States may have already required these systems to monitor disinfection byproduct (DBPs).

Because all systems with data will receive the waiver unless the State notifies them otherwise, it is assumed all producing systems will receive the very small system waiver. Although this may be a slight overestimate, it is believed that very few of these systems will be required to monitor by the State.

Systems Receiving the 40/30 Certification

To be eligible for the 40/30 certification, systems must certify to the State/Primacy Agency that each individual sample collected for the Stage 1 DBPR is no more than 40 micrograms per liter (µg/L) for TTHM and 30 µg/L for HAA5. Small systems that purchase 100 percent of their water may not have the Stage 1 DBPR monitoring data needed in order to apply for a 40/30 certification. Although this is a conservative estimate as some States require consecutive systems to monitor DBPs, it is assumed that no small 100 percent purchasing systems can receive a 40/30 certification.

EPA used various data sources to estimate the percentage of producing systems that could potentially qualify for the 40/30 certification. Based on analysis of the last 4 quarters of Information Collection Rule (ICR) data[3], it was estimated that 14 percent of large and medium surface water systems could show that all compliance monitoring data were less than or equal to 40 µg/L for TTHM and 30 µg/L for HAA5. While this may be an underestimate because it is based on pre-Stage 1 data, few additional systems will make changes to meet Stage 1 requirements that will result in all of their samples being less than or equal to 40/30. In the absence of other information, however, EPA believes that 14 percent is the best estimate of large and medium surface water systems that could meet the 40/30 certification requirements.

For small surface water systems, analysis of National Rural Water Association (NRWA) Winter and Summer data indicates that 12 percent could quality for the 40/30 certification. However, small systems have a later start date for the IDSE, and some systems will most likely make treatment technology changes to meet the Stage 1 DBPR before the start of the IDSE. Therefore, the percent with all compliance data less than or equal to 40/30 for small systems is estimated to be the same as for large systems (i.e., 14 percent). EPA assumed that no very small systems will qualify for the 40/30 certification since very small systems with data will receive a very small system waiver instead.

For all ground water systems, ICR data were used to estimate the percentage that could qualify for the 40/30 certification. Approximately 24 percent of ICR ground water systems are located in Florida

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[3]At least 3 of 4 quarters must have TTHM and HAA5 data for at least 3 of 4 distribution system locations (TTHM and HAA5 data do not have to be present at the same location, however) for a plant to be included in this analysis.

where total organic carbon (TOC) levels (and consequently DBP levels) are high. Appendix B describes the analysis of Florida and non-Florida ICR data, which shows that 18 percent of Florida systems have all TTHM and HAA5 concentrations less than or equal to 40/30 respectively and 92 percent of non-Florida systems have all concentrations less than or equal to 40/30. These percentages were applied to the Florida and non-Florida systems in each system size category, respectively to produce the percent estimates in column C of Exhibit H.3a and H.3b.

Conducting an SSS

An SSS can be used instead of standard monitoring if the system can show that an SSS would provide equivalent or superior Stage 2 site selection. An SSS can be based on hydraulic modeling and historical data. EPA estimates that 10 percent of the surface water and disinfecting ground water systems serving more than 100,000 people and 5 percent of surface water systems serving 50,000 to 100,000 people will complete an SSS in lieu of monitoring. EPA assumed that surface water systems serving fewer than 50,000 people and ground water systems serving fewer than 100,000 people will not have adequate historical data or models to meet the SSS requirements.

Conducting Standard Monitoring

All systems that do not receive a waiver, do not quality for the 40/30 certification, or cannot use an SSS are required to perform standard monitoring. Standard monitoring involves selecting specific types of sample sites in the distribution system (e.g., maximum TTHM sites, sites near the entry point) and monitoring at those sites for 1 year. The number and type of required samples are based on system size, the number of plants in the system (for producing systems), source water type, and residual disinfectant type. The system must prepare a report summarizing the results of the standard monitoring and justifying selection of Stage 2 compliance monitoring sites.

H.3.2 Costs for Systems Performing the IDSE

Systems Conducting Standard Monitoring

Standard monitoring consists of three activities—preparing an IDSE monitoring plan, monitoring, and reporting. Costs associated with preparing the IDSE monitoring plan result from the labor effort required to evaluate the distribution system, select the sites, and layout where and when the system will collect and analyze samples. Labor hours are estimated on a per-system basis and vary by system size, with the assumption that larger systems need more time to select sites. The labor hour estimates for monitoring plan preparation are based on EPA's experience with other rules.

Monitoring costs include labor for sample collection and laboratory costs for sample analysis. These costs are estimated from the number of samples required. EPA estimates that systems will spend an average of 1 hour to collect one sample. Laboratory costs include $200 for analysis of TTHM and HAA5 paired samples. A shipping cost of $40 for systems serving fewer than 10,000 is included to reflect that these systems are unlikely to have in-house laboratory facilities and are less likely to be able to take advantage of bulk rate discounts. For systems serving 10,000 or more people, a shipping cost of $10 is added to reflect that many of them have in-house laboratories and can take advantage of bulk rates. These costs represent averages obtained from the ICR (see Chapter 7, section 7.1.1 for more information on laboratory cost assumptions). Costs per sample for ground and surface water plants are not expected to differ substantially.

As noted in section H.1, the total number of sampling sites and frequency of sampling for systems is a function of system size (population served) and source water type, not the number of plants. Larger systems must sample at more sites and more frequently than smaller ones, which typically have shorter and less complex distribution systems. Surface water sources generally have higher DBP precursor levels than ground water sources; therefore, they have a greater potential for high DBP occurrence.

Reporting costs reflect the labor required for systems to prepare and submit a report to their State/Primacy Agency on IDSE results and their proposed Stage 2 DBPR compliance monitoring sites. These costs are estimated on a per system basis for all systems. The reporting labor rate is the same rate used for preparation of the IDSE monitoring plan.

Exhibit H.4 shows the calculations and estimated costs and burden for systems expected to monitor for the IDSE.

Systems Performing an SSS

Cost estimates for systems conducting an SSS consist of preparing a study plan, conducting the study, and reporting results. The labor hours required for the study plan and report are similar to the hours required for the standard monitoring plan and report for systems performing the standard monitoring. A uniform value of 20 hours was used for all large systems, as it is the average of the reporting costs in the three largest size categories for systems doing an IDSE report for the standard monitoring. Conducting the SSS study was estimated to take 40 hours of labor. The estimate is based on EPA's best professional judgement and its experience with similar programs. Exhibit H.5 shows the calculations and estimated costs and burden for systems completing an SSS in lieu of standard monitoring to fulfill IDSE requirements.

Exhibit H.4 IDSE Costs for Systems Using Standard Monitoring

Size Category	Total Number of Systems that Monitor	Develop IDSE monitoring plan and report: Preparation of IDSE Monitoring Plan	Preparation of IDSE Report	Reporting Cost per Labor Hour	Sampling: Number of Dual Sample Sets per System	Hours per Sample	Sampling Cost per Labor Hour	Laboratory Cost per Sample	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D	E	F	G	H	I=A*((B+C)*D+E*(F*G+H))	J=A*(B+C+E*F)	K=J/2,080
Surface Water and Mixed CWSs											
<500	2,060	4	2	$ 22.55	2	1	$ 22.55	$ 240	$ 1,360,071	16,476	7.9
500-3,300	3,823	4	2	$ 24.74	8	1	$ 24.74	$ 240	$ 8,664,294	53,522	25.7
3,301-9,999	1,888	4	2	$ 30.51	16	1	$ 25.34	$ 240	$ 8,361,031	41,536	20.0
10,000-49,999	1,524	8	4	$ 31.08	48	1	$ 26.05	$ 210	$ 17,835,921	91,440	44.0
50,000-249,999	436	8	8	$ 32.64	96	1	$ 28.00	$ 210	$ 10,189,487	48,832	23.5
250,000-999,999	63	12	12	$ 35.25	144	1	$ 31.26	$ 210	$ 2,242,006	10,584	5.1
1,000,000-4,999,999	14	16	24	$ 35.25	192	1	$ 31.26	$ 210	$ 668,246	3,248	1.6
≥5 M	1	24	24	$ 35.25	240	1	$ 31.26	$ 210	$ 59,594	288	0.1
National Totals	**9,809**								**$ 49,380,649**	**265,926**	**127.8**
Disinfecting Ground Water Only CWSs											
<500	752	4	2	$ 22.35	2	1	$ 22.35	$ 240	$ 495,114	6,012	2.9
500-9,999	1,956	4	2	$ 24.86	8	1	$ 24.86	$ 240	$ 4,435,321	27,378	13.2
10,000-99,999	240	8	8	$ 31.08	24	1	$ 26.05	$ 210	$ 1,477,430	9,590	4.6
100,000-499,999	18	12	12	$ 35.25	32	1	$ 31.26	$ 210	$ 152,514	997	0.5
> 500,000	1	16	24	$ 35.25	48	1	$ 31.26	$ 210	$ 11,576	78	0.0
National Totals	**2,966**								**$ 6,571,956**	**44,056**	**21.2**
Surface Water and Mixed NTNCWSs											
<500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
500-3,300	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3,301-9,999	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10,000-49,999	4	8	4	$ 31.08	48	1	$ 26.05	$ 210	$ 46,813	240	0.1
50,000-249,999	1	8	8	$ 35.25	96	1	$ 31.26	$ 210	$ 23,725	112	0.1
250,000-999,999	0	12	12	N/A	144	1	N/A	$ 210	$ -	-	-
1,000,000-4,999,999	0	16	24	N/A	192	1	N/A	$ 210	$ -	-	-
≥5 M	0	24	24	N/A	240	1	N/A	$ 210	$ -	-	-
National Totals	**5**								**$ 70,538**	**352**	**0.2**
Disinfecting Ground Water Only NTNCWSs											
<500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
500-9,999	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10,000-99,999	1	8	8	$ 31.08	24	1	$ 26.05	$ 210	$ 3,759	24	0.0
100,000-499,999	0	12	12	$ 35.25	32	1	$ 31.26	$ 210	$ 2,484	16	0.0
> 500,000	0	16	24	N/A	48	1	N/A	$ 210	$ -	-	-
National Totals	**1**								**$ 6,243**	**41**	**0.0**
Grand Totals	**12,780**								**$ 56,029,386**	**310,375**	**149.2**

Notes: Detail may not add due to independent rounding.
Shaded areas represent systems that are not subject to IDSE requirements.
1 FTE=2,080 hours (40 hours/week; 52 weeks/year).

Sources: (A) From Exhibits H.3a and H.3b, column E.
(B and C) Labor hours for site selection and reporting based on expert opinion received during regulatory development process.
(D) Site selection and reporting labor rates estimated based on labor rates from *Labor Costs for National Drinking Water Rules (USEPA 2003s)*. An 80:20 split between technical and managerial labor rates was assumed, except for systems serving 500 or fewer people, for which only a technical rate was applied.
(E) Number of IDSE samples per system based on rule requirements for conducting IDSE monitoring. Column E in Exhibit 1.2. (Number of sites multiplied by frequency of samples
(F) Labor hours per sample reflect EPA estimate.
(G) Sampling labor rates estimated based on technical labor rates from the *Labor Costs for National Drinking Water Rules (USEPA 2003s)*.
(H) Laboratory cost for TTHM and HAA5 analyses per sample based on costs incurred for the ICR. $10 Shipping is added for large systems as many large systems have in-house capacity and will not have to ship. $40 is added for small systems because of higher shipping charges and fewer samples (no bulk discounts).

Exhibit H.5 IDSE Costs Systems Using SSSs

Size Category	Number of Systems Qualifying for SSS	Preparation of IDSE Study Plan	Conduct Study	Preparation of IDSE Study Report	Cost per Labor Hour	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D	E	F = A*(B+C+D)*E	G = A*(B+C+D)	H = G/2,080
Surface Water and Mixed CWSs								
<500	-	-	-	-	-	$ -	-	0.00
500-3,300	-	-	-	-	-	$ -	-	0.00
3,301-9,999	-	-	-	-	-	$ -	-	0.00
10,000-49,999	-	-	-	-	-	$ -	-	0.00
50,000-249,999	23	20	40	20	$ 32.64	$ 60,060	1,840	0.88
250,000-999,999	7	20	40	20	$ 35.25	$ 19,739	560	0.27
1,000,000-4,999,999	1	20	40	20	$ 35.25	$ 2,820	80	0.04
≥5 M	-	-	-	-	-	$ -	-	0.00
National Total	**31**					**$ 82,618**	**2,480**	**1.19**
Disinfecting Ground Water Only CWSs								
<500	-	-	-	-	-	$ -	-	0.00
500-9,999	-	-	-	-	-	$ -	-	0.00
10,000-99,999	-	-	-	-	-	$ -	-	0.00
100,000-499,999	2	20	40	20	$ 35.25	$ 5,640	160	0.08
> 500,000	-	-	-	-	-	$ -	-	0.00
National Total	**2**					**$ 5,640**	**160**	**0.08**
Surface Water and Mixed NTNCWSs								
<500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
500-3,300	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3,301-9,999	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10,000-49,999	-	-	-	-	-	$ -	-	0.00
50,000-249,999	-	-	-	-	-	$ -	-	0.00
250,000-999,999	-	-	-	-	-	$ -	-	0.00
1,000,000-4,999,999	-	-	-	-	-	$ -	-	0.00
≥5 M	-	-	-	-	-	$ -	-	0.00
National Total	**-**					**$ -**	**-**	**0.00**
Disinfecting Ground Water Only NTNCWSs								
<500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
500-9,999	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10,000-99,999	-	-	-	-	-	$ -	-	0.00
100,000-499,999	-	-	-	-	-	$ -	-	0.00
> 500,000	-	-	-	-	-	$ -	-	0.00
National Total	**-**					**$ -**	**-**	**0.00**
Grand Totals	**33**					**$ 88,258**	**2,640**	**1.27**

Notes: Detail may not add due to independent rounding.
Shaded areas represent systems that are not subject to IDSE requirements.

Sources: (A) Number of systems using studies to satisfy IDSE requirements from Exhibits H.3a and H.3b, column G.
(B), (C), (D) Reporting hours required per system based on expert opinion.
(E) Labor rates from *Labor Costs for National Drinking Water Rules (USEPA, 2003s*). An 80:20 split between technical and managerial labor rates was assumed, except for systems serving 500 or fewer people, for which only a technical rate was applied.

H.3.3 Costs for Systems Not Performing the IDSE

As noted in the beginning of section H.3, there are three types of systems that do not have to perform the IDSE:

- All NTNCWSs serving fewer than 10,000 people (they are not subject to IDSE requirements)

- Systems receiving the very small system waiver (States/Primacy Agencies can grant this waiver)

- Systems qualifying for the 40/30 certification (all TTHM and HAA5 compliance monitoring data must be less than or equal to 40/30 µg/L, respectively)

Since NTNCWSs serving fewer than 10,000 people are not subject to IDSE requirements, they bear no costs. EPA estimates a minimal burden for systems receiving a very small system waiver, given that they are automatically covered by the waiver if they have Stage 1 monitoring data unless the State requires otherwise. Therefore, this EA does not include costs for systems receiving the very small system waiver.

Systems qualifying for the 40/30 certification are expected to bear a small cost for reviewing monitoring data and preparing a certification to send to the State. Cost calculations are shown in Exhibit H.7. For CWS systems serving fewer than 10,000 people, reporting hours for 40/30 certification reports were estimated to be one hour. For systems serving at least 10,000 people certification reports were estimated to be 2 hours.

EPA also considers costs for those systems that receive the 40/30 certification and do not have to perform the IDSE, but must select additional Stage 2 sites compared to Stage 1 DBPR requirements. The number of those systems with additional sites is based on a comparison of Stage 2 population-based monitoring requirements to an analysis of Stage 1 plant-based requirements multiplied by the average number of plants per system. This analysis is shown in Section H.5. A minimal burden of one hour is estimated for very small systems, as only one additional site will be selected and the distribution systems are generally small. For larger systems the hours are estimated to be similar to the hours required to prepare the standard monitoring plan.

Exhibit H.6 IDSE Costs for Systems Receiving the 40/30 Certification

	Selecting Additional Sites		Preparing IDSE Certification					
Size Category	Systems Receiving 40/30 Certification but Adding Stage 2 site(s)	Hours per System	Number of Systems Receiving 40/30 Certification	Reporting Hours per System	Cost per Labor Hour	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D	E	F = (A*B+C*D)*E	G = A*B+C*D	H = G/2,080
Surface Water and Mixed CWSs								
<500	-	1	-	1	$ 22.55	$ -	-	-
500-3,300	-	3	235	1	$ 24.74	$ 5,814	235	0.1
3,301-9,999	154	3	154	1	$ 30.51	$ 18,795	616	0.3
10,000-49,999	-	8	249	2	$ 31.08	$ 15,478	498	0.2
50,000-249,999	75	8	75	2	$ 32.64	$ 24,481	750	0.4
250,000-999,999	11	8	11	2	$ 35.25	$ 3,877	110	0.1
1,000,000-4,999,999	2	8	2	2	$ 35.25	$ 705	20	0.0
≥5 M	-	8	-	2	$ 35.25	$ -	-	-
National Total	**242**		**726**			**$ 69,150**	**2,229**	**1.1**
Disinfecting Ground Water Only CWSs								
<500	-	1	-	1	$ 22.35	$ -	-	-
500-9,999	9,094	3	9,094	1	$ 24.86	$ 904,287	36,376	17.5
10,000-99,999	1,118	8	1,118	2	$ 31.08	$ 347,474	11,180	5.4
100,000-499,999	-	8	40	2	$ 35.25	$ 2,820	80	0.0
> 500,000	-	8	5	2	$ 35.25	$ 352	10	0.0
National Total	**10,212**		**10,257**			**$ 1,254,934**	**47,646**	**22.9**
Surface Water and Mixed NTNCWSs								
<500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
500-3,300	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3,301-9,999	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10,000-49,999	-	8	1	2	$ 31.08	$ 62	2	0.0
50,000-249,999	-	8	-	2	$ 35.25	$ -	-	-
250,000-999,999	-	8	-	2	N/A	$ -	-	-
1,000,000-4,999,999	-	8	-	2	N/A	$ -	-	-
≥5 M	-	8	-	2	N/A	$ -	-	-
National Total	**-**		**1**			**$ 62**	**2**	**0.0**
Disinfecting Ground Water Only NTNCWSs								
<500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
500-9,999	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10,000-99,999	3	8	3	2	$ 31.08	$ 932	30	0.0
100,000-499,999	-	8	-	3	$ 35.25	$ -	-	-
> 500,000	-	8	-	6	N/A	$ -	-	-
National Total	**3**		**3**			**$ 932**	**30**	**0.0**
Grand Totals	**10,457**		**10,987**			**$ 1,325,079**	**49,907**	**24.0**

Notes: Shaded areas represent systems that are not subject to IDSE requirements.

Sources: (A) Number of systems less than or equal to 40/30 from Exhibit H.3a and H.3b (column F) for only those system size categories that are predicted to have additional routine monitoring from Stage 1 to Stage 2 (see Exhibit H.8a, column I).

(B) Hours per system required to select new sites for Stage 2 based on expert opinion.

(C) Number of systems that qualify for 40/30 certification from Exhibit H.3a and H.3b, column F.

(D) Reporting hours are based on best professional judgement and experience with similar rules.

(E) Labor rates from *Labor Costs for National Drinking Water Rules (USEPA, 2003s)* . An 80:20 split between technical and managerial labor rates was assumed, except for systems serving 500 or fewer people, for which only a technical rate was applied.

H.4 Developing a Stage 2 Monitoring Plan

This section presents the costs for systems to develop a monitoring plan for the Stage 2 DBPR. Prior to the beginning of compliance sampling, systems must prepare a monitoring plan describing how the system intends to comply with the monitoring requirements. The plan must contain the sites where the samples will be taken, based on data gathered in the IDSE and Stage 1 compliance monitoring, the month(s) in which samples will be taken, and other information. Surface water systems serving more than 3,300 people must submit their plans to the State.

For systems that perform the IDSE (SSS or standard monitoring), most of the information in the monitoring plan is required in the IDSE report. Most of the work required for the monitoring plan will be consulting with and making modifications suggested by the State/Primacy Agency. Therefore the labor hours required for the monitoring plan will be less than those required for the IDSE report. EPA assumes that for the purposes of this EA, the monitoring plans will take half the time estimated for systems to complete the IDSE report. Very small systems obtaining waivers will only have to update their existing Stage 1 monitoring plans. A minimal burden of 2 hours is assumed for these systems. Exhibit H.7 displays the burden and costs associated with monitoring plan preparation.

Ground water systems which add disinfection for the Ground Water Rule (GWR) will have to prepare monitoring plans[4]. Estimates of the number of ground water systems that will add disinfection as a result of the GWR is based on the GWR EA (USEPA 2004). Assumptions for labor hours for these systems are similar to the assumptions listed above for other systems subject to the Stage 2 DBPR.

[4] EPA assumes that systems adding disinfection for the GWR will not have to prepare a monitoring plan and conduct compliance monitoring. The IDSE requirement will likely be completed before these systems add disinfection, so this EA does not include costs for newly disinfecting systems to conduct an IDSE.

Exhibit H.7 Stage 2 Monitoring Plan Costs for Systems

Size Category	Number Systems Performing IDSE, SSS, or 40/30 Certification	Number of Systems Receiving Very Small System Waiver or Small NTNCWS	Number of Systems Adding Disinfection for the GWR Preparing Monitoring Plans	Hours to Prepare Stage 2 Monitoring Plan	Hours to Update Exisiting Stage 1 Monitoring Plan	Labor Cost	Total Cost	Total Burden (hours)	Total Burden (FTEs)
	A	B	C	D	E	F	G = F*((A+C)*D + B*E)	H = G/F	I = H/2080
Surface Water and Mixed CWSs									
<500	2,060	1,237	0	5	2	$ 22.55	$ 287,984	12,773	6.14
500-3,300	4,058	0	0	5	0	$ 24.74	$ 501,975	20,290	9.75
3,301-9,999	2,042	0	0	5	0	$ 25.34	$ 258,721	10,210	4.91
10,000-49,999	1,773	0	0	10	0	$ 26.05	$ 461,867	17,730	8.52
50,000-249,999	534	0	0	10	0	$ 28.00	$ 149,527	5,340	2.57
250,000-999,999	81	0	0	15	0	$ 31.26	$ 37,981	1,215	0.58
1,000,000-4,999,999	17	0	0	20	0	$ 31.26	$ 10,628	340	0.16
≥5 M	1	0	0	30	0	$ 31.26	$ 938	30	0.01
National Totals	**10,566**	**1,237**	**0**				**$ 1,709,621**	**67,928**	**32.66**
Disinfecting Ground Water Only CWSs									
<500	752	17,005	793	5	2	$ 22.35	$ 932,815	41,732	20.06
500-9,999	11,050	0	237	5	0	$ 24.86	$ 1,402,853	56,431	27.13
10,000-99,999	1,358	0	11	10	0	$ 26.05	$ 356,494	13,685	6.58
100,000-499,999	60	0	2	15	0	$ 31.26	$ 28,822	922	0.44
> 500,000	6	0	0	20	0	$ 31.26	$ 3,735	119	0.06
National Totals	**13,225**	**17,005**	**1,042**				**$ 2,724,718**	**112,890**	**54.27**
Surface Water and Mixed NTNCWSs									
<500	-	548	0	5	2	$ 22.39	$ 24,544	1,096	0.53
500-3,300	-	199	0	5	2	$ 24.74	$ 9,847	398	0.19
3,301-9,999	-	24	0	5	2	$ 25.34	$ 1,216	48	0.02
10,000-49,999	5	0	0	10	0	$ 26.05	$ 1,303	50	0.02
50,000-249,999	1	0	0	10	0	$ 31.26	$ 313	10	0.00
250,000-999,999	-	0	0	15	0	N/A	$ -	0	0.00
1,000,000-4,999,999	-	0	0	20	0	N/A	$ -	0	0.00
≥5 M	-	0	0	30	0	N/A	$ -	0	0.00
National Totals	**6**	**771**	**0**				**$ 37,222**	**1,602**	**0.77**
Disinfecting Ground Water Only NTNCWSs									
<500	-	4,622	1,241	5	2	$ 22.20	$ 342,966	15,449	7.43
500-9,999	-	858	268	5	2	$ 24.76	$ 75,586	3,053	1.47
10,000-99,999	3	0	1	10	0	$ 26.05	$ 1,247	48	0.02
100,000-499,999	0	0	0	15	0	$ 31.26	$ 192	6	0.00
> 500,000	-	0	0	20	0	N/A	$ -	0	0.00
National Totals	**4**	**5,480**	**1,510**				**$ 419,990**	**18,556**	**8.92**
Grand Totals	**23,800**	**24,493**	**2,552**				**$ 4,891,552**	**200,975**	**96.62**

Notes: Detail may not add due to independent rounding.
1 FTE=2,080 hours (40 hours/week; 52 weeks/year).

Sources: (A) Exhibit H.1 Column K minus systems receiving small system waivers from column B in this Exhibit.
(B) From Exhibit H.3a and H.3b, colulmn A minus columns E, F, and G.
(D), (E) Labor hours based on a best professional judgement and experience with similar rules.
(F) Labor rates from *Labor Costs for National Drinking Water Rules* (USEPA, 2003s). An 80:20 split between technical and managerial labor rates was assumed, except for systems serving 500 or fewer people, for which only a technical rate was applied.

H.5 Additional Routine Monitoring

Because systems already sample for the Stage 1 DBPR, costs for additional routine monitoring are determined by the change in the number of samples collected from the Stage 1 to the Stage 2 DBPR.

The Stage 2 DBPR monitoring requirements are based only on population served and source water type. The Stage 1 DBPR requirements are based on number of treatment plants per system in addition to these characteristics. Depending on the number of plants in a given system, the number of Stage 2 compliance samples required per year can stay the same, decrease, or increase from Stage 1 requirements. For example, if a system has many plants, they must collect compliance samples for each plant under the Stage 1 DBPR. The sampling requirements for the Stage 2 DBPR, based on population served and not plants, will likely be lower than for Stage 1 for this system.

Exhibit H.8 summarizes the estimated change in number of samples required and the associated cost. An explanation of this exhibit is provided in the following paragraphs.

To compare plant-based Stage 1 to population-based Stage 2 monitoring requirements, an estimate of plants per system is needed for each of the monitoring size categories. Column B in Exhibit H.8a shows the mean number of plants per system for (1) surface water and all mixed systems, and (2) disinfecting ground water-only systems. This number is used to transform the system baseline to a plant baseline in order to calculate number of samples per system for Stage 1. The values are based on analysis of 2000 CWSS data, question 18.[5] EPA used the 2000 CWSS instead of the 1995 CWSS because the mean number of plants per system is key in defining new population-based monitoring requirements. EPA believes that the additional analyses needed to derive new estimates using 2000 CWSS data were warranted in this case. (As shown in Chapter 3 of this EA, all other baseline analyses were performed with 1995 CWSS data.)

Systems Using One Site to Represent Both High TTHM and HAA5

Column F shows the number of Stage 2 DBPR routine samples required per system. For surface water systems serving 3,300 or fewer people and disinfecting ground water systems serving fewer than 500 people, one sample is required unless the TTHM and HAA5 sites are at different locations in the distribution system. If this is the case, then the system must collect one TTHM sample at the high TTHM site, and one HAA5 sample at the high HAA5 site, which is equivalent to one dual sample. The only increase in burden is the extra sample collection time to visit two sites instead of one. (Note that for surface water systems serving 500 to 3,300 people, samples must be collected every 90 days, resulting in a total of 4 dual samples per system. Surface and ground water systems serving fewer than 500 people only have to collect one sample per year, resulting in one dual sample per system as shown in Exhibit H.8a).

EPA assumes that systems that receive a very small system waiver (i.e., all 100 percent purchasing systems, see Exhibit H.3b) will use one site for high TTHM and HAA5 at the same location. ICR data was used to estimate the percent of producing systems that need two monitoring sites (instead of one) to represent both high TTHM and high HAA5 concentrations. For CWSs, EPA evaluated data

[5] Systems were considered outliers if their flow data were incomplete or if they had more than 100 entry points, or if they lacked other data for question 18 and were excluded from the analysis.

from the last four quarters[6] of the ICR to estimate the percentage of systems that had their highest TTHM and HAA5 at different locations[7] and thus need to monitor at two sites. Results of this analysis show that approximately 51 percent of surface water and 44 percent of ground water plants have their high TTHM and HAA5 sites at different locations. Therefore the total percent that will monitor at two sites is:

(51%)*(2060))/3297 = 32% for surface water systems serving less than 500 people.

(51%)*(2379)/4058 = 30% for surface water systems serving between 500 and 3,300 people.

(44%)*(752)/17756 = 2% for ground water systems serving less than 500 people.

For NTNCWSs, high TTHM and HAA5 concentrations are more likely to be at the same location because these systems are typically small and have small distribution systems. Thus, EPA believes that all eligible NTNCWSs (surface water NTNCWSs serving fewer than 10,000 people and ground water NTNCWSs serving fewer than 500 people) will qualify for reduced sample sites.

Surface water systems serving 3,300 or fewer people and ground water systems serving fewer than 500 people required to monitor at two sites instead of a single site have an additional hour of labor to account for travel time to the additional site. However, no additional lab costs are added since the total number of samples is the same.

Effects of Reduced Monitoring

Both the Stage 1 and Stage 2 DBPRs have a provision for reduced monitoring if compliance monitoring results are below 40 µg/L for TTHM and 30 µg/L for HAA5. Although there may be a slight decrease in systems qualifying because of the change from RAA to LRAA, other systems may qualify as they install better treatment technologies. EPA believes monitoring costs incurred for the reduced monitoring systems from Stage 1 to Stage 2 are expected to change minimally. This EA does not calculate costs associated with changes in reduced monitoring status.

Increased Monitoring for Small Systems

Surface water systems serving fewer than 500 people and ground water systems serving fewer than 10,000 people are only required to monitor once a year. If one of these systems exceeds 80 µg/L for TTHM or 60 µg/L for HAA5, they are not in violation of the maximum contaminant level (MCL) immediately, but instead must increase their monitoring to quarterly. If quarterly monitoring produces a locational running annual average (LRAA) above 80 µg/L for TTHM or 60 µg/L for HAA5, then they are in violation of the MCL. If the LRAA is below 60 µg/L for TTHM or 45 µg/L for HAA5, the system

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[6] At least 3 of 4 quarters must have TTHM and HAA5 data for at least 3 of 4 distribution system locations (TTHM and HAA5 data do not have to be present at the same location, however) for a plant to be included in this analysis.

[7] This was based on the average of four quarters of data for each of four distribution system sites (AVE1, AVE2, DSE, and MAX for plants with at least three quarters of data). Plants with the highest four quarter HAA5 average and highest four quarter TTHM average occurring at the same location were assumed to be able to qualify for a reduction in number of monitoring sites under the Stage 2 DBPR.

may return to annual monitoring. Some systems will incur additional monitoring costs because of this requirement.

Increased monitoring costs for small systems are not explicitly calculated in this EA because all systems are assumed to apply an operational safety factor when assessing compliance with MCLs. Thus, they are not expected to experience concentrations over the MCLs in future years. This is particularly true for ground water systems since they tend to see less year-to-year variability in source water quality. Although surface water systems could potentially see higher year-to-year variability and be triggered into increased monitoring in the future, EPA expects very few systems to be affected.

Exhibit H.8a Additional Routine Monitoring Samples for Systems

Size Category	Total Systems	Stage 1 Sampling				Stage 2 Sampling	
		Plants Per System	Total Plants	Routine Samples per Plant	Total Stage 1 Samples	Routine Dual Samples per System	Number of Stage 2 Samples
	A	B	C = A*B	D	E=C*D	F	G = A*F
Surface Water and Mixed CWSs							
<500	3,297	1.2	3,989	1	3,989	1	3,297
500-3,300	4,058	1.2	4,951	4	19,803	4	16,232
3,301-9,999	2,042	1.6	3,186	4	12,742	8	16,336
10,000-49,999	1,773	1.4	2,429	16	38,864	16	28,368
50,000-249,999	534	1.8	977	16	15,636	32	17,088
250,000-999,999	81	2.5	205	16	3,279	48	3,888
1,000,000-4,999,999	17	3.5	60	16	960	64	1,088
≥5 M	1	3.5	4	16	56	80	80
National Totals	**11,803**		**15,800**		**95,330**		**86,377**
Disinfecting Ground Water Only CWSs							
<500	17,756	1.0	17,756	1	17,756	1	17,756
500-9,999	11,050	1.5	16,795	1	16,795	2	22,099
10,000-99,999	1,358	3.9	5,336	1	5,336	16	21,724
100,000-499,999	60	7.3	438	4	1,752	24	1,434
> 500,000	6	17.0	100	4	401	32	189
National Totals	**30,229**		**40,426**		**42,041**		**63,202**
Surface Water and Mixed NTNCWSs							
<500	548	1.0	548	1	548	1	548
500-3,300	199	1.0	199	4	796	4	796
3,301-9,999	24	1.0	24	4	96	8	192
10,000-49,999	5	1.0	5	16	80	16	80
50,000-249,999	1	1.0	1	16	16	32	32
250,000-999,999	-	1.0	-	16	-	48	-
1,000,000-4,999,999	-	1.0	-	16	-	64	-
≥5 M	-	1.0	-	16	-	80	-
National Totals	**777**		**777**		**1,536**		**1,648**
Disinfecting Ground Water Only NTNCWSs							
<500	4,622	1.0	4,622	1	4,622	1	4,622
500-9,999	858	1.0	858	1	858	2	1,716
10,000-99,999	3	1.0	3	1	3	16	56
100,000-499,999	0	1.0	0	4	1	24	7
> 500,000	-	1.0	-	4	-	32	-
National Totals	**5,483**		**5,483**		**5,484**		**6,400**
Grand Totals	**48,293**		**62,487**		**144,390**		**157,627**

Notes: Detail may not added due to independent rounding.

Systems will incur routine monitoring costs only for sites and samples that are required beyond those required under the Stage 1 DBPR (i.e., systems that, as a result of the IDSE, only move sample sites will incur no additional costs).

1 FTE = 2,080 hours (40 hours/week; 52 weeks/year).

Sources: (A) Number of systems from Exhibit H.1 (column K).

(B) Number of plants per system based on 2000 CWSS question 18.

(D) Routine samples per plant from the Stage 1 Rule (USEPA 1998a).

(F) Number of routine samples per system based on Stage 2 rule requirements (population-based approach).

H.8a Additional Routine Monitoring Costs for Systems (continued)

Size Category	Additional Samples Required for Stage 2 Monitoring	Hours per Sample	Percent of Systems with Separate TTHM and HAA5 sites	Sampling Cost per Labor Hour	Cost per Sample	Sampling Costs Based on Additional Monitoring	Additional Labor Costs for Small Systems with Two Sites	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	I=H-E	J	K	L	M	N = I*(J*L + M)	O = A*J*K*L	P = N + O	Q=I*J + O/L	R=Q/2080
Surface Water and Mixed CWSs										
<500	(692)	1	32%	$ 22.55	$ 240	$ (181,780)	$ 23,455	$ (158,325)	348	0
500-3,300	(3,571)	1	30%	$ 24.74	$ 240	$ (945,397)	$ 29,730	$ (915,667)	(2,369)	(1)
3,301-9,999	3,594	1	0%	$ 25.34	$ 240	$ 953,611	$ -	$ 953,611	3,594	2
10,000-49,999	(10,496)	1	0%	$ 26.05	$ 210	$ (2,477,619)	$ -	$ (2,477,619)	(10,496)	(5)
50,000-249,999	1,452	1	0%	$ 28.00	$ 210	$ 345,692	$ -	$ 345,692	1,452	1
250,000-999,999	609	1	0%	$ 31.26	$ 210	$ 146,956	$ -	$ 146,956	609	0
1,000,000-4,999,999	128	1	0%	$ 31.26	$ 210	$ 30,843	$ -	$ 30,843	128	0
≥5 M	24	1	0%	$ 31.26	$ 210	$ 5,674	$ -	$ 5,674	24	0
National Totals	**(8,953)**					**$ (2,122,019)**	**$ 53,185**	**$ (2,068,834)**	**(6,711)**	**(3)**
Disinfecting Ground Water Only CWSs										
<500	0	1	2%	$ 22.35	$ 240	$ -	$ 8,485	$ 8,485	380	0
500-9,999	5,304	1	0%	$ 24.86	$ 240	$ 1,404,761	$ -	$ 1,404,761	5,304	3
10,000-99,999	16,388	1	0%	$ 26.05	$ 210	$ 3,868,386	$ -	$ 3,868,386	16,388	8
100,000-499,999	(318)	1	0%	$ 31.26	$ 210	$ (76,712)	$ -	$ (76,712)	(318)	(0)
> 500,000	(212)	1	0%	$ 31.26	$ 210	$ (51,167)	$ -	$ (51,167)	(212)	(0)
National Totals	**21,162**					**5,145,268**	**8,485**	**5,153,753**	**21,541**	**10.36**
Surface Water and Mixed NTNCWSs										
<500	0	1	0%	$ 22.39	$ 240	$ -	$ -	$ -	-	-
500-3,300	0	1	0%	$ 24.74	$ 240	$ -	$ -	$ -	-	-
3,301-9,999	96	1	0%	$ 25.34	$ 240	$ 25,473	$ -	$ 25,473	96	0
10,000-49,999	0	1	0%	$ 26.05	$ 210	$ -	$ -	$ -	-	-
50,000-249,999	16	1	0%	$ 31.26	$ 210	$ 3,860	$ -	$ 3,860	16	0
250,000-999,999	0	1	0%	N/A	$ 210	$ -	$ -	$ -	-	-
1,000,000-4,999,999	0	1	0%	N/A	$ 210	$ -	$ -	$ -	-	-
≥5 M	0	1	0%	N/A	$ 210	$ -	$ -	$ -	-	-
National Totals	**112**					**$ 29,333**	**$ -**	**$ 29,333**	**112**	**0.05**
Disinfecting Ground Water Only NTNCWSs										
<500	0	1	0%	$ 22.20	$ 240	$ -	$ -	$ -	-	-
500-9,999	858	1	0%	$ 24.76	$ 240	$ 227,112	$ -	$ 227,112	858	0
10,000-99,999	52	1	0%	$ 26.05	$ 210	$ 12,322	$ -	$ 12,322	52	0
100,000-499,999	6	1	0%	$ 31.26	$ 210	$ 1,399	$ -	$ 1,399	6	0
> 500,000	0	1	0%	N/A	$ 210	$ -	$ -	$ -	-	-
National Totals	**916**					**$ 240,833**	**$ -**	**$ 240,833**	**916**	**0**
Grand Totals	**13,237**					**3,293,415**	**61,670**	**3,355,085**	**15,858**	**8**

Notes: Detail may not added due to independent rounding.

Systems will incur routine monitoring costs only for sites and samples that are required beyond those required under the Stage 1 DBPR (i.e., systems that, as a result of the IDSE, only move sample sites will incur no additional costs).

FTE = 2,080 hours (40 hours/week; 52 weeks/year).

[1] Columns N and O for SW < 3,300 and GW < 500 adds in an hour extra sampling time for systems which only take 1 dual sample but at two different sites. This additional labor is calculated by A*K*L

Sources: (J) Labor hours per sample reflects EPA estimate.

(K) Estimated percent of systems that will have only one sampling site because their high TTHM and HAA5 site occur at the same location based on analysis of Information Collection Rule data from 4 distribution system locations .

(L) Technical labor rates from *Labor Costs for National Drinking Water Rules* (USEPA, 2003s).

(M) Laboratory cost for TTHM and HAA5 analyses per sample based on costs incurred for the ICR.

Monitoring for Systems Adding Disinfection to Comply with the Ground Water Rule (GWR)

Some ground water systems that do not currently disinfect may install disinfection to correct a significant deficiency identified under the GWR. Because the GWR is expected to be promulgated at the same time as or just after the Stage 2 DBPR, EPA expects new systems adding disinfection to meet GWR requirements to simultaneously achieve compliance with Stage 2 MCLs. Therefore, as discussed in Chapter 3 of this EA, these systems are not included in the treatment baseline. Although these systems will be required to monitor for the first time under Stage 2, they will not be required to perform an IDSE since they will add disinfection after the IDSE is required.

Systems that do not currently disinfect will incur new costs for all of the required Stage 2 DBPR samples. These costs are shown in Exhibit H.8b. Exhibit H.8c shows the sum of additional routine monitoring for disinfecting systems and new GWR disinfecting systems (sum of Exhibits H.8a - H.8b). Column A of this exhibit shows the total change in the number of samples required for each size category between the Stage 1 and Stage 2 compliance monitoring requirements. The rest of the exhibit displays total costs and burdens for Stage 2 DBPR monitoring requirements.

Exhibit H.8b Additional Routine Monitoring Costs for Systems Installing Disinfectant to Comply with the GWR

Size Category	Number of Systems Adding Disinfectant for GWR	Number of Samples for Stage 2 DBPR	Hours Per Sample	Sampling Cost Per Labor Hour	Cost Per Sample	Total Costs	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D	E	F = A*B*(C*D+E)	G = A*B*C	H = G/2080
Surface Water and Mixed CWSs								
<500	-	1	1	$ 22.55	$ 240	$ -	-	-
500-3,300	-	4	1	$ 24.74	$ 240	$ -	-	-
3,301-9,999	-	8	1	$ 25.34	$ 240	$ -	-	-
10,000-49,999	-	16	1	$ 26.05	$ 210	$ -	-	-
50,000-249,999	-	32	1	$ 28.00	$ 210	$ -	-	-
250,000-999,999	-	48	1	$ 31.26	$ 210	$ -	-	-
1,000,000-4,999,999	-	64	1	$ 31.26	$ 210	$ -	-	-
≥5 M	-	80	1	$ 31.26	$ 210	$ -	-	-
National Totals	**-**					**$ -**	**-**	**-**
Disinfecting Ground Water Only CWSs								
<500	793	1	1	$ 22.35	$ 240	$ 208,026	793	0.38
500-9,999	237	2	1	$ 24.86	$ 240	$ 125,379	473	0.23
10,000-99,999	11	16	1	$ 26.05	$ 210	$ 40,611	172	0.08
100,000-499,999	2	24	1	$ 31.26	$ 210	$ 9,834	41	0.02
> 500,000	0	32	1	$ 31.26	$ 210	$ 645	3	0.00
National Totals	**1,042**					**$ 384,494**	**1,482**	**0.71**
Surface Water and Mixed NTNCWSs								
<500	0	1	1	$ 22.39	$ 240	$ -	-	-
500-3,300	0	4	1	$ 24.74	$ 240	$ -	-	-
3,301-9,999	0	8	1	$ 25.34	$ 240	$ -	-	-
10,000-49,999	0	16	1	$ 26.05	$ 210	$ -	-	-
50,000-249,999	0	32	1	$ 31.26	$ 210	$ -	-	-
250,000-999,999	0	48	1	N/A	$ 210	$ -	-	-
1,000,000-4,999,999	0	64	1	N/A	$ 210	$ -	-	-
≥5 M	0	80	1	N/A	$ 210	$ -	-	-
National Totals	**-**					**$ -**	**-**	**-**
Disinfecting Ground Water Only NTNCWSs								
<500	1,241	1	1	$ 22.20	$ 240	$ 325,412	1,241	0.60
500-9,999	268	2	1	$ 24.76	$ 240	$ 141,666	535	0.26
10,000-99,999	1	16	1	$ 26.05	$ 210	$ 4,938	21	0.01
100,000-499,999	0	24	1	$ 31.26	$ 210	$ 686	3	0.00
> 500,000	0	32	1	N/A	$ 210	$ -	-	0.00
National Totals	**1,510**					**$ 472,703**	**1,800**	**0.87**
Grand Totals	**2,552**					**$ 857,197**	**3,282**	**1.58**

Sources:

(A) Ground Water Rule EA, Exhibit 6.21 (USEPA 2004).

(B) Number of routine samples per system, Exhibit H.8a Column F. Number of samples may be less for SW systems serving < 5,000 and GW systems serving < 500 if high TTHM and HAA5 locations are the same.

(C) Labor hours per sample reflects EPA estimate.

(D) Technical labor rates from *Labor Costs for National Drinking Water Rules* (USEPA, 2003s).

(E) Laboratory cost for TTHM and HAA5 analyses per sample based on costs incurred for the ICR.

Exhibit H.8c Total Additional Routine Monitoring Costs

Size Category	Total Additional Compliance Samples per Year	Total Labor Costs	Total Sampling Costs	Total Costs	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D	E	F= E/2080
Surface Water and Mixed CWSs						
<500	(692)	$ 7,844	$ (166,169)	$ (158,325)	348	0.17
500-3,300	(3,571)	$ (58,617)	$ (857,050)	$ (915,667)	(2,369)	-1.14
3,301-9,999	3,594	$ 91,070	$ 862,541	$ 953,611	3,594	1.73
10,000-49,999	(10,496)	$ (273,425)	$ (2,204,194)	$ (2,477,619)	(10,496)	-5.05
50,000-249,999	1,452	$ 40,671	$ 305,021	$ 345,692	1,452	0.70
250,000-999,999	609	$ 19,041	$ 127,915	$ 146,956	609	0.29
1,000,000-4,999,999	128	$ 3,996	$ 26,846	$ 30,843	128	0.06
≥5 M	24	$ 735	$ 4,939	$ 5,674	24	0.01
National Totals	**(8,953)**	**$ (168,684)**	**$ (1,900,150)**	**$ (2,068,834)**	**(6,711)**	**(3.23)**
Disinfecting Ground Water Only CWSs						
<500	793	$ 26,209	$ 190,302	$ 216,511	1,173	0.56
500-9,999	5,777	$ 143,617	$ 1,386,523	$ 1,530,140	5,777	2.78
10,000-99,999	16,560	$ 431,389	$ 3,477,608	$ 3,908,997	16,560	7.96
100,000-499,999	(277)	$ (8,665)	$ (58,213)	$ (66,879)	(277)	-0.13
> 500,000	(209)	$ (6,546)	$ (43,976)	$ (50,522)	(209)	-0.10
National Totals	**22,644**	**$ 586,004**	**$ 4,952,244**	**$ 5,538,247**	**23,023**	**11.07**
Surface Water and Mixed NTNCWSs						
<500	0	$ 0	$ 0	$ 0	0	0.00
500-3,300	0	$ 0	$ 0	$ 0	0	0.00
3,301-9,999	96	$ 2,433	$ 23,040	$ 25,473	96	0.05
10,000-49,999	0	$ 0	$ 0	$ 0	0	0.00
50,000-249,999	16	$ 500	$ 3,360	$ 3,860	16	0.01
250,000-999,999	-	$ -	$ -	$ -	0	0.00
1,000,000-4,999,999	-	$ -	$ -	$ -	0	0.00
≥5 M	-	$ -	$ -	$ -	0	0.00
National Totals	**112**	**$ 2,933**	**$ 26,400**	**$ 29,333**	**112**	**0.05**
Disinfecting Ground Water Only NTNCWSs						
<500	1,241	$ 27,552	$ 297,860	$ 325,412	1,241	0.60
500-9,999	1,393	$ 34,481	$ 334,297	$ 368,779	1,393	0.67
10,000-99,999	73	$ 1,905	$ 15,355	$ 17,260	73	0.04
100,000-499,999	9	$ 270	$ 1,815	$ 2,085	9	0.00
> 500,000	-	$ -	$ -	$ -	0	0.00
National Totals	**2,716**	**$ 64,208**	**$ 649,328**	**$ 713,536**	**2,716**	**1.31**
Grand Totals	**16,519**	**$ 484,461**	**$ 3,727,822**	**$ 4,212,282**	**19,140**	**9.20**

Note: (A) Shows the difference in total compliance monitoring samples from Stage 1 to Stage 2 for disinfecting systems and systms predicted to install disinfection for the GWR. For disinfecting systems, derived from Exhibit H.8a, column I. For systems installing disinfection for the GWR, derived from Exhibit H.8b, product of columns A and B.

Sources: (A) sum of column I from Exhibit H.8a and column (A) times column (B) from Exhibit H.8b

(B) - (E) Summed from tables H.8a - H.8b.

H.6 National Costs for Operational Evaluations

This section discusses the national costs of exceeding operational evaluation levels and the benefits that may occur by reducing them after implementing the Stage 2 DBPR.

- Section H.6.1 defines an operational evaluation.

- Section H.6.2 describes the evaluation procedure for systems that exceed operational evaluation levels.

- Section H.6.3 presents the costs associated with operational evaluations and the estimated number of systems affected.

- Section H.6.4 explains the benefits of operational evaluation requirements.

H.6.1 Definition of "Operational Evaluation Level"

Although the Stage 2 DBPR is expected to reduce the number and level of peak DBP events, EPA recognizes that levels above 80 μg/L for TTHM and 60 μg/L for HAA5 may still occur, even when systems are in full compliance with MCLs. An exceedance of the operational evaluation level is defined as a sample result, when multiplied by 2 and added to the previous two quarters and then divided by 4, that gives an LRAA over 80 μg/L for TTHM or 60 μg/L for HAA5. For example, if a system had a current quarter result of 100 μg/L and had first and second quarter TTHM results of 70 μg/L, the resulting calculation gives:

$$(2*(100\ \mu g/L) + 70\ \mu g/L + 70\ \mu g/L)/4 = 85\ \mu g/L$$

Therefore, an exceedance of the operational evaluation level would result from the above scenario.

H.6.2 System Requirements for Operational Evaluations

If a system exceeds an operational evaluation level, it must conduct a operational evaluation and submit a written report to the State no later than 90 days after being notified of the analytical result that exceeded the operational evaluation level. The evaluation must include an examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment technology changes or problems that may contribute to TTHM and HAA5 formation and what steps could be considered to minimize future excursions.

Exceeding an operational evaluation level, as defined in section H.6.1, is not a violation of the Stage 2 DBPR and does not require any public notification or explanation in Consumer Confidence Reports (CCR). Systems are not required to take any action to reduce DBP concentrations as a result of exceeding operational evaluation levels; however, reducing peaks is a primary objective of the Stage 2 DBPR and is an important goal in providing safe drinking water. EPA is providing guidance to systems on operational alternatives to reduce DBP peaks in the distribution system.

H.6.3 Cost Implications of Exceeding Operational Evaluation Levels

Each time an operational evaluation level is exceeded, it is expected to result in some labor costs for systems to evaluate the exceedance and prepare the operational evaluation report. To determine national costs for operational evaluations, this section presents an estimate of: (1) the percent of all sampling locations exceeding Stage 2 DBPR operational evaluation levels, and (2) the burden for each operational evaluation.

Percent of Locations That Are Peaks and Percent of Systems Experiencing Peaks

EPA examined ICR data to estimate the number of systems that might exceed an operational evaluation level. Because the ICR data were taken before both Stage 1 and Stage 2 requirements were in place, the data had to be adjusted to reflect changes that plants would make to meet Stage 1 and Stage 2 MCLs. EPA developed a method called the ICR matrix method, which is described in detail in Chapter 5 of this EA, to adjust the data.

Post-Stage 2 predicted occurrence of TTHM and HAA5 concentrations were evaluated to assess the potential frequency of operational evaluation level exceedances. Because the predicted occurrence was only based on 1 year of data, alternative sequences of samples were evaluated. For example, EPA checked whether the 3rd quarter results would exceed an operational evaluation level following the 1st and 2nd quarter results. Next, EPA checked whether the 3rd quarter results would exceed an operational evaluation level following the 4th and 1st quarter results and the 4th and 2nd quarter results. This process continued until all possible combinations of quarters had been examined. However, no more than one excursion occurred for any given sample location. For each system size category, the number of exceedances of operational evaluation levels were estimated as a percent of locations exceeding these levels. The percent for each category was multiplied by the adjusted number of locations in that category to determine the total number of locations exceeding operational evaluation levels.

Individual monitoring locations were evaluated instead of plants so that the results could be extrapolated to systems with a different number of sites per system than the plants participating in the ICR. The 10 percent safety factor was chosen for the cost analysis for this rule activity, to more conservatively reflect the possibility of year to year variability from the ICR data. Exhibit H.9 displays the results of the analysis.

Exhibit H.9 Predicted Occurrence of Exceeding Operational Evaluation Levels in Large Systems

System Type	Number of Locations Evaluated	Number of Locations exceeding Operation Evaluational Levels	% of Locations exceeding Operational Evaluation Levels
	A	B	C = B/A
Post-Stage 2			
GW	327	0	0.00%
SW	851	12	1.41%
All	1,178	12	1.02%

Sources: (A) - (B) Analysis of Post-Stage 2 ICR data, developed using the ICR matrix method defined in Ch. 5.

To estimate the total number of operational evaluation level exceedances that will occur nationally, EPA assumed that results of the ICR location analysis represent, as a whole, the probability that any one treated-water location meeting the Stage 2 requirements will exceed an operational evaluation level. Those single-location probabilities are 1.4 percent (12/851) and 0 percent (0/327) for surface water and ground water sampling locations, respectively. EPA used the following procedure to calculate the probability of finding an operational evaluation level exceedance in 1 year. Assuming independence from one location to the next, EPA calculated the probability of at least one exceedance occurring for N locations from $1-(1-p)^N$, where p is the probability of observing a peak. In this calculation, (1-p) is the probability of not observing an operational evaluation level exceedance in any one location, and $(1-p)^N$ is the probability of not observing an exceedance after N locations. For example, it can be estimated that a surface water system monitoring at 4 locations has a probability of $(1-0.0141)^4 = 0.9448$ of not observing an operational evaluation level exceedance. Therefore, the probability of observing at least one exceedance is simply 1 minus that value, or 1 - 0.9448 = 0.0552 (5.52 percent). EPA used this approach to estimate the probability of observing an operational evaluation level exceedance in surface and ground water systems, as shown in Exhibit H.10. EPA assumed that two exceedances in a given location would not occur since systems are expected to address problems identified in the operational evaluation, making a recurrence unlikely.

The same percentages used for large systems were also used to estimate the occurrence of operational evaluation level exceedances for small and medium systems. EPA assumed that NTNCWSs would not exceed operational evaluation levels since these systems typically have very small distribution systems and have less variability in TTHM/HAA5 levels.

Exhibit H.10 Number of Locations and Systems Exceeding Operational Evaluation Levels

Size Category	No. of Systems	No. of Stage 2 Monitoring Locations/ System	Percent of Locations that exceed Operational Evaluation Levels	Estimated Number of Locations/Year that exceed Operational Evaluation Levels	Percent of Systems that do not exceed Operational Evaluation Levels	Percent of Systems with atleast one exceedance of Operational Evaluation Levels/yr	Predicted No. of Systems with atleast one exceedance of Operational Evaluation Levels/yr
	A	B	C	D = Round [A*B*C]	E = (1-C)^B	F = 1-E	G = Round [A*F]
Surface Water and Mixed CWSs							
<500	3,297	1	0.4%	**12**	99.65%	0.3%	12
500-3,300	4,058	1	0.7%	**28**	99.30%	0.7%	28
3,301-9,999	2,042	4	0.7%	**57**	97.23%	2.8%	57
10,000-49,999	1,773	8	1.4%	**199**	89.33%	10.7%	189
50,000-249,999	534	16	1.4%	**120**	79.68%	20.3%	109
250,000-999,999	81	24	1.4%	**27**	71.12%	28.9%	23
1,000,000-4,999,999	17	32	1.4%	**8**	63.48%	36.5%	6
≥5 M	1	40	1.4%	**1**	56.66%	43.3%	0
National Totals	**11,803**			**452**			**424**
Disinfecting Ground Water Only CWSs							
<500	17,756	1	0.0%	-	100.00%	0.0%	0
500-9,999	11,050	2	0.0%	-	100.00%	0.0%	0
10,000-99,999	1,358	6	0.0%	-	100.00%	0.0%	0
100,000-499,999	60	8	0.0%	-	100.00%	0.0%	0
> 500,000	6	12	0.0%	-	100.00%	0.0%	0
National Totals	**30,229**			**-**			**0**
Surface Water and Mixed NTNCWSs							
<500	548	1	0.0%	-	100.00%	0.0%	0
500-3,300	199	1	0.0%	-	100.00%	0.0%	0
3,301-9,999	24	4	0.0%	-	100.00%	0.0%	0
10,000-49,999	5	8	0.0%	-	100.00%	0.0%	0
50,000-249,999	1	16	0.0%	-	100.00%	0.0%	0
250,000-999,999	-	24	0.0%	-	100.00%	0.0%	0
1,000,000-4,999,999	-	32	0.0%	-	100.00%	0.0%	0
≥5 M	-	40	0.0%	-	100.00%	0.0%	0
National Totals	**777**			**-**			**0**
Disinfecting Ground Water Only NTNCWSs							
<500	4,622	1	0.0%	-	100.00%	0.0%	0
500-9,999	858	2	0.0%	-	100.00%	0.0%	0
10,000-99,999	3	6	0.0%	-	100.00%	0.0%	0
100,000-499,999	0	8	0.0%	-	100.00%	0.0%	0
> 500,000	-	12	0.0%	-	100.00%	0.0%	0
National Totals	**5,483**			**-**			**0**
Grand Totals	**48,293**			**452**			**424**

Notes: Detail may not add to totals due to independent rounding.
Sources: (A) Exhibit H.1, Column K.
(B) Stage 2 DBPR sample requirements presented in Chapter 1. Data shown are the total number of locations required per year.
(C) Exhibit H.9, column I for 10% safety factor.

Level of Effort Required for Operational Evaluations

EPA estimates that systems will spend 2 to 16 hours to perform an operational evaluation, depending on system size (large systems with more complex distribution systems are expected to spend 16 hours per exceedance, while small systems with simpler distribution systems are expected to spend 2 hours per exceedance). There may be reduced effort for systems that experience more than one exceedance of operational evaluation levels yearly; however, this effect could not be quantified. EPA also expects the rate of exceedances to decrease over time as systems begin identifying the cause and working with their States/Primacy Agencies to reduce future exceedances.

Other Cost Implications

Although systems are not required to make changes as a result of exceeding operational evaluation levels, they may still decide to change their operations to reduce the likelihood of future exceedances of operational evaluation levels and potential MCL violations. These changes can range from minimal to significant depending on the nature of the solution and size of the system. Because changes are not required by EPA, the costs for responding to exceedances of operational evaluation levels are not included as part of the national costs of the Stage 2 DBPR; however, examples of typical system-level costs are provided below to show potential implications.

Systems have a number of operational and distribution system modification options available to reduce DBP concentrations and eliminate exceedances of operational evaluation levels. If a system determines that a storage tank is the cause of an exceedance, it may be possible to implement operational changes, such as lengthening drain/fill cycles or increasing the frequency of drain/fill cycles, to improve tank mixing. A system may also consider decommissioning excess storage, or maintaining excess storage for emergency use only. Generally, these options will require minimal additional expenditures by the system; however, in some cases their feasibility may depend on system pressure requirements. When excess storage is to be maintained for emergency use only, it is still important to maintain water quality in the storage tank. This may require periodic manual disinfection (i.e., addition of calcium hypochlorite tablets) to prevent significant microbiological activity in the storage tank. This can involve some chemical cost (chlorination tablets are available for about $65 per 25 pounds), as well as additional labor cost (e.g., a few hours for a two-person crew). When excess storage is to be maintained for emergency use only, it is important to adequately flush the system after the tank has been used.

If operational modifications fail to improve tank water quality, it may be necessary to make inlet/outlet piping modifications, install baffles, or add a recirculation system to improve tank mixing. The costs for these types of improvements are widely variable and depend on the size and configuration of the existing tank. For example, capital costs for modifications to inlet/outlet piping in six standpipes (2 million gallon (MG) to 4 MG capacity) may range from $78,000 to $94,000 for one system. Costs for modifications to elevated tanks (all 1 MG capacity) may range from $19,000 to $90,000 for the same system. These costs do not include the installation of sample probes and temperature sensors used to verify proper tank mixing (estimated at $34,000 per tank including tie-in to an existing Supervisory Control and Data Acquisition (SCADA) system).

Another operational option available to systems is the use of flushing and blow-offs in high residence-time areas. Costs for these options can vary significantly from system to system depending on size, amount of labor involved, and if system modifications are required. Some large systems employ one or more flushing crews, whose sole responsibility is to flush system dead ends. For a two-person crew at a labor rate of $25 per hour (including fringe benefits), a system would incur a cost of over $100,000 per year. Assuming installation of a fire hydrant as a conservative estimate, the cost to add a dead end blow-off or flushing station could be $8,000 or more (RS Means 1999). Where runoff from blow-offs or flushing locations contains chloramines and may enter open waterways, neutralization of chloraminated discharges will be necessary. This can be done by laying burlap sacks filled with ammonium sulfate or sodium sulfite in the path of the runoff. Water losses may also be a concern in water scarce regions. The costs associated with water losses are system specific and no attempt has been made to quantify them here.

Exhibit H.11 Operational Evaluation Costs

Size Category	Estimated No. of Locations/yr that exceed Operational Evaluation Levels	Reporting Hours per Operational Evaluation	Cost per Labor Hour	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D = A*B*C	E = A*B	F=E/2,080
Surface Water and Mixed CWSs						
<500	**12**	6	$ 22.55	**$ 1,623**	72	0.0
500-3,300	**28**	12	$ 24.74	**$ 8,313**	336	0.2
3,301-9,999	**57**	12	$ 30.51	**$ 20,870**	684	0.3
10,000-49,999	**199**	16	$ 31.08	**$ 98,959**	3,184	1.5
50,000-249,999	**120**	16	$ 32.64	**$ 62,671**	1,920	0.9
250,000-999,999	**27**	16	$ 35.25	**$ 15,227**	432	0.2
1,000,000-4,999,999	**8**	16	$ 35.25	**$ 4,512**	128	0.1
≥5 M	**1**	16	$ 35.25	**$ 564**	16	0.0
National Totals	**452**			**$ 212,739**	**6772**	**3.3**
Disinfecting Ground Water Only CWSs						
<500	**-**	6	$ 22.35	**$ -**	-	-
500-9,999	**-**	12	$ 24.86	**$ -**	-	-
10,000-99,999	**-**	16	$ 31.08	**$ -**	-	-
100,000-499,999	**-**	16	$ 35.25	**$ -**	-	-
> 500,000	**-**	16	$ 35.25	**$ -**	-	-
National Totals	**-**			**$ -**	-	-
Surface Water and Mixed NTNCWSs						
<500	**-**	6	$ 22.39	**$ -**	-	-
500-3,300	**-**	12	$ 24.74	**$ -**	-	-
3,301-9,999	**-**	12	$ 30.51	**$ -**	-	-
10,000-49,999	**-**	16	$ 31.08	**$ -**	-	-
50,000-249,999	**-**	16	$ 35.25	**$ -**	-	-
250,000-999,999	**-**	16		**$ -**	-	-
1,000,000-4,999,999	**-**	16		**$ -**	-	-
≥5 M	**-**	16		**$ -**	-	-
National Totals	**-**			**$ -**	-	-
Disinfecting Ground Water Only NTNCWSs						
<500	**-**	2	$ 22.20	**$ -**	-	-
500-9,999	**-**	2	$ 24.76	**$ -**	-	-
10,000-99,999	**-**	3	$ 31.08	**$ -**	-	-
100,000-499,999	**-**	3	$ 35.25	**$ -**	-	-
> 500,000	**-**	3		**$ -**	-	-
National Totals	**-**			**$ -**	-	-
Grand Totals	**452**			**$ 212,739**	**6,772**	**3.3**

Notes: Detail may not add to totals due to independent rounding.
1 FTE = 2,080 hours (40 hours/week; 52 weeks/year).

Sources: (A) Exhibit H.10, column D.
(B) Hours estimated by EPA to complete Operational Evaluations. EPA expects it to take less time for small systems given they have simpler distribution systems.
(C) Labor rates from the *Labor Costs for National Drinking Water Rules (USEPA, 2003s)* . An 80:20 split between technical and managerial labor rates was assumed, except for systems serving 500 or fewer people, for which only a technical rate was applied.

If long residence times in distribution system dead ends are the source of an exceedance of an operational evaluation level, then systems may be able to improve flow in dead-end areas and reduce water residence time by "looping" dead ends together. For looping to be effective, it is critical that sufficient demand exists in the looped area to create a flow pattern that eliminates the dead end, rather than creating a larger one. The costs associated with looping will vary from system to system, depending on the size and length of pipe involved. Based on cost data presented in RS Means (1999), the cost for looping may range from $3,500 per 100 feet for a 6-inch line to $20,000 per 100 feet for a 24-inch line.

Variability from system to system makes it difficult to quantify the possible costs associated with operational evaluation remedies. The most effective option will vary from system to system, as will the costs for similar types of improvements.

H.6.4 Benefits Implications of the Operational Evaluation Requirements

As discussed in detail in Chapter 5 of this EA, a primary objective of the Stage 2 DBPR is to reduce peak DBP occurrence, thereby reducing potential adverse developmental and reproductive health effects and cancers associated with DBPs. Although systems are not required to make changes in response to significant DBP excursions, EPA believes that the requirement to perform an operational evaluation will encourage attention to peak events and foster better understanding of peak TTHM and HAA5 occurrence in the distribution system.

H.7 Summary of Systems Costs for Non-Treatment-Related Rule Activities

This section summarizes the estimated number of systems performing various rule activities and their associated costs, derived previously in sections H.2 through H.6. Exhibit H.12a shows the number of systems performing each rule activity, and Exhibit H.12b shows the number of systems that will add disinfection for the GWR performing each rule activity. Exhibit H.13 shows costs for both the baseline systems and the GWR systems. The estimates in Exhibits H.12a, H.12b, and H.13 are broken out by the Stage 2 DBPR monitoring size categories. To combine system and cost breakouts with comparable treatment costs (derived in Chapter 7 of this EA), the results in Exhibits H.12 and H.13 were transformed into EPA's standard nine system size categories. Exhibit H.14 (the baseline adjustment matrix) shows the percentage of systems from each of the Stage 2 DBPR monitoring size categories that is in each of EPA's nine standard size categories (see section H.1 for an additional description of this calculation). Data in Exhibit H.14 are derived from SDWIS 4th Quarter Frozen Database (USEPA 2003t). EPA multiplied the results from Exhibits H.12 and H.13 by the baseline adjustment matrix in Exhibit H.14 to produce system and cost results in EPA's nine standard size categories (Exhibits H.15a, H.15b, and H.16).

Exhibit H.12a Systems Performing Various Rule Activities, by Stage 2 Monitoring Size Categories

System Size (Population Served)	Baseline No. of Systems	Implemen-tation	IDSE	Stage 2 Monitoring Plans	Operational Evaluations
	A	B = A	C	D	E
Surface Water and Mixed CWSs					
<500	3,297	3,297	2,060	3,297	12
500-3,300	4,058	4,058	3,823	4,058	28
3,301-9,999	2,042	2,042	1,888	2,042	57
10,000-49,999	1,773	1,773	1,524	1,773	189
50,000-249,999	534	534	436	534	109
250,000-999,999	81	81	63	81	23
1,000,000-4,999,999	17	17	14	17	6
≥5 M	1	1	1	1	0
National Totals	**11,803**	**11,803**	**9,809**	**11,803**	**424**
Disinfecting Ground Water Only CWSs					
<500	17,756	17,756	752	17,756	0
500-9,999	11,050	11,050	1,956	11,050	0
10,000-99,999	1,358	1,358	240	1,358	0
100,000-499,999	60	60	18	60	0
> 500,000	6	6	1	6	0
National Totals	**30,229**	**30,229**	**2,966**	**30,229**	**0**
Surface Water and Mixed NTNCWSs					
<500	548	548	-	548	0
500-3,300	199	199	-	199	0
3,301-9,999	24	24	-	24	0
10,000-49,999	5	5	4	5	0
50,000-249,999	1	1	1	1	0
250,000-999,999	0	0	0	0	0
1,000,000-4,999,999	0	0	0	0	0
≥5 M	0	0	0	0	0
National Totals	**777**	**777**	**5**	**777**	**0**
Disinfecting Ground Water Only NTNCWSs					
<500	4,622	4,622	-	4,622	0
500-9,999	858	858	-	858	0
10,000-99,999	3	3	1	3	0
100,000-499,999	0	0	0	0	0
> 500,000	0	0	0	0	0
National Totals	**5,483**	**5,483**	**1**	**5,483**	**0**
Grand Totals	**48,293**	**48,293**	**12,780**	**48,293**	**424**

Note: Detail may not add due to independent rounding.

Non-treatment-Related Rule Activities, in addition to those shown in the table, also include routine compliance monitoring. Some systems are expected to take more samples and some are expected to take less from Stage 1 to Stage 2 depending on the number of plants in their systems. Overall, the Stage 2 DBPR results in an increase in the total number of compliance samples taken from the Stage 1 DBPR. See Exhibit H.8a for column I, for the change in total samples for different system size categories.

Sources: (A) and (B) Exhibit H.1 (column K).
(C)Exhibits H.3a and b (column E).
(D) Exhibit H.7 (column A).
(E) Exhibit H.10 (column G).

Exhibit H.12b Non-Treatment Related Rule Activities for Systems Adding Disinfection to Comply with the GWR

System Size (Population Served)	Baseline No. of Systems Adding Disinfectant for the GWR	Number Preparing Stage 2 Monitoring Plans	Percent Preparing Monitoring Plans
	A	B	C = B/A
Surface Water and Mixed CWSs			
<500	0	0	0%
500-3,300	0	0	0%
3,301-9,999	0	0	0%
10,000-49,999	0	0	0%
50,000-249,999	0	0	0%
250,000-999,999	0	0	0%
1,000,000-4,999,999	0	0	0%
≥5 M	0	0	0%
National Totals	**0**	**0**	
Disinfecting Ground Water Only CWSs			
<500	793	793	100%
500-9,999	237	237	100%
10,000-99,999	11	11	100%
100,000-499,999	2	2	100%
> 500,000	0	0	100%
National Totals	**1,042**	**1,042**	
Surface Water and Mixed NTNCWSs			
<500	0	0	0%
500-3,300	0	0	0%
3,301-9,999	0	0	0%
10,000-49,999	0	0	0%
50,000-249,999	0	0	0%
250,000-999,999	0	0	0%
1,000,000-4,999,999	0	0	0%
≥5 M	0	0	0%
National Totals	**0**	**0**	
Disinfecting Ground Water Only NTNCWSs			
<500	1,241	1,241	100%
500-9,999	268	268	100%
10,000-99,999	1	1	100%
100,000-499,999	0	0	100%
> 500,000	0	0	0%
National Totals	**1,510**	**1,510**	
Grand Total	**2,552**	**2,552**	

Note: Detail may not add due to independent rounding.

Non-treatment-Related Rule Activities, in addition to those shown in the table, include routine compliance monitoring for all systems.

Sources: (A) Exhibit 8.b

(B) Exhibits H.7 (column C).

(D) Exhibit H.8b (column A).

Exhibit H.13 Non-Treatment Cost Summary, by Stage 2 Monitoring Size Categories

System Size (Population Served)	Implementation A	IDSE B	Stage 2 Monitoring Plans C	Additional Routine Monitoring D	Operational Evaluations E
Surface Water and Mixed CWSs					
<500	$ 743,375	$ 1,360,071	$ 287,984	$ (158,325)	$ 1,623
500-3,300	$ 1,003,949	$ 8,670,108	$ 501,975	$ (915,667)	$ 8,313
3,301-9,999	$ 623,055	$ 8,379,826	$ 258,721	$ 953,611	$ 20,870
10,000-49,999	$ 1,212,306	$ 17,851,398	$ 461,867	$ (2,477,619)	$ 98,959
50,000-249,999	$ 383,467	$ 10,274,027	$ 149,527	$ 345,692	$ 62,671
250,000-999,999	$ 68,522	$ 2,265,622	$ 37,981	$ 146,956	$ 15,227
1,000,000-4,999,99	$ 14,381	$ 671,771	$ 10,628	$ 30,843	$ 4,512
³5 M	$ 846	$ 59,594	$ 938	$ 5,674	$ 564
National Totals	$ 4,049,902	$ 49,532,418	$ 1,709,621	$ (2,068,834)	$ 212,739
Disinfecting Ground Water Only CWSs					
<500	$ 3,572,101	$ 495,114	$ 932,815	$ 216,511	$ -
500-9,999	$ 2,472,179	$ 5,339,608	$ 1,402,853	$ 1,530,140	$ -
10,000-99,999	$ 886,174	$ 1,824,904	$ 356,494	$ 3,908,997	$ -
100,000-499,999	$ 44,241	$ 160,973	$ 28,822	$ (66,879)	$ -
> 500,000	$ 4,361	$ 11,929	$ 3,735	$ (50,522)	$ -
National Totals	$ 6,979,054	$ 7,832,529	$ 2,724,718	$ 5,538,247	$ -
Surface Water and Mixed NTNCWSs					
<500	$ 110,450	$ -	$ 24,544	$ -	$ -
500-3,300	$ 44,309	$ -	$ 9,847	$ -	$ -
3,301-9,999	$ 6,591	$ -	$ 1,216	$ 25,473	$ -
10,000-49,999	$ 3,263	$ 46,876	$ 1,303	$ -	$ -
50,000-249,999	$ 740	$ 23,725	$ 313	$ 3,860	$ -
250,000-999,999	$ -	$ -	$ -	$ -	$ -
1,000,000-4,999,99	$ -	$ -	$ -	$ -	$ -
³5 M	$ -	$ -	$ -	$ -	$ -
National Totals	$ 165,353	$ 70,601	$ 37,222	$ 29,333	$ -
Disinfecting Ground Water Only NTNCWSs					
<500	$ 923,423	$ -	$ 342,966	$ 325,412	$ -
500-9,999	$ 191,118	$ -	$ 75,586	$ 368,779	$ -
10,000-99,999	$ 2,271	$ 932	$ 1,247	$ 17,260	$ -
100,000-499,999	$ 215	$ -	$ 192	$ 2,085	$ -
> 500,000	$ -	$ -	$ -	$ -	$ -
National Totals	$ 1,117,027	$ 932	$ 419,990	$ 713,536	$ -
Grand Totals	$ 12,311,336	$ 57,436,480	$ 4,891,552	$ 4,212,282	$ 212,739

Notes: Detail may not add to totals due to independent rounding.

Costs for Stage 2 monitoring plans and additional routine monitoring include those costs for systems that are projected to add disinfection to comply with the GWR.

Sources: (A) Exhibit H.2 (column E).
(B) Sum of Exhibit H.4 (column I) , Exhibit H.5 (column F), and H.6(column F).
(C) Exhibit H.7 (column G).
(D) Exhibit H.8c (column D).
(E) Exhibit H.11 (Column D).

Exhibit H.14 Baseline Adjustment Matrix from Stage 2 Monitoring Categories to Standard Nine Categories

Stage 2 Monitoring Size Categories (Population Served)	Standard Size Categories (Population Served)								
	<100	100-499	500-999	1,000-3,299	3,300-9,999	10,000-49,99	50,000-99,99	100,000-999,	> 1,000,000
SW-CWS									
<500	32.9%	**67.1%**							
500-3,299			**36.2%**	**63.8%**					
3,300-9,999					**100.0%**				
10,000-49,999						**100.0%**			
50,000-249,999							62.5%	37.5%	
250,000-999,999								100.0%	
1,000,000-4,999,999									**100.0%**
≥5 M									**100.0%**
SW-NTNCWS									
<500	**42.2%**	**57.8%**							
500-3,299			53.3%	46.7%					
3,300-9,999					100.0%				
10,000-49,999						100.0%			
50,000-249,999							**0.0%**	100.0%	
250,000-999,999								**100.0%**	
1,000,000-4,999,999									**100.0%**
≥5 M									100.0%

Stage 2 Monitoring Categories (Population Served)	Standard Size Categories (Population Served)								
	<100	101-499	500-999	1,000-3,299	3,300-9,999	10,000-49,999	50,000-99,999	100,000-999,999	> 1,000,000
GW-CWS									
<500	**44.7%**	**55.3%**							
500-9,999			**36.2%**	**43.9%**	19.9%				
10,000-99,999						90.0%	10.0%		
100,000-499,999								100.0%	
≥500,000								50.0%	50.0%
GW-NTNCWS									
<500	**53.9%**	**46.1%**							
500-9,999			**68.7%**	**28.8%**	2.5%				
10,000-99,999						91.7%	8.3%		
100,000-499,999								100.0%	
≥500,000									

Source: SDWIS 2003 4th quarter frozen database (USEPA 2003t)

Exhibit H.15a Systems Performing Various Rule Activities, Standard Nine Size Categories

System Size (Population Served)	Baseline No. of Systems A	Implemen-tation B=A	IDSE C	Stage 2 Monitoring Plans D	Operational Evaluations E
Surface Water and Mixed CWSs					
<100	1,085	1,085	678	1,085	4
100-499	2,212	2,212	1,382	2,212	8
500-999	1,470	1,470	1,385	1,470	10
1,000-3,299	2,588	2,588	2,438	2,588	18
3,300-9,999	2,042	2,042	1,888	2,042	57
10,000-49,999	1,773	1,773	1,524	1,773	189
50,000-99,999	334	334	273	334	68
100,000-999,999	281	281	226	281	64
≥ 1,000,000	18	18	15	18	6
National Totals	**11,803**	**11,803**	**9,809**	**11,803**	**424**
Disinfecting Ground Water Only CWSs					
<100	7,935	7,935	336	7,935	-
100-499	9,821	9,821	416	9,821	-
500-999	3,998	3,998	708	3,998	-
1,000-3,299	4,852	4,852	859	4,852	-
3,300-9,999	2,200	2,200	389	2,200	-
10,000-49,999	1,222	1,222	216	1,222	-
50,000-99,999	136	136	24	136	-
100,000-999,999	63	63	18	63	-
≥ 1,000,000	3	3	0	3	-
National Totals	**30,229**	**30,229**	**2,966**	**30,229**	**-**
Surface Water and Mixed NTNCWSs					
<100	231	231	-	231	-
100-499	317	317	-	317	-
500-999	106	106	-	106	-
1,000-3,299	93	93	-	93	-
3,300-9,999	24	24	-	24	-
10,000-49,999	5	5	4	5	-
50,000-99,999	-	-	-	-	-
100,000-999,999	1	1	1	1	-
≥ 1,000,000	-	-	-	-	-
National Totals	**777**	**777**	**5**	**777**	**-**
Disinfecting Ground Water Only NTNCWSs					
<100	2,493	2,493	-	2,493	-
100-499	2,129	2,129	-	2,129	-
500-999	589	589	-	589	-
1,000-3,299	247	247	-	247	-
3,300-9,999	21	21	-	21	-
10,000-49,999	3	3	1	3	-
50,000-99,999	0	0	0	0	-
100,000-999,999	0	0	0	0	-
≥ 1,000,000	-	-	-	-	-
National Totals	**5,483**	**5,483**	**1**	**5,483**	**-**
Grand Totals	**48,293**	**48,293**	**12,780**	**48,293**	**424**

Notes: Detail may not add to totals due to independent rounding.

Non-treatment-Related Rule Activities, in addition to those shown in the table, also include routine compliance monitoring. Some systems are expected to take more samples and some are expected to take less from Stage 1 to Stage 2 depending on the number of plants in their systems. Overall, the Stage 2 DBPR results in an increase in the total number of compliance samples taken from the Stage 1 DBPR. See Exhibit H.8a for column I, for the change in total samples for different system size categories.

Source: Derived by multiplying results in H.13 by the baseline adjustment matrix in H.14.

Exhibit H.15b Non-Treatment Related Rule Activities for Systems Adding Disinfection to Comply with the GWR, Standard Nine Size Categories

System Size (Population Served)	Baseline No. of Systems Adding Disinfectant for the GWR A	Number Preparing Stage 2 Monitoring Plans B	Percent Preparing Monitoring Plans C = B/A
Surface Water and Mixed CWSs			
<100	-	-	-
100-499	-	-	-
500-999	-	-	-
1,000-3,299	-	-	-
3,300-9,999	-	-	-
10,000-49,999	-	-	-
50,000-99,999	-	-	-
100,000-999,999	-	-	-
≥ 1,000,000	-	-	-
National Totals	**-**	**-**	
Disinfecting Ground Water Only CWSs			
<100	354	354	100%
100-499	439	439	100%
500-999	86	86	100%
1,000-3,299	104	104	100%
3,300-9,999	47	47	100%
10,000-49,999	10	10	100%
50,000-99,999	1	1	100%
100,000-999,999	2	2	100%
≥ 1,000,000	0	0	100%
National Totals	**1,042**	**1,042**	
Surface Water and Mixed NTNCWSs			
<100	-	-	-
100-499	-	-	-
500-999	-	-	-
1,000-3,299	-	-	-
3,300-9,999	-	-	-
10,000-49,999	-	-	-
50,000-99,999	-	-	-
100,000-999,999	-	-	-
≥ 1,000,000	-	-	-
National Totals	**-**	**-**	
Disinfecting Ground Water Only NTNCWSs			
<100	669	669	100%
100-499	572	572	100%
500-999	184	184	100%
1,000-3,299	77	77	100%
3,300-9,999	7	7	100%
10,000-49,999	1	1	100%
50,000-99,999	0	0	100%
100,000-999,999	0	0	100%
≥ 1,000,000	-	-	0%
National Totals	**1,510**	**1,510**	
Grand Totals	**2,552**	**2,552**	

Notes: Detail may not add to totals due to independent rounding.

Non-treatment-Related Rule Activities, in addition to those shown in the table, also include routine compliance monitoring. Some systems are expected to take more samples and some are expected to take less from Stage 1 to Stage 2 depending on the number of plants in their systems. Overall, the Stage 2 DBPR results in an increase in the total number of compliance samples taken from the Stage 1 DBPR. See Exhibit H.8a for column I, for the change in total samples for different system size categories.

Source: Derived by multiplying results in H.12b by the baseline adjustment matrix in H.14.

Exhibit H.16 Non-Treatment Cost Summary, Standard Nine Size Categories

System Size (Population Served)	Implementation A	IDSE B	Stage 2 Monitoring Plans C	Additional Routine Monitoring D	Operational Evaluations E
Surface Water and Mixed CWSs					
<100	$ 244,635	$ 447,582	$ 94,772	$ (52,103)	$ 534
100-499	$ 498,740	$ 912,489	$ 193,212	$ (106,222)	$ 1,089
500-999	$ 363,678	$ 3,140,721	$ 181,839	$ (331,698)	$ 3,011
1,000-3,299	$ 640,272	$ 5,529,388	$ 320,136	$ (583,969)	$ 5,301
3,300-9,999	$ 623,055	$ 8,379,826	$ 258,721	$ 953,611	$ 20,870
10,000-49,999	$ 1,212,306	$ 17,851,398	$ 461,867	$ (2,477,619)	$ 98,959
50,000-99,999	$ 239,846	$ 6,426,075	$ 93,524	$ 216,219	$ 39,199
100,000-999,999	$ 212,143	$ 6,113,574	$ 93,984	$ 276,429	$ 38,699
≥ 1,000,000	$ 15,227	$ 731,365	$ 11,566	$ 36,517	$ 5,076
National Totals	**$ 4,049,902**	**$ 49,532,418**	**$ 1,709,621**	**$ (2,068,834)**	**$ 212,739**
Disinfecting Ground Water Only CWSs					
<100	$ 1,596,365	$ 221,266	$ 416,873	$ 96,758	$ -
100-499	$ 1,975,736	$ 273,849	$ 515,942	$ 119,753	$ -
500-999	$ 894,469	$ 1,931,945	$ 507,572	$ 553,626	$ -
1,000-3,299	$ 1,085,531	$ 2,344,617	$ 615,991	$ 671,883	$ -
3,300-9,999	$ 492,179	$ 1,063,047	$ 279,290	$ 304,631	$ -
10,000-49,999	$ 797,681	$ 1,642,671	$ 320,895	$ 3,518,648	$ -
50,000-99,999	$ 88,492	$ 182,233	$ 35,599	$ 390,348	$ -
100,000-999,999	$ 46,421	$ 166,938	$ 30,689	$ (92,140)	$ -
≥ 1,000,000	$ 2,180	$ 5,964	$ 1,868	$ (25,261)	$ -
National Totals	**$ 6,979,054**	**$ 7,832,529**	**$ 2,724,718**	**$ 5,538,247**	**$ -**
Surface Water and Mixed NTNCWSs					
<100	$ 46,558	$ -	$ 10,346	$ -	$ -
100-499	$ 63,891	$ -	$ 14,198	$ -	$ -
500-999	$ 23,602	$ -	$ 5,245	$ -	$ -
1,000-3,299	$ 20,707	$ -	$ 4,602	$ -	$ -
3,300-9,999	$ 6,591	$ -	$ 1,216	$ 25,473	$ -
10,000-49,999	$ 3,263	$ 46,876	$ 1,303	$ -	$ -
50,000-99,999	$ -	$ -	$ -	$ -	$ -
100,000-999,999	$ 740	$ 23,725	$ 313	$ 3,860	$ -
≥ 1,000,000	$ -	$ -	$ -	$ -	$ -
National Totals	**$ 165,353**	**$ 70,601**	**$ 37,222**	**$ 29,333**	**$ -**
Disinfecting Ground Water Only NTNCWSs					
<100	$ 498,070	$ -	$ 184,987	$ 175,519	$ -
100-499	$ 425,353	$ -	$ 157,979	$ 149,893	$ -
500-999	$ 131,289	$ -	$ 51,924	$ 253,333	$ -
1,000-3,299	$ 55,048	$ -	$ 21,771	$ 106,220	$ -
3,300-9,999	$ 4,781	$ -	$ 1,891	$ 9,226	$ -
10,000-49,999	$ 2,082	$ 855	$ 1,143	$ 15,822	$ -
50,000-99,999	$ 189	$ 78	$ 104	$ 1,438	$ -
100,000-999,999	$ 215	$ -	$ 192	$ 2,085	$ -
≥ 1,000,000	$ -	$ -	$ -	$ -	$ -
National Totals	**$ 1,117,027**	**$ 932**	**$ 419,990**	**$ 713,536**	**$ -**
Grand Totals	**$ 12,311,336**	**$ 57,436,480**	**$ 4,891,552**	**$ 4,212,282**	**$ 212,739**

Notes: Detail may not add to totals due to independent rounding.

Costs for Stage 2 monitoring plans and additional routine monitoring include those costs for systems that are projected to add disinfection to comply with the GWR.

Source: Derived by multiplying results in H.12 by the baseline adjustment matrix in H.14.

H.8 Cost & Burden Estimates for States/Primacy Agency Action

To estimate State/Primacy Agency costs, the estimated number of full-time equivalents (FTEs) required per activity is multiplied by the number of labor hours per FTE, the State/Primacy Agency hourly wage, and the number of States/Primacy Agencies. EPA estimated the number of FTEs required per activity based on experience implementing previous rules, such as the Stage 1 DBPR. The number of States/Primacy Agencies is the sum of the 50 States, six territories, and one tribal government (57 total). Labor costs attributable to States for administrative tasks are based on an average annual FTE labor cost, including overhead and fringe benefits, of $65,255 (2001$). This rate was established based on data from the 2001 State Drinking Water Needs Analysis (ASDWA 2001). For use in the Stage 2 EA analyses, the $65,255 annual rate was updated to a year 2003 price level ($70,132) using the ECI and converted to an hourly basis (1 FTE = 2,080 hours) to establish a State rate of $33.60 per hour.

Implementation Activities

States/Primacy Agencies incur labor costs for adopting the regulation and developing a program for implementation, providing initial public notification, training State staff, training PWS staff, providing technical assistance, and updating their data management systems. Exhibit H.17 presents the calculations and estimated costs and burden for these activities. Note that this EA does not include initial State costs for laboratory certification because EPA assumes that these activities occurred under the Stage 1 DBPR and were captured in the Stage 1 DBPR Regulatory Impact Analysis (RIA) (USEPA 1998a).

IDSE Activities for States/Primacy Agencies

States/Primacy Agencies will also incur costs as a result of the IDSE. EPA estimated the number of FTEs required per activity based on experience with previous rules, such as the Stage 1 DBPR. States/Primacy Agencies are expected to work with the small systems that conduct IDSEs to review data and make compliance determinations. State/Primacy Agency activities include analyzing IDSE reports and approving new or revised monitoring sites, responding to PWSs, and keeping records. All the costs for the IDSE activities were conservatively attributed to States/Primacy Agencies although it is possible that some of them may not have primacy before the IDSEs begin. Exhibit H.18 shows the calculations and estimated costs and burden associated with the IDSE for States/Primacy Agencies.

Because systems receiving the very small system waivers do not have to submit an IDSE report, EPA assumes that minimal state time will be needed for these systems.

Monitoring Plans

States/Primacy Agencies will incur costs to review the monitoring plans. States/Primacy Agencies are expected to review the monitoring plans for PWSs and approve them. States will only have to review monitoring plans for subpart H systems serving more than 3,300 people. EPA estimated the effort at four hours per monitoring plan for small systems and 8 hours for large systems, based on experience with previous rules, such as the Stage 1 DBPR. Exhibit H.19 shows the calculations and estimated costs and burden associated with the IDSE for States/Primacy Agencies.

Additional Routine Monitoring for States/Primacy Agencies

States/Primacy Agencies will incur costs to review and monitor PWSs' routine monitoring for TTHM and HAA5. States/Primacy Agencies are expected to incur costs for tracking PWS monitoring data and updating records. EPA estimated that 0.40 FTE's will be needed per State/Primacy agency for this activity, which is equivalent to 832 hours per State/Primacy Agency or 47,424 hours total (57x832).

Operational Evaluations

States/Primacy Agencies will incur costs to review operational evaluations made by PWSs. It is estimated that States/Primacy Agencies will use 1 hour to review each report and consult with the PWS. Exhibit H.20 shows estimated costs and burdens for operational evaluations for States/Primacy Agencies.

Summary

Exhibit H.21 shows a summary of all State/Primacy Agency costs.

Exhibit H.17 State/Primacy Agency Costs for Implementation and Additional Routine Monitoring Activities

	Cost per Labor Hour	FTEs per State	Hours per State	Cost per State	National Total FTEs	National Total Hours	National Total Cost
	A	B	C=B*2,080	D=A*C	E=B*57	F=C*57	G=D*57
Implementation Activities							
Public Notification	$ 33.60	0.10	208	$ 6,989	5.70	11,856	$ 398,362
Regulation Adoption and Program Development	$ 33.60	0.50	1,040	$ 34,944	28.50	59,280	$ 1,991,808
Training State Staff	$ 33.60	0.25	520	$ 17,472	14.25	29,640	$ 995,904
Training PWS Staff and Technical Assistants	$ 33.60	1.00	2,080	$ 69,888	57.00	118,560	$ 3,983,616
Updating Data Management System	$ 33.60	0.10	208	$ 6,989	5.70	11,856	$ 398,362
Totals		**1.95**	**4,056**	**$ 136,282**	**111**	**231,192**	**$ 7,768,051**
Additional Routine Monitoring Activities							
Recordkeeping and Compliance Tracking	$ 33.60	0.40	832	$ 27,955	22.80	47,424	$ 1,593,446
Totals		**0.40**	**832**	**$ 27,955**	**22.80**	**47,424**	**$ 1,593,446**
Grand Totals		**2.35**	**4,888**	**164,237**	**134**	**278,616**	**9,361,498**

Notes: All states/primacy agencies are assumed to incur some costs for each activity.

Sources: (A) State labor rates based on the State Workload Model, updated to year 2003 dollar values.
(B) FTEs per State/Primacy Agency based on EPA experience with previous regulations.

Exhibit H.18 State/Primacy Agency Costs for the IDSE

Size Category	Number of Systems Conducting IDSE, by Category			Number of Hours to Work with Systems on IDSE and Review IDSE Reports			Average State Employee Hourly Wage	Average Total Costs to States	Average Total Costs per State	Total Burden	Average Burden/ State
	Standard Monitoring	System-Specific Study	40/30 Certification	Standard Monitoring	System-Specific Study	40/30 Certification					
	A	B	C	D	E	F	G	H = G * (A*D+B*E+C*F)	I = H / 57	J = A*D + B*E + C*F	K = J/57
Surface Water and Mixed CWSs											
<500	2,060	0	0	4	4	0.5	$ 33.60	$ 276,802	$ 4,856	8238.16	144.5
500-3,300	3,823	0	235	4	4	0.5	$ 33.60	$ 517,759	$ 9,083	15409.5	270.3
3,301-9,999	1,888	0	154	4	4	0.5	$ 33.60	$ 256,334	$ 4,497	7629	133.8
10,000-49,999	1,524	0	249	8	8	0.5	$ 33.60	$ 413,834	$ 7,260	12316.5	216.1
50,000-249,999	436	23	75	8	8	0.5	$ 33.60	$ 124,639	$ 2,187	3709.5	65.1
250,000-999,999	63	7	11	10	12	0.5	$ 33.60	$ 24,175	$ 424	719.5	12.6
1,000,000-4,999,999	14	1	2	12	16	0.5	$ 33.60	$ 6,216	$ 109	185	3.2
≥5 M	1	0	0	12	16	0.5	$ 33.60	$ 403	$ 7	12	0.2
National Totals	**9,809**	**31**	**726**					**$ 1,620,164**	**$ 28,424**	**48,219**	**846.0**
Ground Water Only CWSs											
<500	752	0	0	4	4	0.5	$ 33.60	$ 101,004	$ 1,772	3,006	52.7
500-9,999	1,956	0	9,094	4	4	0.5	$ 33.60	$ 415,609	$ 7,291	12,369	217.0
10,000-99,999	240	0	1,118	8	8	0.5	$ 33.60	$ 83,226	$ 1,460	2,477	43.5
100,000-499,999	18	2	40	8	8	0.5	$ 33.60	$ 5,995	$ 105	178	3.1
> 500,000	1	0	5	12	16	0.5	$ 33.60	$ 443	$ 8	13	0.2
National Totals	**2,966**	**2**	**10,257**					**$ 606,278**	**$ 10,636**	**18,044**	**316.6**
Surface Water and Mixed NTNCWSs											
<500	-	-	-	-	-	-	-	-	-	-	-
500-3,300	-	-	-	-	-	-	-	-	-	-	-
3,301-9,999	-	-	-	-	-	-	-	-	-	-	-
10,000-49,999	4	0	1	8	8	0.5	$ 33.60	$ 1,092	$ 19	33	0.6
50,000-249,999	1	0	0	8	8	0.5	$ 33.60	$ 269	$ 5	8	0.1
250,000-999,999	0	0	0	10	12	0.5	$ 33.60	$ -	$ -	0	0.0
1,000,000-4,999,999	0	0	0	12	16	0.5	$ 33.60	$ -	$ -	0	0.0
≥5 M	0	0	0	12	16	0.5	$ 33.60	$ -	$ -	0	0.0
National Totals	**5**	**0**	**1**					**$ 1,361**	**$ 24**	**41**	**0.7**
Disinfecting Ground Water Only NTNCWSs											
<500	-	-	-	-	-	-	-	-	-	-	-
500-9,999	-	-	-	-	-	-	-	-	-	-	-
10,000-99,999	1	0	3	8	8	0.5	$ 33.60	$ 214	$ 4	6	0.1
100,000-499,999	0	0	0	8	8	0.5	$ 33.60	$ 78	$ 1	2	0.0
> 500,000	0	0	0	12	16	0.5	$ 33.60	$ -	$ -	0	0.0
National Totals	**1**	**0**	**3**					**$ 292**	**$ 5**	**9**	**0.2**
Grand Totals	**12,780**	**33**	**10,987**					**$ 2,228,095**	**$ 39,089**	**66,312**	**1,163.4**

Sources: (A, B, C) From columns E, F, and G in Exhibits H.3a and H.3b.
(D, E, F) From EPA experience with other regulations.

Exhibit H.19 State/Primacy Agency Monitoring Plan Costs

Size Category	Number of Systems Conducting Monitoring Plan, by Category	Number of Hours to Review Monitoring Plans per System	Average State Employee Hourly Wage	Average Total Costs to States	Average Total Costs per State	Total Burden
	A	B	C	D = A*B*C	E = D/57	F = A*B
Surface Water and Mixed CWSs						
<500	3,297	0	$ 33.60	$ -	$ -	0
500-3,300	4,058	0	$ 33.60	$ -	$ -	0
3,301-9,999	2,042	4	$ 33.60	$ 274,445	$ 4,815	8,168
10,000-49,999	1,773	8	$ 33.60	$ 476,582	$ 8,361	14,184
50,000-249,999	534	8	$ 33.60	$ 143,539	$ 2,518	4,272
250,000-999,999	81	8	$ 33.60	$ 21,773	$ 382	648
1,000,000-4,999,999	17	8	$ 33.60	$ 4,570	$ 80	136
≥5 M	1	8	$ 33.60	$ 269	$ 5	8
National Totals	**11,803**	**-**	**-**	**$ 921,178**	**$ 16,161**	**27,416**
Ground Water Only CWSs						
<500	19,031	0	$ 33.60	$ -	$ -	0
500-9,999	11,492	0	$ 33.60	$ -	$ -	0
10,000-99,999	1,393	0	$ 33.60	$ -	$ -	0
100,000-499,999	64	0	$ 33.60	$ -	$ -	0
> 500,000	6	0	$ 33.60	$ -	$ -	0
National Totals	**31,985**	**-**	**-**	**$ -**	**$ -**	**0**
Surface Water and Mixed NTNCWSs						
<500	548	0	$ 33.60	$ -	$ -	0
500-3,300	199	0	$ 33.60	$ -	$ -	0
3,301-9,999	24	4	$ 33.60	$ 3,226	$ 57	96
10,000-49,999	5	8	$ 33.60	$ 1,344	$ 24	40
50,000-249,999	1	8	$ 33.60	$ 269	$ 5	8
250,000-999,999	0	8	$ 33.60	$ -	$ -	0
1,000,000-4,999,999	0	8	$ 33.60	$ -	$ -	0
≥5 M	0	8	$ 33.60	$ -	$ -	0
National Totals	**777**	**-**	**-**	**$ 4,838**	**$ 85**	**48**
Disinfecting Ground Water Only NTNCWSs						
<500	6,191	0	$ 33.60	$ -	$ -	0
500-9,999	1,180	0	$ 33.60	$ -	$ -	0
10,000-99,999	5	0	$ 33.60	$ -	$ -	0
100,000-499,999	0	0	$ 33.60	$ -	$ -	0
> 500,000	0	0	$ 33.60	$ -	$ -	0
National Totals	**7,377**	**-**	**-**	**$ -**	**$ -**	**0**
Grand Totals	**51,941**	**-**	**-**	**$ 926,016**	**$ 16,246**	**27,464**

Notes:

Sources: (A) From columns A, B, and C in Exhibit H.7

(B) From EPA experience with other regulations.

(C) State labor rates based on the State Workload Model, updated to year 2003 dollar values.

Exhibit H.20 State/Primacy Agency Operational Evaluation Costs

Size Category	Number of times Operational Evaluation Levels are exceeded per Year	Number of Hours to Review Operational Evaluations per System	Average State Employee Hourly Wage	Average Total Costs to States	Average Total Costs per State	Total Burden
	A	B	C	D = A*B*C	E = D/57	F = A*B
Surface Water and Mixed CWSs						
<500	12	4	$ 33.60	$ 1,613	$ 28	48
500-3,300	28	6	$ 33.60	$ 5,645	$ 99	168
3,301-9,999	57	6	$ 33.60	$ 11,491	$ 202	342
10,000-49,999	199	8	$ 33.60	$ 53,491	$ 938	1,592
50,000-249,999	120	8	$ 33.60	$ 32,256	$ 566	960
250,000-999,999	27	8	$ 33.60	$ 7,258	$ 127	216
1,000,000-4,999,999	8	8	$ 33.60	$ 2,150	$ 38	64
≥5 M	1	8	$ 33.60	$ 269	$ 5	8
National Totals	**452**	**-**	**-**	**$ 114,173**	**$ 2,003**	**3,398**
Ground Water Only CWSs						
<500	0	4	$ 33.60	$ -	$ -	0
500-9,999	0	6	$ 33.60	$ -	$ -	0
10,000-99,999	0	8	$ 33.60	$ -	$ -	0
100,000-499,999	0	8	$ 33.60	$ -	$ -	0
> 500,000	0	8	$ 33.60	$ -	$ -	0
National Totals	**0**	**-**	**-**	**$ -**	**$ -**	**0**
Surface Water and Mixed NTNCWSs						
<500	0	4	$ 33.60	$ -	$ -	0
500-3,300	0	6	$ 33.60	$ -	$ -	0
3,301-9,999	0	6	$ 33.60	$ -	$ -	0
10,000-49,999	0	8	$ 33.60	$ -	$ -	0
50,000-249,999	0	8	$ 33.60	$ -	$ -	0
250,000-999,999	0	8	$ 33.60	$ -	$ -	0
1,000,000-4,999,999	0	8	$ 33.60	$ -	$ -	0
≥5 M	0	8	$ 33.60	$ -	$ -	0
National Totals	**0**	**-**	**-**	**$ -**	**$ -**	**0**
Disinfecting Ground Water Only NTNCWSs						
<500	0	4	$ 33.60	$ -	$ -	0
500-9,999	0	6	$ 33.60	$ -	$ -	0
10,000-99,999	0	8	$ 33.60	$ -	$ -	0
100,000-499,999	0	8	$ 33.60	$ -	$ -	0
> 500,000	0	8	$ 33.60	$ -	$ -	0
National Totals	**0**	**-**	**-**	**$ -**	**$ -**	**0**
Grand Totals	**452**	**-**	**-**	**$ 114,173**	**$ 2,003**	**3,398**

Sources: (A) From column D in Exhibit H.10
(B) From EPA experience with other regulations.
(C) State labor rates based on the State Workload Model, updated to year 2003 dollar values.

Exhibit H.21 State/Primacy Agency Cost Summary

	Total Hours	Average Hours per State	Cost/Labor Hour	Total Cost	Cost per State
	A	B = A/57	C	D	E = D/57
Implementation Activities					
Public Notification	11,856	208	$ 33.60	$ 398,362	$ 6,989
Regulation Adoption and Program Development	59,280	1,040	$ 33.60	$ 1,991,808	$ 34,944
Training State Staff	29,640	520	$ 33.60	$ 995,904	$ 17,472
Training PWS Staff and Technical Assistants	118,560	2,080	$ 33.60	$ 3,983,616	$ 69,888
Updating Data Management System	11,856	208	$ 33.60	$ 398,362	$ 6,989
Subtotal	**231,192**	**4,056**		**$ 7,768,051**	**$ 136,282**
Monitoring Plan Activities					
Monitoring Plans	27,464	482	$ 33.60	$ 926,016	$ 16,246
IDSE Activities					
IDSE Monitoring	66,312	1,163	$ 33.60	$ 2,228,095	$ 39,089
Additional Routine Monitoring Activities					
Recordkeeping and Compliance Tracking	47,424	832	$ 33.60	$ 1,593,446	$ 27,955
Operational Evaluation Costs	3,398	60	$ 33.60	$ 114,173	$ 2,003
Subtotal	**50,822**	**892**		**$ 1,707,619**	**$ 29,958**
Grand Totals	**375,790**	**6,593**		**$ 12,629,781**	**$ 221,575**

Notes: All states/primacy agencies are assumed to incur some costs for each activity.

Sources: (A) Exhibits H.17 to H.20.
(B) Exhibits H.17 to H.20.
(C) State labor rates based on the State Workload Model, updated to year 2003 dollar values.

Appendix I
Unit Costs for Technologies Considered in the Stage 2 DBPR

Appendix I
Unit Costs for Technologies Considered in the Stage 2 DBPR

Exhibits 7.8a and 7.8b in Chapter 7 list the treatment technologies (along with their constraints and design criteria) considered for surface and ground water plants to meet the Stage 2 Disinfectants and Disinfection Byproducts Rule (DBPR). This Appendix builds on information presented in Chapter 7 by presenting the following.

- Capital unit cost estimates for a wide range of design flows (in tabular and graphical form)
- Operations and Maintenance (O&M) unit cost estimates for a wide range of average daily flows (in tabular and graphical form)

The range of design and average flows is intended to cover all possible system flows. When flows fall between the design or average daily flows used to estimate unit costs, straight line interpolation can be used to estimate the capital or O&M cost. Design costs were calculated for points ranging between 0.007 million gallons per day (MGD) and 520 MGD. For plants with flows less than 0.007 MGD, the value for 0.007 MGD was used. For plants with flows greater than 520 MGD, the costs are calculated by extrapolating a straight line between the last two calculated cost points. Points are included in the graphs at 0.0001 MGD and 1500 MGD to show these assumptions. Likewise for average daily flows, points were calculated between 0.0015 MGD and 350 MGD. Points outside this range show the assumptions used to extrapolate costs.

The majority of unit costs are derived from the *Technologies and Costs Document for Control of Microbial Contaminants and Disinfection By-Products* (T&C Document) (USEPA 2003o). These unit costs have been revised to incorporate recommendations from the National Drinking Water Advisory Council (NDWAC) Arsenic Cost Working Group (NDWAC 2001).

The only costs not in the T&C Document are the ultraviolet (UV) costs for groundwater systems. The cost contained in that document for groundwater UV systems is for a single reactor providing a 200 mJ/cm^2 dose. The *UV Disinfection Guidance Manual* (USEPA 2003k), however, does not contain a validation procedure capable of validating a reactor for 4-log virus inactivation. The 200 millijoules per centimeter square (mJ/cm^2) dose is only sufficient to provide 2-log virus inactivation. Because many groundwater systems will be required to achieve 4-log virus inactivation either because of the Ground Water Rule or state requirements, 2-200 mJ/cm^2 reactors were assumed to be used in series for this EA.

To obtain the costs for 2-200 mJ/cm^2 reactors in series, the many line item costs for a 200 mJ/cm^2 reactor, as presented in the T&C Document (Exhibit 4.16), were doubled. However, there are a number of exceptions. Housing and pumping are multiplied by factors of 1.5 because the reactors can be mounted in such a way that they do not require twice the additional room, and head loss will not be twice as large due to the second reactor. Instrumentation and control was multiplied by a factor of 1.8 to account for some instrumentation, which can be shared by the two reactors. Labor was also multiplied by a factor of 1.5, as the prep time for performing maintenance activities will be the same regardless of the number of reactors serviced. Training and testing items were not multiplied by two because only a single reactor needs to be tested.

The Matrix of Appendix I Contents describes the exhibits in this appendix. Each exhibit lists the constraints and design criteria for the treatment technology, presents a table showing the unit cost estimates for each design or average flow point, and graphically displays each point to illustrate the way in which the costs increase with flow. All graphs are in Log-Log scale. Summaries of capital, O&M, and household costs for mean flow values for each of the Environmental Protection Agency's (EPA's) standard nine system size categories are presented in Chapter 7.

Matrix of Appendix I Contents

Source Water Type	Technology	Cost Type	Exhibit Number
Surface	Chloramines	Capital	I.1
		O&M	I.2
	Chlorine Dioxide	Capital	I.3
		O&M	I.4
	UV	Capital	I.5
		O&M	I.6
	Ozone	Capital	I.7
		O&M	I.8
	Microfiltration/Ultrafiltration	Capital	I.9
		O&M	I.10
	GAC10	Capital	I.11
		O&M	I.12
	GAC20	Capital	I.13
		O&M	I.14
	Nanofiltration[1]	Capital	I.15
		O&M	I.16
Ground	Chloramines	Capital	I.17
		O&M	I.18
	UV	Capital	I.19
		O&M	I.20
	Ozone	Capital	I.21
		O&M	I.22
	GAC20	Capital	I.23
		O&M	I.24
	Nanofiltration	Capital	I.25
		O&M	I.26
Derivation of Household Unit Costs for Small System Affordability Analysis			I.27

[1]Nanofiltration is combined with microfiltration/ultrafiltration to represent the integrated membrane technology for surface water plants.

Matrix of Appendix I Contents

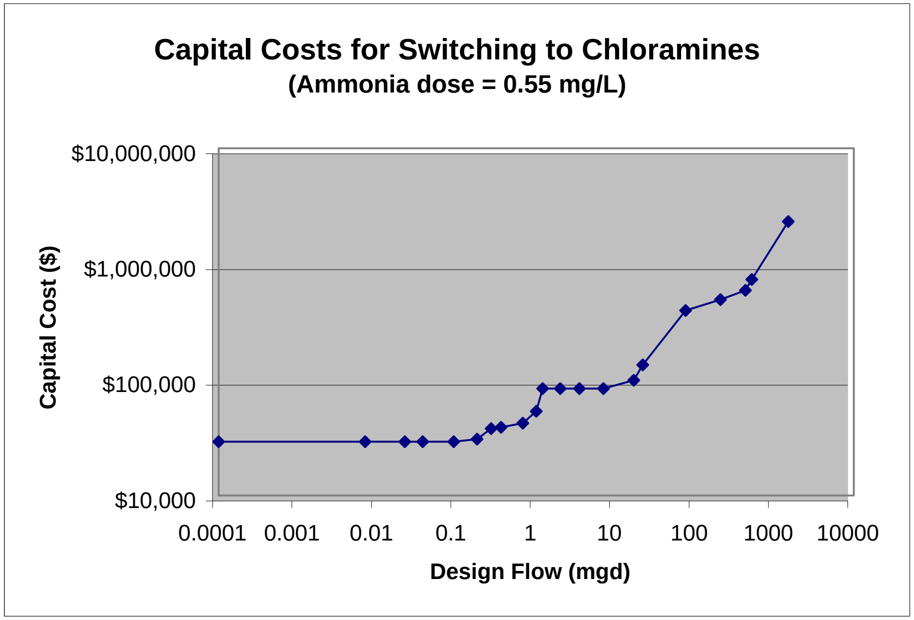
Source Water Type	Technology	Cost Type	Exhibit Number
Surface	Chloramines	Capital	I.1
		O&M	I.2
	Chlorine Dioxide	Capital	I.3
		O&M	I.4
	UV	Capital	I.5
		O&M	I.6
	Ozone	Capital	I.7
		O&M	I.8
	Microfiltration/Ultrafiltration	Capital	I.9
		O&M	I.10
	GAC10	Capital	I.11
		O&M	I.12
	GAC20	Capital	I.13
		O&M	I.14
	Nanofiltration[1]	Capital	I.15
		O&M	I.16
Ground	Chloramines	Capital	I.17
		O&M	I.18
	UV	Capital	I.19
		O&M	I.20
	Ozone	Capital	I.21
		O&M	I.22
	GAC20	Capital	I.23
		O&M	I.24
	Nanofiltration	Capital	I.25
		O&M	I.26
Derivation of Household Unit Costs for Small System Affordability Analysis			I.27

*Nanofiltration is combined with microfiltration/ultrafiltration to represent the integrated membrane technology for surface water plants

Exhibit I.1 Capital Costs for Switching to Chloramines
Surface Water Plants

Constraints: It can be used alone or in conjunction with the other technologies
Design Criteria:
1) Ammonia dose = 0.55 mg/L

Design Flow (mgd)	Capital Cost ($)
0.0001	$29,104
0.0070	$29,104
0.0220	$29,104
0.0370	$29,104
0.0910	$29,104
0.1800	$30,604
0.2700	$37,939
0.3600	$38,858
0.6800	$42,127
1.0000	$53,396
1.2000	$83,772
2.0000	$83,772
3.5000	$83,772
7.0000	$83,772
17.0000	$98,772
22.0000	$133,907
76.0000	$397,173
210.0000	$492,039
430.0000	$590,780
520.0000	$736,773
1500.0000	$2,326,467

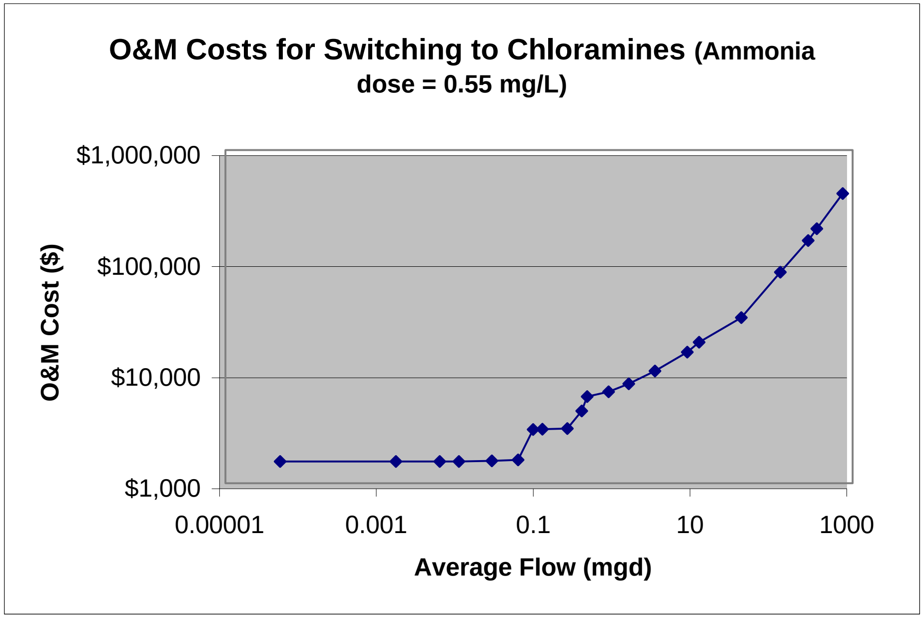


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.2 O&M Costs for Switching to Chloramines
Surface Water Plants

Constraints: It can be used alone or in conjunction with the other technologies
Design Criteria:
1) Ammonia dose = 0.55 mg/L

Average Flow (mgd)	O&M cost ($)
0.00005	$1,566
0.00150	$1,566
0.00540	$1,570
0.00950	$1,575
0.02500	$1,592
0.05400	$1,623
0.08400	$3,038
0.11000	$3,065
0.23000	$3,101
0.35000	$4,478
0.41000	$6,037
0.77000	$6,678
1.40000	$7,875
3.00000	$10,263
7.80000	$15,174
11.00000	$18,601
38.00000	$30,967
120.00000	$79,369
270.00000	$153,192
350.00000	$195,454
750.00000	$406,765

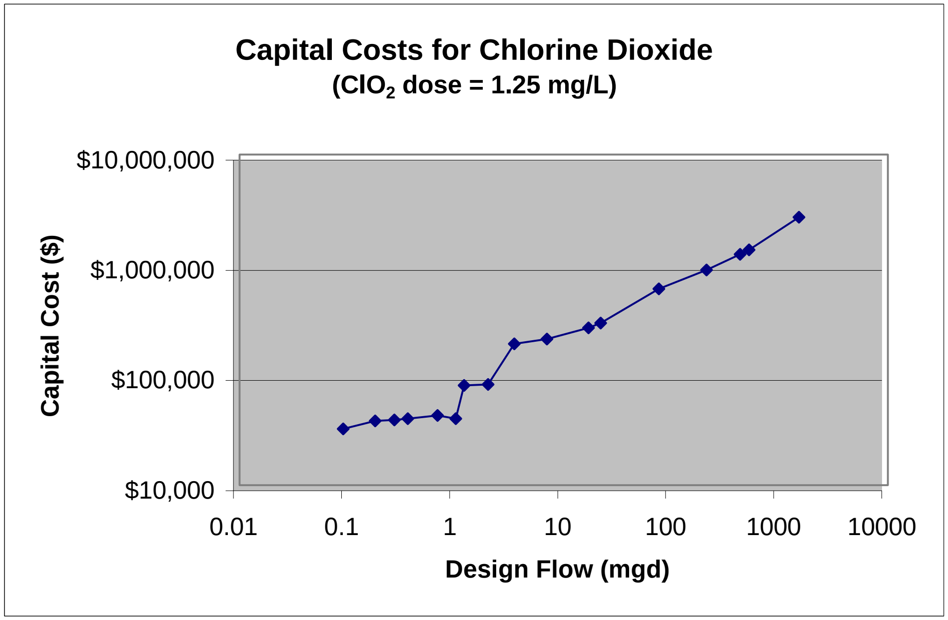


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.3 Capital Costs for Chlorine Dioxide
Surface Water Plants

Constraints: Not applicable for systems serving populations < 100
Design Criteria:
1) No new contact basin would be required
2) ClO_2 dose = 1.25 mg/L

Design Flow (mgd)	Capital Cost ($)
0.0001	Not Applicable
0.0070	Not Applicable
0.0220	Not Applicable
0.0370	Not Applicable
0.0910	$32,427
0.1800	$38,370
0.2700	$39,172
0.3600	$40,066
0.6800	$43,005
1.0000	$40,035
1.2000	$80,585
2.0000	$82,054
3.5000	$191,088
7.0000	$211,473
17.0000	$268,223
22.0000	$296,568
76.0000	$603,425
210.0000	$897,449
430.0000	$1,245,987
520.0000	$1,368,982
1500.0000	$2,708,268

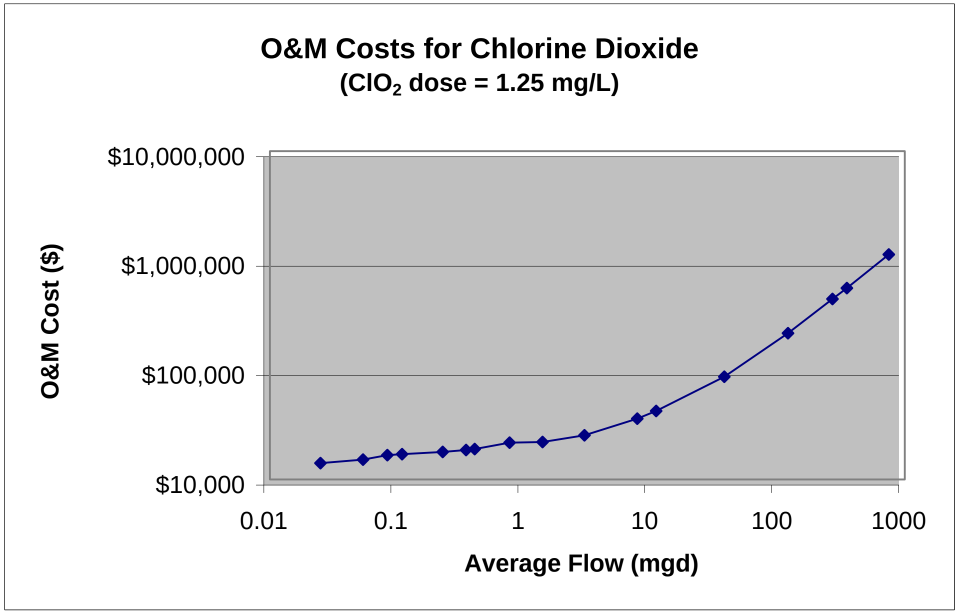


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.4 O&M Costs for Chlorine Dioxide
Surface Water Plants

Constraints: Not applicable for systems serving populations < 100
Design Criteria:
1) No new contact basin would be required
2) ClO_2 dose = 1.25 mg/L

Average Flow (mgd)	O&M Cost ($)
0.00005	Not Applicable
0.00150	Not Applicable
0.00540	Not Applicable
0.00950	Not Applicable
0.02500	$14,093
0.05400	$15,204
0.08400	$16,721
0.11000	$16,999
0.23000	$17,812
0.35000	$18,571
0.41000	$18,984
0.77000	$21,638
1.40000	$22,001
3.00000	$25,392
7.80000	$35,939
11.00000	$42,336
38.00000	$87,061
120.00000	$216,813
270.00000	$446,533
350.00000	$561,934
750.00000	$1,138,937



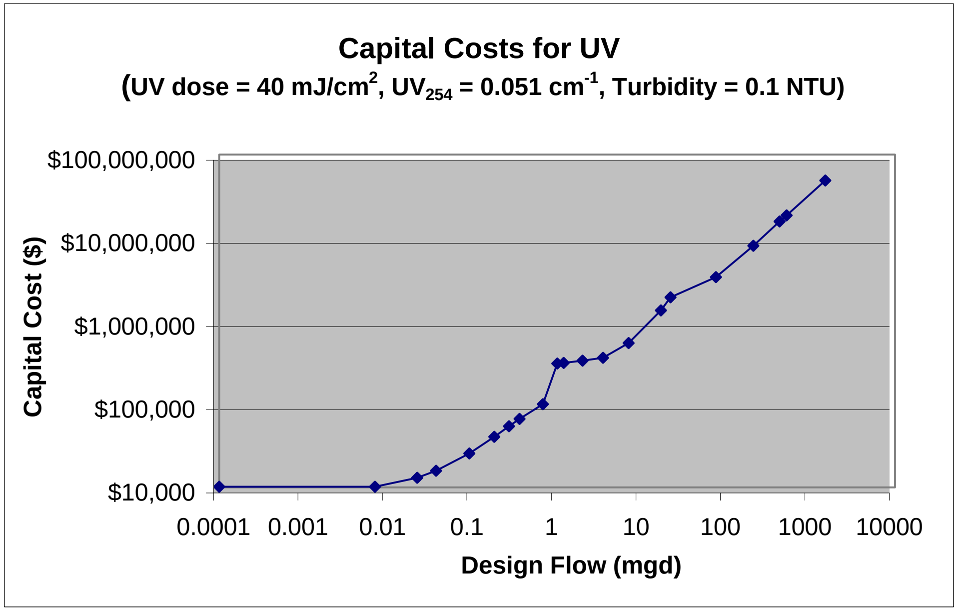
Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.5 Capital Costs for UV Surface Water Plants

Constraints: None
Design Criteria:

1) UV_{254} = 0.051 cm^{-1}, Turbidity = 0.1 NTU, Alkalinity = 60 mg/L $CaCO_3$, Hardness = 100 mg/L $CaCO_3$
2) UV dose = 40 mJ/cm^2

Design Flow (mgd)	Capital Cost ($)
0.0001	$10,195
0.0070	$10,195
0.0220	$13,034
0.0370	$15,834
0.0910	$25,596
0.1800	$40,597
0.2700	$54,386
0.3600	$66,790
0.6800	$99,661
1.0000	$309,007
1.2000	$312,516
2.0000	$332,185
3.5000	$361,819
7.0000	$543,582
17.0000	$1,335,938
22.0000	$1,925,888
76.0000	$3,353,263
210.0000	$8,041,758
430.0000	$15,736,025
520.0000	$18,526,877
1500.0000	$48,916,153



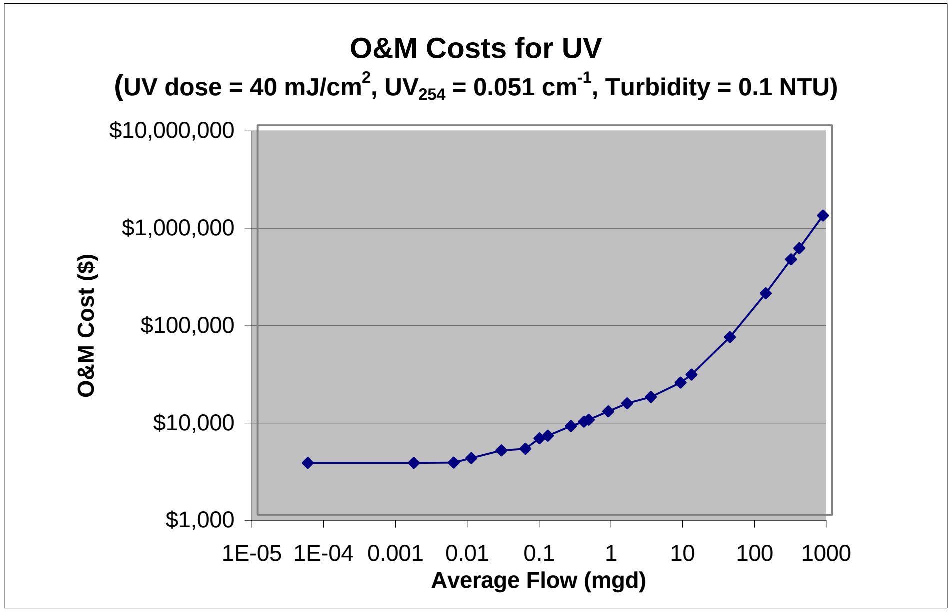
Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.6 O&M Costs for UV
Surface Water Plants

Constraints: None
Design Criteria:

1) UV_{254} = 0.051 cm^{-1}, Turbidity = 0.1 NTU, Alkalinity = 60 mg/L $CaCO_3$, Hardness = 100 mg/L $CaCO_3$
2) UV dose = 40 mJ/cm^2

Average Flow (mgd)	O&M Cost ($)
0.00005	$3,399
0.00150	$3,399
0.00540	$3,429
0.00950	$3,818
0.02500	$4,579
0.05400	$4,769
0.08400	$6,119
0.11000	$6,498
0.23000	$8,159
0.35000	$9,024
0.41000	$9,457
0.77000	$11,499
1.40000	$13,938
3.00000	$16,140
7.80000	$22,853
11.00000	$27,468
38.00000	$66,624
120.00000	$187,881
270.00000	$418,801
350.00000	$546,773
750.00000	$1,186,635



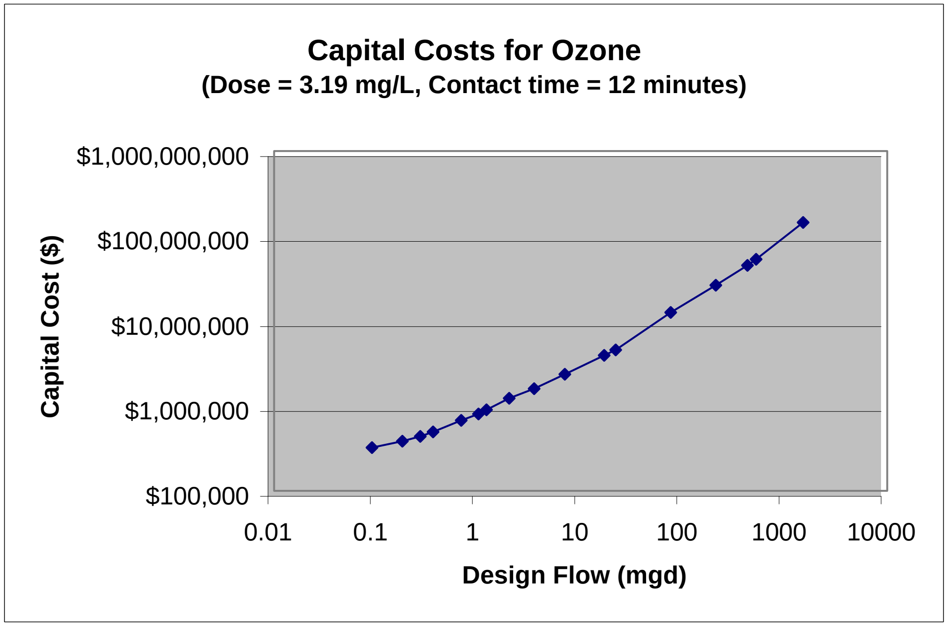
Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.7 Capital Costs for Ozone Surface Water Plants

Constraints: Not practical for systems serving 100 or fewer
Design Criteria:

1) Contact time = 12 minutes
2) Ozone Maximum dose = 3.19 mg/L

Design Flow (mgd)	Capital Cost ($)
0.0001	Not Applicable
0.0070	Not Applicable
0.0220	Not Applicable
0.0370	Not Applicable
0.0910	$322,787
0.1800	$382,874
0.2700	$438,785
0.3600	$493,394
0.6800	$675,951
1.0000	$804,614
1.2000	$902,391
2.0000	$1,226,541
3.5000	$1,595,373
7.0000	$2,357,412
17.0000	$3,946,957
22.0000	$4,546,365
76.0000	$12,628,950
210.0000	$26,317,852
430.0000	$44,918,178
520.0000	$53,248,978
1500.0000	$143,962,124

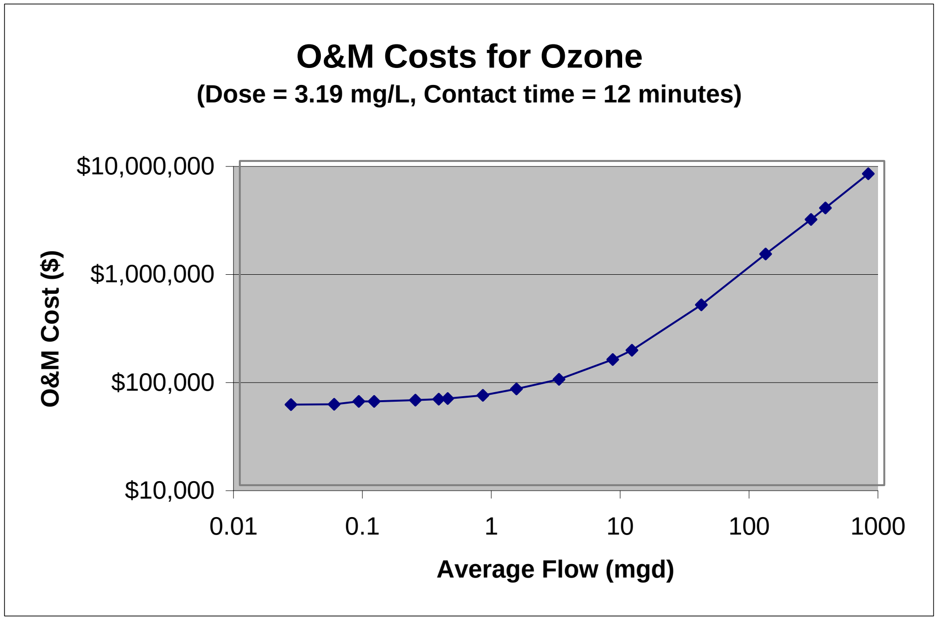


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.8 O&M Costs for Ozone
Surface Water Plants

Constraints: Not practical for systems serving 100 or fewer
Design Criteria:
1) Contact time = 12 minutes
2) Ozone maximum dose = 3.19 mg/L

Average Flow (mgd)	O&M Cost ($)
0.00005	Not Applicable
0.00150	Not Applicable
0.00540	Not Applicable
0.00950	Not Applicable
0.02500	$55,520
0.05400	$55,884
0.08400	$59,391
0.11000	$59,737
0.23000	$61,152
0.35000	$62,566
0.41000	$63,350
0.77000	$67,621
1.40000	$77,719
3.00000	$95,346
7.80000	$145,700
11.00000	$177,752
38.00000	$464,832
120.00000	$1,377,320
270.00000	$2,871,997
350.00000	$3,662,456
750.00000	$7,614,752

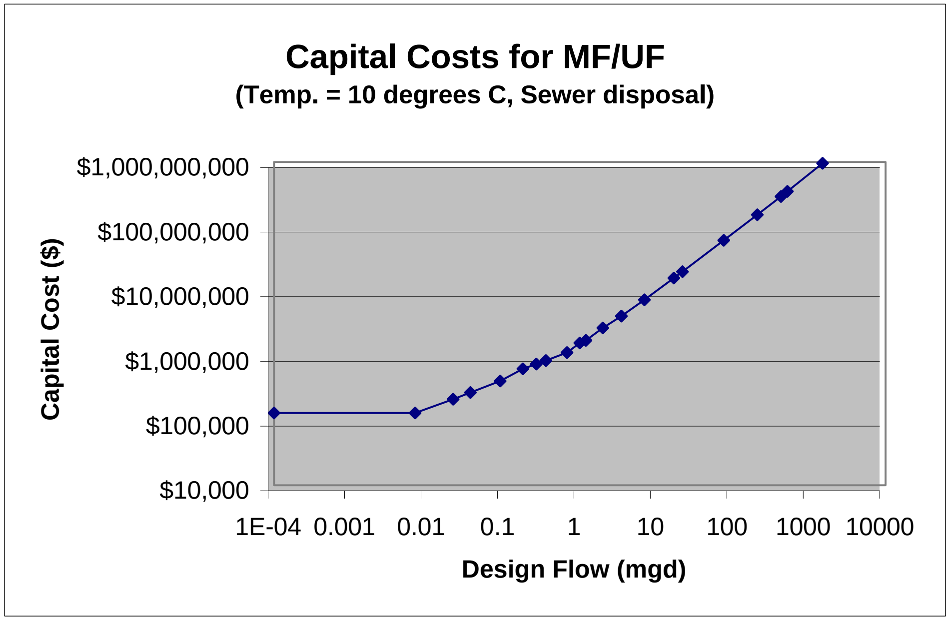


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.9 Capital Costs for MF/UF Surface Water Plants

Constraints: None
Design Criteria:
1) Water temp. = 10 degrees C
2) Sewer disposal

Design Flow (mgd)	Capital Cost ($)
0.0001	$131,478
0.0070	$131,478
0.0220	$214,432
0.0370	$270,819
0.0910	$409,983
0.1800	$628,117
0.2700	$748,563
0.3600	$850,970
0.6800	$1,133,988
1.0000	$1,594,911
1.2000	$1,738,505
2.0000	$2,720,593
3.5000	$4,142,559
7.0000	$7,382,351
17.0000	$15,991,348
22.0000	$20,058,196
76.0000	$61,150,358
210.0000	$153,184,031
430.0000	$293,759,889
520.0000	$349,252,221
1500.0000	$953,502,064

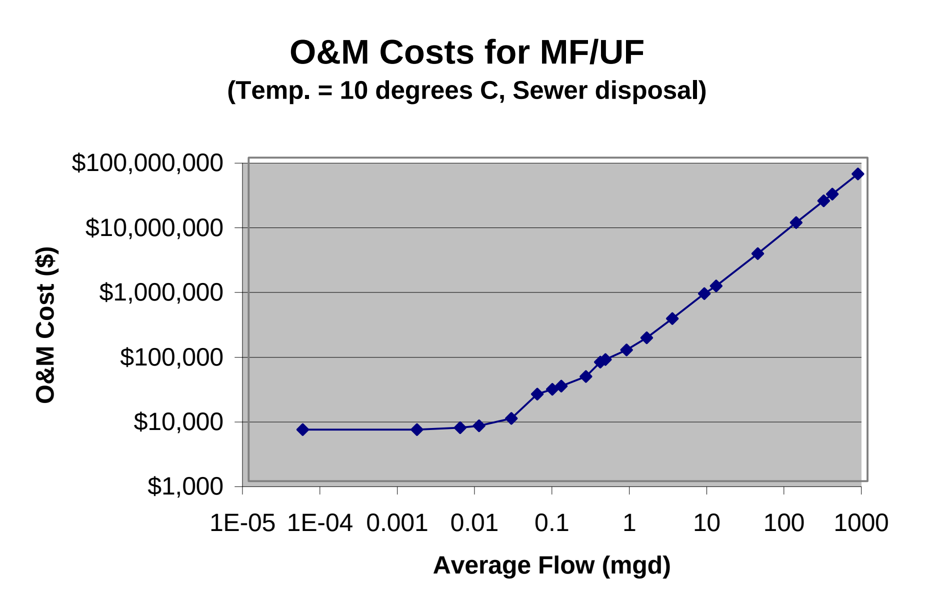


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.10 O&M Costs for MF/UF
Surface Water Plants

Constraints: None
Design Criteria:
1) Water temp. = 10 degrees C
2) Sewer disposal

Average Flow (mgd)	O&M Cost ($)
0.00005	$6,230
0.00150	$6,230
0.00540	$6,686
0.00950	$7,156
0.02500	$9,329
0.05400	$22,042
0.08400	$26,348
0.11000	$29,272
0.23000	$41,522
0.35000	$69,214
0.41000	$75,317
0.77000	$106,798
1.40000	$164,173
3.00000	$324,393
7.80000	$786,427
11.00000	$1,034,793
38.00000	$3,301,730
120.00000	$9,888,387
270.00000	$21,519,157
350.00000	$27,300,426
750.00000	$56,206,770

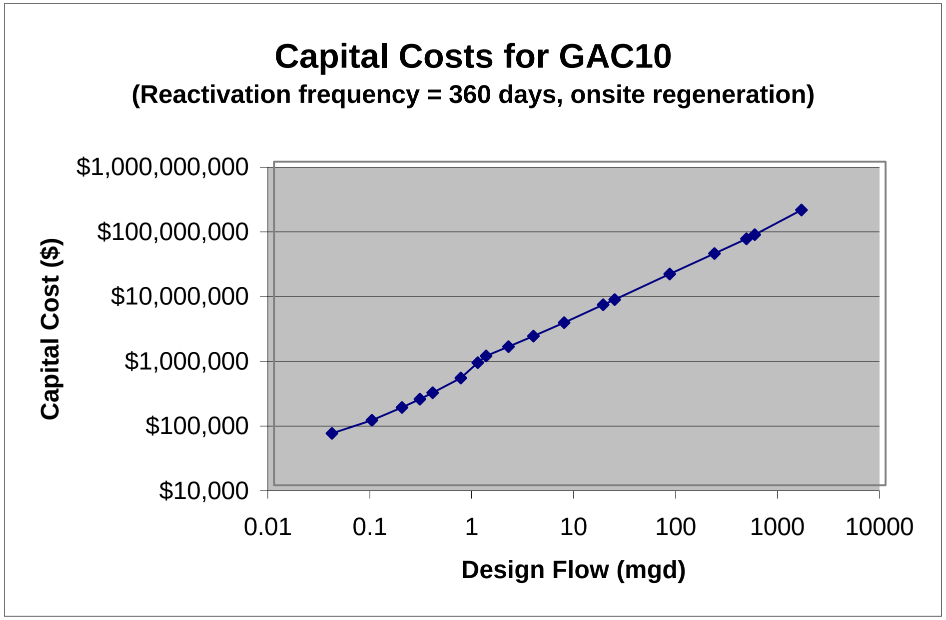


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.11 Capital Costs for GAC10
Surface Water Plants

Constraints: Not practical for systems serving 10,000 or fewer persons
Design Criteria:
1) Reactivation frequency = 360 days
2) Onsite regeneration for large systems, offsite regeneration for small systems

Design Flow (mgd)	Capital Cost ($)
0.0001	Not Applicable
0.0070	Not Applicable
0.0220	Not Applicable
0.0370	$63,046
0.0910	$101,302
0.1800	$159,645
0.2700	$215,163
0.3600	$269,400
0.6800	$452,926
1.0000	$783,808
1.2000	$999,248
2.0000	$1,385,099
3.5000	$2,014,217
7.0000	$3,258,534
17.0000	$6,140,593
22.0000	$7,400,352
76.0000	$18,311,317
210.0000	$38,194,366
430.0000	$64,571,358
520.0000	$74,261,694
1500.0000	$179,778,692

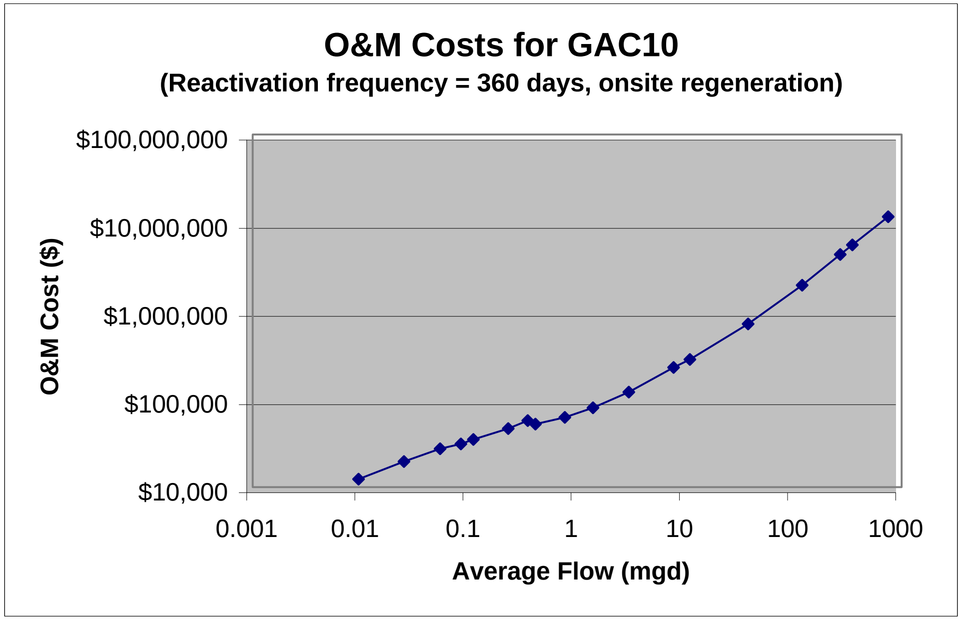


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.12 O&M Costs for GAC10
Surface Water Plants

Constraints: Not practical for systems serving 10,000 or fewer persons
Design Criteria:
1) Reactivation frequency = 360 days
2) Onsite regeneration for large systems, offsite regeneration for small systems

Average Flow (mgd)	O&M Cost ($)
0.00005	Not Applicable
0.00150	Not Applicable
0.00540	Not Applicable
0.00950	$12,360
0.02500	$19,485
0.05400	$27,213
0.08400	$30,798
0.11000	$34,808
0.23000	$46,000
0.35000	$57,078
0.41000	$51,809
0.77000	$61,887
1.40000	$79,158
3.00000	$120,100
7.80000	$227,710
11.00000	$280,625
38.00000	$709,287
120.00000	$1,952,120
270.00000	$4,368,760
350.00000	$5,584,876
750.00000	$11,665,453



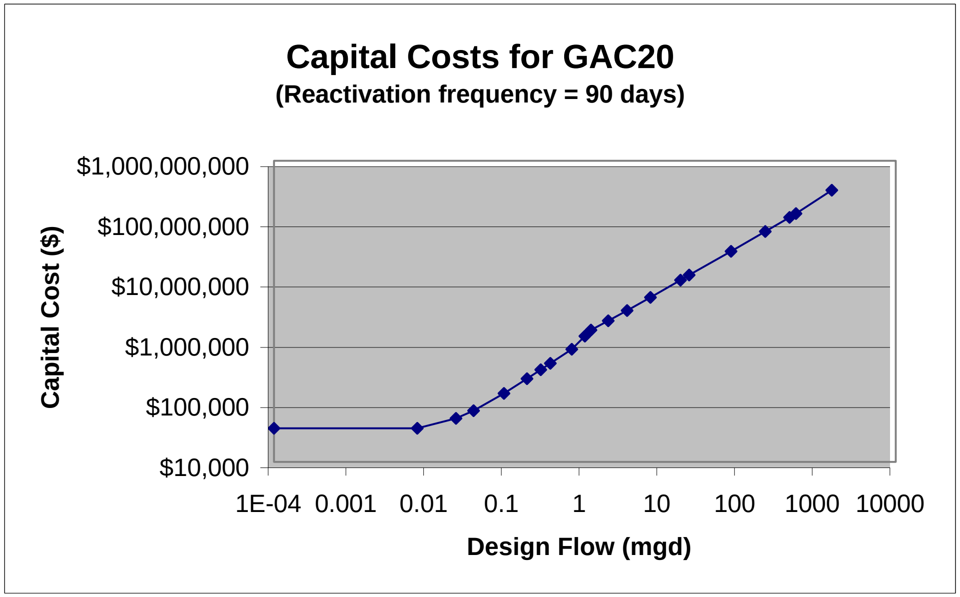
Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.13 Capital Costs for GAC20
Surface Water Plants

Constraints: None
Design Criteria:

1) Reactivation frequency = 90 days
2) Onsite regeneration for system serving more than 10,000 people
3) Media replacement for systems serving 10,000 or fewer people

Design Flow (mgd)	Capital Cost ($)
0.0001	$36,117
0.0070	$36,117
0.0220	$53,091
0.0370	$70,491
0.0910	$137,932
0.1800	$241,793
0.2700	$340,528
0.3600	$435,155
0.6800	$739,387
1.0000	$1,228,620
1.2000	$1,551,122
2.0000	$2,203,728
3.5000	$3,275,153
7.0000	$5,411,638
17.0000	$10,411,502
22.0000	$12,611,714
76.0000	$31,503,622
210.0000	$67,096,117
430.0000	$114,813,572
520.0000	$132,437,789
1500.0000	$324,345,925



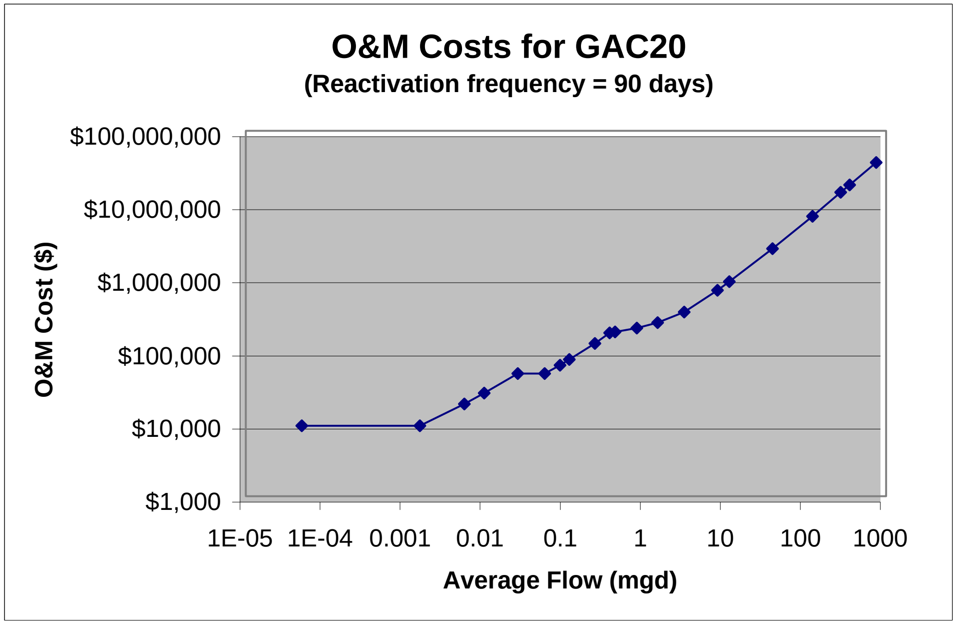
Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.14 O&M Costs for GAC20
Surface Water Plants

Constraints: None
Design Criteria:

1) Reactivation frequency = 90 days
2) Onsite regeneration for system serving more than 10,000 people
3) Media replacement for systems serving 10,000 or fewer people

Average Flow (mgd)	O&M Cost ($)
0.00005	$9,222
0.00150	$9,222
0.00540	$18,223
0.00950	$25,644
0.02500	$47,782
0.05400	$47,639
0.08400	$61,728
0.11000	$74,417
0.23000	$123,691
0.35000	$171,149
0.41000	$177,242
0.77000	$199,489
1.40000	$237,836
3.00000	$330,703
7.80000	$656,235
11.00000	$863,063
38.00000	$2,448,311
120.00000	$6,727,479
270.00000	$14,362,281
350.00000	$18,123,898
750.00000	$36,931,984

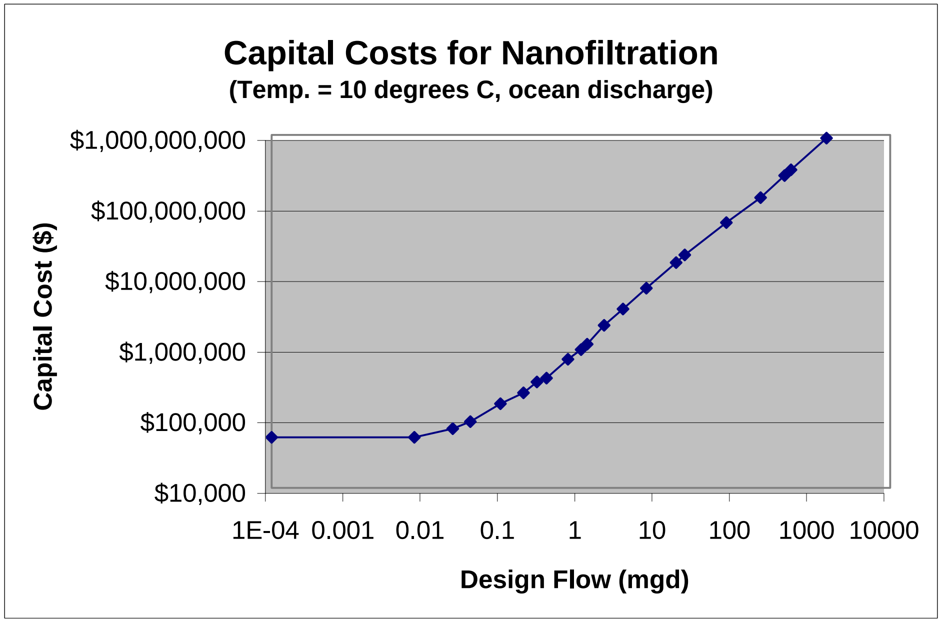


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.15 Capital Costs for Nanofiltration Surface Water Plants

Constraints: None
Design Criteria:
1) Water temp. = 10 degrees C
2) Ocean or Sewer discharge

Design Flow (mgd)	Capital Cost ($)
0.0001	$51,894
0.0070	$51,894
0.0220	$69,241
0.0370	$86,588
0.0910	$156,079
0.1800	$222,829
0.2700	$315,937
0.3600	$357,087
0.6800	$663,375
1.0000	$912,423
1.2000	$1,080,532
2.0000	$2,018,579
3.5000	$3,404,129
7.0000	$6,745,258
17.0000	$15,456,118
22.0000	$19,862,964
76.0000	$57,558,238
210.0000	$129,659,099
430.0000	$265,356,059
520.0000	$318,914,577
1500.0000	$902,107,327

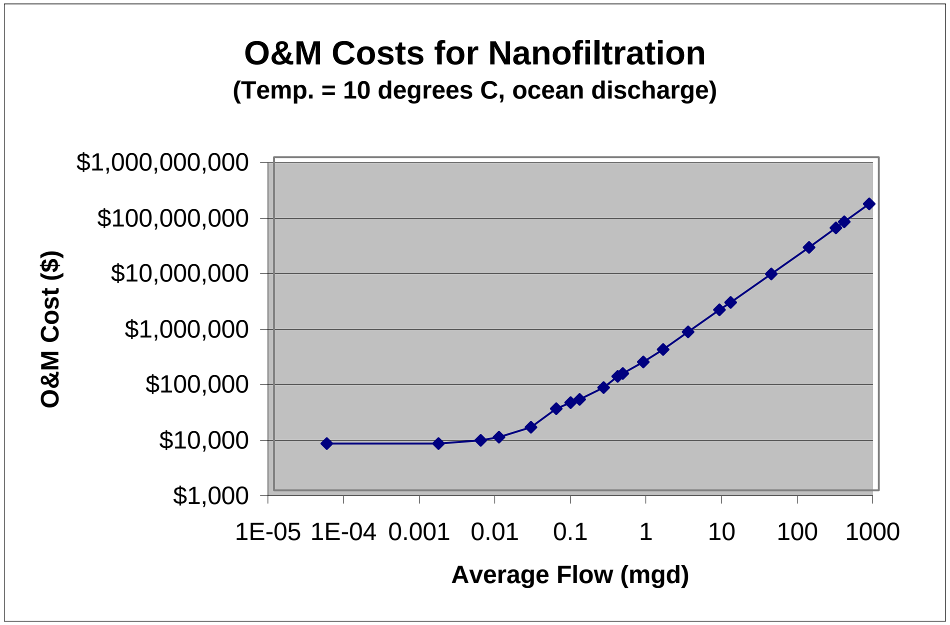


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.16 O&M Costs for Nanofiltration
Surface Water Plants

Constraints: None
Design Criteria:
1) Water temp. = 10 degrees C
2) Ocean or sewer discharge

Average Flow (mgd)	O&M Cost ($)
0.00005	$6,909
0.00150	$6,909
0.00540	$7,937
0.00950	$9,025
0.02500	$13,703
0.05400	$29,539
0.08400	$37,904
0.11000	$43,223
0.23000	$70,725
0.35000	$112,309
0.41000	$126,572
0.77000	$205,817
1.40000	$343,298
3.00000	$710,894
7.80000	$1,780,761
11.00000	$2,429,844
38.00000	$7,914,024
120.00000	$23,845,168
270.00000	$52,975,344
350.00000	$68,097,181
750.00000	$143,706,367

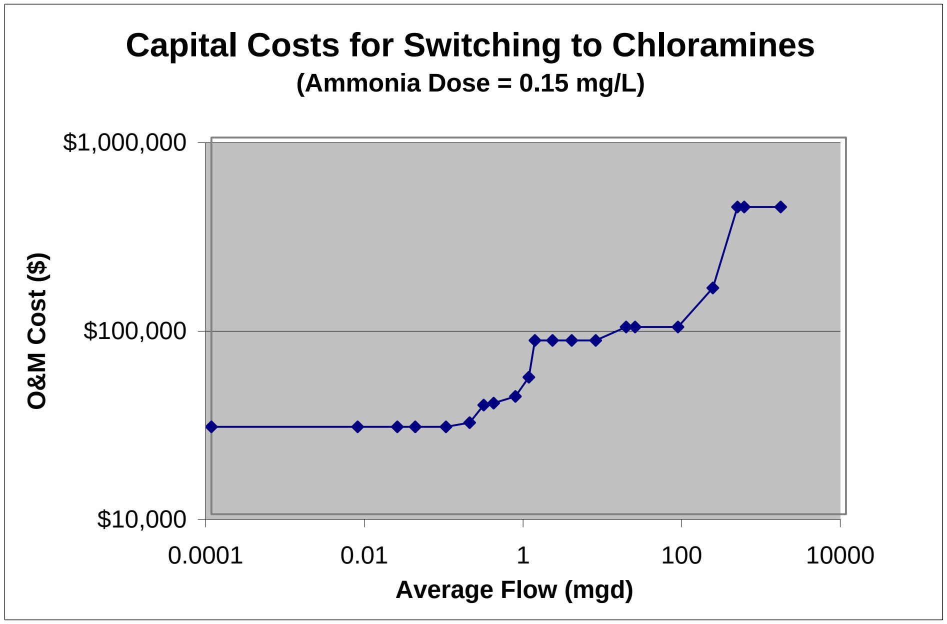


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.17 Capital Costs for Switching to Chloramines
Ground Water Plants

Constraints: It can be used alone or in conjunction with the other technologies
Design Criteria:
1) Ammonia dose = 0.15 mg/L

Design Flow (mgd)	Capital Cost ($)
0.0001	$29,104
0.0070	$29,104
0.0220	$29,104
0.0370	$29,104
0.0910	$29,104
0.1800	$30,604
0.2700	$37,939
0.3600	$38,858
0.6800	$42,127
1.0000	$53,396
1.2000	$83,772
2.0000	$83,772
3.5000	$83,772
7.0000	$83,772
17.0000	$98,772
22.0000	$98,772
76.0000	$98,772
210.0000	$158,907
430.0000	$428,047
520.0000	$428,047
1500.0000	$428,047

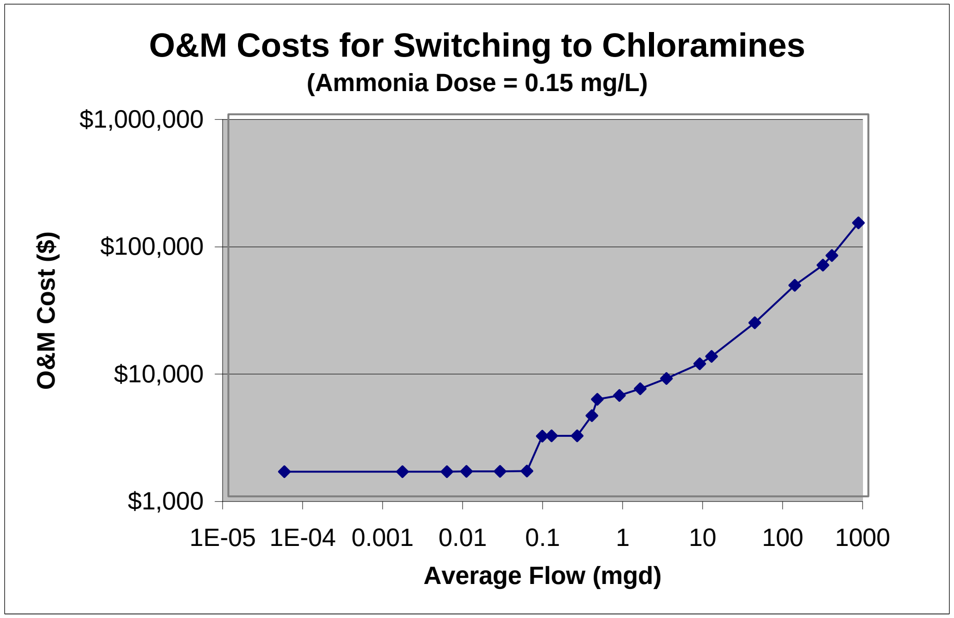


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.18 O&M Costs for Switching to Chloramines
Ground Water Plants

Constraints: It can be used alone or in conjunction with the other technologies
Design Criteria:
1) Ammonia dose = 0.15 mg/L

Average Flow (mgd)	O&M Cost ($)
0.00005	$1,565
0.00150	$1,565
0.00540	$1,566
0.00950	$1,567
0.02500	$1,572
0.05400	$1,580
0.08400	$2,973
0.11000	$2,981
0.23000	$2,990
0.35000	$4,310
0.41000	$5,780
0.77000	$6,196
1.40000	$7,004
3.00000	$8,415
7.80000	$11,015
11.00000	$12,534
38.00000	$23,008
120.00000	$45,384
270.00000	$65,310
350.00000	$77,901
750.00000	$140,855



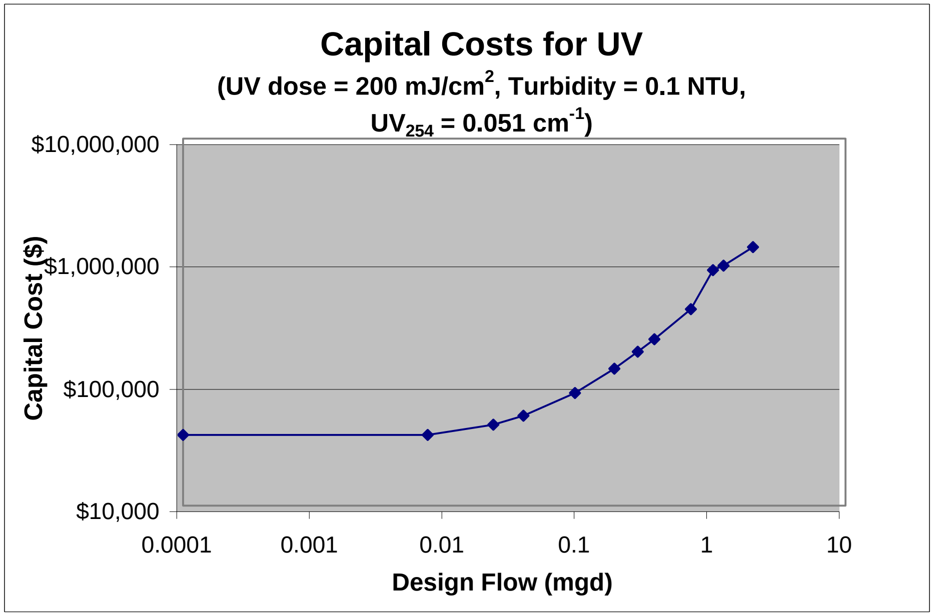
Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.19 Capital Costs for UV Ground Water Plants

Constraints: Not practical for systems serving 10,000 or more
Design Criteria:

1) UV_{254} = 0.051 cm^{-1}, Turbidity = 0.1 NTU
2) Alkalinity = 60 mg/L $CaCO_3$, Hardness = 100 mg/L $CaCO_3$
3) UV dose = 200 mJ/cm^2
4) 2 reactors in series

Design Flow (mgd)	Capital Cost ($)
0.0001	$37,874
0.0070	$37,874
0.0220	$46,025
0.0370	$54,176
0.0910	$83,520
0.1800	$131,884
0.2700	$180,791
0.3600	$229,698
0.6800	$403,588
1.0000	$842,925
1.2000	$914,515
2.0000	$1,299,090
3.5000	Not Applicable
7.0000	Not Applicable
17.0000	Not Applicable
22.0000	Not Applicable
76.0000	Not Applicable
210.0000	Not Applicable
430.0000	Not Applicable
520.0000	Not Applicable
1500.0000	Not Applicable



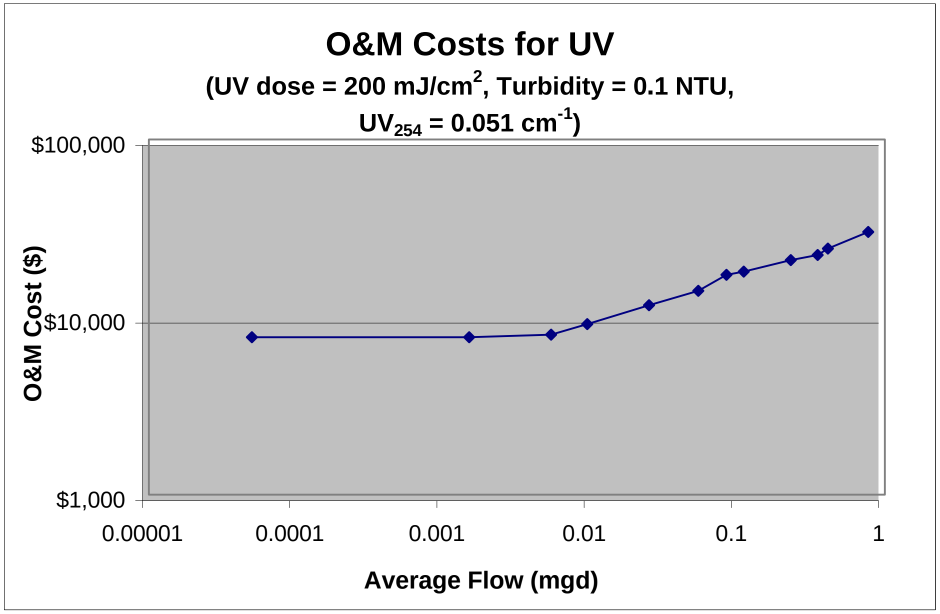
Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.20 O&M Costs for UV Ground Water Plants

Constraints: Not practical for systems serving 10,000 or more
Design Criteria:

1) UV_{254} = 0.051 cm^{-1}, Turbidity = 0.1 NTU
2) Alkalinity = 60 mg/L $CaCO_3$, Hardness = 100 mg/L $CaCO_3$
3) UV dose = 200 mJ/cm^2
4) 2 reactors in series

Average Flow (mgd)	O&M Cost ($)
0.00005	$7,706
0.00150	$7,706
0.00540	$7,975
0.00950	$9,110
0.02500	$11,650
0.05400	$14,076
0.08400	$17,326
0.11000	$18,030
0.23000	$20,952
0.35000	$22,376
0.41000	$24,324
0.77000	$30,111
1.40000	Not Applicable
3.00000	Not Applicable
7.80000	Not Applicable
11.00000	Not Applicable
38.00000	Not Applicable
120.00000	Not Applicable
270.00000	Not Applicable
350.00000	Not Applicable
750.00000	Not Applicable

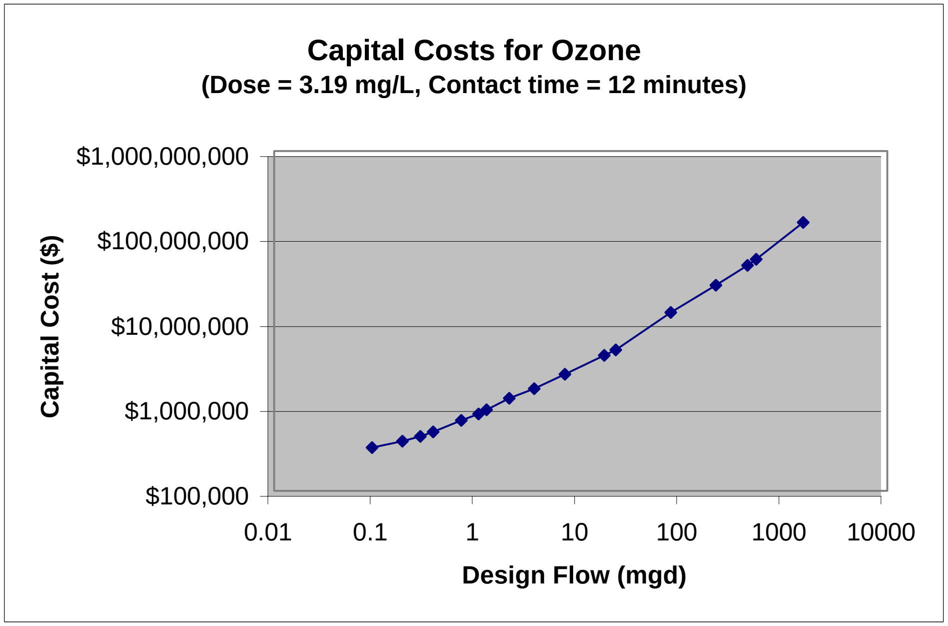


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.21 Capital Costs for Ozone Ground Water Plants

Constraints: Not practical for systems serving 100 or fewer people
Design Criteria:
1) Contact time = 12 minutes
2) Ozone maximum dose = 3.19 mg/L

Design Flow (mgd)	Capital Cost ($)
0.0001	Not Applicable
0.0070	Not Applicable
0.0220	Not Applicable
0.0370	Not Applicable
0.0910	$322,787
0.1800	$382,874
0.2700	$438,785
0.3600	$493,394
0.6800	$675,951
1.0000	$804,614
1.2000	$902,391
2.0000	$1,226,541
3.5000	$1,595,373
7.0000	$2,357,412
17.0000	$3,946,957
22.0000	$4,546,365
76.0000	$12,628,950
210.0000	$26,317,852
430.0000	$44,918,178
520.0000	$53,248,978
1500.0000	$143,962,124

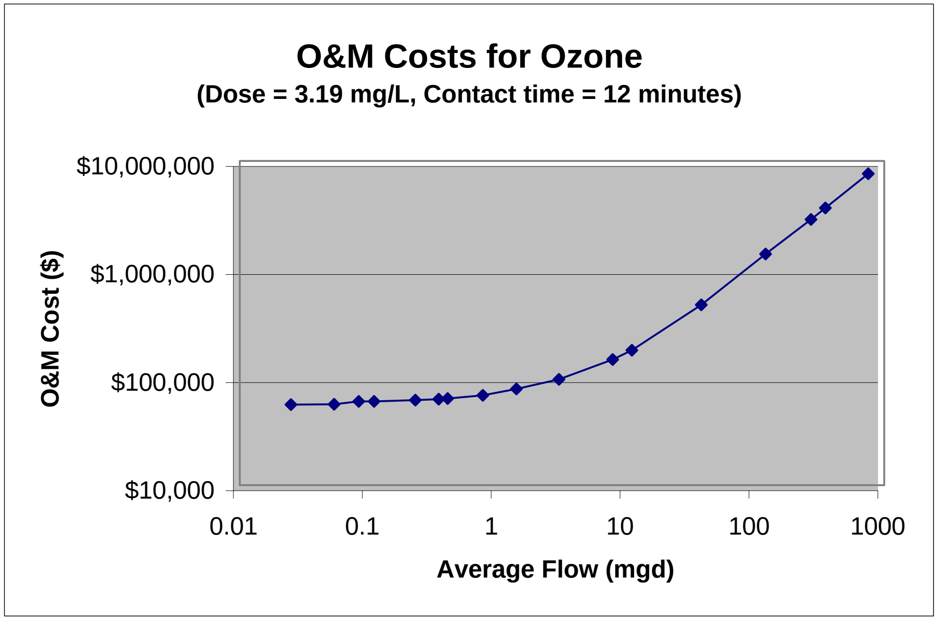


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.22 O&M Costs for Ozone
Ground Water Plants

Constraints: Not practical for systems serving 100 or fewer people
Design Criteria:
1) Contact time = 12 minutes
2) Ozone maximum dose = 3.19 mg/L

Average Flow (mgd)	O&M Cost ($)
0.00005	Not Applicable
0.00150	Not Applicable
0.00540	Not Applicable
0.00950	Not Applicable
0.02500	$55,520
0.05400	$55,884
0.08400	$59,391
0.11000	$59,737
0.23000	$61,152
0.35000	$62,566
0.41000	$63,350
0.77000	$67,621
1.40000	$77,719
3.00000	$95,346
7.80000	$145,700
11.00000	$177,752
38.00000	$464,832
120.00000	$1,377,320
270.00000	$2,871,997
350.00000	$3,662,456
750.00000	$7,614,752



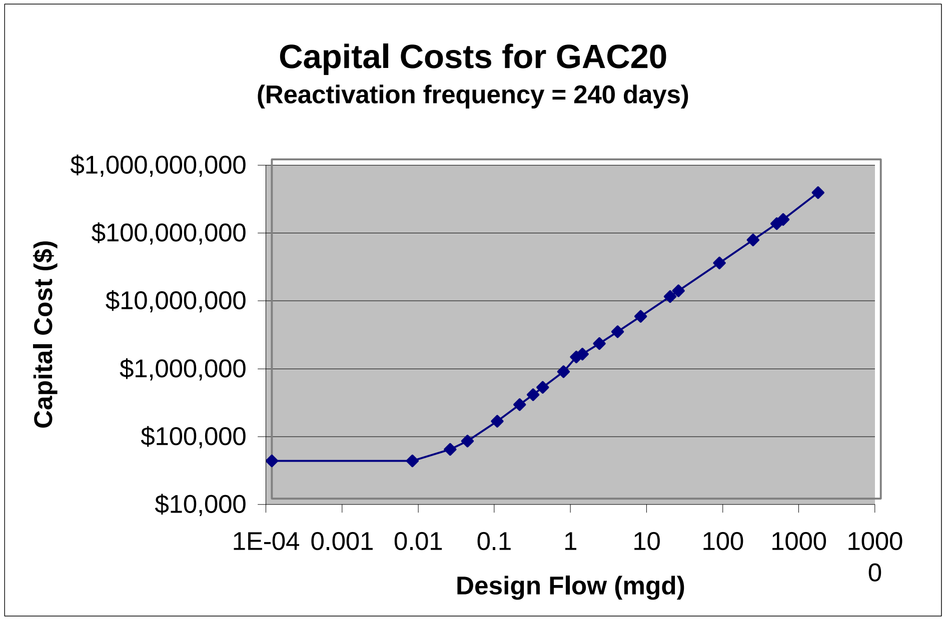
Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.23 Capital Costs for GAC20 Ground Water Plants

Constraints: None
Design Criteria:

1) Reactivation frequency = 240 days
2) Onsite regeneration for systems serving more than 10,000 people
3) Media replacement for systems serving 10,000 or fewer people

Design Flow (mgd)	Capital Cost ($)
0.0001	$36,117
0.0070	$36,117
0.0220	$53,091
0.0370	$70,491
0.0910	$137,932
0.1800	$241,793
0.2700	$340,528
0.3600	$435,155
0.6800	$739,387
1.0000	$1,228,620
1.2000	$1,351,323
2.0000	$1,931,036
3.5000	$2,894,585
7.0000	$4,844,129
17.0000	$9,491,603
22.0000	$11,561,478
76.0000	$29,712,377
210.0000	$64,708,727
430.0000	$112,528,561
520.0000	$130,362,039
1500.0000	$324,548,797



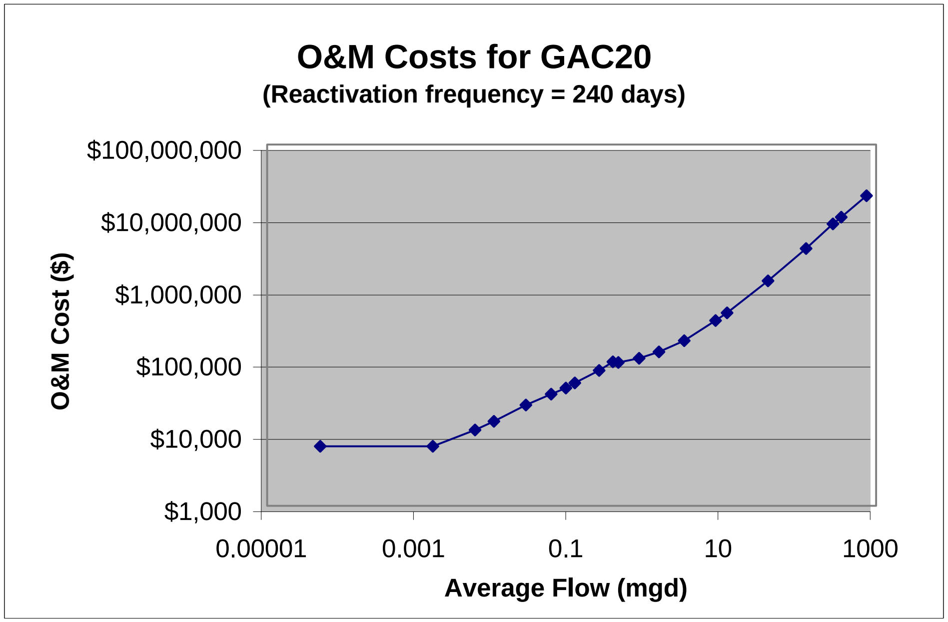
Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.24 O&M Costs for GAC20
Ground Water Plants

Constraints: None
Design Criteria:

1) Reactivation frequency = 240 days
2) Onsite regeneration for systems serving more than 10,000 people
3) Media replacement for systems serving 10,000 or fewer people

Average Flow (mgd)	O&M Cost ($)
0.00005	$6,673
0.00150	$6,673
0.00540	$11,206
0.00950	$14,742
0.02500	$24,752
0.05400	$35,068
0.08400	$42,835
0.11000	$50,123
0.23000	$75,023
0.35000	$98,679
0.41000	$96,623
0.77000	$110,575
1.40000	$134,831
3.00000	$193,396
7.80000	$367,103
11.00000	$469,818
38.00000	$1,294,938
120.00000	$3,624,295
270.00000	$7,945,037
350.00000	$9,865,622
750.00000	$19,468,547

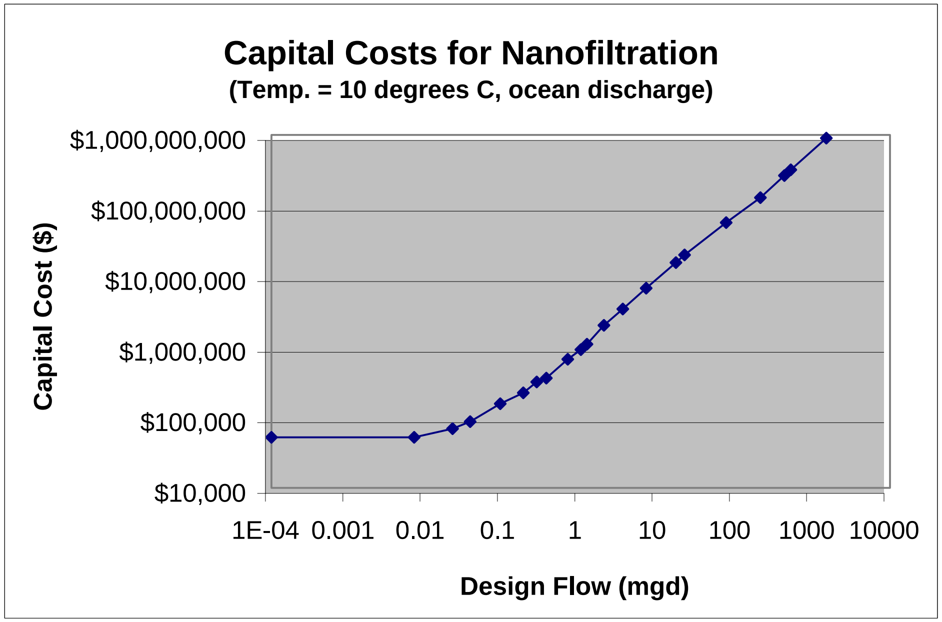


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.25 Capital Costs for Nanofiltration Ground Water Plants

Constraints: None
Design Criteria:
1) Water temp. = 10 degrees C
2) Ocean or sewer discharge

Design Flow (mgd)	Capital Cost ($)
0.0001	$51,894
0.0070	$51,894
0.0220	$69,241
0.0370	$86,588
0.0910	$156,079
0.1800	$222,829
0.2700	$315,937
0.3600	$357,087
0.6800	$663,375
1.0000	$912,423
1.2000	$1,080,532
2.0000	$2,018,579
3.5000	$3,404,129
7.0000	$6,745,258
17.0000	$15,456,118
22.0000	$19,862,964
76.0000	$57,558,238
210.0000	$129,659,099
430.0000	$265,356,059
520.0000	$318,914,577
1500.0000	$902,107,327

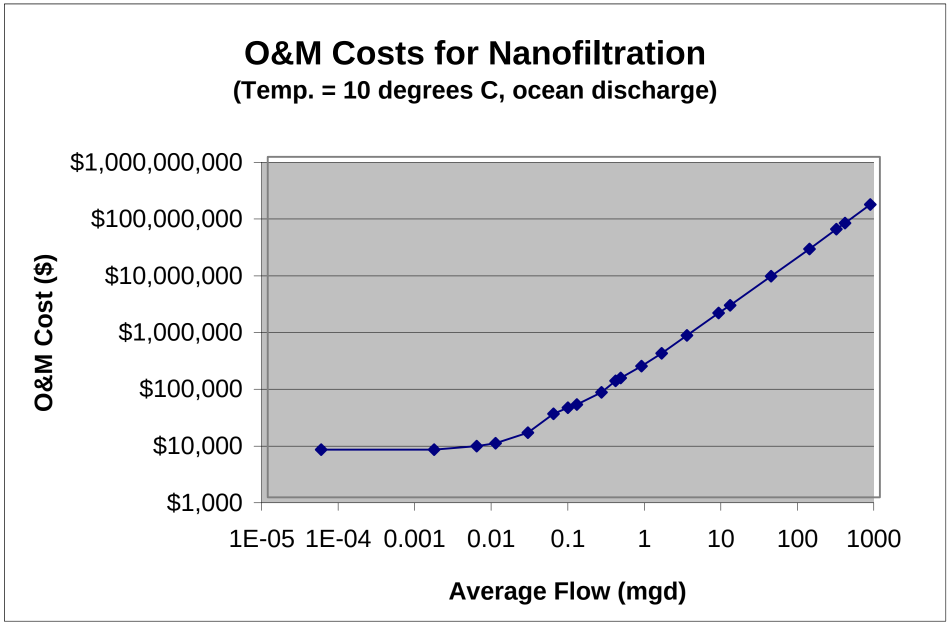


Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.26 O&M Costs for Nanofiltration
Ground Water Plants

Constraints: None
Design Criteria:
1) Water temp. = 10 degrees C
2) Ocean or sewer discharge

Average Flow (mgd)	O&M Cost ($)
0.00005	$6,909
0.00150	$6,909
0.00540	$7,937
0.00950	$9,025
0.02500	$13,703
0.05400	$29,539
0.08400	$37,904
0.11000	$43,223
0.23000	$70,725
0.35000	$112,309
0.41000	$126,572
0.77000	$205,817
1.40000	$343,298
3.00000	$710,894
7.80000	$1,780,761
11.00000	$2,429,844
38.00000	$7,914,024
120.00000	$23,845,168
270.00000	$52,975,344
350.00000	$68,097,181
750.00000	$143,706,367



Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Exhibit I.27 Stage 2 DBPR - Small Systems Household Unit Costs for the Stage 2 Affordability Analysis

	Technology	Population Served	Design Flow (mgd)	Average Daily Flow (mgd)	Capital Cost ($)	Annual Capital Cost at 7%($)	O&M Cost ($)	Total Annual Costs ($)	Unit Costs ($/kgal/yr)	Median Annual Water Usage per HH (kgal/yr)	Household Unit Costs ($)
			A	B	C	D	E	F=D+E	G=F/A	H	I=G*H
Ground Water CWSs	Chloramines (0.15 mg/L)	25 - 500	0.142	0.022	$ 29,104	$ 2,747	$ 1,569	4,316	0.54	83	44.50
		501 - 3,300	0.464	0.126	$ 40,288	$ 3,803	$ 2,986	6,788	0.15	85	12.56
		3,301 - 10,000	1.431	0.544	$ 83,772	$ 7,908	$ 6,116	14,023	0.07	89	6.25
	UV ($200 mJ/cm^2$)	25 - 500	0.142	0.022	$ 65,588	$ 6,191	$ 10,011	16,202	2.02	83	167.07
		501 - 3,300	0.464	0.126	$ 305,775	$ 28,863	$ 19,491	48,354	1.05	85	89.47
		3,301 - 10,000	1.431	0.544	$ 1,202,946	$ 113,550	$ 28,986	142,535	0.72	89	63.57
	Ozone (0.5-log dose)	25 - 500	0.142	0.022	$ 322,787	$ 30,469	$ 55,520	85,989	10.71	83	886.66
		501 - 3,300	0.464	0.126	$ 573,262	$ 54,112	$ 60,445	114,557	2.49	85	211.98
		3,301 - 10,000	1.431	0.544	$ 1,145,503	$ 108,127	$ 66,791	174,918	0.88	89	78.01
	GAC20 (EBCT=20 min, 240 day regeneration)	25 - 500	0.142	0.022	$ 96,718	$ 9,130	$ 18,294	27,424	3.42	83	282.77
		501 - 3,300	0.464	0.126	$ 568,257	$ 53,639	$ 62,573	116,213	2.53	85	215.04
		3,301 - 10,000	1.431	0.544	$ 1,786,108	$ 168,596	$ 107,862	276,458	1.39	89	123.29
	NF	25 - 500	0.142	0.022	$ 113,612	$ 10,724	$ 10,685	21,409	2.67	83	220.76
		501 - 3,300	0.464	0.126	$ 491,088	$ 46,355	$ 56,974	103,329	2.25	85	191.20
		3,301 - 10,000	1.431	0.544	$ 1,784,068	$ 168,403	$ 190,408	358,812	1.81	89	160.02
Surface Water CWSs	Chloramines (0.55 mg/L)	25 - 500	0.142	0.022	$ 29,104	$ 2,747	$ 1,581	4,328	0.54	83	44.63
		501 - 3,300	0.464	0.126	$ 40,288	$ 3,803	$ 3,083	6,886	0.15	85	12.74
		3,301 - 10,000	1.431	0.544	$ 83,772	$ 7,908	$ 6,553	14,461	0.07	89	6.45
	Chlorine Dioxide (1.25 mg/L)	25 - 500	0.142	0.022	$ 32,427	$ 3,061	$ 5,001	8,061	1.00	83	83.12
		501 - 3,300	0.464	0.126	$ 41,352	$ 3,903	$ 17,406	21,309	0.46	85	39.43
		3,301 - 10,000	1.431	0.544	$ 81,687	$ 7,711	$ 21,122	28,833	0.15	89	12.86
	UV ($40 mJ/cm^2$)	25 - 500	0.142	0.022	$ 19,631	$ 1,853	$ 4,088	5,941	0.74	83	61.26
		501 - 3,300	0.464	0.126	$ 81,171	$ 7,662	$ 7,329	14,991	0.33	85	27.74
		3,301 - 10,000	1.431	0.544	$ 327,268	$ 30,892	$ 11,102	41,993	0.21	89	18.73
	Ozone (0.5-log dose)	25 - 500	0.142	0.022	$ 322,787	$ 30,469	$ 55,520	85,989	10.71	83	886.66
		501 - 3,300	0.464	0.126	$ 573,262	$ 54,112	$ 60,445	114,557	2.49	85	211.98
		3,301 - 10,000	1.431	0.544	$ 1,145,503	$ 108,127	$ 66,791	174,918	0.88	89	78.01
	MF/UF	25 - 500	0.142	0.022	$ 324,938	$ 30,672	$ 7,927	38,599	4.81	83	398.00
		501 - 3,300	0.464	0.126	$ 974,790	$ 92,013	$ 35,397	127,411	2.77	85	235.76
		3,301 - 10,000	1.431	0.544	$ 2,475,071	$ 233,629	$ 100,677	334,306	1.68	89	149.09
	GAC10 (EBCT=10 min, 360 day regeneration)	25 - 500	0.142	0.022	$ 77,923	$ 7,355	$ 14,888	22,244	2.77	83	229.36
		501 - 3,300	0.464	0.126	$ 349,693	$ 33,009	$ 40,404	73,413	1.60	85	135.84
		3,301 - 10,000	1.431	0.544	$ 1,288,636	$ 121,638	$ 59,927	181,565	0.91	89	80.97
	GAC20 (EBCT=20 min, 90 day regeneration)	25 - 500	0.142	0.022	$ 96,718	$ 9,130	$ 33,499	42,629	5.31	83	439.56
		501 - 3,300	0.464	0.126	$ 568,257	$ 53,639	$ 99,054	152,693	3.32	85	282.54
		3,301 - 10,000	1.431	0.544	$ 2,040,576	$ 192,616	$ 195,163	387,779	1.95	89	172.93
	Integrated Membranes	25 - 500	0.142	0.022	$ 438,551	$ 41,396	$ 18,612	60,008	7.47	83	618.76
		501 - 3,300	0.464	0.126	$ 1,465,879	$ 138,369	$ 92,371	230,740	5.02	85	426.96
		3,301 - 10,000	1.431	0.544	$ 4,259,139	$ 402,033	$ 291,086	693,118	3.49	89	309.10

Sources: Exhibits I.1-I.26, flows from Exhibit 8.3.

Note: HH consumption values derived from small system affordability document, values were multiplied by 1.15 to account for water lost due to leaks.

Appendix J
Stage 2 DBPR Cost Projections

Matrix of Appendix J Contents

Applicable Rule Alternative(s)	Exhibit Description	Applicable Source Water Type(s)	Applicable System Classification(s)	Applicable System Size	Exhibit Number
Preferred Alternative	Total Capital and O&M Costs	All	All	All	J.1a
Alternative 1	Total Capital and O&M Costs	All	All	All	J.1b
Alternative 2	Total Capital and O&M Costs	All	All	All	J.1c
Alternative 3	Total Capital and O&M Costs	All	All	All	J.1d
Unadjusted Compliance Forcast	Total Capital and O&M Costs	All	All	All	J.1e
IDSE Alternate Compliance Forecast	Total Capital and O&M Costs	All	All	All	J.1f
All Alternatives	Total Implementation, IDSE, Additional Routine Monitoring, and Significant Excursion Evaluation Costs	All	All	All	J.1g
All Alternatives	Total Primacy Agency Costs	N/A	N/A	N/A	J.1h
Stage 2 Preferred Alternative	Annual PWS Cost Projections	Surface Water	CWS	<100	J.2a
				100-499	J.2b
				500-999	J.2c
				1,000-3,299	J.2d
				3,300-9,999	J.2e
				10,000-49,999	J.2f
				50,000-99,999	J.2g
				100,000-999,999	J.2h
				1,000,000+	J.2i
				All	J.2j
			NTNCWS	<100	J.2k
				100-499	J.2l
				500-999	J.2m
				1,000-3,299	J.2n
				3,300-9,999	J.2o
				10,000-49,999	J.2p
				50,000-99,999	J.2q
				100,000-999,999	J.2r
				1,000,000+	J.2s
				All	J.2t
			All	All	J.2u
		Ground Water	CWS	<100	J.2v
				100-499	J.2w
				500-999	J.2x
				1,000-3,299	J.2y
				3,300-9,999	J.2z
				10,000-49,999	J.2aa
				50,000-99,999	J.2ab
				100,000-999,999	J.2ac
				1,000,000+	J.2ad
				All	J.2ae
			NTNCWS	<100	J.2af
				100-499	J.2ag
				500-999	J.2ah
				1,000-3,299	J.2ai
				3,300-9,999	J.2aj
				10,000-49,999	J.2ak
				50,000-99,999	J.2al
				100,000-999,999	J.2am
				1,000,000+	J.2an
				All	J.2ao
			All	All	J.2ap
		All	All	All	J.2aq
	Annual Primacy Agency Cost Projections	N/A	N/A	N/A	J.2ar
	Present Value of Total Costs at 3% Discount Rate	All	All	All	J.2as
	Present Value of Capital Costs at 3% Discount Rate	All	All	All	J.2at
	Present Value of O&M Costs at 3% Discount Rate	All	All	All	J.2au
	Present Value of Non-treatment Costs at 3% Discount Rate	All	All	All	J.2av
	Present Value of Total Costs at 7% Discount Rate	All	All	All	J.2aw
	Present Value of Capital Costs at 7% Discount Rate	All	All	All	J.2ax
	Present Value of O&M Costs at 7% Discount Rate	All	All	All	J.2ay
	Present Value of Non-treatment Costs at 7% Discount Rate	All	All	All	J.2az
	Present Value of Total Costs at 3% Discount Rate	Surface Water	CWS	All	J.2ba
	Present Value of Capital Costs at 3% Discount Rate			All	J.2bb
	Present Value of O&M Costs at 3% Discount Rate			All	J.2bc
	Present Value of Non-Treatment Costs at 3% Discount Rate			All	J.2bd
	Present Value of Total Costs at 3% Discount Rate		NTNCWS	All	J.2be
	Present Value of Capital Costs at 3% Discount Rate			All	J.2bf
	Present Value of O&M Costs at 3% Discount Rate			All	J.2bg
	Present Value of Non-Treatment Costs at 3% Discount Rate			All	J.2bh

Applicable Rule Alternative(s)	Exhibit Description	Applicable Source Water Type(s)	Applicable System Classification(s)	Applicable System Size	Exhibit Number
	Present Value of Total Costs at 3% Discount Rate	Ground Water	CWS	All	J.2bi
	Present Value of Capital Costs at 3% Discount Rate			All	J.2bj
	Present Value of O&M Costs at 3% Discount Rate			All	J.2bk
	Present Value of Non-Treatment Costs at 3% Discount Rate			All	J.2bl
	Present Value of Total Costs at 3% Discount Rate	Ground Water	NTNCWS	All	J.2bm
	Present Value of Capital Costs at 3% Discount Rate			All	J.2bn
	Present Value of O&M Costs at 3% Discount Rate			All	J.2bo
	Present Value of Non-Treatment Costs at 3% Discount Rate			All	J.2bp
Stage 2 Preferred Alternative (Continued)	Present Value of Total Costs at 7% Discount Rate	Surface Water	CWS	All	J.2bq
	Present Value of Capital Costs at 7% Discount Rate			All	J.2br
	Present Value of O&M Costs at 7% Discount Rate			All	J.2bs
	Present Value of Non-Treatment Costs at 7% Discount Rate			All	J.2bt
	Present Value of Total Costs at 7% Discount Rate		NTNCWS	All	J.2bu
	Present Value of Capital Costs at 7% Discount Rate			All	J.2bv
	Present Value of O&M Costs at 7% Discount Rate			All	J.2bw
	Present Value of Non-Treatment Costs at 7% Discount Rate			All	J.2bx
	Present Value of Total Costs at 7% Discount Rate	Ground Water	CWS	All	J.2by
	Present Value of Capital Costs at 7% Discount Rate			All	J.2bz
	Present Value of O&M Costs at 7% Discount Rate			All	J.2ca
	Present Value of Non-Treatment Costs at 7% Discount Rate			All	J.2cb
	Present Value of Total Costs at 7% Discount Rate		NTNCWS	All	J.2cc
	Present Value of Capital Costs at 7% Discount Rate			All	J.2cd
	Present Value of O&M Costs at 7% Discount Rate			All	J.2ce
	Present Value of Non-Treatment Costs at 7% Discount Rate			All	J.2cf
Stage 2 Alternative 1	Annual PWS Cost Projections	Surface Water	CWSs	All	J.3a
			NTNCWs	All	J.3b
			All	All	J.3c
		Ground Water	CWSs	All	J.3d
			NTNCWs	All	J.3e
			All	All	J.3f
		All	All	All	J.3g
	Annual Primacy Agency Cost Projections	All	All	All	J.3h
	Present Value of Total Costs at 3% Discount Rate	All	All	All	J.3i
	Present Value of Capital Costs at 3% Discount Rate	All	All	All	J.3j
	Present Value of O&M Costs at 3% Discount Rate	All	All	All	J.3k
	Present Value of Non-treatment Costs at 3% Discount Rate	All	All	All	J.3l
	Present Value of Total Costs at 7% Discount Rate	All	All	All	J.3m
	Present Value of Capital Costs at 7% Discount Rate	All	All	All	J.3n
	Present Value of O&M Costs at 7% Discount Rate	All	All	All	J.3o
	Present Value of Non-treatment Costs at 7% Discount Rate	All	All	All	J.3p
Stage 2 Alternative 2	Annual PWS Cost Projections	Surface Water	CWSs	All	J.4a
			NTNCWs	All	J.4b
			All	All	J.4c
		Ground Water	CWSs	All	J.4d
			NTNCWs	All	J.4e
			All	All	J.4f
		All	All	All	J.4g
	Annual Primacy Agency Cost Projections	All	All	All	J.4h
	Present Value of Total Costs at 3% Discount Rate	All	All	All	J.4i
	Present Value of Capital Costs at 3% Discount Rate	All	All	All	J.4j
	Present Value of O&M Costs at 3% Discount Rate	All	All	All	J.4k
	Present Value of Non-treatment Costs at 3% Discount Rate	All	All	All	J.4l
	Present Value of Total Costs at 7% Discount Rate	All	All	All	J.4m
	Present Value of Capital Costs at 7% Discount Rate	All	All	All	J.4n
	Present Value of O&M Costs at 7% Discount Rate	All	All	All	J.4o
	Present Value of Non-treatment Costs at 7% Discount Rate	All	All	All	J.4p
Stage 2 Alternative 3	Annual PWS Cost Projections	Surface Water	CWSs	All	J.5a
			NTNCWs	All	J.5b
			All	All	J.5c
		Ground Water	CWSs	All	J.5d
			NTNCWs	All	J.5e
			All	All	J.5f
		All	All	All	J.5g
	Annual Primacy Agency Cost Projections	All	All	All	J.5h
	Present Value of Total Costs at 3% Discount Rate	All	All	All	J.5i
	Present Value of Capital Costs at 3% Discount Rate	All	All	All	J.5j
	Present Value of O&M Costs at 3% Discount Rate	All	All	All	J.5k
	Present Value of Non-treatment Costs at 3% Discount Rate	All	All	All	J.5l
	Present Value of Total Costs at 7% Discount Rate	All	All	All	J.5m
	Present Value of Capital Costs at 7% Discount Rate	All	All	All	J.5n
	Present Value of O&M Costs at 7% Discount Rate	All	All	All	J.5o
	Present Value of Non-treatment Costs at 7% Discount Rate	All	All	All	J.5p
		Surface Water	CWSs	All	J.6a
			NTNCWs	All	J.6b

Applicable Rule Alternative(s)	Exhibit Description	Applicable Source Water Type(s)	Applicable System Classification(s)	Applicable System Size	Exhibit Number
Stage 2 Preferred Alternative, 20% Safety Margin	Annual PWS Cost Projections		All	All	J.6c
		Ground Water	CWSs	All	J.6d
			NTNCWs	All	J.6e
			All	All	J.6f
		All	All	All	J.6g
	Annual Primacy Agency Cost Projections	All	All	All	J.6h
	Present Value of Total Costs at 3% Discount Rate	All	All	All	J.6i
Stage 2 Preferred Alternative, 25% Safety Margin	Annual PWS Cost Projections	Surface Water	CWSs	All	J.7a
			NTNCWs	All	J.7b
			All	All	J.7c
		Ground Water	CWSs	All	J.7d
			NTNCWs	All	J.7e
			All	All	J.7f
		All	All	All	J.7g
	Annual Primacy Agency Cost Projections	All	All	All	J.7h
	Present Value of Total Costs at 3% Discount Rate	All	All	All	J.7i

Section J.1
Total Costs Summaries and Cost Schedules

Exhibit J.1a Total Stage 2 DBPR Capital and O&M Costs - PWSs

Preferred Alternative

Source	System Classification	System Size (population served)	Capital Costs: Mean Value	Capital Costs: Median Value	Capital Costs: 90 Percent Confidence Bound Lower (5th %tile)	Capital Costs: 90 Percent Confidence Bound Upper (95th %tile)	O&M Costs: Mean Value	O&M Costs: Median Value	O&M Costs: 90 Percent Confidence Bound Lower (5th %tile)	O&M Costs: 90 Percent Confidence Bound Upper (95th %tile)
Surface Water	CWSs	<100	$ 1.20	$ 1.18	$ 0.60	$ 1.89	$ 0.22	$ 0.22	$ 0.11	$ 0.32
		100-499	$ 3.59	$ 3.54	$ 1.81	$ 5.58	$ 0.90	$ 0.90	$ 0.47	$ 1.34
		500-999	$ 4.24	$ 4.16	$ 2.13	$ 6.63	$ 0.67	$ 0.67	$ 0.35	$ 1.00
		1,000-3,299	$ 26.79	$ 26.71	$ 13.65	$ 40.68	$ 3.69	$ 3.70	$ 1.91	$ 5.49
		3,300-9,999	$ 68.36	$ 68.00	$ 35.07	$ 103.50	$ 5.85	$ 5.87	$ 3.03	$ 8.69
		10,000-49,999	$ 124.13	$ 124.48	$ 64.58	$ 179.49	$ 6.63	$ 6.60	$ 3.85	$ 9.77
		50,000-99,999	$ 73.91	$ 74.31	$ 38.44	$ 106.75	$ 3.74	$ 3.70	$ 2.18	$ 5.58
		100,000-999,999	$ 201.75	$ 202.92	$ 101.21	$ 294.49	$ 8.96	$ 8.69	$ 5.24	$ 14.10
		1,000,000+	$ 94.35	$ 94.25	$ 48.67	$ 137.67	$ 5.39	$ 5.14	$ 3.12	$ 8.71
		All Sizes	$ 598.31	$ 599.55	$ 306.16	$ 876.67	$ 36.04	$ 35.49	$ 20.24	$ 55.02
	NTNCWSs	<100	$ 0.74	$ 0.73	$ 0.37	$ 1.16	$ 0.13	$ 0.13	$ 0.07	$ 0.20
		100-499	$ 1.45	$ 1.44	$ 0.74	$ 2.25	$ 0.37	$ 0.37	$ 0.19	$ 0.55
		500-999	$ 0.94	$ 0.93	$ 0.47	$ 1.46	$ 0.15	$ 0.15	$ 0.08	$ 0.22
		1,000-3,299	$ 2.08	$ 2.07	$ 1.06	$ 3.15	$ 0.29	$ 0.29	$ 0.15	$ 0.43
		3,300-9,999	$ 1.41	$ 1.41	$ 0.73	$ 2.14	$ 0.12	$ 0.12	$ 0.06	$ 0.18
		10,000-49,999	$ 0.60	$ 0.60	$ 0.31	$ 0.86	$ 0.03	$ 0.03	$ 0.02	$ 0.04
		50,000-99,999	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		100,000-999,999	$ 0.45	$ 0.45	$ 0.23	$ 0.65	$ 0.02	$ 0.02	$ 0.01	$ 0.03
		1,000,000+	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 7.67	$ 7.63	$ 3.91	$ 11.69	$ 1.10	$ 1.10	$ 0.57	$ 1.65
		Subtotal	**$ 605.99**	**$ 607.18**	**$ 310.07**	**$ 888.36**	**$ 37.14**	**$ 36.59**	**$ 20.82**	**$ 56.66**
Ground Water	CWSs	<100	$ 8.35	$ 8.34	$ 7.19	$ 9.54	$ 0.93	$ 0.93	$ 0.87	$ 1.00
		100-499	$ 33.25	$ 33.24	$ 28.08	$ 38.45	$ 3.50	$ 3.50	$ 3.23	$ 3.78
		500-999	$ 20.22	$ 20.22	$ 17.03	$ 23.38	$ 1.88	$ 1.88	$ 1.73	$ 2.02
		1,000-3,299	$ 39.43	$ 39.41	$ 32.34	$ 46.55	$ 2.83	$ 2.83	$ 2.58	$ 3.08
		3,300-9,999	$ 65.93	$ 65.88	$ 53.54	$ 78.38	$ 2.40	$ 2.40	$ 2.20	$ 2.60
		10,000-49,999	$ 59.09	$ 59.08	$ 53.39	$ 64.79	$ 5.03	$ 5.03	$ 4.76	$ 5.30
		50,000-99,999	$ 14.96	$ 14.96	$ 13.38	$ 16.53	$ 1.28	$ 1.28	$ 1.20	$ 1.36
		100,000-999,999	$ 29.70	$ 29.71	$ 26.43	$ 32.95	$ 2.83	$ 2.83	$ 2.64	$ 3.02
		1,000,000+	$ 3.38	$ 3.38	$ 2.97	$ 3.79	$ 0.43	$ 0.43	$ 0.40	$ 0.46
		All Sizes	$ 274.30	$ 274.22	$ 234.36	$ 314.36	$ 21.11	$ 21.11	$ 19.60	$ 22.63
	NTNCWSs	<100	$ 3.18	$ 3.17	$ 2.73	$ 3.62	$ 0.35	$ 0.35	$ 0.33	$ 0.38
		100-499	$ 5.04	$ 5.05	$ 4.26	$ 5.82	$ 0.53	$ 0.53	$ 0.48	$ 0.57
		500-999	$ 2.48	$ 2.48	$ 2.08	$ 2.87	$ 0.22	$ 0.22	$ 0.20	$ 0.24
		1,000-3,299	$ 1.61	$ 1.61	$ 1.32	$ 1.90	$ 0.10	$ 0.10	$ 0.09	$ 0.10
		3,300-9,999	$ 0.46	$ 0.46	$ 0.38	$ 0.55	$ 0.01	$ 0.01	$ 0.01	$ 0.01
		10,000-49,999	$ 0.10	$ 0.10	$ 0.09	$ 0.11	$ 0.01	$ 0.01	$ 0.01	$ 0.01
		50,000-99,999	$ 0.02	$ 0.02	$ 0.02	$ 0.02	$ 0.00	$ 0.00	$ 0.00	$ 0.00
		100,000-999,999	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.00	$ 0.00	$ 0.00	$ 0.00
		1,000,000+	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 12.92	$ 12.92	$ 10.88	$ 14.93	$ 1.23	$ 1.23	$ 1.13	$ 1.32
		Subtotal	**$ 287.21**	**$ 287.14**	**$ 245.24**	**$ 329.30**	**$ 22.34**	**$ 22.34**	**$ 20.73**	**$ 23.95**
		Total	**$ 893.20**	**$ 894.32**	**$ 555.31**	**$ 1,217.66**	**$ 59.48**	**$ 58.93**	**$ 41.55**	**$ 80.61**

Notes: All values in millions of year 2003 dollars.

Detail may not add exactly to totals due to independent rounding.

Source: Derived by multiplying unit costs in Exhibits 7.10 and 7.11 by Technology Selection Deltas in Exhibits 5.14 and 5.17 for the Preferred Alternative, summed for all technologies.

Exhibit J.1b Total Stage 2 DBPR Capital and O&M Costs - PWSs

Alternative 1

Source	System Classification	System Size (population served)	Capital Costs Mean Value	Capital Costs Median Value	Capital Costs 90 Percent Confidence Bound Lower (5th %tile)	Capital Costs 90 Percent Confidence Bound Upper (95th %tile)	O&M Costs Mean Value	O&M Costs Median Value	O&M Costs 90 Percent Confidence Bound Lower (5th %tile)	O&M Costs 90 Percent Confidence Bound Upper (95th %tile)
Surface Water	CWSs	<100	$ 1.63	$ 1.62	$ 0.85	$ 2.48	$ 0.31	$ 0.31	$ 0.17	$ 0.46
		100-499	$ 10.29	$ 10.22	$ 5.45	$ 15.41	$ 0.97	$ 0.97	$ 0.52	$ 1.43
		500-999	$ 11.58	$ 11.50	$ 6.10	$ 17.46	$ 1.03	$ 1.04	$ 0.55	$ 1.52
		1,000-3,299	$ 52.52	$ 52.28	$ 27.76	$ 78.36	$ 4.64	$ 4.64	$ 2.47	$ 6.82
		3,300-9,999	$ 126.46	$ 126.07	$ 67.06	$ 188.90	$ 10.01	$ 10.04	$ 5.33	$ 14.73
		10,000-49,999	$ 375.17	$ 373.02	$ 198.16	$ 566.50	$ 27.18	$ 27.18	$ 14.50	$ 40.08
		50,000-99,999	$ 243.58	$ 241.91	$ 128.35	$ 366.17	$ 18.55	$ 18.61	$ 9.86	$ 27.33
		100,000-999,999	$ 777.62	$ 770.90	$ 408.61	$ 1,175.78	$ 64.73	$ 64.76	$ 34.49	$ 95.43
		1,000,000+	$ 474.66	$ 470.09	$ 250.48	$ 720.87	$ 51.19	$ 51.12	$ 27.23	$ 75.77
		All Sizes	$ 2,073.51	$ 2,057.62	$ 1,092.82	$ 3,131.93	$ 178.63	$ 178.67	$ 95.13	$ 263.57
	NTNCWSs	<100	$ 1.00	$ 0.99	$ 0.52	$ 1.52	$ 0.19	$ 0.19	$ 0.10	$ 0.28
		100-499	$ 4.16	$ 4.14	$ 2.20	$ 6.25	$ 0.39	$ 0.39	$ 0.21	$ 0.58
		500-999	$ 2.56	$ 2.55	$ 1.35	$ 3.85	$ 0.23	$ 0.23	$ 0.12	$ 0.33
		1,000-3,299	$ 4.08	$ 4.06	$ 2.16	$ 6.11	$ 0.36	$ 0.36	$ 0.19	$ 0.53
		3,300-9,999	$ 2.68	$ 2.68	$ 1.42	$ 4.00	$ 0.21	$ 0.21	$ 0.11	$ 0.30
		10,000-49,999	$ 1.95	$ 1.94	$ 1.03	$ 2.94	$ 0.14	$ 0.14	$ 0.08	$ 0.21
		50,000-99,999	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		100,000-999,999	$ 1.90	$ 1.89	$ 1.00	$ 2.87	$ 0.16	$ 0.16	$ 0.09	$ 0.24
		1,000,000+	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 18.33	$ 18.25	$ 9.69	$ 27.55	$ 1.68	$ 1.68	$ 0.89	$ 2.47
		Subtotal	**$ 2,091.84**	**$ 2,075.87**	**$ 1,102.51**	**$ 3,159.48**	**$ 180.30**	**$ 180.35**	**$ 96.02**	**$ 266.04**
Ground Water	CWSs	<100	$ 9.49	$ 9.48	$ 8.19	$ 10.81	$ 1.11	$ 1.11	$ 1.03	$ 1.19
		100-499	$ 41.02	$ 41.03	$ 34.80	$ 47.22	$ 4.47	$ 4.47	$ 4.13	$ 4.81
		500-999	$ 25.90	$ 25.91	$ 22.03	$ 29.76	$ 2.56	$ 2.56	$ 2.38	$ 2.74
		1,000-3,299	$ 66.11	$ 66.12	$ 55.71	$ 76.61	$ 5.36	$ 5.36	$ 4.99	$ 5.74
		3,300-9,999	$ 111.35	$ 111.19	$ 93.04	$ 129.69	$ 5.23	$ 5.23	$ 4.90	$ 5.56
		10,000-49,999	$ 141.00	$ 140.97	$ 122.94	$ 159.17	$ 13.60	$ 13.60	$ 12.66	$ 14.56
		50,000-99,999	$ 41.16	$ 41.17	$ 35.68	$ 46.65	$ 3.92	$ 3.92	$ 3.62	$ 4.21
		100,000-999,999	$ 85.11	$ 85.20	$ 73.73	$ 96.51	$ 9.08	$ 9.08	$ 8.36	$ 9.80
		1,000,000+	$ 10.53	$ 10.52	$ 9.05	$ 12.01	$ 1.48	$ 1.48	$ 1.36	$ 1.60
		All Sizes	$ 531.67	$ 531.60	$ 455.17	$ 608.43	$ 46.81	$ 46.80	$ 43.42	$ 50.20
	NTNCWSs	<100	$ 3.60	$ 3.60	$ 3.10	$ 4.10	$ 0.42	$ 0.42	$ 0.39	$ 0.45
		100-499	$ 6.31	$ 6.32	$ 5.37	$ 7.26	$ 0.68	$ 0.68	$ 0.62	$ 0.73
		500-999	$ 3.20	$ 3.20	$ 2.71	$ 3.69	$ 0.30	$ 0.30	$ 0.28	$ 0.32
		1,000-3,299	$ 2.74	$ 2.74	$ 2.31	$ 3.17	$ 0.19	$ 0.19	$ 0.18	$ 0.20
		3,300-9,999	$ 0.79	$ 0.79	$ 0.66	$ 0.92	$ 0.03	$ 0.03	$ 0.03	$ 0.03
		10,000-49,999	$ 0.28	$ 0.28	$ 0.24	$ 0.31	$ 0.02	$ 0.02	$ 0.02	$ 0.03
		50,000-99,999	$ 0.07	$ 0.07	$ 0.06	$ 0.08	$ 0.01	$ 0.01	$ 0.01	$ 0.01
		100,000-999,999	$ 0.09	$ 0.09	$ 0.08	$ 0.11	$ 0.01	$ 0.01	$ 0.01	$ 0.01
		1,000,000+	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 17.08	$ 17.09	$ 14.53	$ 19.63	$ 1.66	$ 1.66	$ 1.54	$ 1.77
		Subtotal	**$ 548.76**	**$ 548.69**	**$ 469.71**	**$ 628.06**	**$ 48.47**	**$ 48.46**	**$ 44.96**	**$ 51.98**
		Total	**$ 2,640.60**	**$ 2,624.56**	**$ 1,572.21**	**$ 3,787.54**	**$ 228.77**	**$ 228.81**	**$ 140.98**	**$ 318.02**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived by multiplying unit costs in Exhibits 7.10 and 7.11 by Technology Selection Deltas in in Appendix C (results for Alternative 1), summed for all technologies.

Exhibit J.1c Total Stage 2 DBPR Capital and O&M Costs - PWSs

Alternative 2

Source	System Classification	System Size (population served)	Capital Costs: Mean Value	Capital Costs: Median Value	Capital Costs: 90 Percent Confidence Bound Lower (5th %tile)	Capital Costs: 90 Percent Confidence Bound Upper (95th %tile)	O&M Costs: Mean Value	O&M Costs: Median Value	O&M Costs: 90 Percent Confidence Bound Lower (5th %tile)	O&M Costs: 90 Percent Confidence Bound Upper (95th %tile)
Surface Water	CWSs	<100	$ 8.13	$ 8.10	$ 6.66	$ 9.71	$ 1.47	$ 1.47	$ 1.24	$ 1.71
		100-499	$ 43.58	$ 43.41	$ 36.02	$ 51.61	$ 7.63	$ 7.62	$ 6.43	$ 8.87
		500-999	$ 53.68	$ 53.57	$ 44.37	$ 63.45	$ 6.44	$ 6.44	$ 5.44	$ 7.48
		1,000-3,299	$ 246.27	$ 245.72	$ 203.14	$ 291.56	$ 31.98	$ 31.96	$ 26.89	$ 37.22
		3,300-9,999	$ 629.73	$ 627.53	$ 520.34	$ 746.23	$ 55.92	$ 55.88	$ 47.17	$ 64.96
		10,000-49,999	$ 820.20	$ 816.83	$ 679.03	$ 972.15	$ 42.30	$ 42.26	$ 35.74	$ 48.94
		50,000-99,999	$ 501.30	$ 499.80	$ 414.99	$ 592.70	$ 25.74	$ 25.75	$ 21.76	$ 29.78
		100,000-999,999	$ 1,364.84	$ 1,364.04	$ 1,130.35	$ 1,612.55	$ 72.10	$ 72.15	$ 60.91	$ 83.55
		1,000,000+	$ 703.45	$ 701.15	$ 582.60	$ 830.64	$ 49.28	$ 49.29	$ 41.59	$ 57.19
		All Sizes	$ 4,371.18	$ 4,360.14	$ 3,617.49	$ 5,170.61	$ 292.87	$ 292.82	$ 247.17	$ 339.70
	NTNCWSs	<100	$ 4.90	$ 4.89	$ 4.02	$ 5.86	$ 0.87	$ 0.87	$ 0.74	$ 1.01
		100-499	$ 17.59	$ 17.56	$ 14.55	$ 20.85	$ 3.10	$ 3.10	$ 2.60	$ 3.60
		500-999	$ 11.86	$ 11.85	$ 9.80	$ 14.04	$ 1.42	$ 1.42	$ 1.20	$ 1.65
		1,000-3,299	$ 19.01	$ 18.95	$ 15.72	$ 22.57	$ 2.47	$ 2.46	$ 2.08	$ 2.87
		3,300-9,999	$ 13.23	$ 13.17	$ 10.98	$ 15.71	$ 1.13	$ 1.13	$ 0.95	$ 1.32
		10,000-49,999	$ 4.07	$ 4.06	$ 3.37	$ 4.80	$ 0.20	$ 0.20	$ 0.17	$ 0.24
		50,000-99,999	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		100,000-999,999	$ 3.17	$ 3.17	$ 2.62	$ 3.74	$ 0.17	$ 0.17	$ 0.14	$ 0.20
		1,000,000+	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 73.85	$ 73.65	$ 61.06	$ 87.57	$ 9.36	$ 9.36	$ 7.88	$ 10.89
		Subtotal	**$ 4,445.03**	**$ 4,433.79**	**$ 3,678.55**	**$ 5,258.18**	**$ 302.23**	**$ 302.18**	**$ 255.05**	**$ 350.58**
Ground Water	CWSs	<100	$ 12.68	$ 12.67	$ 10.99	$ 14.40	$ 1.05	$ 1.05	$ 0.99	$ 1.12
		100-499	$ 39.43	$ 39.49	$ 33.99	$ 44.84	$ 3.47	$ 3.47	$ 3.23	$ 3.72
		500-999	$ 21.66	$ 21.67	$ 18.69	$ 24.56	$ 1.79	$ 1.79	$ 1.66	$ 1.91
		1,000-3,299	$ 45.85	$ 45.85	$ 39.11	$ 52.63	$ 3.43	$ 3.43	$ 3.20	$ 3.67
		3,300-9,999	$ 70.09	$ 70.07	$ 58.66	$ 81.52	$ 3.06	$ 3.06	$ 2.86	$ 3.25
		10,000-49,999	$ 121.85	$ 121.92	$ 108.20	$ 135.41	$ 10.74	$ 10.74	$ 10.08	$ 11.41
		50,000-99,999	$ 30.69	$ 30.70	$ 26.84	$ 34.51	$ 2.78	$ 2.78	$ 2.58	$ 2.98
		100,000-999,999	$ 60.59	$ 60.61	$ 52.61	$ 68.58	$ 6.16	$ 6.16	$ 5.67	$ 6.65
		1,000,000+	$ 6.98	$ 6.98	$ 5.95	$ 8.00	$ 0.94	$ 0.94	$ 0.86	$ 1.02
		All Sizes	$ 409.82	$ 409.97	$ 355.04	$ 464.46	$ 33.42	$ 33.42	$ 31.11	$ 35.74
	NTNCWSs	<100	$ 4.86	$ 4.87	$ 4.20	$ 5.52	$ 0.40	$ 0.40	$ 0.38	$ 0.43
		100-499	$ 5.84	$ 5.84	$ 5.05	$ 6.62	$ 0.52	$ 0.52	$ 0.48	$ 0.55
		500-999	$ 2.59	$ 2.59	$ 2.23	$ 2.95	$ 0.22	$ 0.22	$ 0.20	$ 0.23
		1,000-3,299	$ 1.82	$ 1.82	$ 1.54	$ 2.10	$ 0.12	$ 0.12	$ 0.11	$ 0.13
		3,300-9,999	$ 0.49	$ 0.49	$ 0.41	$ 0.57	$ 0.02	$ 0.02	$ 0.02	$ 0.02
		10,000-49,999	$ 0.20	$ 0.20	$ 0.17	$ 0.22	$ 0.02	$ 0.02	$ 0.02	$ 0.02
		50,000-99,999	$ 0.05	$ 0.05	$ 0.04	$ 0.05	$ 0.00	$ 0.00	$ 0.00	$ 0.00
		100,000-999,999	$ 0.06	$ 0.06	$ 0.05	$ 0.07	$ 0.01	$ 0.01	$ 0.01	$ 0.01
		1,000,000+	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 15.91	$ 15.92	$ 13.70	$ 18.10	$ 1.30	$ 1.30	$ 1.21	$ 1.39
		Subtotal	**$ 425.73**	**$ 425.89**	**$ 368.74**	**$ 482.56**	**$ 34.72**	**$ 34.72**	**$ 32.32**	**$ 37.13**
		Total	**$ 4,870.76**	**$ 4,859.68**	**$ 4,047.29**	**$ 5,740.74**	**$ 336.95**	**$ 336.90**	**$ 287.37**	**$ 387.71**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived by multiplying unit costs in Exhibits 7.10 and 7.11 by Technology Selection Deltas in in Appendix C (results for Alternative 2), summed for all technologies.

Exhibit J.1d Total Stage 2 DBPR Capital and O&M Costs - PWSs

Alternative 3

Source	System Classification	System Size (population served)	Capital Costs: Mean Value	Capital Costs: Median Value	Capital Costs: 90 Percent Confidence Bound Lower (5th %tile)	Capital Costs: 90 Percent Confidence Bound Upper (95th %tile)	O&M Costs: Mean Value	O&M Costs: Median Value	O&M Costs: 90 Percent Confidence Bound Lower (5th %tile)	O&M Costs: 90 Percent Confidence Bound Upper (95th %tile)
Surface Water	CWSs	<100	$ 11.85	$ 11.81	$ 9.62	$ 14.24	$ 2.29	$ 2.29	$ 1.90	$ 2.69
		100-499	$ 61.17	$ 60.93	$ 49.94	$ 73.08	$ 11.68	$ 11.67	$ 9.68	$ 13.74
		500-999	$ 76.59	$ 76.53	$ 62.44	$ 91.40	$ 9.81	$ 9.81	$ 8.14	$ 11.54
		1,000-3,299	$ 344.17	$ 343.27	$ 279.97	$ 412.40	$ 48.35	$ 48.32	$ 39.99	$ 56.97
		3,300-9,999	$ 904.77	$ 902.12	$ 734.57	$ 1,085.68	$ 83.92	$ 83.87	$ 69.64	$ 98.71
		10,000-49,999	$ 1,314.36	$ 1,310.33	$ 1,071.04	$ 1,574.96	$ 63.96	$ 63.92	$ 53.19	$ 74.93
		50,000-99,999	$ 805.55	$ 803.16	$ 656.40	$ 962.97	$ 39.02	$ 39.02	$ 32.44	$ 45.66
		100,000-999,999	$ 2,200.88	$ 2,201.54	$ 1,797.25	$ 2,625.64	$ 109.12	$ 109.11	$ 90.67	$ 127.84
		1,000,000+	$ 1,154.39	$ 1,151.09	$ 945.23	$ 1,376.52	$ 74.56	$ 74.56	$ 62.02	$ 87.40
		All Sizes	$ 6,873.73	$ 6,860.77	$ 5,606.47	$ 8,216.89	$ 442.70	$ 442.57	$ 367.67	$ 519.47
	NTNCWSs	<100	$ 7.14	$ 7.12	$ 5.79	$ 8.58	$ 1.36	$ 1.36	$ 1.13	$ 1.60
		100-499	$ 24.68	$ 24.63	$ 20.14	$ 29.55	$ 4.75	$ 4.74	$ 3.93	$ 5.59
		500-999	$ 16.93	$ 16.90	$ 13.81	$ 20.23	$ 2.16	$ 2.16	$ 1.79	$ 2.54
		1,000-3,299	$ 26.51	$ 26.43	$ 21.59	$ 31.84	$ 3.72	$ 3.72	$ 3.08	$ 4.38
		3,300-9,999	$ 19.01	$ 18.92	$ 15.50	$ 22.88	$ 1.70	$ 1.70	$ 1.40	$ 2.00
		10,000-49,999	$ 6.54	$ 6.53	$ 5.33	$ 7.80	$ 0.31	$ 0.31	$ 0.26	$ 0.36
		50,000-99,999	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		100,000-999,999	$ 5.13	$ 5.12	$ 4.19	$ 6.11	$ 0.26	$ 0.26	$ 0.21	$ 0.30
		1,000,000+	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 105.94	$ 105.65	$ 86.36	$ 126.99	$ 14.25	$ 14.24	$ 11.81	$ 16.77
		Subtotal	**$ 6,979.66**	**$ 6,966.42**	**$ 5,692.82**	**$ 8,343.88**	**$ 456.95**	**$ 456.81**	**$ 379.47**	**$ 536.24**
Ground Water	CWSs	<100	$ 9.36	$ 9.35	$ 8.17	$ 10.59	$ 0.93	$ 0.93	$ 0.87	$ 0.99
		100-499	$ 34.90	$ 34.91	$ 29.83	$ 40.04	$ 3.48	$ 3.48	$ 3.22	$ 3.75
		500-999	$ 20.56	$ 20.56	$ 17.49	$ 23.60	$ 1.84	$ 1.84	$ 1.70	$ 1.99
		1,000-3,299	$ 47.38	$ 47.39	$ 39.95	$ 54.84	$ 3.66	$ 3.66	$ 3.39	$ 3.93
		3,300-9,999	$ 77.23	$ 77.18	$ 64.42	$ 90.18	$ 3.32	$ 3.32	$ 3.09	$ 3.55
		10,000-49,999	$ 135.39	$ 135.36	$ 119.21	$ 151.65	$ 11.77	$ 11.76	$ 11.01	$ 12.52
		50,000-99,999	$ 35.74	$ 35.76	$ 31.04	$ 40.38	$ 3.06	$ 3.06	$ 2.84	$ 3.29
		100,000-999,999	$ 69.97	$ 69.97	$ 60.64	$ 79.29	$ 6.67	$ 6.67	$ 6.14	$ 7.20
		1,000,000+	$ 8.14	$ 8.14	$ 6.98	$ 9.30	$ 1.03	$ 1.03	$ 0.94	$ 1.12
		All Sizes	$ 438.68	$ 438.62	$ 377.72	$ 499.87	$ 35.76	$ 35.76	$ 33.20	$ 38.32
	NTNCWSs	<100	$ 3.57	$ 3.57	$ 3.11	$ 4.04	$ 0.35	$ 0.35	$ 0.33	$ 0.38
		100-499	$ 5.25	$ 5.25	$ 4.49	$ 6.01	$ 0.52	$ 0.52	$ 0.48	$ 0.56
		500-999	$ 2.50	$ 2.50	$ 2.12	$ 2.88	$ 0.22	$ 0.22	$ 0.20	$ 0.24
		1,000-3,299	$ 1.93	$ 1.92	$ 1.62	$ 2.23	$ 0.13	$ 0.13	$ 0.12	$ 0.14
		3,300-9,999	$ 0.54	$ 0.54	$ 0.45	$ 0.63	$ 0.02	$ 0.02	$ 0.02	$ 0.02
		10,000-49,999	$ 0.23	$ 0.23	$ 0.20	$ 0.26	$ 0.02	$ 0.02	$ 0.02	$ 0.02
		50,000-99,999	$ 0.05	$ 0.05	$ 0.05	$ 0.06	$ 0.00	$ 0.00	$ 0.00	$ 0.01
		100,000-999,999	$ 0.07	$ 0.07	$ 0.06	$ 0.08	$ 0.01	$ 0.01	$ 0.01	$ 0.01
		1,000,000+	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 14.16	$ 14.15	$ 12.09	$ 16.20	$ 1.27	$ 1.27	$ 1.18	$ 1.36
		Subtotal	**$ 452.84**	**$ 452.77**	**$ 389.81**	**$ 516.07**	**$ 37.03**	**$ 37.03**	**$ 34.38**	**$ 39.69**
		Total	**$ 7,432.50**	**$ 7,419.19**	**$ 6,082.63**	**$ 8,859.95**	**$ 493.99**	**$ 493.85**	**$ 413.85**	**$ 575.93**

Notes: All values in millions of year 2003 dollars.

Detail may not add exactly to totals due to independent rounding.

Source: Derived by multiplying unit costs in Exhibits 7.10 and 7.11 by Technology Selection Deltas in in Appendix C (results for Alternative 3), summed for all technologies.

Exhibit J.1e Total Stage 2 DBPR Capital and O&M Costs - PWSs

Unadjusted Compliance Forecast

Source	System Classification	System Size (population served)	Capital Costs: Mean Value	Capital Costs: Median Value	Capital Costs: 90 Percent Confidence Bound: Lower (5th %tile)	Capital Costs: 90 Percent Confidence Bound: Upper (95th %tile)	O&M Costs: Mean Value	O&M Costs: Median Value	O&M Costs: 90 Percent Confidence Bound: Lower (5th %tile)	O&M Costs: 90 Percent Confidence Bound: Upper (95th %tile)
Surface Water	CWSs	<100	$ 1.19	$ 1.17	$ 0.60	$ 1.88	$ 0.22	$ 0.22	$ 0.11	$ 0.32
		100-499	$ 3.58	$ 3.55	$ 1.81	$ 5.56	$ 0.90	$ 0.90	$ 0.47	$ 1.33
		500-999	$ 4.22	$ 4.16	$ 2.12	$ 6.59	$ 0.67	$ 0.67	$ 0.35	$ 0.99
		1,000-3,299	$ 26.71	$ 26.55	$ 13.75	$ 40.54	$ 3.68	$ 3.67	$ 1.91	$ 5.46
		3,300-9,999	$ 68.17	$ 67.68	$ 35.21	$ 102.98	$ 5.83	$ 5.84	$ 3.03	$ 8.66
		10,000-49,999	$ 114.89	$ 114.39	$ 59.42	$ 173.88	$ 6.81	$ 6.81	$ 3.54	$ 10.11
		50,000-99,999	$ 68.34	$ 68.02	$ 35.19	$ 103.24	$ 3.89	$ 3.88	$ 2.02	$ 5.78
		100,000-999,999	$ 179.89	$ 179.59	$ 92.53	$ 272.39	$ 9.85	$ 9.83	$ 5.12	$ 14.61
		1,000,000+	$ 86.18	$ 85.79	$ 44.18	$ 131.12	$ 6.11	$ 6.12	$ 3.18	$ 9.09
		All Sizes	$ 553.17	$ 550.90	$ 284.81	$ 838.19	$ 37.96	$ 37.93	$ 19.72	$ 56.36
	NTNCWSs	<100	$ 0.74	$ 0.72	$ 0.37	$ 1.16	$ 0.13	$ 0.13	$ 0.07	$ 0.20
		100-499	$ 1.45	$ 1.44	$ 0.74	$ 2.25	$ 0.37	$ 0.36	$ 0.19	$ 0.54
		500-999	$ 0.94	$ 0.92	$ 0.47	$ 1.47	$ 0.15	$ 0.15	$ 0.08	$ 0.22
		1,000-3,299	$ 2.07	$ 2.07	$ 1.06	$ 3.16	$ 0.29	$ 0.29	$ 0.15	$ 0.43
		3,300-9,999	$ 1.41	$ 1.40	$ 0.73	$ 2.14	$ 0.12	$ 0.12	$ 0.06	$ 0.17
		10,000-49,999	$ 0.56	$ 0.55	$ 0.29	$ 0.84	$ 0.03	$ 0.03	$ 0.02	$ 0.05
		50,000-99,999	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		100,000-999,999	$ 0.41	$ 0.41	$ 0.21	$ 0.62	$ 0.02	$ 0.02	$ 0.01	$ 0.03
		1,000,000+	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		All Sizes								
		Subtotal	**$ 553.17**	**$ 550.90**	**$ 284.81**	**$ 838.19**	**$ 37.96**	**$ 37.93**	**$ 19.72**	**$ 56.36**
Ground Water	CWSs	<100	$ 8.35	$ 8.34	$ 7.19	$ 9.54	$ 0.93	$ 0.93	$ 0.87	$ 1.00
		100-499	$ 33.25	$ 33.24	$ 28.08	$ 38.45	$ 3.50	$ 3.50	$ 3.23	$ 3.78
		500-999	$ 20.22	$ 20.22	$ 17.03	$ 23.38	$ 1.88	$ 1.88	$ 1.73	$ 2.02
		1,000-3,299	$ 39.43	$ 39.41	$ 32.34	$ 46.55	$ 2.83	$ 2.83	$ 2.58	$ 3.08
		3,300-9,999	$ 65.93	$ 65.88	$ 53.54	$ 78.38	$ 2.40	$ 2.40	$ 2.20	$ 2.60
		10,000-49,999	$ 59.09	$ 59.08	$ 53.39	$ 64.79	$ 5.03	$ 5.03	$ 4.76	$ 5.30
		50,000-99,999	$ 14.96	$ 14.96	$ 13.38	$ 16.53	$ 1.28	$ 1.28	$ 1.20	$ 1.36
		100,000-999,999	$ 29.70	$ 29.71	$ 26.43	$ 32.95	$ 2.83	$ 2.83	$ 2.64	$ 3.02
		1,000,000+	$ 3.38	$ 3.38	$ 2.97	$ 3.79	$ 0.43	$ 0.43	$ 0.40	$ 0.46
		All Sizes	$ 274.30	$ 274.22	$ 234.36	$ 314.36	$ 21.11	$ 21.11	$ 19.60	$ 22.63
	NTNCWSs	<100	$ 3.18	$ 3.17	$ 2.73	$ 3.62	$ 0.35	$ 0.35	$ 0.33	$ 0.38
		100-499	$ 5.04	$ 5.05	$ 4.26	$ 5.82	$ 0.53	$ 0.53	$ 0.48	$ 0.57
		500-999	$ 2.48	$ 2.48	$ 2.08	$ 2.87	$ 0.22	$ 0.22	$ 0.20	$ 0.24
		1,000-3,299	$ 1.61	$ 1.61	$ 1.32	$ 1.90	$ 0.10	$ 0.10	$ 0.09	$ 0.10
		3,300-9,999	$ 0.46	$ 0.46	$ 0.38	$ 0.55	$ 0.01	$ 0.01	$ 0.01	$ 0.01
		10,000-49,999	$ 0.10	$ 0.10	$ 0.09	$ 0.11	$ 0.01	$ 0.01	$ 0.01	$ 0.01
		50,000-99,999	$ 0.02	$ 0.02	$ 0.02	$ 0.02	$ 0.00	$ 0.00	$ 0.00	$ 0.00
		100,000-999,999	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.00	$ 0.00	$ 0.00	$ 0.00
		1,000,000+	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 12.92	$ 12.92	$ 10.88	$ 14.93	$ 1.23	$ 1.23	$ 1.13	$ 1.32
		Subtotal	**$ 287.21**	**$ 287.14**	**$ 245.24**	**$ 329.30**	**$ 22.34**	**$ 22.34**	**$ 20.73**	**$ 23.95**
		Total	**$ 840.39**	**$ 838.04**	**$ 530.05**	**$ 1,167.48**	**$ 60.30**	**$ 60.27**	**$ 40.45**	**$ 80.31**

Notes: All values in millions of year 2003 dollars.

Detail may not add exactly to totals due to independent rounding.

Source: Derived by multiplying unit costs in Exhibits 7.10 and 7.11 by Technology Selection Deltas in in Appendix C (results for Alternative 3), summed for all technologies.

Exhibit J.1f Total Stage 2 DBPR Capital and O&M Costs - PWSs

IDSE Alternate Compliance Forecast

Source	System Classification	System Size (population served)	Capital Costs: Mean Value	Capital Costs: Median Value	Capital Costs: 90 Percent Confidence Bound Lower (5th %tile)	Capital Costs: 90 Percent Confidence Bound Upper (95th %tile)	O&M Costs: Mean Value	O&M Costs: Median Value	O&M Costs: 90 Percent Confidence Bound Lower (5th %tile)	O&M Costs: 90 Percent Confidence Bound Upper (95th %tile)
Surface Water	CWSs	<100	$ 1.19	$ 1.17	$ 0.60	$ 1.88	$ 0.22	$ 0.22	$ 0.11	$ 0.32
		100-499	$ 3.58	$ 3.55	$ 1.81	$ 5.56	$ 0.90	$ 0.90	$ 0.47	$ 1.33
		500-999	$ 4.22	$ 4.16	$ 2.12	$ 6.59	$ 0.67	$ 0.67	$ 0.35	$ 0.99
		1,000-3,299	$ 26.71	$ 26.55	$ 13.75	$ 40.54	$ 3.68	$ 3.67	$ 1.91	$ 5.46
		3,300-9,999	$ 68.17	$ 67.68	$ 35.21	$ 102.98	$ 5.83	$ 5.84	$ 3.03	$ 8.66
		10,000-49,999	$ 133.12	$ 132.68	$ 86.55	$ 183.25	$ 6.43	$ 6.43	$ 4.28	$ 8.58
		50,000-99,999	$ 79.40	$ 78.96	$ 51.73	$ 109.34	$ 3.57	$ 3.57	$ 2.38	$ 4.80
		100,000-999,999	$ 223.26	$ 221.74	$ 146.40	$ 307.42	$ 8.05	$ 8.03	$ 5.34	$ 10.82
		1,000,000+	$ 102.51	$ 101.55	$ 66.38	$ 141.91	$ 4.65	$ 4.64	$ 3.08	$ 6.28
		All Sizes	$ 642.18	$ 638.04	$ 404.55	$ 899.47	$ 34.00	$ 33.96	$ 20.95	$ 47.26
	NTNCWSs	<100	$ 0.74	$ 0.72	$ 0.37	$ 1.16	$ 0.13	$ 0.13	$ 0.07	$ 0.20
		100-499	$ 1.45	$ 1.44	$ 0.74	$ 2.25	$ 0.37	$ 0.36	$ 0.19	$ 0.54
		500-999	$ 0.94	$ 0.92	$ 0.47	$ 1.47	$ 0.15	$ 0.15	$ 0.08	$ 0.22
		1,000-3,299	$ 2.07	$ 2.07	$ 1.06	$ 3.16	$ 0.29	$ 0.29	$ 0.15	$ 0.43
		3,300-9,999	$ 1.41	$ 1.40	$ 0.73	$ 2.14	$ 0.12	$ 0.12	$ 0.06	$ 0.17
		10,000-49,999	$ 0.64	$ 0.64	$ 0.42	$ 0.88	$ 0.03	$ 0.03	$ 0.02	$ 0.04
		50,000-99,999	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		100,000-999,999	$ 0.49	$ 0.49	$ 0.32	$ 0.67	$ 0.02	$ 0.02	$ 0.01	$ 0.02
		1,000,000+	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 7.74	$ 7.68	$ 4.11	$ 11.74	$ 1.10	$ 1.10	$ 0.58	$ 1.62
		Subtotal	**$ 649.92**	**$ 645.72**	**$ 408.66**	**$ 911.20**	**$ 35.09**	**$ 35.06**	**$ 21.52**	**$ 48.89**
Ground Water	CWSs	<100	$ 8.35	$ 8.34	$ 7.19	$ 9.54	$ 0.93	$ 0.93	$ 0.87	$ 1.00
		100-499	$ 33.25	$ 33.24	$ 28.08	$ 38.45	$ 3.50	$ 3.50	$ 3.23	$ 3.78
		500-999	$ 20.22	$ 20.22	$ 17.03	$ 23.38	$ 1.88	$ 1.88	$ 1.73	$ 2.02
		1,000-3,299	$ 39.43	$ 39.41	$ 32.34	$ 46.55	$ 2.83	$ 2.83	$ 2.58	$ 3.08
		3,300-9,999	$ 65.93	$ 65.88	$ 53.54	$ 78.38	$ 2.40	$ 2.40	$ 2.20	$ 2.60
		10,000-49,999	$ 59.09	$ 59.08	$ 53.39	$ 64.79	$ 5.03	$ 5.03	$ 4.76	$ 5.30
		50,000-99,999	$ 14.96	$ 14.96	$ 13.38	$ 16.53	$ 1.28	$ 1.28	$ 1.20	$ 1.36
		100,000-999,999	$ 29.70	$ 29.71	$ 26.43	$ 32.95	$ 2.83	$ 2.83	$ 2.64	$ 3.02
		1,000,000+	$ 3.38	$ 3.38	$ 2.97	$ 3.79	$ 0.43	$ 0.43	$ 0.40	$ 0.46
		All Sizes	$ 274.30	$ 274.22	$ 234.36	$ 314.36	$ 21.11	$ 21.11	$ 19.60	$ 22.63
	NTNCWSs	<100	$ 3.18	$ 3.17	$ 2.73	$ 3.62	$ 0.35	$ 0.35	$ 0.33	$ 0.38
		100-499	$ 5.04	$ 5.05	$ 4.26	$ 5.82	$ 0.53	$ 0.53	$ 0.48	$ 0.57
		500-999	$ 2.48	$ 2.48	$ 2.08	$ 2.87	$ 0.22	$ 0.22	$ 0.20	$ 0.24
		1,000-3,299	$ 1.61	$ 1.61	$ 1.32	$ 1.90	$ 0.10	$ 0.10	$ 0.09	$ 0.10
		3,300-9,999	$ 0.46	$ 0.46	$ 0.38	$ 0.55	$ 0.01	$ 0.01	$ 0.01	$ 0.01
		10,000-49,999	$ 0.10	$ 0.10	$ 0.09	$ 0.11	$ 0.01	$ 0.01	$ 0.01	$ 0.01
		50,000-99,999	$ 0.02	$ 0.02	$ 0.02	$ 0.02	$ 0.00	$ 0.00	$ 0.00	$ 0.00
		100,000-999,999	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.00	$ 0.00	$ 0.00	$ 0.00
		1,000,000+	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 12.92	$ 12.92	$ 10.88	$ 14.93	$ 1.23	$ 1.23	$ 1.13	$ 1.32
		Subtotal	**$ 287.21**	**$ 287.14**	**$ 245.24**	**$ 329.30**	**$ 22.34**	**$ 22.34**	**$ 20.73**	**$ 23.95**
		Total	**$ 937.13**	**$ 932.86**	**$ 653.90**	**$ 1,240.50**	**$ 57.43**	**$ 57.40**	**$ 42.25**	**$ 72.84**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived by multiplying unit costs in Exhibits 7.10 and 7.11 by Technology Selection Deltas in in Appendix C (results for Alternative 3), summed for all technologies.

Exhibit J.1g Total Stage 2 DBPR Implementation, IDSE, Additional Routine Monitoring, and Significant Excursion Evaluation Costs - PWSs

All Alternatives

Source	System Classification	System Size (population served)	Total Implementation Costs	Total IDSE Costs	Total Stage 2 Monitoring Plan Costs	Annual Additional Routine Monitoring Costs	Annual Significant Excursion Evaluation Costs
Surface Water	CWSs	<100	$ 0.24	$ 0.45	$ 0.09	$ (0.05)	$ 0.00
		100-499	$ 0.50	$ 0.91	$ 0.19	$ (0.11)	$ 0.00
		500-999	$ 0.36	$ 3.14	$ 0.18	$ (0.33)	$ 0.00
		1,000-3,299	$ 0.64	$ 5.53	$ 0.32	$ (0.58)	$ 0.01
		3,300-9,999	$ 0.62	$ 8.38	$ 0.26	$ 0.95	$ 0.02
		10,000-49,999	$ 1.21	$ 17.85	$ 0.46	$ (2.48)	$ 0.10
		50,000-99,999	$ 0.24	$ 6.43	$ 0.09	$ 0.22	$ 0.04
		100,000-999,999	$ 0.21	$ 6.11	$ 0.09	$ 0.28	$ 0.04
		1,000,000+	$ 0.02	$ 0.73	$ 0.01	$ 0.04	$ 0.01
		All Sizes	$ 4.05	$ 49.53	$ 1.71	$ (2.07)	$ 0.21
	NTNCWSs	<100	$ 0.05	$ -	$ 0.01	$ -	$ -
		100-499	$ 0.06	$ -	$ 0.01	$ -	$ -
		500-999	$ 0.02	$ -	$ 0.01	$ -	$ -
		1,000-3,299	$ 0.02	$ -	$ 0.00	$ -	$ -
		3,300-9,999	$ 0.01	$ -	$ 0.00	$ 0.03	$ -
		10,000-49,999	$ 0.00	$ 0.05	$ 0.00	$ -	$ -
		50,000-99,999	$ -	$ -	$ -	$ -	$ -
		100,000-999,999	$ 0.00	$ 0.02	$ 0.00	$ 0.00	$ -
		1,000,000+	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 0.17	$ 0.07	$ 0.04	$ 0.03	$ -
		Subtotal	**$ 4.22**	**$ 49.60**	**$ 1.75**	**$ (2.04)**	**$ 0.21**
Ground Water	CWSs	<100	$ 1.60	$ 0.22	$ 0.42	$ 0.10	$ -
		100-499	$ 1.98	$ 0.27	$ 0.52	$ 0.12	$ -
		500-999	$ 0.89	$ 1.93	$ 0.51	$ 0.55	$ -
		1,000-3,299	$ 1.09	$ 2.34	$ 0.62	$ 0.67	$ -
		3,300-9,999	$ 0.49	$ 1.06	$ 0.28	$ 0.30	$ -
		10,000-49,999	$ 0.80	$ 1.64	$ 0.32	$ 3.52	$ -
		50,000-99,999	$ 0.09	$ 0.18	$ 0.04	$ 0.39	$ -
		100,000-999,999	$ 0.05	$ 0.17	$ 0.03	$ (0.09)	$ -
		1,000,000+	$ 0.00	$ 0.01	$ 0.00	$ (0.03)	$ -
		All Sizes	$ 6.98	$ 7.83	$ 2.72	$ 5.54	$ -
	NTNCWSs	<100	$ 0.50	$ -	$ 0.18	$ 0.18	$ -
		100-499	$ 0.43	$ -	$ 0.16	$ 0.15	$ -
		500-999	$ 0.13	$ -	$ 0.05	$ 0.25	$ -
		1,000-3,299	$ 0.06	$ -	$ 0.02	$ 0.11	$ -
		3,300-9,999	$ 0.00	$ -	$ 0.00	$ 0.01	$ -
		10,000-49,999	$ 0.00	$ 0.00	$ 0.00	$ 0.02	$ -
		50,000-99,999	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ -
		100,000-999,999	$ 0.00	$ -	$ 0.00	$ 0.00	$ -
		1,000,000+	$ -	$ -	$ -	$ -	$ -
		All Sizes	$ 1.12	$ 0.00	$ 0.42	$ 0.71	$ -
		Subtotal	**$ 8.10**	**$ 7.83**	**$ 3.14**	**$ 6.25**	**$ -**
		Total	**$ 12.31**	**$ 57.44**	**$ 4.89**	**$ 4.21**	**$ 0.21**

Notes: All values in millions of year 2003 dollars.
Detail may not add exactly to totals due to independent rounding.

Source: Derived from Exhibits H.12 and H.13.

Exhibit J.1h Total Implementaion, IDSE, and Compliance Monitoring Costs - Primacy Agencies

All Alternatives

Total Implementation Costs	Total IDSE Costs	Total Stage 2 Monitoring Plan Costs	Annual Compliance Monitoring Costs	Annual Significant Excursion Report Costs
$ 7.77	$ 2.23	$ 0.93	$ 1.59	$ 0.11

Notes: All values in millions of year 2003 dollars.

Source: Exhibit H.11.

Section J.2
Cost Projections (Preferred Alternative)

Exhibit J.2a Projections of Stage 2 DBPR PWS Costs

(Surface Water CWSs Serving <100 People)

Preferred Alternative

	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ -	$ -	$ -	$ -	$ 0.03	$ 0.03	$ 0.03
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.10	$ 0.04	$ -	$ -	$ -	$ 0.13	$ 0.13	$ 0.13
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.10	$ 0.01	$ -	$ -	$ 0.11	$ 0.11	$ 0.11
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.02	$ 0.31	$ 0.02	$ -	$ -	$ 0.35	$ 0.35	$ 0.35
2009	$ 0.12	$ 0.06	$ 0.19	$ -	$ -	$ -	$ 0.05	$ -	$ 0.07	$ -	$ -	$ 0.24	$ 0.18	$ 0.31
2010	$ 0.24	$ 0.12	$ 0.38	$ 0.02	$ 0.01	$ 0.03	$ 0.05	$ -	$ -	$ -	$ -	$ 0.31	$ 0.18	$ 0.46
2011	$ 0.24	$ 0.12	$ 0.38	$ 0.07	$ 0.03	$ 0.10	$ -	$ -	$ -	$ -	$ -	$ 0.30	$ 0.15	$ 0.48
2012	$ 0.24	$ 0.12	$ 0.38	$ 0.11	$ 0.06	$ 0.16	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.32	$ 0.15	$ 0.51
2013	$ 0.24	$ 0.12	$ 0.38	$ 0.15	$ 0.08	$ 0.23	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.34	$ 0.15	$ 0.55
2014	$ 0.12	$ 0.06	$ 0.19	$ 0.20	$ 0.10	$ 0.29	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.26	$ 0.11	$ 0.43
2015	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2016	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2017	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2018	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2019	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2020	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2021	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2022	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2023	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2024	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2025	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2026	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2027	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2028	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27
2029	$ -	$ -	$ -	$ 0.22	$ 0.11	$ 0.32	$ -	$ -	$ -	$ (0.05)	$ 0.00	$ 0.17	$ 0.06	$ 0.27

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2b Projections of Stage 2 DBPR PWS Costs

(Surface Water CWSs Serving 100-499 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.05	$ -	$ -	$ -	$ -	$ 0.05	$ 0.05	$ 0.05
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.20	$ 0.07	$ -	$ -	$ -	$ 0.27	$ 0.27	$ 0.27
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.21	$ 0.02	$ -	$ -	$ 0.23	$ 0.23	$ 0.23
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.05	$ 0.63	$ 0.04	$ -	$ -	$ 0.72	$ 0.72	$ 0.72
2009	$ 0.36	$ 0.18	$ 0.56	$ -	$ -	$ -	$ 0.10	$ -	$ 0.13	$ -	$ -	$ 0.60	$ 0.42	$ 0.79
2010	$ 0.72	$ 0.36	$ 1.12	$ 0.09	$ 0.05	$ 0.13	$ 0.10	$ -	$ -	$ -	$ -	$ 0.91	$ 0.51	$ 1.35
2011	$ 0.72	$ 0.36	$ 1.12	$ 0.27	$ 0.14	$ 0.40	$ -	$ -	$ -	$ -	$ -	$ 0.99	$ 0.50	$ 1.52
2012	$ 0.72	$ 0.36	$ 1.12	$ 0.45	$ 0.23	$ 0.67	$ -	$ -	$ -	$ (0.05)	$ -	$ 1.11	$ 0.54	$ 1.73
2013	$ 0.72	$ 0.36	$ 1.12	$ 0.63	$ 0.33	$ 0.94	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 1.24	$ 0.58	$ 1.95
2014	$ 0.36	$ 0.18	$ 0.56	$ 0.81	$ 0.42	$ 1.21	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 1.06	$ 0.49	$ 1.66
2015	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2016	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2017	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2018	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2019	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2020	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2021	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2022	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2023	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2024	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2025	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2026	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2027	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2028	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24
2029	$ -	$ -	$ -	$ 0.90	$ 0.47	$ 1.34	$ -	$ -	$ -	$ (0.11)	$ 0.00	$ 0.80	$ 0.36	$ 1.24

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2c Projections of Stage 2 DBPR PWS Costs

(Surface Water CWSs Serving 500-999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.04	$ -	$ -	$ -	$ -	$ 0.04	$ 0.04	$ 0.04
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.14	$ 0.26	$ -	$ -	$ -	$ 0.40	$ 0.40	$ 0.40
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.73	$ 0.01	$ -	$ -	$ 0.74	$ 0.74	$ 0.74
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 2.16	$ 0.04	$ -	$ -	$ 2.24	$ 2.24	$ 2.24
2009	$ 0.42	$ 0.21	$ 0.66	$ -	$ -	$ -	$ 0.08	$ -	$ 0.13	$ -	$ -	$ 0.62	$ 0.41	$ 0.86
2010	$ 0.85	$ 0.43	$ 1.33	$ 0.07	$ 0.03	$ 0.10	$ 0.07	$ -	$ -	$ -	$ -	$ 0.99	$ 0.53	$ 1.50
2011	$ 0.85	$ 0.43	$ 1.33	$ 0.20	$ 0.10	$ 0.30	$ -	$ -	$ -	$ -	$ -	$ 1.05	$ 0.53	$ 1.63
2012	$ 0.85	$ 0.43	$ 1.33	$ 0.34	$ 0.17	$ 0.50	$ -	$ -	$ -	$ (0.17)	$ -	$ 1.02	$ 0.43	$ 1.66
2013	$ 0.85	$ 0.43	$ 1.33	$ 0.47	$ 0.24	$ 0.70	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.99	$ 0.34	$ 1.70
2014	$ 0.42	$ 0.21	$ 0.66	$ 0.60	$ 0.31	$ 0.90	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.70	$ 0.19	$ 1.23
2015	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2016	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2017	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2018	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2019	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2020	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2021	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2022	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2023	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2024	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2025	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2026	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2027	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2028	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67
2029	$ -	$ -	$ -	$ 0.67	$ 0.35	$ 1.00	$ -	$ -	$ -	$ (0.33)	$ 0.00	$ 0.34	$ 0.02	$ 0.67

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2d Projections of Stage 2 DBPR PWS Costs

(Surface Water CWSs Serving 1,000-3,299 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.25	$ 0.45	$ -	$ -	$ -	$ 0.70	$ 0.70	$ 0.70
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.28	$ 0.03	$ -	$ -	$ 1.30	$ 1.30	$ 1.30
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.06	$ 3.80	$ 0.07	$ -	$ -	$ 3.94	$ 3.94	$ 3.94
2009	$ 2.68	$ 1.37	$ 4.07	$ -	$ -	$ -	$ 0.13	$ -	$ 0.22	$ -	$ -	$ 3.03	$ 1.72	$ 4.42
2010	$ 5.36	$ 2.73	$ 8.14	$ 0.37	$ 0.19	$ 0.55	$ 0.13	$ -	$ -	$ -	$ -	$ 5.85	$ 3.05	$ 8.81
2011	$ 5.36	$ 2.73	$ 8.14	$ 1.11	$ 0.57	$ 1.65	$ -	$ -	$ -	$ -	$ -	$ 6.46	$ 3.30	$ 9.78
2012	$ 5.36	$ 2.73	$ 8.14	$ 1.84	$ 0.95	$ 2.75	$ -	$ -	$ -	$ (0.29)	$ -	$ 6.91	$ 3.39	$ 10.59
2013	$ 5.36	$ 2.73	$ 8.14	$ 2.58	$ 1.34	$ 3.85	$ -	$ -	$ -	$ (0.58)	$ 0.00	$ 7.36	$ 3.48	$ 11.40
2014	$ 2.68	$ 1.37	$ 4.07	$ 3.32	$ 1.72	$ 4.94	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 5.42	$ 2.50	$ 8.43
2015	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2016	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2017	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2018	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2019	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2020	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2021	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2022	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2023	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2024	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2025	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2026	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2027	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2028	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91
2029	$ -	$ -	$ -	$ 3.69	$ 1.91	$ 5.49	$ -	$ -	$ -	$ (0.58)	$ 0.01	$ 3.11	$ 1.33	$ 4.91

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2e Projections of Stage 2 DBPR PWS Costs

(Surface Water CWSs Serving 3,300-9,999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.25	$ 0.68	$ -	$ -	$ -	$ 0.93	$ 0.93	$ 0.93
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.93	$ 0.02	$ -	$ -	$ 1.96	$ 1.96	$ 1.96
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.06	$ 5.76	$ 0.06	$ -	$ -	$ 5.88	$ 5.88	$ 5.88
2009	$ 6.84	$ 3.51	$ 10.35	$ -	$ -	$ -	$ 0.13	$ -	$ 0.18	$ -	$ -	$ 7.14	$ 3.81	$ 10.66
2010	$ 13.67	$ 7.01	$ 20.70	$ 0.58	$ 0.30	$ 0.87	$ 0.12	$ -	$ -	$ -	$ -	$ 14.38	$ 7.44	$ 21.69
2011	$ 13.67	$ 7.01	$ 20.70	$ 1.75	$ 0.91	$ 2.61	$ -	$ -	$ -	$ -	$ -	$ 15.43	$ 7.92	$ 23.31
2012	$ 13.67	$ 7.01	$ 20.70	$ 2.92	$ 1.51	$ 4.35	$ -	$ -	$ -	$ 0.48	$ -	$ 17.07	$ 9.00	$ 25.52
2013	$ 13.67	$ 7.01	$ 20.70	$ 4.09	$ 2.12	$ 6.09	$ -	$ -	$ -	$ 0.95	$ 0.01	$ 18.73	$ 10.10	$ 27.75
2014	$ 6.84	$ 3.51	$ 10.35	$ 5.26	$ 2.72	$ 7.83	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 13.07	$ 7.20	$ 19.15
2015	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2016	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2017	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2018	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2019	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2020	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2021	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2022	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2023	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2024	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2025	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2026	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2027	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2028	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67
2029	$ -	$ -	$ -	$ 5.85	$ 3.03	$ 8.69	$ -	$ -	$ -	$ 0.95	$ 0.02	$ 6.82	$ 4.00	$ 9.67

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2f Projections of Stage 2 DBPR PWS Costs

(Surface Water CWSs Serving 10,000-49,999 People)

Preferred Alternative

Year	All Stage 2 DBPR Costs			All Stage 2 DBPR Costs			Stage 2 DBPR Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.20	$ -	$ -	$ -	$ -	$ 0.20	$ 0.20	$ 0.20
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.40	$ 2.56	$ -	$ -	$ -	$ 2.96	$ 2.96	$ 2.96
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9.33	$ 0.07	$ -	$ -	$ 9.40	$ 9.40	$ 9.40
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.19	$ 5.96	$ 0.24	$ -	$ -	$ 6.39	$ 6.39	$ 6.39
2009	$ 12.41	$ 6.46	$ 17.95	$ -	$ -	$ -	$ 0.22	$ -	$ 0.15	$ -	$ -	$ 12.78	$ 6.83	$ 18.32
2010	$ 24.83	$ 12.92	$ 35.90	$ 0.66	$ 0.38	$ 0.98	$ 0.20	$ -	$ -	$ -	$ -	$ 25.69	$ 13.50	$ 37.08
2011	$ 24.83	$ 12.92	$ 35.90	$ 1.99	$ 1.15	$ 2.93	$ -	$ -	$ -	$ -	$ -	$ 26.82	$ 14.07	$ 38.83
2012	$ 24.83	$ 12.92	$ 35.90	$ 3.31	$ 1.92	$ 4.89	$ -	$ -	$ -	$ (1.24)	$ -	$ 26.90	$ 13.60	$ 39.54
2013	$ 24.83	$ 12.92	$ 35.90	$ 4.64	$ 2.69	$ 6.84	$ -	$ -	$ -	$ (2.48)	$ 0.05	$ 27.04	$ 13.18	$ 40.31
2014	$ 12.41	$ 6.46	$ 17.95	$ 5.97	$ 3.46	$ 8.79	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 16.00	$ 7.54	$ 24.36
2015	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2016	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2017	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2018	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2019	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2020	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2021	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2022	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2023	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2024	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2025	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2026	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2027	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2028	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39
2029	$ -	$ -	$ -	$ 6.63	$ 3.85	$ 9.77	$ -	$ -	$ -	$ (2.48)	$ 0.10	$ 4.25	$ 1.47	$ 7.39

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2g Projections of Stage 2 DBPR PWS Costs

(Surface Water CWSs Serving 50,000-99,999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.12	$ -	$ -	$ -	$ -	$ 0.12	$ 0.12	$ 0.12
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.98	$ -	$ -	$ -	$ 0.98	$ 0.98	$ 0.98
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5.44	$ 0.01	$ -	$ -	$ 5.46	$ 5.46	$ 5.46
2008	$ 7.39	$ 3.84	$ 10.67	$ -	$ -	$ -	$ 0.08	$ -	$ 0.08	$ -	$ -	$ 7.55	$ 4.00	$ 10.83
2009	$ 14.78	$ 7.69	$ 21.35	$ 0.37	$ 0.22	$ 0.56	$ 0.04	$ -	$ -	$ -	$ -	$ 15.20	$ 7.95	$ 21.95
2010	$ 14.78	$ 7.69	$ 21.35	$ 1.12	$ 0.65	$ 1.67	$ -	$ -	$ -	$ -	$ -	$ 15.90	$ 8.34	$ 23.02
2011	$ 14.78	$ 7.69	$ 21.35	$ 1.87	$ 1.09	$ 2.79	$ -	$ -	$ -	$ 0.11	$ -	$ 16.76	$ 8.89	$ 24.25
2012	$ 14.78	$ 7.69	$ 21.35	$ 2.61	$ 1.53	$ 3.90	$ -	$ -	$ -	$ 0.22	$ 0.02	$ 17.63	$ 9.45	$ 25.49
2013	$ 7.39	$ 3.84	$ 10.67	$ 3.36	$ 1.96	$ 5.02	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 11.01	$ 6.06	$ 15.95
2014	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2015	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2016	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2017	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2018	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2019	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2020	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2021	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2022	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2023	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2024	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2025	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2026	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2027	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2028	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83
2029	$ -	$ -	$ -	$ 3.74	$ 2.18	$ 5.58	$ -	$ -	$ -	$ 0.22	$ 0.04	$ 3.99	$ 2.43	$ 5.83

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2h Projections of Stage 2 DBPR PWS Costs

(Surface Water CWSs Serving 100,000-999,999)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Stage 2 DBPR Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.11	$ -	$ -	$ -	$ -	$ 0.11	$ 0.11	$ 0.11
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.06	$ -	$ -	$ -	$ 3.06	$ 3.06	$ 3.06
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.06	$ 0.05	$ -	$ -	$ 3.10	$ 3.10	$ 3.10
2008	$ 40.35	$ 20.24	$ 58.90	$ -	$ -	$ -	$ 0.11	$ -	$ 0.05	$ -	$ -	$ 40.50	$ 20.40	$ 59.05
2009	$ 40.35	$ 20.24	$ 58.90	$ 1.79	$ 1.05	$ 2.82	$ -	$ -	$ -	$ -	$ -	$ 42.14	$ 21.29	$ 61.72
2010	$ 40.35	$ 20.24	$ 58.90	$ 3.59	$ 2.09	$ 5.64	$ -	$ -	$ -	$ -	$ -	$ 43.93	$ 22.34	$ 64.54
2011	$ 40.35	$ 20.24	$ 58.90	$ 5.38	$ 3.14	$ 8.46	$ -	$ -	$ -	$ 0.28	$ -	$ 46.00	$ 23.66	$ 67.64
2012	$ 40.35	$ 20.24	$ 58.90	$ 7.17	$ 4.19	$ 11.28	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 47.83	$ 24.75	$ 70.50
2013	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2014	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2015	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2016	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2017	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2018	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2019	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2020	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2021	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2022	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2023	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2024	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2025	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2026	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2027	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2028	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42
2029	$ -	$ -	$ -	$ 8.96	$ 5.24	$ 14.10	$ -	$ -	$ -	$ 0.28	$ 0.04	$ 9.28	$ 5.55	$ 14.42

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2i Projections of Stage 2 DBPR PWS Costs

(Surface Water CWSs Serving 1,000,000+)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Stage 2 DBPR Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ -	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ -	$ -	$ -	$ 0.37	$ 0.37	$ 0.37
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.01	$ -	$ -	$ 0.37	$ 0.37	$ 0.37
2008	$ 18.87	$ 9.73	$ 27.53	$ -	$ -	$ -	$ 0.01	$ -	$ 0.01	$ -	$ -	$ 18.88	$ 9.75	$ 27.55
2009	$ 18.87	$ 9.73	$ 27.53	$ 1.08	$ 0.62	$ 1.74	$ -	$ -	$ -	$ -	$ -	$ 19.95	$ 10.36	$ 29.28
2010	$ 18.87	$ 9.73	$ 27.53	$ 2.16	$ 1.25	$ 3.48	$ -	$ -	$ -	$ -	$ -	$ 21.03	$ 10.98	$ 31.02
2011	$ 18.87	$ 9.73	$ 27.53	$ 3.23	$ 1.87	$ 5.23	$ -	$ -	$ -	$ 0.04	$ -	$ 22.14	$ 11.64	$ 32.80
2012	$ 18.87	$ 9.73	$ 27.53	$ 4.31	$ 2.50	$ 6.97	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 23.22	$ 12.27	$ 34.54
2013	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2014	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2015	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2016	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2017	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2018	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2019	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2020	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2021	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2022	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2023	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2024	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2025	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2026	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2027	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2028	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75
2029	$ -	$ -	$ -	$ 5.39	$ 3.12	$ 8.71	$ -	$ -	$ -	$ 0.04	$ 0.01	$ 5.43	$ 3.17	$ 8.75

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2j Projections of Stage 2 DBPR PWS Costs

(All Surface Water CWSs)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.69	$ -	$ -	$ -	$ -	$ 0.69	$ 0.69	$ 0.69
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.34	$ 8.46	$ -	$ -	$ -	$ 9.80	$ 9.80	$ 9.80
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.45	$ 0.22	$ -	$ -	$ 22.67	$ 22.67	$ 22.67
2008	$ 66.61	$ 33.82	$ 97.11	$ -	$ -	$ -	$ 0.60	$ 18.62	$ 0.62	$ -	$ -	$ 86.45	$ 53.65	$ 116.94
2009	$ 96.83	$ 49.45	$ 141.56	$ 3.24	$ 1.89	$ 5.12	$ 0.75	$ -	$ 0.88	$ -	$ -	$ 101.71	$ 52.97	$ 148.31
2010	$ 119.66	$ 61.23	$ 175.33	$ 8.66	$ 4.97	$ 13.46	$ 0.67	$ -	$ -	$ -	$ -	$ 128.99	$ 66.87	$ 189.46
2011	$ 119.66	$ 61.23	$ 175.33	$ 15.87	$ 9.02	$ 24.46	$ -	$ -	$ -	$ 0.42	$ -	$ 135.95	$ 70.67	$ 200.22
2012	$ 119.66	$ 61.23	$ 175.33	$ 23.07	$ 13.07	$ 35.47	$ -	$ -	$ -	$ (0.77)	$ 0.06	$ 142.03	$ 73.59	$ 210.10
2013	$ 53.05	$ 27.41	$ 78.23	$ 30.28	$ 17.12	$ 46.47	$ -	$ -	$ -	$ (2.07)	$ 0.15	$ 81.41	$ 42.61	$ 122.78
2014	$ 22.83	$ 11.78	$ 33.78	$ 34.25	$ 19.27	$ 52.35	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 55.22	$ 29.20	$ 84.27
2015	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2016	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2017	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2018	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2019	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2020	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2021	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2022	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2023	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2024	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2025	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2026	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2027	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2028	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16
2029	$ -	$ -	$ -	$ 36.04	$ 20.24	$ 55.02	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 34.18	$ 18.39	$ 53.16

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2k Projections of Stage 2 DBPR PWS Costs

(Surface Water NTNCWSs Serving <100 People)

Preferred Alternative

	Treatment Capital Costs			Treatment O&M Costs			Stage 2 DBPR Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.02	$ -	$ -	$ -	$ -	$ 0.02	$ 0.02	$ 0.02
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 0.07	$ 0.04	$ 0.12	$ -	$ -	$ -	$ 0.01	$ -	$ 0.01	$ -	$ -	$ 0.10	$ 0.06	$ 0.14
2010	$ 0.15	$ 0.07	$ 0.23	$ 0.01	$ 0.01	$ 0.02	$ 0.01	$ -	$ -	$ -	$ -	$ 0.17	$ 0.09	$ 0.26
2011	$ 0.15	$ 0.07	$ 0.23	$ 0.04	$ 0.02	$ 0.06	$ -	$ -	$ -	$ -	$ -	$ 0.19	$ 0.09	$ 0.29
2012	$ 0.15	$ 0.07	$ 0.23	$ 0.07	$ 0.03	$ 0.10	$ -	$ -	$ -	$ -	$ -	$ 0.21	$ 0.11	$ 0.33
2013	$ 0.15	$ 0.07	$ 0.23	$ 0.09	$ 0.05	$ 0.14	$ -	$ -	$ -	$ -	$ -	$ 0.24	$ 0.12	$ 0.37
2014	$ 0.07	$ 0.04	$ 0.12	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ -	$ -	$ 0.19	$ 0.10	$ 0.29
2015	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2016	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2017	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2018	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2019	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2020	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2021	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2022	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2023	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2024	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2025	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2026	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2027	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2028	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20
2029	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.20

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2l Projections of Stage 2 DBPR PWS Costs

(Surface Water NTNCWSs Serving 100-499 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Stage 2 DBPR Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ -	$ -	$ -	$ -	$ 0.03	$ 0.03	$ 0.03
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 0.15	$ 0.07	$ 0.23	$ -	$ -	$ -	$ 0.02	$ -	$ 0.01	$ -	$ -	$ 0.18	$ 0.10	$ 0.26
2010	$ 0.29	$ 0.15	$ 0.45	$ 0.04	$ 0.02	$ 0.05	$ 0.02	$ -	$ -	$ -	$ -	$ 0.34	$ 0.18	$ 0.52
2011	$ 0.29	$ 0.15	$ 0.45	$ 0.11	$ 0.06	$ 0.16	$ -	$ -	$ -	$ -	$ -	$ 0.40	$ 0.20	$ 0.61
2012	$ 0.29	$ 0.15	$ 0.45	$ 0.18	$ 0.09	$ 0.27	$ -	$ -	$ -	$ -	$ -	$ 0.47	$ 0.24	$ 0.72
2013	$ 0.29	$ 0.15	$ 0.45	$ 0.26	$ 0.13	$ 0.38	$ -	$ -	$ -	$ -	$ -	$ 0.55	$ 0.28	$ 0.83
2014	$ 0.15	$ 0.07	$ 0.23	$ 0.33	$ 0.17	$ 0.49	$ -	$ -	$ -	$ -	$ -	$ 0.48	$ 0.24	$ 0.72
2015	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2016	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2017	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2018	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2019	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2020	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2021	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2022	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2023	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2024	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2025	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2026	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2027	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2028	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55
2029	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55	$ -	$ -	$ -	$ -	$ -	$ 0.37	$ 0.19	$ 0.55

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2m Projections of Stage 2 DBPR PWS Costs

(Surface Water NTNCWSs Serving 500-999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Stage 2 DBPR Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ -	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 0.09	$ 0.05	$ 0.15	$ -	$ -	$ -	$ 0.01	$ -	$ 0.01	$ -	$ -	$ 0.10	$ 0.06	$ 0.16
2010	$ 0.19	$ 0.09	$ 0.29	$ 0.01	$ 0.01	$ 0.02	$ 0.01	$ -	$ -	$ -	$ -	$ 0.21	$ 0.11	$ 0.32
2011	$ 0.19	$ 0.09	$ 0.29	$ 0.04	$ 0.02	$ 0.07	$ -	$ -	$ -	$ -	$ -	$ 0.23	$ 0.12	$ 0.36
2012	$ 0.19	$ 0.09	$ 0.29	$ 0.07	$ 0.04	$ 0.11	$ -	$ -	$ -	$ -	$ -	$ 0.26	$ 0.13	$ 0.40
2013	$ 0.19	$ 0.09	$ 0.29	$ 0.10	$ 0.05	$ 0.15	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.45
2014	$ 0.09	$ 0.05	$ 0.15	$ 0.13	$ 0.07	$ 0.20	$ -	$ -	$ -	$ -	$ -	$ 0.23	$ 0.12	$ 0.34
2015	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2016	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2017	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2018	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2019	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2020	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2021	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2022	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2023	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2024	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2025	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2026	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2027	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2028	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22
2029	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 0.08	$ 0.22

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2n Projections of Stage 2 DBPR PWS Costs

(Surface Water NTNCWSs Serving 1,000-3,299 People)

Preferred Alternative

	Treatment Capital Costs			Treatment O&M Costs			Stage 2 DBPR Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ -	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 0.21	$ 0.11	$ 0.32	$ -	$ -	$ -	$ 0.01	$ -	$ 0.00	$ -	$ -	$ 0.22	$ 0.12	$ 0.33
2010	$ 0.42	$ 0.21	$ 0.63	$ 0.03	$ 0.01	$ 0.04	$ 0.01	$ -	$ -	$ -	$ -	$ 0.45	$ 0.23	$ 0.68
2011	$ 0.42	$ 0.21	$ 0.63	$ 0.09	$ 0.04	$ 0.13	$ -	$ -	$ -	$ -	$ -	$ 0.50	$ 0.26	$ 0.76
2012	$ 0.42	$ 0.21	$ 0.63	$ 0.14	$ 0.07	$ 0.22	$ -	$ -	$ -	$ -	$ -	$ 0.56	$ 0.29	$ 0.85
2013	$ 0.42	$ 0.21	$ 0.63	$ 0.20	$ 0.10	$ 0.30	$ -	$ -	$ -	$ -	$ -	$ 0.62	$ 0.32	$ 0.93
2014	$ 0.21	$ 0.11	$ 0.32	$ 0.26	$ 0.13	$ 0.39	$ -	$ -	$ -	$ -	$ -	$ 0.47	$ 0.24	$ 0.70
2015	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2016	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2017	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2018	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2019	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2020	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2021	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2022	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2023	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2024	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2025	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2026	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2027	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2028	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43
2029	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43	$ -	$ -	$ -	$ -	$ -	$ 0.29	$ 0.15	$ 0.43

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2o Projections of Stage 2 DBPR PWS Costs

(Surface Water NTNCWSs Serving 3,300-9,999 People)

Preferred Alternative

	Treatment Capital Costs			Treatment O&M Costs			Stage 2 DBPR Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 0.14	$ 0.07	$ 0.21	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ -	$ -	$ 0.14	$ 0.08	$ 0.22
2010	$ 0.28	$ 0.15	$ 0.43	$ 0.01	$ 0.01	$ 0.02	$ 0.00	$ -	$ -	$ -	$ -	$ 0.30	$ 0.15	$ 0.45
2011	$ 0.28	$ 0.15	$ 0.43	$ 0.04	$ 0.02	$ 0.05	$ -	$ -	$ -	$ -	$ -	$ 0.32	$ 0.16	$ 0.48
2012	$ 0.28	$ 0.15	$ 0.43	$ 0.06	$ 0.03	$ 0.09	$ -	$ -	$ -	$ 0.01	$ -	$ 0.35	$ 0.19	$ 0.53
2013	$ 0.28	$ 0.15	$ 0.43	$ 0.08	$ 0.04	$ 0.12	$ -	$ -	$ -	$ 0.03	$ -	$ 0.39	$ 0.21	$ 0.58
2014	$ 0.14	$ 0.07	$ 0.21	$ 0.11	$ 0.05	$ 0.16	$ -	$ -	$ -	$ 0.03	$ -	$ 0.27	$ 0.15	$ 0.40
2015	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2016	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2017	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2018	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2019	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2020	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2021	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2022	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2023	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2024	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2025	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2026	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2027	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2028	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20
2029	$ -	$ -	$ -	$ 0.12	$ 0.06	$ 0.18	$ -	$ -	$ -	$ 0.03	$ -	$ 0.14	$ 0.09	$ 0.20

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2p Projections of Stage 2 DBPR PWS Costs

(Surface Water NTNCWSs Serving 10,000-49,999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Stage 2 DBPR Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.02	$ -	$ -	$ -	$ 0.02	$ 0.02	$ 0.02
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.02	$ 0.00	$ -	$ -	$ 0.02	$ 0.02	$ 0.02
2009	$ 0.06	$ 0.03	$ 0.09	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ -	$ -	$ 0.06	$ 0.03	$ 0.09
2010	$ 0.12	$ 0.06	$ 0.17	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ -	$ 0.12	$ 0.07	$ 0.18
2011	$ 0.12	$ 0.06	$ 0.17	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ -	$ -	$ 0.13	$ 0.07	$ 0.19
2012	$ 0.12	$ 0.06	$ 0.17	$ 0.02	$ 0.01	$ 0.02	$ -	$ -	$ -	$ -	$ -	$ 0.14	$ 0.07	$ 0.20
2013	$ 0.12	$ 0.06	$ 0.17	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ -	$ -	$ 0.14	$ 0.07	$ 0.20
2014	$ 0.06	$ 0.03	$ 0.09	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.09	$ 0.05	$ 0.13
2015	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2016	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2017	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2018	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2019	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2020	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2021	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2022	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2023	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2024	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2025	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2026	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2027	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2028	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04
2029	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ 0.02	$ 0.04

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2q Projections of Stage 2 DBPR PWS Costs

(Surface Water NTNCWSs Serving 50,000-99,999 People)

Preferred Alternative

	Treatment Capital Costs			Treatment O&M Costs			Stage 2 DBPR Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2r Projections of Stage 2 DBPR PWS Costs

(Surface Water NTNCWSs Serving 100,000-999,999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ 0.00	$ -	$ -	$ 0.01	$ 0.01	$ 0.01
2008	$ 0.09	$ 0.05	$ 0.13	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ -	$ -	$ 0.09	$ 0.05	$ 0.13
2009	$ 0.09	$ 0.05	$ 0.13	$ 0.00	$ 0.00	$ 0.01	$ -	$ -	$ -	$ -	$ -	$ 0.09	$ 0.05	$ 0.14
2010	$ 0.09	$ 0.05	$ 0.13	$ 0.01	$ 0.00	$ 0.01	$ -	$ -	$ -	$ -	$ -	$ 0.10	$ 0.05	$ 0.14
2011	$ 0.09	$ 0.05	$ 0.13	$ 0.01	$ 0.01	$ 0.02	$ -	$ -	$ -	$ 0.00	$ -	$ 0.11	$ 0.06	$ 0.15
2012	$ 0.09	$ 0.05	$ 0.13	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.11	$ 0.06	$ 0.16
2013	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2014	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2015	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2016	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2017	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2018	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2019	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2020	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2021	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2022	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2023	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2024	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2025	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2026	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2027	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2028	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04
2029	$ -	$ -	$ -	$ 0.02	$ 0.01	$ 0.03	$ -	$ -	$ -	$ 0.00	$ -	$ 0.02	$ 0.02	$ 0.04

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2s Projections of Stage 2 DBPR PWS Costs

(Surface Water NTNCWSs Serving 1,000,000+ People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2t Projections of Stage 2 DBPR PWS Costs

(All Surface Water NTNCWSs)

Preferred Alternative

	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.08	$ 0.01	$ -	$ -	$ -	$ 0.09	$ 0.09	$ 0.09
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.04	$ 0.00	$ -	$ -	$ 0.04	$ 0.04	$ 0.04
2008	$ 0.09	$ 0.05	$ 0.13	$ -	$ -	$ -	$ 0.00	$ 0.02	$ 0.00	$ -	$ -	$ 0.11	$ 0.07	$ 0.16
2009	$ 0.81	$ 0.41	$ 1.23	$ 0.00	$ 0.00	$ 0.01	$ 0.04	$ -	$ 0.04	$ -	$ -	$ 0.89	$ 0.49	$ 1.32
2010	$ 1.53	$ 0.78	$ 2.34	$ 0.12	$ 0.06	$ 0.17	$ 0.04	$ -	$ -	$ -	$ -	$ 1.69	$ 0.88	$ 2.55
2011	$ 1.53	$ 0.78	$ 2.34	$ 0.34	$ 0.17	$ 0.50	$ -	$ -	$ -	$ 0.00	$ -	$ 1.88	$ 0.96	$ 2.85
2012	$ 1.53	$ 0.78	$ 2.34	$ 0.56	$ 0.29	$ 0.83	$ -	$ -	$ -	$ 0.02	$ -	$ 2.11	$ 1.09	$ 3.19
2013	$ 1.44	$ 0.73	$ 2.21	$ 0.78	$ 0.40	$ 1.16	$ -	$ -	$ -	$ 0.03	$ -	$ 2.25	$ 1.17	$ 3.40
2014	$ 0.72	$ 0.37	$ 1.10	$ 1.00	$ 0.52	$ 1.48	$ -	$ -	$ -	$ 0.03	$ -	$ 1.75	$ 0.91	$ 2.62
2015	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2016	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2017	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2018	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2019	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2020	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2021	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2022	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2023	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2024	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2025	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2026	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2027	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2028	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2029	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.65	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2u Projections of Stage 2 DBPR PWS Costs

(All Surface Water Systems)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.69	$ -	$ -	$ -	$ -	$ 0.69	$ 0.69	$ 0.69
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.42	$ 8.48	$ -	$ -	$ -	$ 9.90	$ 9.90	$ 9.90
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.49	$ 0.22	$ -	$ -	$ 22.71	$ 22.71	$ 22.71
2008	$ 66.70	$ 33.87	$ 97.24	$ -	$ -	$ -	$ 0.60	$ 18.64	$ 0.62	$ -	$ -	$ 86.56	$ 53.73	$ 117.10
2009	$ 97.64	$ 49.86	$ 142.79	$ 3.25	$ 1.89	$ 5.13	$ 0.79	$ -	$ 0.91	$ -	$ -	$ 102.60	$ 53.46	$ 149.63
2010	$ 121.20	$ 62.01	$ 177.67	$ 8.77	$ 5.03	$ 13.64	$ 0.71	$ -	$ -	$ -	$ -	$ 130.68	$ 67.75	$ 192.02
2011	$ 121.20	$ 62.01	$ 177.67	$ 16.20	$ 9.19	$ 24.97	$ -	$ -	$ -	$ 0.42	$ -	$ 137.82	$ 71.63	$ 203.07
2012	$ 121.20	$ 62.01	$ 177.67	$ 23.63	$ 13.36	$ 36.30	$ -	$ -	$ -	$ (0.75)	$ 0.06	$ 144.14	$ 74.68	$ 213.28
2013	$ 54.50	$ 28.15	$ 80.44	$ 31.06	$ 17.52	$ 47.63	$ -	$ -	$ -	$ (2.04)	$ 0.15	$ 83.66	$ 43.77	$ 126.18
2014	$ 23.55	$ 12.15	$ 34.88	$ 35.24	$ 19.79	$ 53.84	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 56.97	$ 30.11	$ 86.89
2015	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2016	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2017	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2018	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2019	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2020	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2021	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2022	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2023	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2024	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2025	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2026	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2027	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2028	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84
2029	$ -	$ -	$ -	$ 37.14	$ 20.82	$ 56.66	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 35.32	$ 18.99	$ 54.84

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2v Projections of Stage 2 DBPR PWS Costs

(Ground Water CWSs Serving <100 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.80	$ -	$ -	$ -	$ -	$ 0.80	$ 0.80	$ 0.80
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.22	$ -	$ -	$ -	$ 0.22	$ 0.22	$ 0.22
2009	$ 0.83	$ 0.72	$ 0.95	$ -	$ -	$ -	$ 0.40	$ -	$ 0.44	$ -	$ -	$ 1.67	$ 1.56	$ 1.79
2010	$ 1.67	$ 1.44	$ 1.91	$ 0.09	$ 0.09	$ 0.10	$ 0.40	$ -	$ -	$ -	$ -	$ 2.16	$ 1.92	$ 2.41
2011	$ 1.67	$ 1.44	$ 1.91	$ 0.28	$ 0.26	$ 0.30	$ -	$ -	$ -	$ -	$ -	$ 1.95	$ 1.70	$ 2.21
2012	$ 1.67	$ 1.44	$ 1.91	$ 0.47	$ 0.43	$ 0.50	$ -	$ -	$ -	$ 0.05	$ -	$ 2.18	$ 1.92	$ 2.46
2013	$ 1.67	$ 1.44	$ 1.91	$ 0.65	$ 0.61	$ 0.70	$ -	$ -	$ -	$ 0.10	$ -	$ 2.42	$ 2.14	$ 2.71
2014	$ 0.83	$ 0.72	$ 0.95	$ 0.84	$ 0.78	$ 0.90	$ -	$ -	$ -	$ 0.10	$ -	$ 1.77	$ 1.60	$ 1.95
2015	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2016	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2017	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2018	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2019	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2020	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2021	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2022	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2023	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2024	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2025	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2026	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2027	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2028	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10
2029	$ -	$ -	$ -	$ 0.93	$ 0.87	$ 1.00	$ -	$ -	$ -	$ 0.10	$ -	$ 1.03	$ 0.96	$ 1.10

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2w Projections of Stage 2 DBPR PWS Costs

(Ground Water CWSs Serving 100-499 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.99	$ -	$ -	$ -	$ -	$ 0.99	$ 0.99	$ 0.99
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.27	$ -	$ -	$ -	$ 0.27	$ 0.27	$ 0.27
2009	$ 3.32	$ 2.81	$ 3.84	$ -	$ -	$ -	$ 0.49	$ -	$ 0.55	$ -	$ -	$ 4.36	$ 3.85	$ 4.88
2010	$ 6.65	$ 5.62	$ 7.69	$ 0.35	$ 0.32	$ 0.38	$ 0.49	$ -	$ -	$ -	$ -	$ 7.49	$ 6.43	$ 8.56
2011	$ 6.65	$ 5.62	$ 7.69	$ 1.05	$ 0.97	$ 1.14	$ -	$ -	$ -	$ -	$ -	$ 7.70	$ 6.58	$ 8.82
2012	$ 6.65	$ 5.62	$ 7.69	$ 1.75	$ 1.61	$ 1.89	$ -	$ -	$ -	$ 0.06	$ -	$ 8.46	$ 7.29	$ 9.64
2013	$ 6.65	$ 5.62	$ 7.69	$ 2.45	$ 2.26	$ 2.65	$ -	$ -	$ -	$ 0.12	$ -	$ 9.22	$ 7.99	$ 10.46
2014	$ 3.32	$ 2.81	$ 3.84	$ 3.15	$ 2.90	$ 3.41	$ -	$ -	$ -	$ 0.12	$ -	$ 6.60	$ 5.83	$ 7.37
2015	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2016	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2017	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2018	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2019	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2020	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2021	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2022	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2023	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2024	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2025	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2026	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2027	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2028	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90
2029	$ -	$ -	$ -	$ 3.50	$ 3.23	$ 3.78	$ -	$ -	$ -	$ 0.12	$ -	$ 3.62	$ 3.35	$ 3.90

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2x Projections of Stage 2 DBPR PWS Costs

(Ground Water CWSs Serving 500-999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.45	$ -	$ -	$ -	$ -	$ 0.45	$ 0.45	$ 0.45
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.93	$ -	$ -	$ -	$ 1.93	$ 1.93	$ 1.93
2009	$ 2.02	$ 1.70	$ 2.34	$ -	$ -	$ -	$ 0.22	$ -	$ 0.52	$ -	$ -	$ 2.76	$ 2.44	$ 3.08
2010	$ 4.04	$ 3.41	$ 4.68	$ 0.19	$ 0.17	$ 0.20	$ 0.22	$ -	$ -	$ -	$ -	$ 4.46	$ 3.80	$ 5.10
2011	$ 4.04	$ 3.41	$ 4.68	$ 0.56	$ 0.52	$ 0.61	$ -	$ -	$ -	$ -	$ -	$ 4.61	$ 3.93	$ 5.28
2012	$ 4.04	$ 3.41	$ 4.68	$ 0.94	$ 0.86	$ 1.01	$ -	$ -	$ -	$ 0.28	$ -	$ 5.26	$ 4.55	$ 5.97
2013	$ 4.04	$ 3.41	$ 4.68	$ 1.31	$ 1.21	$ 1.42	$ -	$ -	$ -	$ 0.56	$ -	$ 5.92	$ 5.18	$ 6.66
2014	$ 2.02	$ 1.70	$ 2.34	$ 1.69	$ 1.55	$ 1.82	$ -	$ -	$ -	$ 0.56	$ -	$ 4.27	$ 3.82	$ 4.72
2015	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2016	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2017	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2018	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2019	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2020	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2021	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2022	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2023	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2024	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2025	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2026	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2027	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2028	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59
2029	$ -	$ -	$ -	$ 1.88	$ 1.73	$ 2.02	$ -	$ -	$ -	$ 0.56	$ -	$ 2.44	$ 2.29	$ 2.59

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2y Projections of Stage 2 DBPR PWS Costs

(Ground Water CWSs Serving 1,000-3,299 People)

Preferred Alternative

Year	Treatment Capital Costs: Mean Value	Treatment Capital Costs: 90 Percent Confidence Bound: Lower (5th %tile)	Treatment Capital Costs: 90 Percent Confidence Bound: Upper (95th %tile)	Treatment O&M Costs: Mean Value	Treatment O&M Costs: 90 Percent Confidence Bound: Lower (5th %tile)	Treatment O&M Costs: 90 Percent Confidence Bound: Upper (95th %tile)	Non-Treatment Costs: Implementation	Non-Treatment Costs: IDSE	Non-Treatment Costs: Monitoring Plans	Non-Treatment Costs: Monitoring	Non-Treatment Costs: Significant Excursion	All Stage 2 DBPR Costs: Mean Value	All Stage 2 DBPR Costs: 90 Percent Confidence Bound: Lower (5th %tile)	All Stage 2 DBPR Costs: 90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.54	$ -	$ -	$ -	$ -	$ 0.54	$ 0.54	$ 0.54
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2.34	$ -	$ -	$ -	$ 2.34	$ 2.34	$ 2.34
2009	$ 3.94	$ 3.23	$ 4.66	$ -	$ -	$ -	$ 0.27	$ -	$ 0.63	$ -	$ -	$ 4.84	$ 4.13	$ 5.55
2010	$ 7.89	$ 6.47	$ 9.31	$ 0.28	$ 0.26	$ 0.31	$ 0.27	$ -	$ -	$ -	$ -	$ 8.44	$ 7.00	$ 9.89
2011	$ 7.89	$ 6.47	$ 9.31	$ 0.85	$ 0.78	$ 0.92	$ -	$ -	$ -	$ -	$ -	$ 8.74	$ 7.24	$ 10.23
2012	$ 7.89	$ 6.47	$ 9.31	$ 1.42	$ 1.29	$ 1.54	$ -	$ -	$ -	$ 0.34	$ -	$ 9.64	$ 8.10	$ 11.19
2013	$ 7.89	$ 6.47	$ 9.31	$ 1.98	$ 1.81	$ 2.15	$ -	$ -	$ -	$ 0.68	$ -	$ 10.55	$ 8.96	$ 12.15
2014	$ 3.94	$ 3.23	$ 4.66	$ 2.55	$ 2.33	$ 2.77	$ -	$ -	$ -	$ 0.68	$ -	$ 7.17	$ 6.24	$ 8.11
2015	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2016	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2017	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2018	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2019	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2020	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2021	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2022	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2023	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2024	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2025	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2026	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2027	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2028	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76
2029	$ -	$ -	$ -	$ 2.83	$ 2.58	$ 3.08	$ -	$ -	$ -	$ 0.68	$ -	$ 3.51	$ 3.27	$ 3.76

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2z Projections of Stage 2 DBPR PWSCosts

(Ground Water CWSs Serving 3,300-9,999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.25	$ -	$ -	$ -	$ -	$ 0.25	$ 0.25	$ 0.25
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.06	$ -	$ -	$ -	$ 1.06	$ 1.06	$ 1.06
2009	$ 6.59	$ 5.35	$ 7.84	$ -	$ -	$ -	$ 0.12	$ -	$ 0.28	$ -	$ -	$ 7.00	$ 5.76	$ 8.25
2010	$ 13.19	$ 10.71	$ 15.68	$ 0.24	$ 0.22	$ 0.26	$ 0.12	$ -	$ -	$ -	$ -	$ 13.55	$ 11.05	$ 16.06
2011	$ 13.19	$ 10.71	$ 15.68	$ 0.72	$ 0.66	$ 0.78	$ -	$ -	$ -	$ -	$ -	$ 13.91	$ 11.37	$ 16.45
2012	$ 13.19	$ 10.71	$ 15.68	$ 1.20	$ 1.10	$ 1.30	$ -	$ -	$ -	$ 0.15	$ -	$ 14.54	$ 11.96	$ 17.13
2013	$ 13.19	$ 10.71	$ 15.68	$ 1.68	$ 1.54	$ 1.82	$ -	$ -	$ -	$ 0.31	$ -	$ 15.18	$ 12.56	$ 17.80
2014	$ 6.59	$ 5.35	$ 7.84	$ 2.16	$ 1.98	$ 2.34	$ -	$ -	$ -	$ 0.31	$ -	$ 9.06	$ 7.64	$ 10.48
2015	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2016	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2017	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2018	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2019	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2020	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2021	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2022	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2023	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2024	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2025	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2026	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2027	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2028	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91
2029	$ -	$ -	$ -	$ 2.40	$ 2.20	$ 2.60	$ -	$ -	$ -	$ 0.31	$ -	$ 2.71	$ 2.51	$ 2.91

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2aa Projections of Stage 2 DBPR PWS Costs

(Ground Water CWSs Serving 10,000-49,999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.40	$ -	$ -	$ -	$ -	$ 0.40	$ 0.40	$ 0.40
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.82	$ -	$ -	$ -	$ 0.82	$ 0.82	$ 0.82
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.82	$ 0.16	$ -	$ -	$ 0.98	$ 0.98	$ 0.98
2009	$ 5.91	$ 5.34	$ 6.48	$ -	$ -	$ -	$ 0.20	$ -	$ 0.16	$ -	$ -	$ 6.27	$ 5.70	$ 6.84
2010	$ 11.82	$ 10.68	$ 12.96	$ 0.50	$ 0.48	$ 0.53	$ 0.20	$ -	$ -	$ -	$ -	$ 12.52	$ 11.35	$ 13.69
2011	$ 11.82	$ 10.68	$ 12.96	$ 1.51	$ 1.43	$ 1.59	$ -	$ -	$ -	$ -	$ -	$ 13.33	$ 12.11	$ 14.55
2012	$ 11.82	$ 10.68	$ 12.96	$ 2.52	$ 2.38	$ 2.65	$ -	$ -	$ -	$ 1.79	$ -	$ 16.12	$ 14.85	$ 17.40
2013	$ 11.82	$ 10.68	$ 12.96	$ 3.52	$ 3.33	$ 3.71	$ -	$ -	$ -	$ 3.58	$ -	$ 18.92	$ 17.59	$ 20.25
2014	$ 5.91	$ 5.34	$ 6.48	$ 4.53	$ 4.28	$ 4.77	$ -	$ -	$ -	$ 3.58	$ -	$ 14.02	$ 13.20	$ 14.83
2015	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2016	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2017	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2018	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2019	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2020	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2021	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2022	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2023	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2024	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2025	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2026	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2027	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2028	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88
2029	$ -	$ -	$ -	$ 5.03	$ 4.76	$ 5.30	$ -	$ -	$ -	$ 3.58	$ -	$ 8.61	$ 8.34	$ 8.88

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2ab Projections of Stage 2 DBPR PWS Costs

(Ground Water CWSs Serving 50,000-99,999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.04	$ -	$ -	$ -	$ -	$ 0.04	$ 0.04	$ 0.04
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.18	$ -	$ -	$ -	$ 0.18	$ 0.18	$ 0.18
2008	$ 1.50	$ 1.34	$ 1.65	$ -	$ -	$ -	$ 0.02	$ -	$ 0.04	$ -	$ -	$ 1.55	$ 1.40	$ 1.71
2009	$ 2.99	$ 2.68	$ 3.31	$ 0.13	$ 0.12	$ 0.14	$ 0.02	$ -	$ -	$ -	$ -	$ 3.14	$ 2.82	$ 3.46
2010	$ 2.99	$ 2.68	$ 3.31	$ 0.38	$ 0.36	$ 0.41	$ -	$ -	$ -	$ -	$ -	$ 3.38	$ 3.04	$ 3.71
2011	$ 2.99	$ 2.68	$ 3.31	$ 0.64	$ 0.60	$ 0.68	$ -	$ -	$ -	$ 0.20	$ -	$ 3.83	$ 3.47	$ 4.18
2012	$ 2.99	$ 2.68	$ 3.31	$ 0.89	$ 0.84	$ 0.95	$ -	$ -	$ -	$ 0.40	$ -	$ 4.28	$ 3.91	$ 4.65
2013	$ 1.50	$ 1.34	$ 1.65	$ 1.15	$ 1.08	$ 1.22	$ -	$ -	$ -	$ 0.40	$ -	$ 3.04	$ 2.81	$ 3.27
2014	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2015	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2016	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2017	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2018	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2019	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2020	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2021	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2022	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2023	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2024	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2025	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2026	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2027	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2028	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76
2029	$ -	$ -	$ -	$ 1.28	$ 1.20	$ 1.36	$ -	$ -	$ -	$ 0.40	$ -	$ 1.68	$ 1.60	$ 1.76

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2ac Projections of Stage 2 DBPR PWS Costs

(Ground Water CWSs Serving 100,000-999,999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.02	$ -	$ -	$ -	$ -	$ 0.02	$ 0.02	$ 0.02
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.08	$ -	$ -	$ -	$ 0.08	$ 0.08	$ 0.08
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.08	$ 0.02	$ -	$ -	$ 0.10	$ 0.10	$ 0.10
2008	$ 5.94	$ 5.29	$ 6.59	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ -	$ -	$ 5.98	$ 5.33	$ 6.63
2009	$ 5.94	$ 5.29	$ 6.59	$ 0.57	$ 0.53	$ 0.60	$ -	$ -	$ -	$ -	$ -	$ 6.50	$ 5.81	$ 7.20
2010	$ 5.94	$ 5.29	$ 6.59	$ 1.13	$ 1.05	$ 1.21	$ -	$ -	$ -	$ -	$ -	$ 7.07	$ 6.34	$ 7.80
2011	$ 5.94	$ 5.29	$ 6.59	$ 1.70	$ 1.58	$ 1.81	$ -	$ -	$ -	$ (0.10)	$ -	$ 7.54	$ 6.77	$ 8.31
2012	$ 5.94	$ 5.29	$ 6.59	$ 2.26	$ 2.11	$ 2.42	$ -	$ -	$ -	$ (0.10)	$ -	$ 8.11	$ 7.30	$ 8.92
2013	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2014	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2015	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2016	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2017	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2018	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2019	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2020	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2021	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2022	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2023	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2024	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2025	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2026	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2027	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2028	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93
2029	$ -	$ -	$ -	$ 2.83	$ 2.64	$ 3.02	$ -	$ -	$ -	$ (0.10)	$ -	$ 2.73	$ 2.54	$ 2.93

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2ad Projections of Stage 2 DBPR PWS Costs

(Ground Water CWSs Serving 1,000,000+ People)

Preferred Alternative

	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2008	$ 0.68	$ 0.59	$ 0.76	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ -	$ -	$ 0.68	$ 0.60	$ 0.76
2009	$ 0.68	$ 0.59	$ 0.76	$ 0.09	$ 0.08	$ 0.09	$ -	$ -	$ -	$ -	$ -	$ 0.76	$ 0.67	$ 0.85
2010	$ 0.68	$ 0.59	$ 0.76	$ 0.17	$ 0.16	$ 0.19	$ -	$ -	$ -	$ -	$ -	$ 0.85	$ 0.75	$ 0.94
2011	$ 0.68	$ 0.59	$ 0.76	$ 0.26	$ 0.24	$ 0.28	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.91	$ 0.81	$ 1.01
2012	$ 0.68	$ 0.59	$ 0.76	$ 0.35	$ 0.32	$ 0.37	$ -	$ -	$ -	$ (0.03)	$ -	$ 1.00	$ 0.89	$ 1.10
2013	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2014	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2015	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2016	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2017	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2018	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2019	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2020	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2021	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2022	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2023	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2024	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2025	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2026	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2027	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2028	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44
2029	$ -	$ -	$ -	$ 0.43	$ 0.40	$ 0.46	$ -	$ -	$ -	$ (0.03)	$ -	$ 0.41	$ 0.37	$ 0.44

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2ae Projections of Stage 2 DBPR PWS Costs

(All Ground Water CWSs)

Preferred Alternative

	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.42	$ 0.09	$ -	$ -	$ -	$ 3.51	$ 3.51	$ 3.51
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.09	$ 0.02	$ -	$ -	$ 1.11	$ 1.11	$ 1.11
2008	$ 8.11	$ 7.22	$ 9.00	$ -	$ -	$ -	$ 0.05	$ 6.66	$ 0.22	$ -	$ -	$ 15.03	$ 14.14	$ 15.92
2009	$ 32.23	$ 27.71	$ 36.76	$ 0.78	$ 0.73	$ 0.83	$ 1.73	$ -	$ 2.58	$ -	$ -	$ 37.32	$ 32.75	$ 41.91
2010	$ 54.86	$ 46.87	$ 62.87	$ 3.35	$ 3.11	$ 3.58	$ 1.71	$ -	$ -	$ -	$ -	$ 59.91	$ 51.69	$ 68.16
2011	$ 54.86	$ 46.87	$ 62.87	$ 7.57	$ 7.03	$ 8.11	$ -	$ -	$ -	$ 0.08	$ -	$ 62.50	$ 53.98	$ 71.06
2012	$ 54.86	$ 46.87	$ 62.87	$ 11.79	$ 10.95	$ 12.63	$ -	$ -	$ -	$ 2.95	$ -	$ 69.60	$ 60.77	$ 78.46
2013	$ 46.75	$ 39.65	$ 53.87	$ 16.01	$ 14.87	$ 17.16	$ -	$ -	$ -	$ 5.63	$ -	$ 68.39	$ 60.15	$ 76.66
2014	$ 22.63	$ 19.16	$ 26.11	$ 19.46	$ 18.06	$ 20.85	$ -	$ -	$ -	$ 5.63	$ -	$ 47.71	$ 42.85	$ 52.59
2015	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2016	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2017	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2018	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2019	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2020	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2021	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2022	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2023	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2024	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2025	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2026	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2027	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2028	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2029	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2af Projections of Stage 2 DBPR PWS Costs

(Ground Water NTNCWSs Serving <100 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.25	$ -	$ -	$ -	$ -	$ 0.25	$ 0.25	$ 0.25
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 0.32	$ 0.27	$ 0.36	$ -	$ -	$ -	$ 0.12	$ -	$ 0.20	$ -	$ -	$ 0.65	$ 0.60	$ 0.69
2010	$ 0.64	$ 0.55	$ 0.72	$ 0.04	$ 0.03	$ 0.04	$ 0.12	$ -	$ -	$ -	$ -	$ 0.80	$ 0.70	$ 0.89
2011	$ 0.64	$ 0.55	$ 0.72	$ 0.11	$ 0.10	$ 0.11	$ -	$ -	$ -	$ -	$ -	$ 0.74	$ 0.64	$ 0.84
2012	$ 0.64	$ 0.55	$ 0.72	$ 0.18	$ 0.16	$ 0.19	$ -	$ -	$ -	$ 0.09	$ -	$ 0.90	$ 0.80	$ 1.00
2013	$ 0.64	$ 0.55	$ 0.72	$ 0.25	$ 0.23	$ 0.27	$ -	$ -	$ -	$ 0.18	$ -	$ 1.06	$ 0.95	$ 1.17
2014	$ 0.32	$ 0.27	$ 0.36	$ 0.32	$ 0.30	$ 0.34	$ -	$ -	$ -	$ 0.18	$ -	$ 0.81	$ 0.74	$ 0.88
2015	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2016	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2017	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2018	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2019	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2020	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2021	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2022	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2023	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2024	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2025	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2026	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2027	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2028	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56
2029	$ -	$ -	$ -	$ 0.35	$ 0.33	$ 0.38	$ -	$ -	$ -	$ 0.18	$ -	$ 0.53	$ 0.50	$ 0.56

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2ag Projections of Stage 2 DBPR PWS Costs

(Ground Water NTNCWSs Serving 100-499 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.21	$ -	$ -	$ -	$ -	$ 0.21	$ 0.21	$ 0.21
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 0.50	$ 0.43	$ 0.58	$ -	$ -	$ -	$ 0.11	$ -	$ 0.17	$ -	$ -	$ 0.79	$ 0.71	$ 0.86
2010	$ 1.01	$ 0.85	$ 1.16	$ 0.05	$ 0.05	$ 0.06	$ 0.11	$ -	$ -	$ -	$ -	$ 1.17	$ 1.01	$ 1.33
2011	$ 1.01	$ 0.85	$ 1.16	$ 0.16	$ 0.15	$ 0.17	$ -	$ -	$ -	$ -	$ -	$ 1.17	$ 1.00	$ 1.34
2012	$ 1.01	$ 0.85	$ 1.16	$ 0.26	$ 0.24	$ 0.28	$ -	$ -	$ -	$ 0.07	$ -	$ 1.35	$ 1.17	$ 1.52
2013	$ 1.01	$ 0.85	$ 1.16	$ 0.37	$ 0.34	$ 0.40	$ -	$ -	$ -	$ 0.15	$ -	$ 1.53	$ 1.34	$ 1.71
2014	$ 0.50	$ 0.43	$ 0.58	$ 0.47	$ 0.44	$ 0.51	$ -	$ -	$ -	$ 0.15	$ -	$ 1.13	$ 1.01	$ 1.24
2015	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2016	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2017	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2018	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2019	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2020	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2021	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2022	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2023	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2024	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2025	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2026	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2027	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2028	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72
2029	$ -	$ -	$ -	$ 0.53	$ 0.48	$ 0.57	$ -	$ -	$ -	$ 0.15	$ -	$ 0.68	$ 0.63	$ 0.72

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2ah Projections of Stage 2 DBPR PWS Costs

(Ground Water NTNCWSs Serving 500-999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 0.25	$ 0.21	$ 0.29	$ -	$ -	$ -	$ 0.03	$ -	$ 0.06	$ -	$ -	$ 0.34	$ 0.30	$ 0.38
2010	$ 0.50	$ 0.42	$ 0.57	$ 0.02	$ 0.02	$ 0.02	$ 0.03	$ -	$ -	$ -	$ -	$ 0.55	$ 0.47	$ 0.63
2011	$ 0.50	$ 0.42	$ 0.57	$ 0.07	$ 0.06	$ 0.07	$ -	$ -	$ -	$ -	$ -	$ 0.56	$ 0.48	$ 0.65
2012	$ 0.50	$ 0.42	$ 0.57	$ 0.11	$ 0.10	$ 0.12	$ -	$ -	$ -	$ 0.13	$ -	$ 0.74	$ 0.65	$ 0.83
2013	$ 0.50	$ 0.42	$ 0.57	$ 0.16	$ 0.14	$ 0.17	$ -	$ -	$ -	$ 0.26	$ -	$ 0.91	$ 0.82	$ 1.00
2014	$ 0.25	$ 0.21	$ 0.29	$ 0.20	$ 0.18	$ 0.21	$ -	$ -	$ -	$ 0.26	$ -	$ 0.71	$ 0.65	$ 0.77
2015	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2016	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2017	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2018	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2019	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2020	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2021	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2022	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2023	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2024	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2025	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2026	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2027	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2028	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50
2029	$ -	$ -	$ -	$ 0.22	$ 0.20	$ 0.24	$ -	$ -	$ -	$ 0.26	$ -	$ 0.48	$ 0.47	$ 0.50

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2ai Projections of Stage 2 DBPR PWS Costs

(Ground Water NTNCWSs Serving 1,000-3,299 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.03	$ -	$ -	$ -	$ -	$ 0.03	$ 0.03	$ 0.03
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 0.16	$ 0.13	$ 0.19	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ -	$ -	$ 0.20	$ 0.17	$ 0.23
2010	$ 0.32	$ 0.26	$ 0.38	$ 0.01	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ -	$ 0.34	$ 0.29	$ 0.40
2011	$ 0.32	$ 0.26	$ 0.38	$ 0.03	$ 0.03	$ 0.03	$ -	$ -	$ -	$ -	$ -	$ 0.35	$ 0.29	$ 0.41
2012	$ 0.32	$ 0.26	$ 0.38	$ 0.05	$ 0.04	$ 0.05	$ -	$ -	$ -	$ 0.06	$ -	$ 0.42	$ 0.36	$ 0.49
2013	$ 0.32	$ 0.26	$ 0.38	$ 0.07	$ 0.06	$ 0.07	$ -	$ -	$ -	$ 0.11	$ -	$ 0.50	$ 0.44	$ 0.56
2014	$ 0.16	$ 0.13	$ 0.19	$ 0.09	$ 0.08	$ 0.09	$ -	$ -	$ -	$ 0.11	$ -	$ 0.36	$ 0.32	$ 0.39
2015	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2016	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2017	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2018	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2019	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2020	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2021	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2022	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2023	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2024	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2025	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2026	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2027	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2028	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22
2029	$ -	$ -	$ -	$ 0.10	$ 0.09	$ 0.10	$ -	$ -	$ -	$ 0.11	$ -	$ 0.21	$ 0.20	$ 0.22

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2aj Projections of Stage 2 DBPR PWSCosts

(Ground Water NTNCWSs Serving 3,300-9,999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 0.05	$ 0.04	$ 0.06	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ -	$ -	$ 0.05	$ 0.04	$ 0.06
2010	$ 0.09	$ 0.08	$ 0.11	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ -	$ 0.10	$ 0.08	$ 0.11
2011	$ 0.09	$ 0.08	$ 0.11	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ -	$ -	$ 0.10	$ 0.08	$ 0.11
2012	$ 0.09	$ 0.08	$ 0.11	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.00	$ -	$ 0.10	$ 0.09	$ 0.12
2013	$ 0.09	$ 0.08	$ 0.11	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.11	$ 0.09	$ 0.13
2014	$ 0.05	$ 0.04	$ 0.06	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.07	$ 0.06	$ 0.08
2015	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2016	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2017	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2018	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2019	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2020	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2021	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2022	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2023	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2024	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2025	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2026	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2027	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2028	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02
2029	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.01	$ -	$ 0.02	$ 0.02	$ 0.02

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2ak Projections of Stage 2 DBPR PWS Costs

(Ground Water NTNCWSs Serving 10,000-49,999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2009	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ -	$ -	$ 0.01	$ 0.01	$ 0.01
2010	$ 0.02	$ 0.02	$ 0.02	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ -	$ 0.02	$ 0.02	$ 0.02
2011	$ 0.02	$ 0.02	$ 0.02	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ -	$ -	$ 0.02	$ 0.02	$ 0.02
2012	$ 0.02	$ 0.02	$ 0.02	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.01	$ -	$ 0.03	$ 0.03	$ 0.03
2013	$ 0.02	$ 0.02	$ 0.02	$ 0.01	$ 0.00	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.04	$ 0.04	$ 0.04
2014	$ 0.01	$ 0.01	$ 0.01	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.03	$ 0.03	$ 0.03
2015	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2016	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2017	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2018	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2019	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2020	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2021	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2022	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2023	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2024	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2025	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2026	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2027	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2028	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02
2029	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.02	$ -	$ 0.02	$ 0.02	$ 0.02

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2al Projections of Stage 2 DBPR PWS Costs

(Ground Water NTNCWSs Serving 50,000-99,999 People)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2008	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2009	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.01
2010	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.01
2011	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.01	$ 0.01
2012	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.01	$ 0.01
2013	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.01	$ 0.01
2014	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2015	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2016	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2017	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2018	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2019	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2020	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2021	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2022	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2023	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2024	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2025	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2026	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2027	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2028	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00
2029	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ 0.00	$ 0.00

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2am Projections of Stage 2 DBPR PWS Costs

(Ground Water NTNCWSs Serving 100,000-999,999 People)

Preferred Alternative

	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2008	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.00	$ -	$ 0.00	$ -	$ -	$ 0.01	$ 0.01	$ 0.01
2009	$ 0.01	$ 0.01	$ 0.01	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01
2010	$ 0.01	$ 0.01	$ 0.01	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ 0.01	$ 0.01
2011	$ 0.01	$ 0.01	$ 0.01	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.01	$ 0.01
2012	$ 0.01	$ 0.01	$ 0.01	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.01	$ 0.01
2013	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2014	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2015	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2016	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2017	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2018	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2019	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2020	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2021	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2022	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2023	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2024	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2025	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2026	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2027	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2028	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01
2029	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ -	$ 0.00	$ -	$ 0.01	$ 0.00	$ 0.01

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2an Projections of Stage 2 DBPR PWS Costs

(Ground Water NTNCWSs Serving 1,000,000+ People)

Preferred Alternative

	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2ao Projections of Stage 2 DBPR PWS Costs

(All Ground Water NTNCWSs)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.56	$ -	$ -	$ -	$ -	$ 0.56	$ 0.56	$ 0.56
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2008	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ 0.01	$ 0.01	$ 0.01
2009	$ 1.30	$ 1.09	$ 1.50	$ 0.00	$ 0.00	$ 0.00	$ 0.28	$ -	$ 0.46	$ -	$ -	$ 2.04	$ 1.84	$ 2.24
2010	$ 2.58	$ 2.18	$ 2.99	$ 0.12	$ 0.11	$ 0.13	$ 0.28	$ -	$ -	$ -	$ -	$ 2.99	$ 2.57	$ 3.40
2011	$ 2.58	$ 2.18	$ 2.99	$ 0.37	$ 0.34	$ 0.40	$ -	$ -	$ -	$ 0.00	$ -	$ 2.96	$ 2.52	$ 3.39
2012	$ 2.58	$ 2.18	$ 2.99	$ 0.61	$ 0.57	$ 0.66	$ -	$ -	$ -	$ 0.37	$ -	$ 3.56	$ 3.11	$ 4.01
2013	$ 2.58	$ 2.17	$ 2.98	$ 0.86	$ 0.79	$ 0.93	$ -	$ -	$ -	$ 0.73	$ -	$ 4.16	$ 3.69	$ 4.63
2014	$ 1.29	$ 1.08	$ 1.49	$ 1.10	$ 1.02	$ 1.19	$ -	$ -	$ -	$ 0.73	$ -	$ 3.12	$ 2.83	$ 3.40
2015	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2016	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2017	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2018	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2019	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2020	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2021	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2022	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2023	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2024	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2025	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2026	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2027	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2028	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2029	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2ap Projections of Stage 2 DBPR PWS Costs
(All Ground Water Systems)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.98	$ 0.09	$ -	$ -	$ -	$ 4.07	$ 4.07	$ 4.07
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.09	$ 0.02	$ -	$ -	$ 1.11	$ 1.11	$ 1.11
2008	$ 8.12	$ 7.23	$ 9.01	$ -	$ -	$ -	$ 0.05	$ 6.66	$ 0.22	$ -	$ -	$ 15.04	$ 14.15	$ 15.93
2009	$ 33.53	$ 28.81	$ 38.26	$ 0.78	$ 0.73	$ 0.83	$ 2.01	$ -	$ 3.04	$ -	$ -	$ 39.36	$ 34.59	$ 44.15
2010	$ 57.44	$ 49.05	$ 65.86	$ 3.47	$ 3.22	$ 3.71	$ 1.99	$ -	$ -	$ -	$ -	$ 62.90	$ 54.26	$ 71.56
2011	$ 57.44	$ 49.05	$ 65.86	$ 7.94	$ 7.37	$ 8.51	$ -	$ -	$ -	$ 0.08	$ -	$ 65.46	$ 56.50	$ 74.45
2012	$ 57.44	$ 49.05	$ 65.86	$ 12.40	$ 11.52	$ 13.30	$ -	$ -	$ -	$ 3.32	$ -	$ 73.17	$ 63.88	$ 82.47
2013	$ 49.32	$ 41.82	$ 56.85	$ 16.87	$ 15.66	$ 18.09	$ -	$ -	$ -	$ 6.36	$ -	$ 72.55	$ 63.84	$ 81.29
2014	$ 23.91	$ 20.24	$ 27.60	$ 20.56	$ 19.08	$ 22.04	$ -	$ -	$ -	$ 6.36	$ -	$ 50.83	$ 45.68	$ 56.00
2015	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2016	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2017	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2018	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2019	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2020	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2021	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2022	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2023	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2024	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2025	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2026	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2027	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2028	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2029	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2aq Projections of Stage 2 DBPR PWS Costs

(All Systems)

Preferred Alternative

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.76	$ -	$ -	$ -	$ -	$ 0.76	$ 0.76	$ 0.76
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 5.40	$ 8.56	$ -	$ -	$ -	$ 13.96	$ 13.96	$ 13.96
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 23.58	$ 0.24	$ -	$ -	$ 23.81	$ 23.81	$ 23.81
2008	$ 74.82	$ 41.09	$ 106.25	$ -	$ -	$ -	$ 0.65	$ 25.30	$ 0.83	$ -	$ -	$ 101.60	$ 67.87	$ 133.03
2009	$ 131.17	$ 78.67	$ 181.06	$ 4.03	$ 2.62	$ 5.96	$ 2.81	$ -	$ 3.95	$ -	$ -	$ 141.96	$ 88.05	$ 193.78
2010	$ 178.64	$ 111.06	$ 243.53	$ 12.24	$ 8.25	$ 17.35	$ 2.70	$ -	$ -	$ -	$ -	$ 193.58	$ 122.01	$ 263.58
2011	$ 178.64	$ 111.06	$ 243.53	$ 24.14	$ 16.56	$ 33.47	$ -	$ -	$ -	$ 0.51	$ -	$ 203.28	$ 128.13	$ 277.51
2012	$ 178.64	$ 111.06	$ 243.53	$ 36.04	$ 24.87	$ 49.60	$ -	$ -	$ -	$ 2.57	$ 0.06	$ 217.30	$ 138.56	$ 295.76
2013	$ 103.82	$ 69.97	$ 137.28	$ 47.93	$ 33.18	$ 65.72	$ -	$ -	$ -	$ 4.32	$ 0.15	$ 156.22	$ 107.62	$ 207.47
2014	$ 47.47	$ 32.39	$ 62.48	$ 55.80	$ 38.87	$ 75.88	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 107.80	$ 75.79	$ 142.89
2015	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2016	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2017	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2018	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2019	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2020	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2021	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2022	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2023	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2024	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2025	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2026	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2027	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2028	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15
2029	$ -	$ -	$ -	$ 59.48	$ 41.55	$ 80.61	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 64.01	$ 46.08	$ 85.15

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1a and Exhibits D.1 through D.6.

Exhibit J.2ar Projections of Stage 2 DBPR Primacy Agency Costs

Preferred Alternative

Year	Implementation Costs	IDSE Costs	Monitoring Plan Costs	Compliance Monitoring Costs	Significant Excursion Report Costs
2005	$ 3.88	$ -	$ -	$ -	$ -
2006	$ 3.88	$ 0.04	$ -	$ -	$ -
2007	$ -	$ 0.13	$ 0.02	$ -	$ -
2008	$ -	$ 2.06	$ 0.06	$ -	$ -
2009	$ -	$ -	$ 0.85	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 1.59	$ 0.11
2012	$ -	$ -	$ -	$ 1.59	$ 0.11
2013	$ -	$ -	$ -	$ 1.59	$ 0.11
2014	$ -	$ -	$ -	$ 1.59	$ 0.11
2015	$ -	$ -	$ -	$ 1.59	$ 0.11
2016	$ -	$ -	$ -	$ 1.59	$ 0.11
2017	$ -	$ -	$ -	$ 1.59	$ 0.11
2018	$ -	$ -	$ -	$ 1.59	$ 0.11
2019	$ -	$ -	$ -	$ 1.59	$ 0.11
2020	$ -	$ -	$ -	$ 1.59	$ 0.11
2021	$ -	$ -	$ -	$ 1.59	$ 0.11
2022	$ -	$ -	$ -	$ 1.59	$ 0.11
2023	$ -	$ -	$ -	$ 1.59	$ 0.11
2024	$ -	$ -	$ -	$ 1.59	$ 0.11
2025	$ -	$ -	$ -	$ 1.59	$ 0.11
2026	$ -	$ -	$ -	$ 1.59	$ 0.11
2027	$ -	$ -	$ -	$ 1.59	$ 0.11
2028	$ -	$ -	$ -	$ 1.59	$ 0.11
2029	$ -	$ -	$ -	$ 1.59	$ 0.11

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1h and D.7.

Exhibit J.2as Present Value of Annual Cost Projections at 3% Discount Rate
(All Systems and Primacy Agencies)

Preferred Alternative

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Primacy Agencies	Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound				90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Point Estimate	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.6	$ 0.6	$ 0.6	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 3.7	$ 4.4	$ 4.4	$ 4.4
2006	$ 9.0	$ 9.0	$ 9.0	$ 0.1	$ 0.1	$ 0.1	$ 3.2	$ 3.2	$ 3.2	$ 0.5	$ 0.5	$ 0.5	$ 3.6	$ 16.4	$ 16.4	$ 16.4
2007	$ 20.1	$ 20.1	$ 20.1	$ 0.0	$ 0.0	$ 0.0	$ 1.0	$ 1.0	$ 1.0	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 21.3	$ 21.3	$ 21.3
2008	$ 74.6	$ 46.3	$ 100.9	$ 0.1	$ 0.1	$ 0.1	$ 13.0	$ 12.2	$ 13.7	$ 0.0	$ 0.0	$ 0.0	$ 1.8	$ 89.5	$ 60.4	$ 116.6
2009	$ 85.2	$ 44.4	$ 124.2	$ 0.7	$ 0.4	$ 1.1	$ 31.3	$ 27.4	$ 35.1	$ 1.7	$ 1.5	$ 1.9	$ 0.7	$ 119.6	$ 74.5	$ 163.0
2010	$ 104.9	$ 54.4	$ 154.1	$ 1.4	$ 0.7	$ 2.1	$ 48.7	$ 42.0	$ 55.4	$ 2.4	$ 2.1	$ 2.8	$ -	$ 157.4	$ 99.2	$ 214.3
2011	$ 107.3	$ 55.8	$ 158.1	$ 1.5	$ 0.8	$ 2.2	$ 49.3	$ 42.6	$ 56.1	$ 2.3	$ 2.0	$ 2.7	$ 1.3	$ 161.8	$ 102.5	$ 220.4
2012	$ 108.9	$ 56.4	$ 161.0	$ 1.6	$ 0.8	$ 2.4	$ 53.3	$ 46.6	$ 60.1	$ 2.7	$ 2.4	$ 3.1	$ 1.3	$ 167.9	$ 107.5	$ 228.0
2013	$ 60.6	$ 31.7	$ 91.4	$ 1.7	$ 0.9	$ 2.5	$ 50.9	$ 44.8	$ 57.0	$ 3.1	$ 2.7	$ 3.4	$ 1.3	$ 117.5	$ 81.3	$ 155.6
2014	$ 39.9	$ 21.1	$ 60.9	$ 1.3	$ 0.7	$ 1.9	$ 34.5	$ 31.0	$ 38.0	$ 2.3	$ 2.0	$ 2.5	$ 1.2	$ 79.1	$ 56.0	$ 104.5
2015	$ 24.0	$ 12.9	$ 37.3	$ 0.8	$ 0.4	$ 1.2	$ 18.8	$ 17.7	$ 19.8	$ 1.4	$ 1.3	$ 1.4	$ 1.2	$ 46.1	$ 33.5	$ 60.9
2016	$ 23.3	$ 12.5	$ 36.2	$ 0.8	$ 0.4	$ 1.1	$ 18.2	$ 17.2	$ 19.2	$ 1.3	$ 1.3	$ 1.4	$ 1.2	$ 44.8	$ 32.5	$ 59.1
2017	$ 22.6	$ 12.2	$ 35.1	$ 0.7	$ 0.4	$ 1.1	$ 17.7	$ 16.7	$ 18.7	$ 1.3	$ 1.2	$ 1.4	$ 1.1	$ 43.5	$ 31.6	$ 57.4
2018	$ 21.9	$ 11.8	$ 34.1	$ 0.7	$ 0.4	$ 1.1	$ 17.2	$ 16.2	$ 18.1	$ 1.3	$ 1.2	$ 1.3	$ 1.1	$ 42.2	$ 30.7	$ 55.7
2019	$ 21.3	$ 11.5	$ 33.1	$ 0.7	$ 0.4	$ 1.0	$ 16.7	$ 15.7	$ 17.6	$ 1.2	$ 1.2	$ 1.3	$ 1.1	$ 41.0	$ 29.8	$ 54.1
2020	$ 20.7	$ 11.1	$ 32.2	$ 0.7	$ 0.4	$ 1.0	$ 16.2	$ 15.3	$ 17.1	$ 1.2	$ 1.1	$ 1.2	$ 1.0	$ 39.8	$ 28.9	$ 52.5
2021	$ 20.1	$ 10.8	$ 31.2	$ 0.7	$ 0.4	$ 1.0	$ 15.7	$ 14.8	$ 16.6	$ 1.1	$ 1.1	$ 1.2	$ 1.0	$ 38.6	$ 28.1	$ 51.0
2022	$ 19.5	$ 10.5	$ 30.3	$ 0.6	$ 0.3	$ 1.0	$ 15.3	$ 14.4	$ 16.1	$ 1.1	$ 1.1	$ 1.2	$ 1.0	$ 37.5	$ 27.3	$ 49.5
2023	$ 18.9	$ 10.2	$ 29.4	$ 0.6	$ 0.3	$ 0.9	$ 14.8	$ 14.0	$ 15.6	$ 1.1	$ 1.0	$ 1.1	$ 0.9	$ 36.4	$ 26.5	$ 48.1
2024	$ 18.4	$ 9.9	$ 28.6	$ 0.6	$ 0.3	$ 0.9	$ 14.4	$ 13.6	$ 15.2	$ 1.1	$ 1.0	$ 1.1	$ 0.9	$ 35.3	$ 25.7	$ 46.7
2025	$ 17.8	$ 9.6	$ 27.7	$ 0.6	$ 0.3	$ 0.9	$ 14.0	$ 13.2	$ 14.7	$ 1.0	$ 1.0	$ 1.1	$ 0.9	$ 34.3	$ 24.9	$ 45.3
2026	$ 17.3	$ 9.3	$ 26.9	$ 0.6	$ 0.3	$ 0.8	$ 13.6	$ 12.8	$ 14.3	$ 1.0	$ 0.9	$ 1.0	$ 0.9	$ 33.3	$ 24.2	$ 44.0
2027	$ 16.8	$ 9.0	$ 26.2	$ 0.6	$ 0.3	$ 0.8	$ 13.2	$ 12.4	$ 13.9	$ 1.0	$ 0.9	$ 1.0	$ 0.8	$ 32.3	$ 23.5	$ 42.7
2028	$ 16.3	$ 8.8	$ 25.4	$ 0.5	$ 0.3	$ 0.8	$ 12.8	$ 12.0	$ 13.5	$ 0.9	$ 0.9	$ 1.0	$ 0.8	$ 31.4	$ 22.8	$ 41.5
2029	$ 15.9	$ 8.5	$ 24.7	$ 0.5	$ 0.3	$ 0.8	$ 12.4	$ 11.7	$ 13.1	$ 0.9	$ 0.9	$ 0.9	$ 0.8	$ 30.5	$ 22.2	$ 40.3
Total	**$ 905.8**	**$ 498.3**	**$ 1,338.7**	**$ 18.1**	**$ 9.6**	**$ 27.0**	**$ 515.9**	**$ 468.4**	**$ 563.5**	**$ 31.9**	**$ 29.3**	**$ 34.5**	**$ 29.8**	**$ 1,501.6**	**$ 1,035.5**	**$ 1,993.5**
Ann.	**$ 52.0**	**$ 28.6**	**$ 76.9**	**$ 1.0**	**$ 0.6**	**$ 1.5**	**$ 29.6**	**$ 26.9**	**$ 32.4**	**$ 1.8**	**$ 1.7**	**$ 2.0**	**$ 1.7**	**$ 86.2**	**$ 59.5**	**$ 114.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2at Present Value of Annual Treatment Cost Projections at 3% Discount Rate
(All Systems)

Preferred Alternative

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ 57.5	$ 29.2	$ 83.8	$ 0.1	$ 0.0	$ 0.1	$ 7.0	$ 6.2	$ 7.8	$ 0.0	$ 0.0	$ 0.0	$ 64.5	$ 35.4	$ 91.7
2009	$ 81.1	$ 41.4	$ 118.6	$ 0.7	$ 0.3	$ 1.0	$ 27.0	$ 23.2	$ 30.8	$ 1.1	$ 0.9	$ 1.3	$ 109.9	$ 65.9	$ 151.6
2010	$ 97.3	$ 49.8	$ 142.6	$ 1.2	$ 0.6	$ 1.9	$ 44.6	$ 38.1	$ 51.1	$ 2.1	$ 1.8	$ 2.4	$ 145.3	$ 90.3	$ 198.0
2011	$ 94.5	$ 48.3	$ 138.4	$ 1.2	$ 0.6	$ 1.8	$ 43.3	$ 37.0	$ 49.6	$ 2.0	$ 1.7	$ 2.4	$ 141.0	$ 87.7	$ 192.2
2012	$ 91.7	$ 46.9	$ 134.4	$ 1.2	$ 0.6	$ 1.8	$ 42.0	$ 35.9	$ 48.2	$ 2.0	$ 1.7	$ 2.3	$ 136.9	$ 85.1	$ 186.6
2013	$ 39.5	$ 20.4	$ 58.2	$ 1.1	$ 0.5	$ 1.6	$ 34.8	$ 29.5	$ 40.1	$ 1.9	$ 1.6	$ 2.2	$ 77.3	$ 52.1	$ 102.2
2014	$ 16.5	$ 8.5	$ 24.4	$ 0.5	$ 0.3	$ 0.8	$ 16.3	$ 13.8	$ 18.9	$ 0.9	$ 0.8	$ 1.1	$ 34.3	$ 23.4	$ 45.1
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 478.0**	**$ 244.5**	**$ 700.3**	**$ 6.0**	**$ 3.0**	**$ 9.1**	**$ 215.1**	**$ 183.8**	**$ 246.4**	**$ 10.1**	**$ 8.5**	**$ 11.6**	**$ 709.1**	**$ 439.9**	**$ 967.5**
Ann.	**$ 27.5**	**$ 14.0**	**$ 40.2**	**$ 0.3**	**$ 0.2**	**$ 0.5**	**$ 12.4**	**$ 10.6**	**$ 14.2**	**$ 0.6**	**$ 0.5**	**$ 0.7**	**$ 40.7**	**$ 25.3**	**$ 55.6**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2au Present Value of Annual Treatment Cost Projections at 3% Discount Rate
(All Systems)

Preferred Alternative

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 2.7	$ 1.6	$ 4.3	$ 0.0	$ 0.0	$ 0.0	$ 0.7	$ 0.6	$ 0.7	$ 0.0	$ 0.0	$ 0.0	$ 3.4	$ 2.2	$ 5.0
2010	$ 7.0	$ 4.0	$ 10.9	$ 0.1	$ 0.0	$ 0.1	$ 2.7	$ 2.5	$ 2.9	$ 0.1	$ 0.1	$ 0.1	$ 10.0	$ 6.7	$ 14.1
2011	$ 12.5	$ 7.1	$ 19.3	$ 0.3	$ 0.1	$ 0.4	$ 6.0	$ 5.5	$ 6.4	$ 0.3	$ 0.3	$ 0.3	$ 19.1	$ 13.1	$ 26.4
2012	$ 17.7	$ 10.0	$ 27.2	$ 0.4	$ 0.2	$ 0.6	$ 9.0	$ 8.4	$ 9.7	$ 0.5	$ 0.4	$ 0.5	$ 27.6	$ 19.1	$ 38.0
2013	$ 22.5	$ 12.7	$ 34.6	$ 0.6	$ 0.3	$ 0.9	$ 11.9	$ 11.1	$ 12.8	$ 0.6	$ 0.6	$ 0.7	$ 35.7	$ 24.7	$ 48.9
2014	$ 24.7	$ 13.9	$ 37.8	$ 0.7	$ 0.4	$ 1.1	$ 14.1	$ 13.0	$ 15.1	$ 0.8	$ 0.7	$ 0.9	$ 40.3	$ 28.1	$ 54.8
2015	$ 25.3	$ 14.2	$ 38.6	$ 0.8	$ 0.4	$ 1.2	$ 14.8	$ 13.7	$ 15.9	$ 0.9	$ 0.8	$ 0.9	$ 41.7	$ 29.1	$ 56.5
2016	$ 24.5	$ 13.8	$ 37.5	$ 0.8	$ 0.4	$ 1.1	$ 14.4	$ 13.3	$ 15.4	$ 0.8	$ 0.8	$ 0.9	$ 40.5	$ 28.3	$ 54.9
2017	$ 23.8	$ 13.4	$ 36.4	$ 0.7	$ 0.4	$ 1.1	$ 14.0	$ 13.0	$ 15.0	$ 0.8	$ 0.7	$ 0.9	$ 39.3	$ 27.5	$ 53.3
2018	$ 23.1	$ 13.0	$ 35.3	$ 0.7	$ 0.4	$ 1.1	$ 13.6	$ 12.6	$ 14.5	$ 0.8	$ 0.7	$ 0.8	$ 38.2	$ 26.7	$ 51.7
2019	$ 22.5	$ 12.6	$ 34.3	$ 0.7	$ 0.4	$ 1.0	$ 13.2	$ 12.2	$ 14.1	$ 0.8	$ 0.7	$ 0.8	$ 37.1	$ 25.9	$ 50.2
2020	$ 21.8	$ 12.2	$ 33.3	$ 0.7	$ 0.3	$ 1.0	$ 12.8	$ 11.9	$ 13.7	$ 0.7	$ 0.7	$ 0.8	$ 36.0	$ 25.1	$ 48.8
2021	$ 21.2	$ 11.9	$ 32.3	$ 0.6	$ 0.3	$ 1.0	$ 12.4	$ 11.5	$ 13.3	$ 0.7	$ 0.7	$ 0.8	$ 34.9	$ 24.4	$ 47.4
2022	$ 20.6	$ 11.5	$ 31.4	$ 0.6	$ 0.3	$ 0.9	$ 12.0	$ 11.2	$ 12.9	$ 0.7	$ 0.6	$ 0.8	$ 33.9	$ 23.7	$ 46.0
2023	$ 20.0	$ 11.2	$ 30.5	$ 0.6	$ 0.3	$ 0.9	$ 11.7	$ 10.9	$ 12.5	$ 0.7	$ 0.6	$ 0.7	$ 32.9	$ 23.0	$ 44.6
2024	$ 19.4	$ 10.9	$ 29.6	$ 0.6	$ 0.3	$ 0.9	$ 11.3	$ 10.5	$ 12.2	$ 0.7	$ 0.6	$ 0.7	$ 32.0	$ 22.3	$ 43.3
2025	$ 18.8	$ 10.6	$ 28.7	$ 0.6	$ 0.3	$ 0.9	$ 11.0	$ 10.2	$ 11.8	$ 0.6	$ 0.6	$ 0.7	$ 31.0	$ 21.7	$ 42.1
2026	$ 18.3	$ 10.3	$ 27.9	$ 0.6	$ 0.3	$ 0.8	$ 10.7	$ 9.9	$ 11.5	$ 0.6	$ 0.6	$ 0.7	$ 30.1	$ 21.1	$ 40.8
2027	$ 17.7	$ 10.0	$ 27.1	$ 0.5	$ 0.3	$ 0.8	$ 10.4	$ 9.6	$ 11.1	$ 0.6	$ 0.6	$ 0.6	$ 29.3	$ 20.4	$ 39.7
2028	$ 17.2	$ 9.7	$ 26.3	$ 0.5	$ 0.3	$ 0.8	$ 10.1	$ 9.4	$ 10.8	$ 0.6	$ 0.5	$ 0.6	$ 28.4	$ 19.8	$ 38.5
2029	$ 16.7	$ 9.4	$ 25.5	$ 0.5	$ 0.3	$ 0.8	$ 9.8	$ 9.1	$ 10.5	$ 0.6	$ 0.5	$ 0.6	$ 27.6	$ 19.3	$ 37.4
Total	**$ 398.1**	**$ 224.0**	**$ 608.6**	**$ 11.6**	**$ 6.0**	**$ 17.3**	**$ 226.4**	**$ 210.2**	**$ 242.7**	**$ 12.9**	**$ 11.9**	**$ 13.9**	**$ 649.0**	**$ 452.1**	**$ 882.5**
Ann.	**$ 22.9**	**$ 12.9**	**$ 35.0**	**$ 0.7**	**$ 0.3**	**$ 1.0**	**$ 13.0**	**$ 12.1**	**$ 13.9**	**$ 0.7**	**$ 0.7**	**$ 0.8**	**$ 37.3**	**$ 26.0**	**$ 50.7**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2av Present Value of Annual Non-Treatment Cost Projections at 3% Discount Rate
(All Systems)

Preferred Alternative

	Surface Water CWS					Surface Water NTNCWS				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.6	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -
2006	$ 1.2	$ 7.7	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -
2007	$ -	$ 19.9	$ 0.2	$ -	$ -	$ -	$ 0.0	$ 0.0	$ -	$ -
2008	$ 0.5	$ 16.1	$ 0.5	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -
2009	$ 0.6	$ -	$ 0.7	$ -	$ -	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.5	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ (0.6)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ (1.5)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ (1.5)	$ 0.2	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ (1.5)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ (1.4)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ (1.4)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ (1.2)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ (1.2)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 3.6**	**$ 43.8**	**$ 1.5**	**$ (21.1)**	**$ 2.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.3**	**$ -**
Ann.	**$ 0.2**	**$ 2.5**	**$ 0.1**	**$ (1.2)**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**

	Disinfecting Ground Water CWS					Disinfecting Ground Water NTNCWS				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.1	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -
2006	$ 3.1	$ 0.1	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -
2007	$ -	$ 1.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ -	$ -
2008	$ 0.0	$ 5.7	$ 0.2	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -
2009	$ 1.5	$ -	$ 2.2	$ -	$ -	$ 0.2	$ -	$ 0.4	$ -	$ -
2010	$ 1.4	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 2.3	$ -	$ -	$ -	$ -	$ 0.3	$ -
2013	$ -	$ -	$ -	$ 4.2	$ -	$ -	$ -	$ -	$ 0.5	$ -
2014	$ -	$ -	$ -	$ 4.1	$ -	$ -	$ -	$ -	$ 0.5	$ -
2015	$ -	$ -	$ -	$ 3.9	$ -	$ -	$ -	$ -	$ 0.5	$ -
2016	$ -	$ -	$ -	$ 3.8	$ -	$ -	$ -	$ -	$ 0.5	$ -
2017	$ -	$ -	$ -	$ 3.7	$ -	$ -	$ -	$ -	$ 0.5	$ -
2018	$ -	$ -	$ -	$ 3.6	$ -	$ -	$ -	$ -	$ 0.5	$ -
2019	$ -	$ -	$ -	$ 3.5	$ -	$ -	$ -	$ -	$ 0.5	$ -
2020	$ -	$ -	$ -	$ 3.4	$ -	$ -	$ -	$ -	$ 0.4	$ -
2021	$ -	$ -	$ -	$ 3.3	$ -	$ -	$ -	$ -	$ 0.4	$ -
2022	$ -	$ -	$ -	$ 3.2	$ -	$ -	$ -	$ -	$ 0.4	$ -
2023	$ -	$ -	$ -	$ 3.1	$ -	$ -	$ -	$ -	$ 0.4	$ -
2024	$ -	$ -	$ -	$ 3.0	$ -	$ -	$ -	$ -	$ 0.4	$ -
2025	$ -	$ -	$ -	$ 2.9	$ -	$ -	$ -	$ -	$ 0.4	$ -
2026	$ -	$ -	$ -	$ 2.9	$ -	$ -	$ -	$ -	$ 0.4	$ -
2027	$ -	$ -	$ -	$ 2.8	$ -	$ -	$ -	$ -	$ 0.4	$ -
2028	$ -	$ -	$ -	$ 2.7	$ -	$ -	$ -	$ -	$ 0.3	$ -
2029	$ -	$ -	$ -	$ 2.6	$ -	$ -	$ -	$ -	$ 0.3	$ -
Total	**$ 6.1**	**$ 6.8**	**$ 2.4**	**$ 59.1**	**$ -**	**$ 1.0**	**$ 0.0**	**$ 0.4**	**$ 7.6**	**$ -**
Ann.	**$ 0.3**	**$ 0.4**	**$ 0.1**	**$ 3.4**	**$ -**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.4**	**$ -**

	Total				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.7	$ -	$ -	$ -	$ -
2006	$ 4.9	$ 7.8	$ -	$ -	$ -
2007	$ -	$ 20.9	$ 0.2	$ -	$ -
2008	$ 0.6	$ 21.8	$ 0.7	$ -	$ -
2009	$ 2.4	$ -	$ 3.3	$ -	$ -
2010	$ 2.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.4	$ -
2012	$ -	$ -	$ -	$ 2.0	$ 0.0
2013	$ -	$ -	$ -	$ 3.2	$ 0.1
2014	$ -	$ -	$ -	$ 3.1	$ 0.2
2015	$ -	$ -	$ -	$ 3.0	$ 0.1
2016	$ -	$ -	$ -	$ 2.9	$ 0.1
2017	$ -	$ -	$ -	$ 2.9	$ 0.1
2018	$ -	$ -	$ -	$ 2.8	$ 0.1
2019	$ -	$ -	$ -	$ 2.7	$ 0.1
2020	$ -	$ -	$ -	$ 2.6	$ 0.1
2021	$ -	$ -	$ -	$ 2.5	$ 0.1
2022	$ -	$ -	$ -	$ 2.5	$ 0.1
2023	$ -	$ -	$ -	$ 2.4	$ 0.1
2024	$ -	$ -	$ -	$ 2.3	$ 0.1
2025	$ -	$ -	$ -	$ 2.3	$ 0.1
2026	$ -	$ -	$ -	$ 2.2	$ 0.1
2027	$ -	$ -	$ -	$ 2.1	$ 0.1
2028	$ -	$ -	$ -	$ 2.1	$ 0.1
2029	$ -	$ -	$ -	$ 2.0	$ 0.1
Total	**$ 10.8**	**$ 50.6**	**$ 4.2**	**$ 45.9**	**$ 2.1**
Ann.	**$ 0.6**	**$ 2.9**	**$ 0.2**	**$ 2.6**	**$ 0.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2aw Present Value of Annual Cost Projections at 7% Discount Rate
(All Systems and Primacy Agencies)

Preferred Alternative

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Primacy Agencies	Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound				90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Point Estimate	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.6	$ 0.6	$ 0.6	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 3.4	$ 4.1	$ 4.1	$ 4.1
2006	$ 8.0	$ 8.0	$ 8.0	$ 0.1	$ 0.1	$ 0.1	$ 2.9	$ 2.9	$ 2.9	$ 0.5	$ 0.5	$ 0.5	$ 3.2	$ 14.6	$ 14.6	$ 14.6
2007	$ 17.3	$ 17.3	$ 17.3	$ 0.0	$ 0.0	$ 0.0	$ 0.8	$ 0.8	$ 0.8	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 18.3	$ 18.3	$ 18.3
2008	$ 61.6	$ 38.3	$ 83.4	$ 0.1	$ 0.1	$ 0.1	$ 10.7	$ 10.1	$ 11.4	$ 0.0	$ 0.0	$ 0.0	$ 1.5	$ 73.9	$ 49.9	$ 96.4
2009	$ 67.8	$ 35.3	$ 98.8	$ 0.6	$ 0.3	$ 0.9	$ 24.9	$ 21.8	$ 27.9	$ 1.4	$ 1.2	$ 1.5	$ 0.6	$ 95.2	$ 59.2	$ 129.7
2010	$ 80.3	$ 41.6	$ 118.0	$ 1.1	$ 0.5	$ 1.6	$ 37.3	$ 32.2	$ 42.4	$ 1.9	$ 1.6	$ 2.1	$ -	$ 120.6	$ 76.0	$ 164.1
2011	$ 79.1	$ 41.1	$ 116.5	$ 1.1	$ 0.6	$ 1.7	$ 36.4	$ 31.4	$ 41.4	$ 1.7	$ 1.5	$ 2.0	$ 1.0	$ 119.3	$ 75.6	$ 162.5
2012	$ 77.3	$ 40.0	$ 114.3	$ 1.1	$ 0.6	$ 1.7	$ 37.9	$ 33.1	$ 42.7	$ 1.9	$ 1.7	$ 2.2	$ 0.9	$ 119.1	$ 76.3	$ 161.8
2013	$ 41.4	$ 21.7	$ 62.4	$ 1.1	$ 0.6	$ 1.7	$ 34.8	$ 30.6	$ 39.0	$ 2.1	$ 1.9	$ 2.4	$ 0.9	$ 80.3	$ 55.6	$ 106.3
2014	$ 26.2	$ 13.9	$ 40.0	$ 0.8	$ 0.4	$ 1.2	$ 22.7	$ 20.4	$ 25.0	$ 1.5	$ 1.3	$ 1.6	$ 0.8	$ 52.0	$ 36.8	$ 68.7
2015	$ 15.2	$ 8.2	$ 23.6	$ 0.5	$ 0.3	$ 0.7	$ 11.9	$ 11.2	$ 12.5	$ 0.9	$ 0.8	$ 0.9	$ 0.8	$ 29.2	$ 21.2	$ 38.6
2016	$ 14.2	$ 7.6	$ 22.1	$ 0.5	$ 0.2	$ 0.7	$ 11.1	$ 10.5	$ 11.7	$ 0.8	$ 0.8	$ 0.9	$ 0.7	$ 27.3	$ 19.8	$ 36.0
2017	$ 13.3	$ 7.1	$ 20.6	$ 0.4	$ 0.2	$ 0.6	$ 10.4	$ 9.8	$ 11.0	$ 0.8	$ 0.7	$ 0.8	$ 0.7	$ 25.5	$ 18.5	$ 33.7
2018	$ 12.4	$ 6.7	$ 19.3	$ 0.4	$ 0.2	$ 0.6	$ 9.7	$ 9.1	$ 10.2	$ 0.7	$ 0.7	$ 0.7	$ 0.6	$ 23.8	$ 17.3	$ 31.5
2019	$ 11.6	$ 6.2	$ 18.0	$ 0.4	$ 0.2	$ 0.6	$ 9.1	$ 8.5	$ 9.6	$ 0.7	$ 0.6	$ 0.7	$ 0.6	$ 22.3	$ 16.2	$ 29.4
2020	$ 10.8	$ 5.8	$ 16.8	$ 0.4	$ 0.2	$ 0.5	$ 8.5	$ 8.0	$ 8.9	$ 0.6	$ 0.6	$ 0.6	$ 0.5	$ 20.8	$ 15.1	$ 27.5
2021	$ 10.1	$ 5.4	$ 15.7	$ 0.3	$ 0.2	$ 0.5	$ 7.9	$ 7.5	$ 8.4	$ 0.6	$ 0.5	$ 0.6	$ 0.5	$ 19.4	$ 14.1	$ 25.7
2022	$ 9.5	$ 5.1	$ 14.7	$ 0.3	$ 0.2	$ 0.5	$ 7.4	$ 7.0	$ 7.8	$ 0.5	$ 0.5	$ 0.6	$ 0.5	$ 18.2	$ 13.2	$ 24.0
2023	$ 8.8	$ 4.8	$ 13.7	$ 0.3	$ 0.2	$ 0.4	$ 6.9	$ 6.5	$ 7.3	$ 0.5	$ 0.5	$ 0.5	$ 0.4	$ 17.0	$ 12.3	$ 22.4
2024	$ 8.3	$ 4.4	$ 12.8	$ 0.3	$ 0.1	$ 0.4	$ 6.5	$ 6.1	$ 6.8	$ 0.5	$ 0.4	$ 0.5	$ 0.4	$ 15.9	$ 11.5	$ 21.0
2025	$ 7.7	$ 4.2	$ 12.0	$ 0.3	$ 0.1	$ 0.4	$ 6.0	$ 5.7	$ 6.4	$ 0.4	$ 0.4	$ 0.5	$ 0.4	$ 14.8	$ 10.8	$ 19.6
2026	$ 7.2	$ 3.9	$ 11.2	$ 0.2	$ 0.1	$ 0.4	$ 5.6	$ 5.3	$ 6.0	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 13.9	$ 10.1	$ 18.3
2027	$ 6.7	$ 3.6	$ 10.5	$ 0.2	$ 0.1	$ 0.3	$ 5.3	$ 5.0	$ 5.6	$ 0.4	$ 0.4	$ 0.4	$ 0.3	$ 13.0	$ 9.4	$ 17.1
2028	$ 6.3	$ 3.4	$ 9.8	$ 0.2	$ 0.1	$ 0.3	$ 4.9	$ 4.6	$ 5.2	$ 0.4	$ 0.3	$ 0.4	$ 0.3	$ 12.1	$ 8.8	$ 16.0
2029	$ 5.9	$ 3.2	$ 9.2	$ 0.2	$ 0.1	$ 0.3	$ 4.6	$ 4.3	$ 4.9	$ 0.3	$ 0.3	$ 0.4	$ 0.3	$ 11.3	$ 8.2	$ 15.0
Total	**$ 607.5**	**$ 337.3**	**$ 889.4**	**$ 11.0**	**$ 5.8**	**$ 16.3**	**$ 324.1**	**$ 292.4**	**$ 355.8**	**$ 19.4**	**$ 17.7**	**$ 21.1**	**$ 19.8**	**$ 981.7**	**$ 673.1**	**$ 1,302.3**
Ann.	**$ 52.1**	**$ 28.9**	**$ 76.3**	**$ 0.9**	**$ 0.5**	**$ 1.4**	**$ 27.8**	**$ 25.1**	**$ 30.5**	**$ 1.7**	**$ 1.5**	**$ 1.8**	**$ 1.7**	**$ 84.2**	**$ 57.8**	**$ 111.7**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2ax Present Value of Annual Treatment Cost Projections at 7% Discount Rate
(All Systems)

Preferred Alternative

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ 47.5	$ 24.1	$ 69.2	$ 0.1	$ 0.0	$ 0.1	$ 5.8	$ 5.1	$ 6.4	$ 0.0	$ 0.0	$ 0.0	$ 53.3	$ 29.3	$ 75.8
2009	$ 64.5	$ 32.9	$ 94.3	$ 0.5	$ 0.3	$ 0.8	$ 21.5	$ 18.5	$ 24.5	$ 0.9	$ 0.7	$ 1.0	$ 87.4	$ 52.4	$ 120.6
2010	$ 74.5	$ 38.1	$ 109.2	$ 1.0	$ 0.5	$ 1.5	$ 34.2	$ 29.2	$ 39.2	$ 1.6	$ 1.4	$ 1.9	$ 111.2	$ 69.2	$ 151.7
2011	$ 69.6	$ 35.6	$ 102.0	$ 0.9	$ 0.5	$ 1.4	$ 31.9	$ 27.3	$ 36.6	$ 1.5	$ 1.3	$ 1.7	$ 104.0	$ 64.6	$ 141.7
2012	$ 65.1	$ 33.3	$ 95.4	$ 0.8	$ 0.4	$ 1.3	$ 29.8	$ 25.5	$ 34.2	$ 1.4	$ 1.2	$ 1.6	$ 97.2	$ 60.4	$ 132.5
2013	$ 27.0	$ 13.9	$ 39.8	$ 0.7	$ 0.4	$ 1.1	$ 23.8	$ 20.2	$ 27.4	$ 1.3	$ 1.1	$ 1.5	$ 52.8	$ 35.6	$ 69.8
2014	$ 10.8	$ 5.6	$ 16.0	$ 0.3	$ 0.2	$ 0.5	$ 10.7	$ 9.1	$ 12.4	$ 0.6	$ 0.5	$ 0.7	$ 22.6	$ 15.4	$ 29.7
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 359.1**	**$ 183.7**	**$ 526.0**	**$ 4.4**	**$ 2.2**	**$ 6.7**	**$ 157.7**	**$ 134.8**	**$ 180.6**	**$ 7.3**	**$ 6.2**	**$ 8.4**	**$ 528.5**	**$ 326.9**	**$ 721.7**
Ann.	**$ 30.8**	**$ 15.8**	**$ 45.1**	**$ 0.4**	**$ 0.2**	**$ 0.6**	**$ 13.5**	**$ 11.6**	**$ 15.5**	**$ 0.6**	**$ 0.5**	**$ 0.7**	**$ 45.3**	**$ 28.1**	**$ 61.9**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2ay Present Value of Annual Treatment Cost Projections at 7% Discount Rate
(All Systems)

Preferred Alternative

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 2.2	$ 1.3	$ 3.4	$ 0.0	$ 0.0	$ 0.0	$ 0.5	$ 0.5	$ 0.6	$ 0.0	$ 0.0	$ 0.0	$ 2.7	$ 1.7	$ 4.0
2010	$ 5.4	$ 3.1	$ 8.4	$ 0.1	$ 0.0	$ 0.1	$ 2.1	$ 1.9	$ 2.2	$ 0.1	$ 0.1	$ 0.1	$ 7.6	$ 5.1	$ 10.8
2011	$ 9.2	$ 5.2	$ 14.2	$ 0.2	$ 0.1	$ 0.3	$ 4.4	$ 4.1	$ 4.7	$ 0.2	$ 0.2	$ 0.2	$ 14.0	$ 9.6	$ 19.5
2012	$ 12.6	$ 7.1	$ 19.3	$ 0.3	$ 0.2	$ 0.5	$ 6.4	$ 6.0	$ 6.9	$ 0.3	$ 0.3	$ 0.4	$ 19.6	$ 13.5	$ 27.0
2013	$ 15.4	$ 8.7	$ 23.6	$ 0.4	$ 0.2	$ 0.6	$ 8.1	$ 7.6	$ 8.7	$ 0.4	$ 0.4	$ 0.5	$ 24.4	$ 16.9	$ 33.4
2014	$ 16.3	$ 9.2	$ 24.9	$ 0.5	$ 0.2	$ 0.7	$ 9.2	$ 8.6	$ 9.9	$ 0.5	$ 0.5	$ 0.6	$ 26.5	$ 18.5	$ 36.1
2015	$ 16.0	$ 9.0	$ 24.4	$ 0.5	$ 0.3	$ 0.7	$ 9.4	$ 8.7	$ 10.0	$ 0.5	$ 0.5	$ 0.6	$ 26.4	$ 18.4	$ 35.8
2016	$ 15.0	$ 8.4	$ 22.8	$ 0.5	$ 0.2	$ 0.7	$ 8.8	$ 8.1	$ 9.4	$ 0.5	$ 0.5	$ 0.5	$ 24.7	$ 17.2	$ 33.5
2017	$ 14.0	$ 7.9	$ 21.3	$ 0.4	$ 0.2	$ 0.6	$ 8.2	$ 7.6	$ 8.8	$ 0.5	$ 0.4	$ 0.5	$ 23.1	$ 16.1	$ 31.3
2018	$ 13.1	$ 7.3	$ 19.9	$ 0.4	$ 0.2	$ 0.6	$ 7.7	$ 7.1	$ 8.2	$ 0.4	$ 0.4	$ 0.5	$ 21.6	$ 15.1	$ 29.2
2019	$ 12.2	$ 6.9	$ 18.6	$ 0.4	$ 0.2	$ 0.6	$ 7.2	$ 6.6	$ 7.7	$ 0.4	$ 0.4	$ 0.4	$ 20.1	$ 14.1	$ 27.3
2020	$ 11.4	$ 6.4	$ 17.4	$ 0.3	$ 0.2	$ 0.5	$ 6.7	$ 6.2	$ 7.2	$ 0.4	$ 0.4	$ 0.4	$ 18.8	$ 13.2	$ 25.5
2021	$ 10.7	$ 6.0	$ 16.3	$ 0.3	$ 0.2	$ 0.5	$ 6.2	$ 5.8	$ 6.7	$ 0.4	$ 0.3	$ 0.4	$ 17.6	$ 12.3	$ 23.9
2022	$ 10.0	$ 5.6	$ 15.2	$ 0.3	$ 0.2	$ 0.5	$ 5.8	$ 5.4	$ 6.3	$ 0.3	$ 0.3	$ 0.4	$ 16.4	$ 11.5	$ 22.3
2023	$ 9.3	$ 5.2	$ 14.2	$ 0.3	$ 0.1	$ 0.4	$ 5.5	$ 5.1	$ 5.8	$ 0.3	$ 0.3	$ 0.3	$ 15.4	$ 10.7	$ 20.8
2024	$ 8.7	$ 4.9	$ 13.3	$ 0.3	$ 0.1	$ 0.4	$ 5.1	$ 4.7	$ 5.5	$ 0.3	$ 0.3	$ 0.3	$ 14.4	$ 10.0	$ 19.5
2025	$ 8.1	$ 4.6	$ 12.4	$ 0.2	$ 0.1	$ 0.4	$ 4.8	$ 4.4	$ 5.1	$ 0.3	$ 0.3	$ 0.3	$ 13.4	$ 9.4	$ 18.2
2026	$ 7.6	$ 4.3	$ 11.6	$ 0.2	$ 0.1	$ 0.3	$ 4.5	$ 4.1	$ 4.8	$ 0.3	$ 0.2	$ 0.3	$ 12.5	$ 8.8	$ 17.0
2027	$ 7.1	$ 4.0	$ 10.8	$ 0.2	$ 0.1	$ 0.3	$ 4.2	$ 3.9	$ 4.5	$ 0.2	$ 0.2	$ 0.3	$ 11.7	$ 8.2	$ 15.9
2028	$ 6.6	$ 3.7	$ 10.1	$ 0.2	$ 0.1	$ 0.3	$ 3.9	$ 3.6	$ 4.2	$ 0.2	$ 0.2	$ 0.2	$ 11.0	$ 7.7	$ 14.9
2029	$ 6.2	$ 3.5	$ 9.5	$ 0.2	$ 0.1	$ 0.3	$ 3.6	$ 3.4	$ 3.9	$ 0.2	$ 0.2	$ 0.2	$ 10.2	$ 7.2	$ 13.9
Total	**$ 217.0**	**$ 122.2**	**$ 331.9**	**$ 6.2**	**$ 3.2**	**$ 9.3**	**$ 122.2**	**$ 113.4**	**$ 130.9**	**$ 6.9**	**$ 6.4**	**$ 7.4**	**$ 352.2**	**$ 245.2**	**$ 479.5**
Ann.	**$ 18.6**	**$ 10.5**	**$ 28.5**	**$ 0.5**	**$ 0.3**	**$ 0.8**	**$ 10.5**	**$ 9.7**	**$ 11.2**	**$ 0.6**	**$ 0.5**	**$ 0.6**	**$ 30.2**	**$ 21.0**	**$ 41.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2az Present Value of Annual Cost Projections at 7% Discount Rate
(All Systems)

Preferred Alternative

	Surface Water NTNCWS					Surface Water NTNCWS					Disinfecting Ground Water CWS					Disinfecting Ground Water NTNCWS					Total				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.6	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.7	$ -	$ -	$ -	$ -
2006	$ 1.1	$ 6.9	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 2.8	$ 0.1	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 4.4	$ 7.0	$ -	$ -	$ -
2007	$ -	$ 17.1	$ 0.2	$ -	$ -	$ -	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.8	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 18.0	$ 0.2	$ -	$ -
2008	$ 0.4	$ 13.3	$ 0.4	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ 0.0	$ 4.7	$ 0.2	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ 0.5	$ 18.0	$ 0.6	$ -	$ -
2009	$ 0.5	$ -	$ 0.6	$ -	$ -	$ 0.0	$ -	$ 0.0	$ -	$ -	$ 1.2	$ -	$ 1.7	$ -	$ -	$ 0.2	$ -	$ 0.3	$ -	$ -	$ 1.9	$ -	$ 2.6	$ -	$ -
2010	$ 0.4	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.1	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.7	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.3	$ -
2012	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.6	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.4	$ 0.0
2013	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.9	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.2	$ 0.1
2014	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.7	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 2.1	$ 0.1
2015	$ -	$ -	$ -	$ (0.9)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.5	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 1.9	$ 0.1
2016	$ -	$ -	$ -	$ (0.9)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.3	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 1.8	$ 0.1
2017	$ -	$ -	$ -	$ (0.8)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.2	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 1.7	$ 0.1
2018	$ -	$ -	$ -	$ (0.7)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.0	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 1.6	$ 0.1
2019	$ -	$ -	$ -	$ (0.7)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.9	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.5	$ 0.1
2020	$ -	$ -	$ -	$ (0.7)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.8	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.4	$ 0.1
2021	$ -	$ -	$ -	$ (0.6)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.7	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.3	$ 0.1
2022	$ -	$ -	$ -	$ (0.6)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.6	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.2	$ 0.1
2023	$ -	$ -	$ -	$ (0.5)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.5	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.1	$ 0.1
2024	$ -	$ -	$ -	$ (0.5)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.4	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.0	$ 0.1
2025	$ -	$ -	$ -	$ (0.5)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.3	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.0	$ 0.0
2026	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.2	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 0.9	$ 0.0
2027	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.1	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.9	$ 0.0
2028	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.8	$ 0.0
2029	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.7	$ 0.0
Total	**$ 3.0**	**$ 37.3**	**$ 1.2**	**$ (11.2)**	**$ 1.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.2**	**$ -**	**$ 5.1**	**$ 5.6**	**$ 1.9**	**$ 31.5**	**$ -**	**$ 0.8**	**$ 0.0**	**$ 0.3**	**$ 4.1**	**$ -**	**$ 9.1**	**$ 43.0**	**$ 3.4**	**$ 24.6**	**$ 1.1**
Ann.	**$ 0.3**	**$ 3.2**	**$ 0.1**	**$ (1.0)**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ 0.4**	**$ 0.5**	**$ 0.2**	**$ 2.7**	**$ -**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.3**	**$ -**	**$ 0.8**	**$ 3.7**	**$ 0.3**	**$ 2.1**	**$ 0.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2ba Present Value of Total Costs at 3% Discount Rate, by System Size

(Surface Water CWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2006	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.4	$ 0.4	$ 0.4	$ 0.6	$ 0.6	$ 0.6	$ 0.9	$ 0.9	$ 0.9	$ 2.7	$ 2.7	$ 2.7	$ 0.9	$ 0.9	$ 0.9	$ 2.8	$ 2.8	$ 2.8	$ 0.3	$ 0.3	$ 0.3
2007	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.7	$ 0.7	$ 0.7	$ 1.2	$ 1.2	$ 1.2	$ 1.7	$ 1.7	$ 1.7	$ 8.4	$ 8.4	$ 8.4	$ 4.9	$ 4.9	$ 4.9	$ 2.8	$ 2.8	$ 2.8	$ 0.3	$ 0.3	$ 0.3
2008	$ 0.3	$ 0.3	$ 0.3	$ 0.6	$ 0.6	$ 0.6	$ 1.9	$ 1.9	$ 1.9	$ 3.4	$ 3.4	$ 3.4	$ 5.1	$ 5.1	$ 5.1	$ 5.5	$ 5.5	$ 5.5	$ 6.5	$ 3.5	$ 9.3	$ 34.9	$ 17.6	$ 50.9	$ 16.3	$ 8.4	$ 23.8
2009	$ 0.2	$ 0.1	$ 0.3	$ 0.5	$ 0.4	$ 0.7	$ 0.5	$ 0.3	$ 0.7	$ 2.5	$ 1.4	$ 3.7	$ 6.0	$ 3.2	$ 8.9	$ 10.7	$ 5.7	$ 15.3	$ 12.7	$ 6.7	$ 18.4	$ 35.3	$ 17.8	$ 51.7	$ 16.7	$ 8.7	$ 24.5
2010	$ 0.3	$ 0.1	$ 0.4	$ 0.7	$ 0.4	$ 1.1	$ 0.8	$ 0.4	$ 1.2	$ 4.8	$ 2.5	$ 7.2	$ 11.7	$ 6.0	$ 17.6	$ 20.9	$ 11.0	$ 30.1	$ 12.9	$ 6.8	$ 18.7	$ 35.7	$ 18.2	$ 52.5	$ 17.1	$ 8.9	$ 25.2
2011	$ 0.2	$ 0.1	$ 0.4	$ 0.8	$ 0.4	$ 1.2	$ 0.8	$ 0.4	$ 1.3	$ 5.1	$ 2.6	$ 7.7	$ 12.2	$ 6.3	$ 18.4	$ 21.2	$ 11.1	$ 30.7	$ 13.2	$ 7.0	$ 19.1	$ 36.3	$ 18.7	$ 53.4	$ 17.5	$ 9.2	$ 25.9
2012	$ 0.2	$ 0.1	$ 0.4	$ 0.9	$ 0.4	$ 1.3	$ 0.8	$ 0.3	$ 1.3	$ 5.3	$ 2.6	$ 8.1	$ 13.1	$ 6.9	$ 19.6	$ 20.6	$ 10.4	$ 30.3	$ 13.5	$ 7.2	$ 19.5	$ 36.7	$ 19.0	$ 54.0	$ 17.8	$ 9.4	$ 26.5
2013	$ 0.3	$ 0.1	$ 0.4	$ 0.9	$ 0.4	$ 1.5	$ 0.7	$ 0.3	$ 1.3	$ 5.5	$ 2.6	$ 8.5	$ 13.9	$ 7.5	$ 20.6	$ 20.1	$ 9.8	$ 30.0	$ 8.2	$ 4.5	$ 11.9	$ 6.9	$ 4.1	$ 10.7	$ 4.0	$ 2.4	$ 6.5
2014	$ 0.2	$ 0.1	$ 0.3	$ 0.8	$ 0.4	$ 1.2	$ 0.5	$ 0.1	$ 0.9	$ 3.9	$ 1.8	$ 6.1	$ 9.4	$ 5.2	$ 13.8	$ 11.6	$ 5.4	$ 17.6	$ 2.9	$ 1.8	$ 4.2	$ 6.7	$ 4.0	$ 10.4	$ 3.9	$ 2.3	$ 6.3
2015	$ 0.1	$ 0.0	$ 0.2	$ 0.6	$ 0.3	$ 0.9	$ 0.2	$ 0.0	$ 0.5	$ 2.2	$ 0.9	$ 3.4	$ 4.8	$ 2.8	$ 6.8	$ 3.0	$ 1.0	$ 5.2	$ 2.8	$ 1.7	$ 4.1	$ 6.5	$ 3.9	$ 10.1	$ 3.8	$ 2.2	$ 6.1
2016	$ 0.1	$ 0.0	$ 0.2	$ 0.5	$ 0.2	$ 0.8	$ 0.2	$ 0.0	$ 0.5	$ 2.1	$ 0.9	$ 3.3	$ 4.6	$ 2.7	$ 6.6	$ 2.9	$ 1.0	$ 5.0	$ 2.7	$ 1.7	$ 4.0	$ 6.3	$ 3.8	$ 9.8	$ 3.7	$ 2.2	$ 6.0
2017	$ 0.1	$ 0.0	$ 0.2	$ 0.5	$ 0.2	$ 0.8	$ 0.2	$ 0.0	$ 0.4	$ 2.1	$ 0.9	$ 3.2	$ 4.5	$ 2.6	$ 6.4	$ 2.8	$ 1.0	$ 4.9	$ 2.6	$ 1.6	$ 3.9	$ 6.1	$ 3.7	$ 9.5	$ 3.6	$ 2.1	$ 5.8
2018	$ 0.1	$ 0.0	$ 0.2	$ 0.5	$ 0.2	$ 0.8	$ 0.2	$ 0.0	$ 0.4	$ 2.0	$ 0.9	$ 3.2	$ 4.4	$ 2.6	$ 6.2	$ 2.7	$ 0.9	$ 4.7	$ 2.6	$ 1.6	$ 3.7	$ 6.0	$ 3.6	$ 9.3	$ 3.5	$ 2.0	$ 5.6
2019	$ 0.1	$ 0.0	$ 0.2	$ 0.5	$ 0.2	$ 0.8	$ 0.2	$ 0.0	$ 0.4	$ 1.9	$ 0.8	$ 3.1	$ 4.3	$ 2.5	$ 6.0	$ 2.6	$ 0.9	$ 4.6	$ 2.5	$ 1.5	$ 3.6	$ 5.8	$ 3.5	$ 9.0	$ 3.4	$ 2.0	$ 5.5
2020	$ 0.1	$ 0.0	$ 0.2	$ 0.5	$ 0.2	$ 0.7	$ 0.2	$ 0.0	$ 0.4	$ 1.9	$ 0.8	$ 3.0	$ 4.1	$ 2.4	$ 5.8	$ 2.6	$ 0.9	$ 4.5	$ 2.4	$ 1.5	$ 3.5	$ 5.6	$ 3.4	$ 8.7	$ 3.3	$ 1.9	$ 5.3
2021	$ 0.1	$ 0.0	$ 0.2	$ 0.5	$ 0.2	$ 0.7	$ 0.2	$ 0.0	$ 0.4	$ 1.8	$ 0.8	$ 2.9	$ 4.0	$ 2.3	$ 5.7	$ 2.5	$ 0.9	$ 4.3	$ 2.3	$ 1.4	$ 3.4	$ 5.4	$ 3.3	$ 8.5	$ 3.2	$ 1.9	$ 5.1
2022	$ 0.1	$ 0.0	$ 0.2	$ 0.5	$ 0.2	$ 0.7	$ 0.2	$ 0.0	$ 0.4	$ 1.8	$ 0.8	$ 2.8	$ 3.9	$ 2.3	$ 5.5	$ 2.4	$ 0.8	$ 4.2	$ 2.3	$ 1.4	$ 3.3	$ 5.3	$ 3.2	$ 8.2	$ 3.1	$ 1.8	$ 5.0
2023	$ 0.1	$ 0.0	$ 0.2	$ 0.4	$ 0.2	$ 0.7	$ 0.2	$ 0.0	$ 0.4	$ 1.7	$ 0.7	$ 2.7	$ 3.8	$ 2.2	$ 5.4	$ 2.4	$ 0.8	$ 4.1	$ 2.2	$ 1.3	$ 3.2	$ 5.1	$ 3.1	$ 8.0	$ 3.0	$ 1.8	$ 4.8
2024	$ 0.1	$ 0.0	$ 0.1	$ 0.4	$ 0.2	$ 0.7	$ 0.2	$ 0.0	$ 0.4	$ 1.7	$ 0.7	$ 2.6	$ 3.7	$ 2.2	$ 5.2	$ 2.3	$ 0.8	$ 4.0	$ 2.1	$ 1.3	$ 3.1	$ 5.0	$ 3.0	$ 7.8	$ 2.9	$ 1.7	$ 4.7
2025	$ 0.1	$ 0.0	$ 0.1	$ 0.4	$ 0.2	$ 0.6	$ 0.2	$ 0.0	$ 0.3	$ 1.6	$ 0.7	$ 2.6	$ 3.6	$ 2.1	$ 5.0	$ 2.2	$ 0.8	$ 3.9	$ 2.1	$ 1.3	$ 3.0	$ 4.8	$ 2.9	$ 7.5	$ 2.8	$ 1.7	$ 4.6
2026	$ 0.1	$ 0.0	$ 0.1	$ 0.4	$ 0.2	$ 0.6	$ 0.2	$ 0.0	$ 0.3	$ 1.6	$ 0.7	$ 2.5	$ 3.5	$ 2.0	$ 4.9	$ 2.2	$ 0.7	$ 3.7	$ 2.0	$ 1.2	$ 3.0	$ 4.7	$ 2.8	$ 7.3	$ 2.8	$ 1.6	$ 4.4
2027	$ 0.1	$ 0.0	$ 0.1	$ 0.4	$ 0.2	$ 0.6	$ 0.2	$ 0.0	$ 0.3	$ 1.5	$ 0.7	$ 2.4	$ 3.4	$ 2.0	$ 4.8	$ 2.1	$ 0.7	$ 3.6	$ 2.0	$ 1.2	$ 2.9	$ 4.6	$ 2.7	$ 7.1	$ 2.7	$ 1.6	$ 4.3
2028	$ 0.1	$ 0.0	$ 0.1	$ 0.4	$ 0.2	$ 0.6	$ 0.2	$ 0.0	$ 0.3	$ 1.5	$ 0.6	$ 2.3	$ 3.3	$ 1.9	$ 4.6	$ 2.0	$ 0.7	$ 3.5	$ 1.9	$ 1.2	$ 2.8	$ 4.4	$ 2.7	$ 6.9	$ 2.6	$ 1.5	$ 4.2
2029	$ 0.1	$ 0.0	$ 0.1	$ 0.4	$ 0.2	$ 0.6	$ 0.2	$ 0.0	$ 0.3	$ 1.4	$ 0.6	$ 2.3	$ 3.2	$ 1.9	$ 4.5	$ 2.0	$ 0.7	$ 3.4	$ 1.9	$ 1.1	$ 2.7	$ 4.3	$ 2.6	$ 6.7	$ 2.5	$ 1.5	$ 4.1
Total	**$ 3.4**	**$ 1.8**	**$ 5.0**	**####**	**$ 6.6**	**$ 18.7**	**$ 10.1**	**$ 5.1**	**$ 15.4**	**$ 59.2**	**$ 30.3**	**$ 88.9**	**$ 132.9**	**$ 77.3**	**$ 190.1**	**$ 158.5**	**$ 82.9**	**$ 234.6**	**$ 110.3**	**$ 64.3**	**$ 157.4**	**$ 278.2**	**$ 152.9**	**$ 413.7**	**$ 140.9**	**$ 77.2**	**$ 214.8**
Ann.	**$ 0.2**	**$ 0.1**	**$ 0.3**	**$ 0.7**	**$ 0.4**	**$ 1.1**	**$ 0.6**	**$ 0.3**	**$ 0.9**	**$ 3.4**	**$ 1.7**	**$ 5.1**	**$ 7.6**	**$ 4.4**	**$ 10.9**	**$ 9.1**	**$ 4.8**	**$ 13.5**	**$ 6.3**	**$ 3.7**	**$ 9.0**	**$ 16.0**	**$ 8.8**	**$ 23.8**	**$ 8.1**	**$ 4.4**	**$ 12.3**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.

Detail may not add exactly to totals due to independent rounding.

Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bb Present Value of Capital Costs at 3% Discount Rate, by System Size
(Surface Water CWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 6.4	$ 3.3	$ 9.2	$ 34.8	$ 17.5	$ 50.8	$ 16.3	$ 8.4	$ 23.8
2009	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.2	$ 0.5	$ 0.4	$ 0.2	$ 0.6	$ 2.2	$ 1.1	$ 3.4	$ 5.7	$ 2.9	$ 8.7	$ 10.4	$ 5.4	$ 15.0	$ 12.4	$ 6.4	$ 17.9	$ 33.8	$ 17.0	$ 49.3	$ 15.8	$ 8.2	$ 23.1
2010	$ 0.2	$ 0.1	$ 0.3	$ 0.6	$ 0.3	$ 0.9	$ 0.7	$ 0.3	$ 1.1	$ 4.4	$ 2.2	$ 6.6	$ 11.1	$ 5.7	$ 16.8	$ 20.2	$ 10.5	$ 29.2	$ 12.0	$ 6.3	$ 17.4	$ 32.8	$ 16.5	$ 47.9	$ 15.3	$ 7.9	$ 22.4
2011	$ 0.2	$ 0.1	$ 0.3	$ 0.6	$ 0.3	$ 0.9	$ 0.7	$ 0.3	$ 1.0	$ 4.2	$ 2.2	$ 6.4	$ 10.8	$ 5.5	$ 16.3	$ 19.6	$ 10.2	$ 28.3	$ 11.7	$ 6.1	$ 16.9	$ 31.9	$ 16.0	$ 46.5	$ 14.9	$ 7.7	$ 21.7
2012	$ 0.2	$ 0.1	$ 0.3	$ 0.5	$ 0.3	$ 0.9	$ 0.6	$ 0.3	$ 1.0	$ 4.1	$ 2.1	$ 6.2	$ 10.5	$ 5.4	$ 15.9	$ 19.0	$ 9.9	$ 27.5	$ 11.3	$ 5.9	$ 16.4	$ 30.9	$ 15.5	$ 45.1	$ 14.5	$ 7.5	$ 21.1
2013	$ 0.2	$ 0.1	$ 0.3	$ 0.5	$ 0.3	$ 0.8	$ 0.6	$ 0.3	$ 1.0	$ 4.0	$ 2.0	$ 6.1	$ 10.2	$ 5.2	$ 15.4	$ 18.5	$ 9.6	$ 26.7	$ 5.5	$ 2.9	$ 7.9	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.1	$ 0.4	$ 0.3	$ 0.2	$ 0.5	$ 1.9	$ 1.0	$ 2.9	$ 4.9	$ 2.5	$ 7.5	$ 9.0	$ 4.7	$ 13.0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.9**	**$ 0.5**	**$ 1.5**	**$ 2.8**	**$ 1.4**	**$ 4.3**	**$ 3.3**	**$ 1.7**	**$ 5.2**	**$ 20.9**	**$ 10.6**	**$ 31.7**	**$ 53.2**	**$ 27.3**	**$ 80.6**	**$ 96.7**	**$ 50.3**	**$ 139.7**	**$ 59.3**	**$ 30.8**	**$ 85.6**	**$ 164.2**	**$ 82.4**	**$ 239.7**	**$ 76.8**	**$ 39.6**	**$ 112.0**
Ann.	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.2**	**$ 0.1**	**$ 0.2**	**$ 0.2**	**$ 0.1**	**$ 0.3**	**$ 1.2**	**$ 0.6**	**$ 1.8**	**$ 3.1**	**$ 1.6**	**$ 4.6**	**$ 5.6**	**$ 2.9**	**$ 8.0**	**$ 3.4**	**$ 1.8**	**$ 4.9**	**$ 9.4**	**$ 4.7**	**$ 13.8**	**$ 4.4**	**$ 2.3**	**$ 6.4**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bc Present Value of O&M Costs at 3% Discount Rate, by System Size
(Surface Water CWSs)

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.3	$ 0.2	$ 0.5	$ 1.5	$ 0.9	$ 2.4	$ 0.9	$ 0.5	$ 1.5
2010	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.2	$ 0.4	$ 0.5	$ 0.2	$ 0.7	$ 0.5	$ 0.3	$ 0.8	$ 0.9	$ 0.5	$ 1.4	$ 2.9	$ 1.7	$ 4.6	$ 1.8	$ 1.0	$ 2.8
2011	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.2	$ 0.1	$ 0.2	$ 0.9	$ 0.5	$ 1.3	$ 1.4	$ 0.7	$ 2.1	$ 1.6	$ 0.9	$ 2.3	$ 1.5	$ 0.9	$ 2.2	$ 4.2	$ 2.5	$ 6.7	$ 2.6	$ 1.5	$ 4.1
2012	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.2	$ 0.5	$ 0.3	$ 0.1	$ 0.4	$ 1.4	$ 0.7	$ 2.1	$ 2.2	$ 1.2	$ 3.3	$ 2.5	$ 1.5	$ 3.7	$ 2.0	$ 1.2	$ 3.0	$ 5.5	$ 3.2	$ 8.6	$ 3.3	$ 1.9	$ 5.3
2013	$ 0.1	$ 0.1	$ 0.2	$ 0.5	$ 0.2	$ 0.7	$ 0.3	$ 0.2	$ 0.5	$ 1.9	$ 1.0	$ 2.9	$ 3.0	$ 1.6	$ 4.5	$ 3.5	$ 2.0	$ 5.1	$ 2.5	$ 1.5	$ 3.7	$ 6.7	$ 3.9	$ 10.5	$ 4.0	$ 2.3	$ 6.5
2014	$ 0.1	$ 0.1	$ 0.2	$ 0.6	$ 0.3	$ 0.9	$ 0.4	$ 0.2	$ 0.6	$ 2.4	$ 1.2	$ 3.6	$ 3.8	$ 2.0	$ 5.7	$ 4.3	$ 2.5	$ 6.4	$ 2.7	$ 1.6	$ 4.0	$ 6.5	$ 3.8	$ 10.2	$ 3.9	$ 2.3	$ 6.3
2015	$ 0.2	$ 0.1	$ 0.2	$ 0.6	$ 0.3	$ 0.9	$ 0.5	$ 0.2	$ 0.7	$ 2.6	$ 1.3	$ 3.9	$ 4.1	$ 2.1	$ 6.1	$ 4.6	$ 2.7	$ 6.9	$ 2.6	$ 1.5	$ 3.9	$ 6.3	$ 3.7	$ 9.9	$ 3.8	$ 2.2	$ 6.1
2016	$ 0.1	$ 0.1	$ 0.2	$ 0.6	$ 0.3	$ 0.9	$ 0.5	$ 0.2	$ 0.7	$ 2.5	$ 1.3	$ 3.7	$ 4.0	$ 2.1	$ 5.9	$ 4.5	$ 2.6	$ 6.7	$ 2.5	$ 1.5	$ 3.8	$ 6.1	$ 3.6	$ 9.6	$ 3.7	$ 2.1	$ 5.9
2017	$ 0.1	$ 0.1	$ 0.2	$ 0.6	$ 0.3	$ 0.9	$ 0.4	$ 0.2	$ 0.7	$ 2.4	$ 1.3	$ 3.6	$ 3.9	$ 2.0	$ 5.7	$ 4.4	$ 2.5	$ 6.5	$ 2.5	$ 1.4	$ 3.7	$ 5.9	$ 3.5	$ 9.3	$ 3.6	$ 2.1	$ 5.8
2018	$ 0.1	$ 0.1	$ 0.2	$ 0.6	$ 0.3	$ 0.9	$ 0.4	$ 0.2	$ 0.6	$ 2.4	$ 1.2	$ 3.5	$ 3.8	$ 1.9	$ 5.6	$ 4.3	$ 2.5	$ 6.3	$ 2.4	$ 1.4	$ 3.6	$ 5.8	$ 3.4	$ 9.1	$ 3.5	$ 2.0	$ 5.6
2019	$ 0.1	$ 0.1	$ 0.2	$ 0.6	$ 0.3	$ 0.8	$ 0.4	$ 0.2	$ 0.6	$ 2.3	$ 1.2	$ 3.4	$ 3.6	$ 1.9	$ 5.4	$ 4.1	$ 2.4	$ 6.1	$ 2.3	$ 1.4	$ 3.5	$ 5.6	$ 3.3	$ 8.8	$ 3.4	$ 1.9	$ 5.4
2020	$ 0.1	$ 0.1	$ 0.2	$ 0.5	$ 0.3	$ 0.8	$ 0.4	$ 0.2	$ 0.6	$ 2.2	$ 1.2	$ 3.3	$ 3.5	$ 1.8	$ 5.3	$ 4.0	$ 2.3	$ 5.9	$ 2.3	$ 1.3	$ 3.4	$ 5.4	$ 3.2	$ 8.5	$ 3.3	$ 1.9	$ 5.3
2021	$ 0.1	$ 0.1	$ 0.2	$ 0.5	$ 0.3	$ 0.8	$ 0.4	$ 0.2	$ 0.6	$ 2.2	$ 1.1	$ 3.2	$ 3.4	$ 1.8	$ 5.1	$ 3.9	$ 2.3	$ 5.7	$ 2.2	$ 1.3	$ 3.3	$ 5.3	$ 3.1	$ 8.3	$ 3.2	$ 1.8	$ 5.1
2022	$ 0.1	$ 0.1	$ 0.2	$ 0.5	$ 0.3	$ 0.8	$ 0.4	$ 0.2	$ 0.6	$ 2.1	$ 1.1	$ 3.1	$ 3.3	$ 1.7	$ 5.0	$ 3.8	$ 2.2	$ 5.6	$ 2.1	$ 1.2	$ 3.2	$ 5.1	$ 3.0	$ 8.0	$ 3.1	$ 1.8	$ 5.0
2023	$ 0.1	$ 0.1	$ 0.2	$ 0.5	$ 0.3	$ 0.7	$ 0.4	$ 0.2	$ 0.6	$ 2.0	$ 1.1	$ 3.0	$ 3.2	$ 1.7	$ 4.8	$ 3.7	$ 2.1	$ 5.4	$ 2.1	$ 1.2	$ 3.1	$ 5.0	$ 2.9	$ 7.8	$ 3.0	$ 1.7	$ 4.8
2024	$ 0.1	$ 0.1	$ 0.2	$ 0.5	$ 0.3	$ 0.7	$ 0.4	$ 0.2	$ 0.5	$ 2.0	$ 1.0	$ 3.0	$ 3.1	$ 1.6	$ 4.7	$ 3.6	$ 2.1	$ 5.3	$ 2.0	$ 1.2	$ 3.0	$ 4.8	$ 2.8	$ 7.6	$ 2.9	$ 1.7	$ 4.7
2025	$ 0.1	$ 0.1	$ 0.2	$ 0.5	$ 0.2	$ 0.7	$ 0.3	$ 0.2	$ 0.5	$ 1.9	$ 1.0	$ 2.9	$ 3.1	$ 1.6	$ 4.5	$ 3.5	$ 2.0	$ 5.1	$ 1.9	$ 1.1	$ 2.9	$ 4.7	$ 2.7	$ 7.4	$ 2.8	$ 1.6	$ 4.5
2026	$ 0.1	$ 0.1	$ 0.2	$ 0.5	$ 0.2	$ 0.7	$ 0.3	$ 0.2	$ 0.5	$ 1.9	$ 1.0	$ 2.8	$ 3.0	$ 1.5	$ 4.4	$ 3.4	$ 1.9	$ 5.0	$ 1.9	$ 1.1	$ 2.8	$ 4.5	$ 2.7	$ 7.1	$ 2.7	$ 1.6	$ 4.4
2027	$ 0.1	$ 0.1	$ 0.2	$ 0.4	$ 0.2	$ 0.7	$ 0.3	$ 0.2	$ 0.5	$ 1.8	$ 0.9	$ 2.7	$ 2.9	$ 1.5	$ 4.3	$ 3.3	$ 1.9	$ 4.8	$ 1.8	$ 1.1	$ 2.7	$ 4.4	$ 2.6	$ 6.9	$ 2.7	$ 1.5	$ 4.3
2028	$ 0.1	$ 0.1	$ 0.2	$ 0.4	$ 0.2	$ 0.6	$ 0.3	$ 0.2	$ 0.5	$ 1.8	$ 0.9	$ 2.6	$ 2.8	$ 1.4	$ 4.2	$ 3.2	$ 1.8	$ 4.7	$ 1.8	$ 1.0	$ 2.7	$ 4.3	$ 2.5	$ 6.7	$ 2.6	$ 1.5	$ 4.2
2029	$ 0.1	$ 0.1	$ 0.2	$ 0.4	$ 0.2	$ 0.6	$ 0.3	$ 0.2	$ 0.5	$ 1.7	$ 0.9	$ 2.5	$ 2.7	$ 1.4	$ 4.0	$ 3.1	$ 1.8	$ 4.5	$ 1.7	$ 1.0	$ 2.6	$ 4.2	$ 2.4	$ 6.5	$ 2.5	$ 1.4	$ 4.0
Total	**$ 2.3**	**$ 1.2**	**$ 3.4**	**$ 9.5**	**$ 4.9**	**$ 14.1**	**$ 7.0**	**$ 3.6**	**$ 10.5**	**$ 38.7**	**$ 20.0**	**$ 57.7**	**$ 61.4**	**$ 31.8**	**$ 91.3**	**$ 69.6**	**$ 40.4**	**$ 102.6**	**$ 42.1**	**$ 24.6**	**$ 62.9**	**$ 104.6**	**$ 61.1**	**$ 164.6**	**$ 62.9**	**$ 36.5**	**$ 101.6**
Ann.	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ 0.5**	**$ 0.3**	**$ 0.8**	**$ 0.4**	**$ 0.2**	**$ 0.6**	**$ 2.2**	**$ 1.2**	**$ 3.3**	**$ 3.5**	**$ 1.8**	**$ 5.2**	**$ 4.0**	**$ 2.3**	**$ 5.9**	**$ 2.4**	**$ 1.4**	**$ 3.6**	**$ 6.0**	**$ 3.5**	**$ 9.5**	**$ 3.6**	**$ 2.1**	**$ 5.8**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bd Present Value of Non-Treatment Costs at 3% Discount Rate, by System Size
(Surface Water CWSs)

Year	<100					100-499					500-999					1,000-3,299					3,300-9,999				
	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -
2006	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.2	$ -	$ -	$ -	$ 0.2	$ 0.4	$ -	$ -	$ -	$ 0.2	$ 0.6	$ -	$ -	$ -
2007	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.6	$ 0.0	$ -	$ -	$ -	$ 1.1	$ 0.0	$ -	$ -	$ -	$ 1.7	$ 0.0	$ -	$ -
2008	$ 0.0	$ 0.3	$ 0.0	$ -	$ -	$ 0.0	$ 0.5	$ 0.0	$ -	$ -	$ 0.0	$ 1.9	$ 0.0	$ -	$ -	$ 0.1	$ 3.3	$ 0.1	$ -	$ -	$ 0.1	$ 5.0	$ 0.1	$ -	$ -
2009	$ 0.0	$ -	$ 0.1	$ -	$ -	$ 0.1	$ -	$ 0.1	$ -	$ -	$ 0.1	$ -	$ 0.1	$ -	$ -	$ 0.1	$ -	$ 0.2	$ -	$ -	$ 0.1	$ -	$ 0.1	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ (0.0)	$ -	$ -	$ -	$ -	$ (0.0)	$ -	$ -	$ -	$ -	$ (0.1)	$ -	$ -	$ -	$ -	$ (0.2)	$ -	$ -	$ -	$ -	$ 0.4	$ -
2013	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.7	$ 0.0
2014	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.7	$ 0.0
2015	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.7	$ 0.0
2016	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.6	$ 0.0
2017	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.6	$ 0.0
2018	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.6	$ 0.0
2019	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.6	$ 0.0
2020	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.6	$ 0.0
2021	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.3)	$ 0.0	$ -	$ -	$ -	$ 0.6	$ 0.0
2022	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.3)	$ 0.0	$ -	$ -	$ -	$ 0.5	$ 0.0
2023	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.3)	$ 0.0	$ -	$ -	$ -	$ 0.5	$ 0.0
2024	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.3)	$ 0.0	$ -	$ -	$ -	$ 0.5	$ 0.0
2025	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.3)	$ 0.0	$ -	$ -	$ -	$ 0.5	$ 0.0
2026	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.3)	$ 0.0	$ -	$ -	$ -	$ 0.5	$ 0.0
2027	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.3)	$ 0.0	$ -	$ -	$ -	$ 0.5	$ 0.0
2028	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.1)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.3)	$ 0.0	$ -	$ -	$ -	$ 0.5	$ 0.0
2029	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.0)	$ 0.0	$ -	$ -	$ -	$ (0.2)	$ 0.0	$ -	$ -	$ -	$ (0.3)	$ 0.0	$ -	$ -	$ -	$ 0.4	$ 0.0
Total	**$ 0.2**	**$ 0.4**	**$ 0.1**	**$ (0.5)**	**$ 0.0**	**$ 0.4**	**$ 0.8**	**$ 0.2**	**$ (1.1)**	**$ 0.0**	**$ 0.3**	**$ 2.7**	**$ 0.2**	**$ (3.5)**	**$ 0.0**	**$ 0.6**	**$ 4.8**	**$ 0.3**	**$ (6.1)**	**$ 0.1**	**$ 0.5**	**$ 7.3**	**$ 0.2**	**$ 10.0**	**$ 0.2**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ (0.0)**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ (0.1)**	**$ 0.0**	**$ 0.0**	**$ 0.2**	**$ 0.0**	**$ (0.2)**	**$ 0.0**	**$ 0.0**	**$ 0.3**	**$ 0.0**	**$ (0.4)**	**$ 0.0**	**$ 0.0**	**$ 0.4**	**$ 0.0**	**$ 0.6**	**$ 0.0**

Year	10,000-49,999					50,000-99,999					100,000-999,999					1,000,000+				
	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.2	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -
2006	$ 0.4	$ 2.3	$ -	$ -	$ -	$ -	$ 0.9	$ -	$ -	$ -	$ -	$ 2.8	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -
2007	$ -	$ 8.3	$ 0.1	$ -	$ -	$ -	$ 4.8	$ 0.0	$ -	$ -	$ -	$ 2.7	$ 0.0	$ -	$ -	$ -	$ 0.3	$ 0.0	$ -	$ -
2008	$ 0.2	$ 5.1	$ 0.2	$ -	$ -	$ 0.1	$ -	$ 0.1	$ -	$ -	$ 0.1	$ -	$ 0.0	$ -	$ -	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ 0.2	$ -	$ 0.1	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ (0.9)	$ -	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2013	$ -	$ -	$ -	$ (1.8)	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2014	$ -	$ -	$ -	$ (1.8)	$ 0.1	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2015	$ -	$ -	$ -	$ (1.7)	$ 0.1	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2016	$ -	$ -	$ -	$ (1.7)	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2017	$ -	$ -	$ -	$ (1.6)	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2018	$ -	$ -	$ -	$ (1.6)	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2019	$ -	$ -	$ -	$ (1.5)	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2020	$ -	$ -	$ -	$ (1.5)	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2021	$ -	$ -	$ -	$ (1.5)	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2022	$ -	$ -	$ -	$ (1.4)	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2023	$ -	$ -	$ -	$ (1.4)	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.2	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2024	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2025	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2026	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2027	$ -	$ -	$ -	$ (1.2)	$ 0.0	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2028	$ -	$ -	$ -	$ (1.2)	$ 0.0	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
2029	$ -	$ -	$ -	$ (1.1)	$ 0.0	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0
Total	**$ 1.1**	**$ 15.8**	**$ 0.4**	**$ (26.0)**	**$ 1.0**	**$ 0.2**	**$ 5.7**	**$ 0.1**	**$ 2.4**	**$ 0.4**	**$ 0.2**	**$ 5.5**	**$ 0.1**	**$ 3.2**	**$ 0.4**	**$ 0.0**	**$ 0.7**	**$ 0.0**	**$ 0.4**	**$ 0.1**
Ann.	**$ 0.1**	**$ 0.9**	**$ 0.0**	**$ (1.5)**	**$ 0.1**	**$ 0.0**	**$ 0.3**	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.3**	**$ 0.0**	**$ 0.2**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2be Present Value of Total Costs at 3% Discount Rate, by System Size
(Surface Water NTNCWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2006	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2009	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2010	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.1	$ 0.4	$ 0.2	$ 0.1	$ 0.3	$ 0.4	$ 0.2	$ 0.6	$ 0.2	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2011	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.2	$ 0.5	$ 0.2	$ 0.1	$ 0.3	$ 0.4	$ 0.2	$ 0.6	$ 0.3	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2012	$ 0.2	$ 0.1	$ 0.3	$ 0.4	$ 0.2	$ 0.6	$ 0.2	$ 0.1	$ 0.3	$ 0.4	$ 0.2	$ 0.6	$ 0.3	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2013	$ 0.2	$ 0.1	$ 0.3	$ 0.4	$ 0.2	$ 0.6	$ 0.2	$ 0.1	$ 0.3	$ 0.5	$ 0.2	$ 0.7	$ 0.3	$ 0.2	$ 0.4	$ 0.1	$ 0.1	$ 0.2	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2014	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.2	$ 0.5	$ 0.2	$ 0.1	$ 0.2	$ 0.3	$ 0.2	$ 0.5	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2015	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2016	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2017	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2018	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.4	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2019	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2020	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2021	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2022	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2023	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2024	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2025	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2026	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2027	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2028	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2029	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
Total	**$ 2.0**	**$ 1.1**	**$ 3.0**	**$ 5.0**	**$ 2.6**	**$ 7.6**	**$ 2.3**	**$ 1.2**	**$ 3.5**	**$ 4.7**	**$ 2.4**	**$ 7.0**	**$ 2.6**	**$ 1.5**	**$ 3.8**	**$ 0.8**	**$ 0.5**	**$ 1.2**	**$ -**	**$ -**	**$ -**	**$ 0.7**	**$ 0.4**	**$ 1.0**	**$ -**	**$ -**	**$ -**
Ann.	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ 0.3**	**$ 0.2**	**$ 0.4**	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ 0.3**	**$ 0.1**	**$ 0.4**	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ -**	**$ -**	**$ -**	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bf Present Value of Capital Costs at 3% Discount Rate, by System Size
(Surface Water NTNCWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2009	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2010	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.1	$ 0.4	$ 0.2	$ 0.1	$ 0.2	$ 0.3	$ 0.2	$ 0.5	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2011	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.2	$ 0.5	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2012	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.2	$ 0.5	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2013	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.2	$ 0.5	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.6**	**$ 0.3**	**$ 0.9**	**$ 1.1**	**$ 0.6**	**$ 1.8**	**$ 0.7**	**$ 0.4**	**$ 1.1**	**$ 1.6**	**$ 0.8**	**$ 2.5**	**$ 1.1**	**$ 0.6**	**$ 1.7**	**$ 0.5**	**$ 0.2**	**$ 0.7**	**$ -**	**$ -**	**$ -**	**$ 0.4**	**$ 0.2**	**$ 0.5**	**$ -**	**$ -**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bg Present Value of O&M Costs at 3% Discount Rate, by System Size
(Surface Water NTNCWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2010	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2011	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2012	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2013	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2014	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.4	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2015	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2016	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2017	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2018	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.4	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2019	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2020	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2021	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2022	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2023	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2024	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2025	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2026	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2027	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2028	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2029	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
Total	**$ 1.4**	**$ 0.7**	**$ 2.1**	**$ 3.8**	**$ 2.0**	**$ 5.7**	**$ 1.6**	**$ 0.8**	**$ 2.3**	**$ 3.0**	**$ 1.6**	**$ 4.5**	**$ 1.2**	**$ 0.6**	**$ 1.8**	**$ 0.3**	**$ 0.2**	**$ 0.5**	**$ -**	**$ -**	**$ -**	**$ 0.2**	**$ 0.1**	**$ 0.4**	**$ -**	**$ -**	**$ -**
Ann.	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.2**	**$ 0.1**	**$ 0.3**	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.2**	**$ 0.1**	**$ 0.3**	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bh Present Value of Non-Treatment Costs at 3% Discount Rate, by System Size
(Surface Water NTNCWSs)

<100

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**

100-499

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.1**	**$ -**	**$ 0.0**	**$ -**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**

500-999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**

1,000-3,299

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**

3,300-9,999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.3**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.0**	**$ -**

10,000-49,999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ 0.0	$ -	$ -	$ -
2008	$ -	$ 0.0	$ 0.0	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**

50,000-99,999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Ann.	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

100,000-999,999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ 0.0	$ -	$ -	$ -
2007	$ -	$ 0.0	$ 0.0	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**

1,000,000+

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Ann.	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bi Present Value of Total Costs at 3% Discount Rate, by System Size
(Ground Water CWSs)

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2006	$ 0.7	$ 0.7	$ 0.7	$ 0.9	$ 0.9	$ 0.9	$ 0.4	$ 0.4	$ 0.4	$ 0.5	$ 0.5	$ 0.5	$ 0.2	$ 0.2	$ 0.2	$ 0.4	$ 0.4	$ 0.4	$ -	$ -	$ -	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.7	$ 0.7	$ 0.7	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2008	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 1.7	$ 1.7	$ 1.7	$ 2.0	$ 2.0	$ 2.0	$ 0.9	$ 0.9	$ 0.9	$ 0.8	$ 0.8	$ 0.8	$ 1.3	$ 1.2	$ 1.5	$ 5.2	$ 4.6	$ 5.7	$ 0.6	$ 0.5	$ 0.7
2009	$ 1.4	$ 1.3	$ 1.5	$ 3.7	$ 3.2	$ 4.1	$ 2.3	$ 2.0	$ 2.6	$ 4.1	$ 3.5	$ 4.7	$ 5.9	$ 4.8	$ 6.9	$ 5.3	$ 4.8	$ 5.7	$ 2.6	$ 2.4	$ 2.9	$ 5.4	$ 4.9	$ 6.0	$ 0.6	$ 0.6	$ 0.7
2010	$ 1.8	$ 1.6	$ 2.0	$ 6.1	$ 5.2	$ 7.0	$ 3.6	$ 3.1	$ 4.1	$ 6.9	$ 5.7	$ 8.0	$ 11.0	$ 9.0	$ 13.1	$ 10.2	$ 9.2	$ 11.1	$ 2.7	$ 2.5	$ 3.0	$ 5.7	$ 5.2	$ 6.3	$ 0.7	$ 0.6	$ 0.8
2011	$ 1.5	$ 1.3	$ 1.7	$ 6.1	$ 5.2	$ 7.0	$ 3.6	$ 3.1	$ 4.2	$ 6.9	$ 5.7	$ 8.1	$ 11.0	$ 9.0	$ 13.0	$ 10.5	$ 9.6	$ 11.5	$ 3.0	$ 2.7	$ 3.3	$ 6.0	$ 5.3	$ 6.6	$ 0.7	$ 0.6	$ 0.8
2012	$ 1.7	$ 1.5	$ 1.9	$ 6.5	$ 5.6	$ 7.4	$ 4.0	$ 3.5	$ 4.6	$ 7.4	$ 6.2	$ 8.6	$ 11.1	$ 9.2	$ 13.1	$ 12.4	$ 11.4	$ 13.3	$ 3.3	$ 3.0	$ 3.6	$ 6.2	$ 5.6	$ 6.8	$ 0.8	$ 0.7	$ 0.8
2013	$ 1.8	$ 1.6	$ 2.0	$ 6.9	$ 5.9	$ 7.8	$ 4.4	$ 3.9	$ 5.0	$ 7.9	$ 6.7	$ 9.0	$ 11.3	$ 9.3	$ 13.2	$ 14.1	$ 13.1	$ 15.1	$ 2.3	$ 2.1	$ 2.4	$ 2.0	$ 1.9	$ 2.2	$ 0.3	$ 0.3	$ 0.3
2014	$ 1.3	$ 1.2	$ 1.4	$ 4.8	$ 4.2	$ 5.3	$ 3.1	$ 2.8	$ 3.4	$ 5.2	$ 4.5	$ 5.9	$ 6.5	$ 5.5	$ 7.6	$ 10.1	$ 9.5	$ 10.7	$ 1.2	$ 1.2	$ 1.3	$ 2.0	$ 1.8	$ 2.1	$ 0.3	$ 0.3	$ 0.3
2015	$ 0.7	$ 0.7	$ 0.8	$ 2.5	$ 2.3	$ 2.7	$ 1.7	$ 1.6	$ 1.8	$ 2.5	$ 2.3	$ 2.6	$ 1.9	$ 1.8	$ 2.0	$ 6.0	$ 5.8	$ 6.2	$ 1.2	$ 1.1	$ 1.2	$ 1.9	$ 1.8	$ 2.1	$ 0.3	$ 0.3	$ 0.3
2016	$ 0.7	$ 0.7	$ 0.7	$ 2.5	$ 2.3	$ 2.7	$ 1.7	$ 1.6	$ 1.8	$ 2.4	$ 2.2	$ 2.6	$ 1.8	$ 1.7	$ 2.0	$ 5.9	$ 5.7	$ 6.0	$ 1.1	$ 1.1	$ 1.2	$ 1.9	$ 1.7	$ 2.0	$ 0.3	$ 0.3	$ 0.3
2017	$ 0.7	$ 0.6	$ 0.7	$ 2.4	$ 2.2	$ 2.6	$ 1.6	$ 1.5	$ 1.7	$ 2.3	$ 2.2	$ 2.5	$ 1.8	$ 1.7	$ 1.9	$ 5.7	$ 5.5	$ 5.9	$ 1.1	$ 1.1	$ 1.2	$ 1.8	$ 1.7	$ 1.9	$ 0.3	$ 0.2	$ 0.3
2018	$ 0.7	$ 0.6	$ 0.7	$ 2.3	$ 2.1	$ 2.5	$ 1.6	$ 1.5	$ 1.7	$ 2.3	$ 2.1	$ 2.4	$ 1.7	$ 1.6	$ 1.9	$ 5.5	$ 5.4	$ 5.7	$ 1.1	$ 1.0	$ 1.1	$ 1.8	$ 1.6	$ 1.9	$ 0.3	$ 0.2	$ 0.3
2019	$ 0.6	$ 0.6	$ 0.7	$ 2.3	$ 2.1	$ 2.4	$ 1.5	$ 1.4	$ 1.6	$ 2.2	$ 2.0	$ 2.3	$ 1.7	$ 1.6	$ 1.8	$ 5.4	$ 5.2	$ 5.5	$ 1.0	$ 1.0	$ 1.1	$ 1.7	$ 1.6	$ 1.8	$ 0.3	$ 0.2	$ 0.3
2020	$ 0.6	$ 0.6	$ 0.7	$ 2.2	$ 2.0	$ 2.4	$ 1.5	$ 1.4	$ 1.6	$ 2.1	$ 2.0	$ 2.3	$ 1.6	$ 1.5	$ 1.8	$ 5.2	$ 5.0	$ 5.4	$ 1.0	$ 1.0	$ 1.1	$ 1.7	$ 1.5	$ 1.8	$ 0.2	$ 0.2	$ 0.3
2021	$ 0.6	$ 0.6	$ 0.6	$ 2.1	$ 2.0	$ 2.3	$ 1.4	$ 1.3	$ 1.5	$ 2.1	$ 1.9	$ 2.2	$ 1.6	$ 1.5	$ 1.7	$ 5.1	$ 4.9	$ 5.2	$ 1.0	$ 0.9	$ 1.0	$ 1.6	$ 1.5	$ 1.7	$ 0.2	$ 0.2	$ 0.3
2022	$ 0.6	$ 0.5	$ 0.6	$ 2.1	$ 1.9	$ 2.2	$ 1.4	$ 1.3	$ 1.5	$ 2.0	$ 1.9	$ 2.1	$ 1.5	$ 1.4	$ 1.7	$ 4.9	$ 4.8	$ 5.1	$ 1.0	$ 0.9	$ 1.0	$ 1.6	$ 1.4	$ 1.7	$ 0.2	$ 0.2	$ 0.3
2023	$ 0.6	$ 0.5	$ 0.6	$ 2.0	$ 1.9	$ 2.2	$ 1.4	$ 1.3	$ 1.4	$ 1.9	$ 1.8	$ 2.1	$ 1.5	$ 1.4	$ 1.6	$ 4.8	$ 4.6	$ 4.9	$ 0.9	$ 0.9	$ 1.0	$ 1.5	$ 1.4	$ 1.6	$ 0.2	$ 0.2	$ 0.2
2024	$ 0.6	$ 0.5	$ 0.6	$ 1.9	$ 1.8	$ 2.1	$ 1.3	$ 1.2	$ 1.4	$ 1.9	$ 1.8	$ 2.0	$ 1.5	$ 1.3	$ 1.6	$ 4.6	$ 4.5	$ 4.8	$ 0.9	$ 0.9	$ 0.9	$ 1.5	$ 1.4	$ 1.6	$ 0.2	$ 0.2	$ 0.2
2025	$ 0.5	$ 0.5	$ 0.6	$ 1.9	$ 1.7	$ 2.0	$ 1.3	$ 1.2	$ 1.4	$ 1.8	$ 1.7	$ 2.0	$ 1.4	$ 1.3	$ 1.5	$ 4.5	$ 4.4	$ 4.6	$ 0.9	$ 0.8	$ 0.9	$ 1.4	$ 1.3	$ 1.5	$ 0.2	$ 0.2	$ 0.2
2026	$ 0.5	$ 0.5	$ 0.6	$ 1.8	$ 1.7	$ 2.0	$ 1.2	$ 1.2	$ 1.3	$ 1.8	$ 1.7	$ 1.9	$ 1.4	$ 1.3	$ 1.5	$ 4.4	$ 4.2	$ 4.5	$ 0.8	$ 0.8	$ 0.9	$ 1.4	$ 1.3	$ 1.5	$ 0.2	$ 0.2	$ 0.2
2027	$ 0.5	$ 0.5	$ 0.5	$ 1.8	$ 1.6	$ 1.9	$ 1.2	$ 1.1	$ 1.3	$ 1.7	$ 1.6	$ 1.9	$ 1.3	$ 1.2	$ 1.4	$ 4.2	$ 4.1	$ 4.4	$ 0.8	$ 0.8	$ 0.9	$ 1.3	$ 1.2	$ 1.4	$ 0.2	$ 0.2	$ 0.2
2028	$ 0.5	$ 0.5	$ 0.5	$ 1.7	$ 1.6	$ 1.9	$ 1.2	$ 1.1	$ 1.2	$ 1.7	$ 1.6	$ 1.8	$ 1.3	$ 1.2	$ 1.4	$ 4.1	$ 4.0	$ 4.2	$ 0.8	$ 0.8	$ 0.8	$ 1.3	$ 1.2	$ 1.4	$ 0.2	$ 0.2	$ 0.2
2029	$ 0.5	$ 0.4	$ 0.5	$ 1.7	$ 1.6	$ 1.8	$ 1.1	$ 1.1	$ 1.2	$ 1.6	$ 1.5	$ 1.7	$ 1.3	$ 1.2	$ 1.3	$ 4.0	$ 3.9	$ 4.1	$ 0.8	$ 0.7	$ 0.8	$ 1.3	$ 1.2	$ 1.4	$ 0.2	$ 0.2	$ 0.2
Total	**$ 19.3**	**$ 17.7**	**$ 20.9**	**$ 66.3**	**$ 59.4**	**$ 73.3**	**$ 44.2**	**$ 40.2**	**$ 48.2**	**$ 71.1**	**$ 63.0**	**$ 79.2**	**$ 81.3**	**$ 69.6**	**$ 93.1**	**$ 138.7**	**$ 131.4**	**$ 146.0**	**$ 31.1**	**$ 29.0**	**$ 33.3**	**$ 56.3**	**$ 51.4**	**$ 61.2**	**$ 7.5**	**$ 6.8**	**$ 8.2**
Ann.	**$ 1.1**	**$ 1.0**	**$ 1.2**	**$ 3.8**	**$ 3.4**	**$ 4.2**	**$ 2.5**	**$ 2.3**	**$ 2.8**	**$ 4.1**	**$ 3.6**	**$ 4.5**	**$ 4.7**	**$ 4.0**	**$ 5.3**	**$ 8.0**	**$ 7.5**	**$ 8.4**	**$ 1.8**	**$ 1.7**	**$ 1.9**	**$ 3.2**	**$ 3.0**	**$ 3.5**	**$ 0.4**	**$ 0.4**	**$ 0.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bj Present Value of Capital Costs at 3% Discount Rate, by System Size
(Ground Water CWSs)

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.3	$ 1.2	$ 1.4	$ 5.1	$ 4.6	$ 5.7	$ 0.6	$ 0.5	$ 0.7
2009	$ 0.7	$ 0.6	$ 0.8	$ 2.8	$ 2.4	$ 3.2	$ 1.7	$ 1.4	$ 2.0	$ 3.3	$ 2.7	$ 3.9	$ 5.5	$ 4.5	$ 6.6	$ 4.9	$ 4.5	$ 5.4	$ 2.5	$ 2.2	$ 2.8	$ 5.0	$ 4.4	$ 5.5	$ 0.6	$ 0.5	$ 0.6
2010	$ 1.4	$ 1.2	$ 1.6	$ 5.4	$ 4.6	$ 6.3	$ 3.3	$ 2.8	$ 3.8	$ 6.4	$ 5.3	$ 7.6	$ 10.7	$ 8.7	$ 12.7	$ 9.6	$ 8.7	$ 10.5	$ 2.4	$ 2.2	$ 2.7	$ 4.8	$ 4.3	$ 5.4	$ 0.6	$ 0.5	$ 0.6
2011	$ 1.3	$ 1.1	$ 1.5	$ 5.2	$ 4.4	$ 6.1	$ 3.2	$ 2.7	$ 3.7	$ 6.2	$ 5.1	$ 7.3	$ 10.4	$ 8.5	$ 12.4	$ 9.3	$ 8.4	$ 10.2	$ 2.4	$ 2.1	$ 2.6	$ 4.7	$ 4.2	$ 5.2	$ 0.5	$ 0.5	$ 0.6
2012	$ 1.3	$ 1.1	$ 1.5	$ 5.1	$ 4.3	$ 5.9	$ 3.1	$ 2.6	$ 3.6	$ 6.0	$ 5.0	$ 7.1	$ 10.1	$ 8.2	$ 12.0	$ 9.1	$ 8.2	$ 9.9	$ 2.3	$ 2.1	$ 2.5	$ 4.6	$ 4.1	$ 5.1	$ 0.5	$ 0.5	$ 0.6
2013	$ 1.2	$ 1.1	$ 1.4	$ 4.9	$ 4.2	$ 5.7	$ 3.0	$ 2.5	$ 3.5	$ 5.9	$ 4.8	$ 6.9	$ 9.8	$ 8.0	$ 11.7	$ 8.8	$ 7.9	$ 9.6	$ 1.1	$ 1.0	$ 1.2	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ 0.6	$ 0.5	$ 0.7	$ 2.4	$ 2.0	$ 2.8	$ 1.5	$ 1.2	$ 1.7	$ 2.8	$ 2.3	$ 3.4	$ 4.8	$ 3.9	$ 5.7	$ 4.3	$ 3.9	$ 4.7	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 6.5**	**$ 5.6**	**$ 7.4**	**$ 25.9**	**$ 21.9**	**$ 29.9**	**$ 15.7**	**$ 13.3**	**$ 18.2**	**$ 30.7**	**$ 25.2**	**$ 36.2**	**$ 51.3**	**$ 41.7**	**$ 61.0**	**$ 46.0**	**$ 41.6**	**$ 50.4**	**$ 12.0**	**$ 10.7**	**$ 13.3**	**$ 24.2**	**$ 21.5**	**$ 26.8**	**$ 2.8**	**$ 2.4**	**$ 3.1**
Ann.	**$ 0.4**	**$ 0.3**	**$ 0.4**	**$ 1.5**	**$ 1.3**	**$ 1.7**	**$ 0.9**	**$ 0.8**	**$ 1.0**	**$ 1.8**	**$ 1.4**	**$ 2.1**	**$ 2.9**	**$ 2.4**	**$ 3.5**	**$ 2.6**	**$ 2.4**	**$ 2.9**	**$ 0.7**	**$ 0.6**	**$ 0.8**	**$ 1.4**	**$ 1.2**	**$ 1.5**	**$ 0.2**	**$ 0.1**	**$ 0.2**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bk Present Value of O&M Costs at 3% Discount Rate, by System Size
(Ground Water CWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.1	$ 0.1	$ 0.1	$ 0.5	$ 0.4	$ 0.5	$ 0.1	$ 0.1	$ 0.1
2010	$ 0.1	$ 0.1	$ 0.1	$ 0.3	$ 0.3	$ 0.3	$ 0.2	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.2	$ 0.2	$ 0.2	$ 0.4	$ 0.4	$ 0.4	$ 0.3	$ 0.3	$ 0.3	$ 0.9	$ 0.9	$ 1.0	$ 0.1	$ 0.1	$ 0.2
2011	$ 0.2	$ 0.2	$ 0.2	$ 0.8	$ 0.8	$ 0.9	$ 0.4	$ 0.4	$ 0.5	$ 0.7	$ 0.6	$ 0.7	$ 0.6	$ 0.5	$ 0.6	$ 1.2	$ 1.1	$ 1.3	$ 0.5	$ 0.5	$ 0.5	$ 1.3	$ 1.2	$ 1.4	$ 0.2	$ 0.2	$ 0.2
2012	$ 0.4	$ 0.3	$ 0.4	$ 1.3	$ 1.2	$ 1.5	$ 0.7	$ 0.7	$ 0.8	$ 1.1	$ 1.0	$ 1.2	$ 0.9	$ 0.8	$ 1.0	$ 1.9	$ 1.8	$ 2.0	$ 0.7	$ 0.6	$ 0.7	$ 1.7	$ 1.6	$ 1.9	$ 0.3	$ 0.2	$ 0.3
2013	$ 0.5	$ 0.5	$ 0.5	$ 1.8	$ 1.7	$ 2.0	$ 1.0	$ 0.9	$ 1.1	$ 1.5	$ 1.3	$ 1.6	$ 1.2	$ 1.1	$ 1.4	$ 2.6	$ 2.5	$ 2.8	$ 0.9	$ 0.8	$ 0.9	$ 2.1	$ 2.0	$ 2.3	$ 0.3	$ 0.3	$ 0.3
2014	$ 0.6	$ 0.6	$ 0.7	$ 2.3	$ 2.1	$ 2.5	$ 1.2	$ 1.1	$ 1.3	$ 1.8	$ 1.7	$ 2.0	$ 1.6	$ 1.4	$ 1.7	$ 3.3	$ 3.1	$ 3.4	$ 0.9	$ 0.9	$ 1.0	$ 2.0	$ 1.9	$ 2.2	$ 0.3	$ 0.3	$ 0.3
2015	$ 0.7	$ 0.6	$ 0.7	$ 2.5	$ 2.3	$ 2.7	$ 1.3	$ 1.2	$ 1.4	$ 2.0	$ 1.8	$ 2.2	$ 1.7	$ 1.5	$ 1.8	$ 3.5	$ 3.3	$ 3.7	$ 0.9	$ 0.8	$ 1.0	$ 2.0	$ 1.8	$ 2.1	$ 0.3	$ 0.3	$ 0.3
2016	$ 0.6	$ 0.6	$ 0.7	$ 2.4	$ 2.2	$ 2.6	$ 1.3	$ 1.2	$ 1.4	$ 1.9	$ 1.8	$ 2.1	$ 1.6	$ 1.5	$ 1.8	$ 3.4	$ 3.2	$ 3.6	$ 0.9	$ 0.8	$ 0.9	$ 1.9	$ 1.8	$ 2.1	$ 0.3	$ 0.3	$ 0.3
2017	$ 0.6	$ 0.6	$ 0.7	$ 2.3	$ 2.1	$ 2.5	$ 1.2	$ 1.1	$ 1.3	$ 1.9	$ 1.7	$ 2.0	$ 1.6	$ 1.5	$ 1.7	$ 3.3	$ 3.1	$ 3.5	$ 0.8	$ 0.8	$ 0.9	$ 1.9	$ 1.7	$ 2.0	$ 0.3	$ 0.3	$ 0.3
2018	$ 0.6	$ 0.6	$ 0.6	$ 2.2	$ 2.1	$ 2.4	$ 1.2	$ 1.1	$ 1.3	$ 1.8	$ 1.7	$ 2.0	$ 1.5	$ 1.4	$ 1.7	$ 3.2	$ 3.1	$ 3.4	$ 0.8	$ 0.8	$ 0.9	$ 1.8	$ 1.7	$ 1.9	$ 0.3	$ 0.3	$ 0.3
2019	$ 0.6	$ 0.5	$ 0.6	$ 2.2	$ 2.0	$ 2.4	$ 1.2	$ 1.1	$ 1.3	$ 1.8	$ 1.6	$ 1.9	$ 1.5	$ 1.4	$ 1.6	$ 3.1	$ 3.0	$ 3.3	$ 0.8	$ 0.7	$ 0.8	$ 1.8	$ 1.6	$ 1.9	$ 0.3	$ 0.2	$ 0.3
2020	$ 0.6	$ 0.5	$ 0.6	$ 2.1	$ 2.0	$ 2.3	$ 1.1	$ 1.0	$ 1.2	$ 1.7	$ 1.6	$ 1.9	$ 1.5	$ 1.3	$ 1.6	$ 3.0	$ 2.9	$ 3.2	$ 0.8	$ 0.7	$ 0.8	$ 1.7	$ 1.6	$ 1.8	$ 0.3	$ 0.2	$ 0.3
2021	$ 0.5	$ 0.5	$ 0.6	$ 2.1	$ 1.9	$ 2.2	$ 1.1	$ 1.0	$ 1.2	$ 1.7	$ 1.5	$ 1.8	$ 1.4	$ 1.3	$ 1.5	$ 3.0	$ 2.8	$ 3.1	$ 0.8	$ 0.7	$ 0.8	$ 1.7	$ 1.5	$ 1.8	$ 0.3	$ 0.2	$ 0.3
2022	$ 0.5	$ 0.5	$ 0.6	$ 2.0	$ 1.8	$ 2.2	$ 1.1	$ 1.0	$ 1.2	$ 1.6	$ 1.5	$ 1.8	$ 1.4	$ 1.3	$ 1.5	$ 2.9	$ 2.7	$ 3.0	$ 0.7	$ 0.7	$ 0.8	$ 1.6	$ 1.5	$ 1.7	$ 0.2	$ 0.2	$ 0.3
2023	$ 0.5	$ 0.5	$ 0.6	$ 1.9	$ 1.8	$ 2.1	$ 1.0	$ 1.0	$ 1.1	$ 1.6	$ 1.4	$ 1.7	$ 1.3	$ 1.2	$ 1.4	$ 2.8	$ 2.6	$ 2.9	$ 0.7	$ 0.7	$ 0.8	$ 1.6	$ 1.5	$ 1.7	$ 0.2	$ 0.2	$ 0.3
2024	$ 0.5	$ 0.5	$ 0.5	$ 1.9	$ 1.7	$ 2.0	$ 1.0	$ 0.9	$ 1.1	$ 1.5	$ 1.4	$ 1.7	$ 1.3	$ 1.2	$ 1.4	$ 2.7	$ 2.6	$ 2.9	$ 0.7	$ 0.6	$ 0.7	$ 1.5	$ 1.4	$ 1.6	$ 0.2	$ 0.2	$ 0.2
2025	$ 0.5	$ 0.5	$ 0.5	$ 1.8	$ 1.7	$ 2.0	$ 1.0	$ 0.9	$ 1.1	$ 1.5	$ 1.3	$ 1.6	$ 1.3	$ 1.1	$ 1.4	$ 2.6	$ 2.5	$ 2.8	$ 0.7	$ 0.6	$ 0.7	$ 1.5	$ 1.4	$ 1.6	$ 0.2	$ 0.2	$ 0.2
2026	$ 0.5	$ 0.4	$ 0.5	$ 1.8	$ 1.6	$ 1.9	$ 1.0	$ 0.9	$ 1.0	$ 1.4	$ 1.3	$ 1.6	$ 1.2	$ 1.1	$ 1.3	$ 2.5	$ 2.4	$ 2.7	$ 0.6	$ 0.6	$ 0.7	$ 1.4	$ 1.3	$ 1.5	$ 0.2	$ 0.2	$ 0.2
2027	$ 0.5	$ 0.4	$ 0.5	$ 1.7	$ 1.6	$ 1.9	$ 0.9	$ 0.8	$ 1.0	$ 1.4	$ 1.3	$ 1.5	$ 1.2	$ 1.1	$ 1.3	$ 2.5	$ 2.3	$ 2.6	$ 0.6	$ 0.6	$ 0.7	$ 1.4	$ 1.3	$ 1.5	$ 0.2	$ 0.2	$ 0.2
2028	$ 0.4	$ 0.4	$ 0.5	$ 1.7	$ 1.5	$ 1.8	$ 0.9	$ 0.8	$ 1.0	$ 1.4	$ 1.2	$ 1.5	$ 1.1	$ 1.1	$ 1.2	$ 2.4	$ 2.3	$ 2.5	$ 0.6	$ 0.6	$ 0.6	$ 1.4	$ 1.3	$ 1.4	$ 0.2	$ 0.2	$ 0.2
2029	$ 0.4	$ 0.4	$ 0.5	$ 1.6	$ 1.5	$ 1.8	$ 0.9	$ 0.8	$ 0.9	$ 1.3	$ 1.2	$ 1.4	$ 1.1	$ 1.0	$ 1.2	$ 2.3	$ 2.2	$ 2.5	$ 0.6	$ 0.6	$ 0.6	$ 1.3	$ 1.2	$ 1.4	$ 0.2	$ 0.2	$ 0.2
Total	**$ 9.8**	**$ 9.1**	**$ 10.5**	**$ 36.8**	**$ 33.9**	**$ 39.7**	**$ 19.7**	**$ 18.1**	**$ 21.2**	**$ 29.7**	**$ 27.1**	**$ 32.3**	**$ 25.2**	**$ 23.1**	**$ 27.2**	**$ 52.8**	**$ 50.0**	**$ 55.7**	**$ 14.4**	**$ 13.5**	**$ 15.3**	**$ 33.0**	**$ 30.8**	**$ 35.3**	**$ 5.0**	**$ 4.7**	**$ 5.4**
Ann.	**$ 0.6**	**$ 0.5**	**$ 0.6**	**$ 2.1**	**$ 1.9**	**$ 2.3**	**$ 1.1**	**$ 1.0**	**$ 1.2**	**$ 1.7**	**$ 1.6**	**$ 1.9**	**$ 1.4**	**$ 1.3**	**$ 1.6**	**$ 3.0**	**$ 2.9**	**$ 3.2**	**$ 0.8**	**$ 0.8**	**$ 0.9**	**$ 1.9**	**$ 1.8**	**$ 2.0**	**$ 0.3**	**$ 0.3**	**$ 0.3**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bl Present Value of Non-Treatment Costs at 3% Discount Rate, by System Size
(Ground Water CWSs)

<100

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.7	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ 0.2	$ -	$ -	$ -
2009	$ 0.3	$ -	$ 0.4	$ -	$ -
2010	$ 0.3	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.1	$ -
2014	$ -	$ -	$ -	$ 0.1	$ -
2015	$ -	$ -	$ -	$ 0.1	$ -
2016	$ -	$ -	$ -	$ 0.1	$ -
2017	$ -	$ -	$ -	$ 0.1	$ -
2018	$ -	$ -	$ -	$ 0.1	$ -
2019	$ -	$ -	$ -	$ 0.1	$ -
2020	$ -	$ -	$ -	$ 0.1	$ -
2021	$ -	$ -	$ -	$ 0.1	$ -
2022	$ -	$ -	$ -	$ 0.1	$ -
2023	$ -	$ -	$ -	$ 0.1	$ -
2024	$ -	$ -	$ -	$ 0.1	$ -
2025	$ -	$ -	$ -	$ 0.1	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 1.4**	**$ 0.2**	**$ 0.4**	**$ 1.0**	**$ -**
Ann.	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ -**

100-499

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.9	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ 0.2	$ -	$ -	$ -
2009	$ 0.4	$ -	$ 0.5	$ -	$ -
2010	$ 0.4	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.1	$ -
2014	$ -	$ -	$ -	$ 0.1	$ -
2015	$ -	$ -	$ -	$ 0.1	$ -
2016	$ -	$ -	$ -	$ 0.1	$ -
2017	$ -	$ -	$ -	$ 0.1	$ -
2018	$ -	$ -	$ -	$ 0.1	$ -
2019	$ -	$ -	$ -	$ 0.1	$ -
2020	$ -	$ -	$ -	$ 0.1	$ -
2021	$ -	$ -	$ -	$ 0.1	$ -
2022	$ -	$ -	$ -	$ 0.1	$ -
2023	$ -	$ -	$ -	$ 0.1	$ -
2024	$ -	$ -	$ -	$ 0.1	$ -
2025	$ -	$ -	$ -	$ 0.1	$ -
2026	$ -	$ -	$ -	$ 0.1	$ -
2027	$ -	$ -	$ -	$ 0.1	$ -
2028	$ -	$ -	$ -	$ 0.1	$ -
2029	$ -	$ -	$ -	$ 0.1	$ -
Total	**$ 1.7**	**$ 0.2**	**$ 0.5**	**$ 1.3**	**$ -**
Ann.	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ -**

500-999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.4	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ 1.7	$ -	$ -	$ -
2009	$ 0.2	$ -	$ 0.4	$ -	$ -
2010	$ 0.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.2	$ -
2013	$ -	$ -	$ -	$ 0.4	$ -
2014	$ -	$ -	$ -	$ 0.4	$ -
2015	$ -	$ -	$ -	$ 0.4	$ -
2016	$ -	$ -	$ -	$ 0.4	$ -
2017	$ -	$ -	$ -	$ 0.4	$ -
2018	$ -	$ -	$ -	$ 0.4	$ -
2019	$ -	$ -	$ -	$ 0.4	$ -
2020	$ -	$ -	$ -	$ 0.3	$ -
2021	$ -	$ -	$ -	$ 0.3	$ -
2022	$ -	$ -	$ -	$ 0.3	$ -
2023	$ -	$ -	$ -	$ 0.3	$ -
2024	$ -	$ -	$ -	$ 0.3	$ -
2025	$ -	$ -	$ -	$ 0.3	$ -
2026	$ -	$ -	$ -	$ 0.3	$ -
2027	$ -	$ -	$ -	$ 0.3	$ -
2028	$ -	$ -	$ -	$ 0.3	$ -
2029	$ -	$ -	$ -	$ 0.3	$ -
Total	**$ 0.8**	**$ 1.7**	**$ 0.4**	**$ 5.9**	**$ -**
Ann.	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.3**	**$ -**

1,000-3,299

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.5	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ 2.0	$ -	$ -	$ -
2009	$ 0.2	$ -	$ 0.5	$ -	$ -
2010	$ 0.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.3	$ -
2013	$ -	$ -	$ -	$ 0.5	$ -
2014	$ -	$ -	$ -	$ 0.5	$ -
2015	$ -	$ -	$ -	$ 0.5	$ -
2016	$ -	$ -	$ -	$ 0.5	$ -
2017	$ -	$ -	$ -	$ 0.5	$ -
2018	$ -	$ -	$ -	$ 0.4	$ -
2019	$ -	$ -	$ -	$ 0.4	$ -
2020	$ -	$ -	$ -	$ 0.4	$ -
2021	$ -	$ -	$ -	$ 0.4	$ -
2022	$ -	$ -	$ -	$ 0.4	$ -
2023	$ -	$ -	$ -	$ 0.4	$ -
2024	$ -	$ -	$ -	$ 0.4	$ -
2025	$ -	$ -	$ -	$ 0.4	$ -
2026	$ -	$ -	$ -	$ 0.3	$ -
2027	$ -	$ -	$ -	$ 0.3	$ -
2028	$ -	$ -	$ -	$ 0.3	$ -
2029	$ -	$ -	$ -	$ 0.3	$ -
Total	**$ 0.9**	**$ 2.0**	**$ 0.5**	**$ 7.2**	**$ -**
Ann.	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.4**	**$ -**

3,300-9,999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.2	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ 0.9	$ -	$ -	$ -
2009	$ 0.1	$ -	$ 0.2	$ -	$ -
2010	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.1	$ -
2013	$ -	$ -	$ -	$ 0.2	$ -
2014	$ -	$ -	$ -	$ 0.2	$ -
2015	$ -	$ -	$ -	$ 0.2	$ -
2016	$ -	$ -	$ -	$ 0.2	$ -
2017	$ -	$ -	$ -	$ 0.2	$ -
2018	$ -	$ -	$ -	$ 0.2	$ -
2019	$ -	$ -	$ -	$ 0.2	$ -
2020	$ -	$ -	$ -	$ 0.2	$ -
2021	$ -	$ -	$ -	$ 0.2	$ -
2022	$ -	$ -	$ -	$ 0.2	$ -
2023	$ -	$ -	$ -	$ 0.2	$ -
2024	$ -	$ -	$ -	$ 0.2	$ -
2025	$ -	$ -	$ -	$ 0.2	$ -
2026	$ -	$ -	$ -	$ 0.2	$ -
2027	$ -	$ -	$ -	$ 0.2	$ -
2028	$ -	$ -	$ -	$ 0.1	$ -
2029	$ -	$ -	$ -	$ 0.1	$ -
Total	**$ 0.4**	**$ 0.9**	**$ 0.2**	**$ 3.2**	**$ -**
Ann.	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.2**	**$ -**

10,000-49,999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.4	$ -	$ -	$ -	$ -
2007	$ -	$ 0.7	$ -	$ -	$ -
2008	$ -	$ 0.7	$ 0.1	$ -	$ -
2009	$ 0.2	$ -	$ 0.1	$ -	$ -
2010	$ 0.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 1.4	$ -
2013	$ -	$ -	$ -	$ 2.7	$ -
2014	$ -	$ -	$ -	$ 2.6	$ -
2015	$ -	$ -	$ -	$ 2.5	$ -
2016	$ -	$ -	$ -	$ 2.4	$ -
2017	$ -	$ -	$ -	$ 2.4	$ -
2018	$ -	$ -	$ -	$ 2.3	$ -
2019	$ -	$ -	$ -	$ 2.2	$ -
2020	$ -	$ -	$ -	$ 2.2	$ -
2021	$ -	$ -	$ -	$ 2.1	$ -
2022	$ -	$ -	$ -	$ 2.0	$ -
2023	$ -	$ -	$ -	$ 2.0	$ -
2024	$ -	$ -	$ -	$ 1.9	$ -
2025	$ -	$ -	$ -	$ 1.9	$ -
2026	$ -	$ -	$ -	$ 1.8	$ -
2027	$ -	$ -	$ -	$ 1.8	$ -
2028	$ -	$ -	$ -	$ 1.7	$ -
2029	$ -	$ -	$ -	$ 1.7	$ -
Total	**$ 0.7**	**$ 1.4**	**$ 0.3**	**$ 37.5**	**$ -**
Ann.	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 2.2**	**$ -**

50,000-99,999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ 0.2	$ -	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ 0.0	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.2	$ -
2012	$ -	$ -	$ -	$ 0.3	$ -
2013	$ -	$ -	$ -	$ 0.3	$ -
2014	$ -	$ -	$ -	$ 0.3	$ -
2015	$ -	$ -	$ -	$ 0.3	$ -
2016	$ -	$ -	$ -	$ 0.3	$ -
2017	$ -	$ -	$ -	$ 0.3	$ -
2018	$ -	$ -	$ -	$ 0.3	$ -
2019	$ -	$ -	$ -	$ 0.2	$ -
2020	$ -	$ -	$ -	$ 0.2	$ -
2021	$ -	$ -	$ -	$ 0.2	$ -
2022	$ -	$ -	$ -	$ 0.2	$ -
2023	$ -	$ -	$ -	$ 0.2	$ -
2024	$ -	$ -	$ -	$ 0.2	$ -
2025	$ -	$ -	$ -	$ 0.2	$ -
2026	$ -	$ -	$ -	$ 0.2	$ -
2027	$ -	$ -	$ -	$ 0.2	$ -
2028	$ -	$ -	$ -	$ 0.2	$ -
2029	$ -	$ -	$ -	$ 0.2	$ -
Total	**$ 0.1**	**$ 0.2**	**$ 0.0**	**$ 4.5**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.3**	**$ -**

100,000-999,999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ 0.1	$ -	$ -	$ -
2007	$ -	$ 0.1	$ 0.0	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ (0.1)	$ -
2012	$ -	$ -	$ -	$ (0.1)	$ -
2013	$ -	$ -	$ -	$ (0.1)	$ -
2014	$ -	$ -	$ -	$ (0.1)	$ -
2015	$ -	$ -	$ -	$ (0.1)	$ -
2016	$ -	$ -	$ -	$ (0.1)	$ -
2017	$ -	$ -	$ -	$ (0.1)	$ -
2018	$ -	$ -	$ -	$ (0.1)	$ -
2019	$ -	$ -	$ -	$ (0.1)	$ -
2020	$ -	$ -	$ -	$ (0.1)	$ -
2021	$ -	$ -	$ -	$ (0.1)	$ -
2022	$ -	$ -	$ -	$ (0.1)	$ -
2023	$ -	$ -	$ -	$ (0.1)	$ -
2024	$ -	$ -	$ -	$ (0.1)	$ -
2025	$ -	$ -	$ -	$ (0.0)	$ -
2026	$ -	$ -	$ -	$ (0.0)	$ -
2027	$ -	$ -	$ -	$ (0.0)	$ -
2028	$ -	$ -	$ -	$ (0.0)	$ -
2029	$ -	$ -	$ -	$ (0.0)	$ -
Total	**$ 0.0**	**$ 0.2**	**$ 0.0**	**$ (1.1)**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ (0.1)**	**$ -**

1,000,000+

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ 0.0	$ -	$ -	$ -
2007	$ -	$ 0.0	$ 0.0	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ (0.0)	$ -
2012	$ -	$ -	$ -	$ (0.0)	$ -
2013	$ -	$ -	$ -	$ (0.0)	$ -
2014	$ -	$ -	$ -	$ (0.0)	$ -
2015	$ -	$ -	$ -	$ (0.0)	$ -
2016	$ -	$ -	$ -	$ (0.0)	$ -
2017	$ -	$ -	$ -	$ (0.0)	$ -
2018	$ -	$ -	$ -	$ (0.0)	$ -
2019	$ -	$ -	$ -	$ (0.0)	$ -
2020	$ -	$ -	$ -	$ (0.0)	$ -
2021	$ -	$ -	$ -	$ (0.0)	$ -
2022	$ -	$ -	$ -	$ (0.0)	$ -
2023	$ -	$ -	$ -	$ (0.0)	$ -
2024	$ -	$ -	$ -	$ (0.0)	$ -
2025	$ -	$ -	$ -	$ (0.0)	$ -
2026	$ -	$ -	$ -	$ (0.0)	$ -
2027	$ -	$ -	$ -	$ (0.0)	$ -
2028	$ -	$ -	$ -	$ (0.0)	$ -
2029	$ -	$ -	$ -	$ (0.0)	$ -
Total	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ (0.3)**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ (0.0)**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bm Present Value of Total Costs at 3% Discount Rate, by System Size
(Ground Water NTNCWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2006	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2009	$ 0.5	$ 0.5	$ 0.6	$ 0.7	$ 0.6	$ 0.7	$ 0.3	$ 0.2	$ 0.3	$ 0.2	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2010	$ 0.6	$ 0.6	$ 0.7	$ 0.9	$ 0.8	$ 1.1	$ 0.4	$ 0.4	$ 0.5	$ 0.3	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2011	$ 0.6	$ 0.5	$ 0.7	$ 0.9	$ 0.8	$ 1.1	$ 0.4	$ 0.4	$ 0.5	$ 0.3	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2012	$ 0.7	$ 0.6	$ 0.8	$ 1.0	$ 0.9	$ 1.2	$ 0.6	$ 0.5	$ 0.6	$ 0.3	$ 0.3	$ 0.4	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2013	$ 0.8	$ 0.7	$ 0.9	$ 1.1	$ 1.0	$ 1.3	$ 0.7	$ 0.6	$ 0.7	$ 0.4	$ 0.3	$ 0.4	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2014	$ 0.6	$ 0.5	$ 0.6	$ 0.8	$ 0.7	$ 0.9	$ 0.5	$ 0.5	$ 0.6	$ 0.3	$ 0.2	$ 0.3	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2015	$ 0.4	$ 0.4	$ 0.4	$ 0.5	$ 0.4	$ 0.5	$ 0.3	$ 0.3	$ 0.4	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2016	$ 0.4	$ 0.3	$ 0.4	$ 0.5	$ 0.4	$ 0.5	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2017	$ 0.4	$ 0.3	$ 0.4	$ 0.4	$ 0.4	$ 0.5	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2018	$ 0.3	$ 0.3	$ 0.4	$ 0.4	$ 0.4	$ 0.5	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2019	$ 0.3	$ 0.3	$ 0.3	$ 0.4	$ 0.4	$ 0.4	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2020	$ 0.3	$ 0.3	$ 0.3	$ 0.4	$ 0.4	$ 0.4	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2021	$ 0.3	$ 0.3	$ 0.3	$ 0.4	$ 0.4	$ 0.4	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2022	$ 0.3	$ 0.3	$ 0.3	$ 0.4	$ 0.4	$ 0.4	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2023	$ 0.3	$ 0.3	$ 0.3	$ 0.4	$ 0.4	$ 0.4	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2024	$ 0.3	$ 0.3	$ 0.3	$ 0.4	$ 0.3	$ 0.4	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2025	$ 0.3	$ 0.3	$ 0.3	$ 0.4	$ 0.3	$ 0.4	$ 0.3	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2026	$ 0.3	$ 0.3	$ 0.3	$ 0.3	$ 0.3	$ 0.4	$ 0.2	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2027	$ 0.3	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.4	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2028	$ 0.3	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.3	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2029	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.3	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
Total	**$ 8.6**	**$ 8.0**	**$ 9.3**	**$ 11.5**	**$ 10.5**	**$ 12.6**	**$ 7.2**	**$ 6.7**	**$ 7.7**	**$ 3.5**	**$ 3.2**	**$ 3.8**	**$ 0.6**	**$ 0.5**	**$ 0.7**	**$ 0.3**	**$ 0.3**	**$ 0.3**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ -**	**$ -**	**$ -**
Ann.	**$ 0.5**	**$ 0.5**	**$ 0.5**	**$ 0.7**	**$ 0.6**	**$ 0.7**	**$ 0.4**	**$ 0.4**	**$ 0.4**	**$ 0.2**	**$ 0.2**	**$ 0.2**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bn Present Value of Capital Costs at 3% Discount Rate, by System Size
(Ground Water NTNCWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2009	$ 0.3	$ 0.2	$ 0.3	$ 0.4	$ 0.4	$ 0.5	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2010	$ 0.5	$ 0.4	$ 0.6	$ 0.8	$ 0.7	$ 0.9	$ 0.4	$ 0.3	$ 0.5	$ 0.3	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2011	$ 0.5	$ 0.4	$ 0.6	$ 0.8	$ 0.7	$ 0.9	$ 0.4	$ 0.3	$ 0.5	$ 0.3	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2012	$ 0.5	$ 0.4	$ 0.6	$ 0.8	$ 0.7	$ 0.9	$ 0.4	$ 0.3	$ 0.4	$ 0.2	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2013	$ 0.5	$ 0.4	$ 0.5	$ 0.8	$ 0.6	$ 0.9	$ 0.4	$ 0.3	$ 0.4	$ 0.2	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ 0.2	$ 0.2	$ 0.3	$ 0.4	$ 0.3	$ 0.4	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 2.5**	**$ 2.1**	**$ 2.8**	**$ 3.9**	**$ 3.3**	**$ 4.5**	**$ 1.9**	**$ 1.6**	**$ 2.2**	**$ 1.3**	**$ 1.0**	**$ 1.5**	**$ 0.4**	**$ 0.3**	**$ 0.4**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**
Ann.	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ 0.2**	**$ 0.2**	**$ 0.3**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bo Present Value of O&M Costs at 3% Discount Rate, by System Size
(Ground Water NTNCWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2010	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2011	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2012	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2013	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2014	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.4	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2015	$ 0.2	$ 0.2	$ 0.3	$ 0.4	$ 0.3	$ 0.4	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2016	$ 0.2	$ 0.2	$ 0.3	$ 0.4	$ 0.3	$ 0.4	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2017	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.4	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2018	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.4	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2019	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.4	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2020	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2021	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2022	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2023	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2024	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2025	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2026	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2027	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2028	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2029	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
Total	**$ 3.7**	**$ 3.5**	**$ 4.0**	**$ 5.5**	**$ 5.1**	**$ 6.0**	**$ 2.3**	**$ 2.1**	**$ 2.5**	**$ 1.0**	**$ 0.9**	**$ 1.1**	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**
Ann.	**$ 0.2**	**$ 0.2**	**$ 0.2**	**$ 0.3**	**$ 0.3**	**$ 0.3**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bp Present Value of Non-Treatment Costs at 3% Discount Rate, by System Size
(Ground Water NTNCWSs)

<100

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.2	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.1	$ -	$ 0.2	$ -	$ -
2010	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.1	$ -
2013	$ -	$ -	$ -	$ 0.1	$ -
2014	$ -	$ -	$ -	$ 0.1	$ -
2015	$ -	$ -	$ -	$ 0.1	$ -
2016	$ -	$ -	$ -	$ 0.1	$ -
2017	$ -	$ -	$ -	$ 0.1	$ -
2018	$ -	$ -	$ -	$ 0.1	$ -
2019	$ -	$ -	$ -	$ 0.1	$ -
2020	$ -	$ -	$ -	$ 0.1	$ -
2021	$ -	$ -	$ -	$ 0.1	$ -
2022	$ -	$ -	$ -	$ 0.1	$ -
2023	$ -	$ -	$ -	$ 0.1	$ -
2024	$ -	$ -	$ -	$ 0.1	$ -
2025	$ -	$ -	$ -	$ 0.1	$ -
2026	$ -	$ -	$ -	$ 0.1	$ -
2027	$ -	$ -	$ -	$ 0.1	$ -
2028	$ -	$ -	$ -	$ 0.1	$ -
2029	$ -	$ -	$ -	$ 0.1	$ -
Total	**$ 0.4**	**$ -**	**$ 0.2**	**$ 1.8**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.1**	**$ -**

100-499

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.2	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.1	$ -	$ 0.1	$ -	$ -
2010	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.1	$ -
2013	$ -	$ -	$ -	$ 0.1	$ -
2014	$ -	$ -	$ -	$ 0.1	$ -
2015	$ -	$ -	$ -	$ 0.1	$ -
2016	$ -	$ -	$ -	$ 0.1	$ -
2017	$ -	$ -	$ -	$ 0.1	$ -
2018	$ -	$ -	$ -	$ 0.1	$ -
2019	$ -	$ -	$ -	$ 0.1	$ -
2020	$ -	$ -	$ -	$ 0.1	$ -
2021	$ -	$ -	$ -	$ 0.1	$ -
2022	$ -	$ -	$ -	$ 0.1	$ -
2023	$ -	$ -	$ -	$ 0.1	$ -
2024	$ -	$ -	$ -	$ 0.1	$ -
2025	$ -	$ -	$ -	$ 0.1	$ -
2026	$ -	$ -	$ -	$ 0.1	$ -
2027	$ -	$ -	$ -	$ 0.1	$ -
2028	$ -	$ -	$ -	$ 0.1	$ -
2029	$ -	$ -	$ -	$ 0.1	$ -
Total	**$ 0.4**	**$ -**	**$ 0.1**	**$ 1.6**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.1**	**$ -**

500-999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.1	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.1	$ -
2013	$ -	$ -	$ -	$ 0.2	$ -
2014	$ -	$ -	$ -	$ 0.2	$ -
2015	$ -	$ -	$ -	$ 0.2	$ -
2016	$ -	$ -	$ -	$ 0.2	$ -
2017	$ -	$ -	$ -	$ 0.2	$ -
2018	$ -	$ -	$ -	$ 0.2	$ -
2019	$ -	$ -	$ -	$ 0.2	$ -
2020	$ -	$ -	$ -	$ 0.2	$ -
2021	$ -	$ -	$ -	$ 0.2	$ -
2022	$ -	$ -	$ -	$ 0.2	$ -
2023	$ -	$ -	$ -	$ 0.1	$ -
2024	$ -	$ -	$ -	$ 0.1	$ -
2025	$ -	$ -	$ -	$ 0.1	$ -
2026	$ -	$ -	$ -	$ 0.1	$ -
2027	$ -	$ -	$ -	$ 0.1	$ -
2028	$ -	$ -	$ -	$ 0.1	$ -
2029	$ -	$ -	$ -	$ 0.1	$ -
Total	**$ 0.1**	**$ -**	**$ 0.0**	**$ 2.8**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.2**	**$ -**

1,000-3,299

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.1	$ -
2014	$ -	$ -	$ -	$ 0.1	$ -
2015	$ -	$ -	$ -	$ 0.1	$ -
2016	$ -	$ -	$ -	$ 0.1	$ -
2017	$ -	$ -	$ -	$ 0.1	$ -
2018	$ -	$ -	$ -	$ 0.1	$ -
2019	$ -	$ -	$ -	$ 0.1	$ -
2020	$ -	$ -	$ -	$ 0.1	$ -
2021	$ -	$ -	$ -	$ 0.1	$ -
2022	$ -	$ -	$ -	$ 0.1	$ -
2023	$ -	$ -	$ -	$ 0.1	$ -
2024	$ -	$ -	$ -	$ 0.1	$ -
2025	$ -	$ -	$ -	$ 0.1	$ -
2026	$ -	$ -	$ -	$ 0.1	$ -
2027	$ -	$ -	$ -	$ 0.1	$ -
2028	$ -	$ -	$ -	$ 0.1	$ -
2029	$ -	$ -	$ -	$ 0.1	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ 1.2**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.1**	**$ -**

3,300-9,999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.1**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.0**	**$ -**

10,000-49,999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ 0.0	$ -	$ -	$ -
2008	$ -	$ 0.0	$ 0.0	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.2**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**

50,000-99,999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ 0.0	$ -	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ 0.0	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**

100,000-999,999

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ 0.0	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.0**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.0**	**$ -**

1,000,000+

Year	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Ann.	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bq Present Value of Total Costs at 7% Discount Rate, by System Size
(Surface Water CWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1
2006	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.6	$ 0.6	$ 0.6	$ 0.8	$ 0.8	$ 0.8
2007	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.6	$ 0.6	$ 0.6	$ 1.0	$ 1.0	$ 1.0	$ 1.5	$ 1.5	$ 1.5
2008	$ 0.3	$ 0.3	$ 0.3	$ 0.5	$ 0.5	$ 0.5	$ 1.6	$ 1.6	$ 1.6	$ 2.8	$ 2.8	$ 2.8	$ 4.2	$ 4.2	$ 4.2
2009	$ 0.2	$ 0.1	$ 0.2	$ 0.4	$ 0.3	$ 0.5	$ 0.4	$ 0.3	$ 0.6	$ 2.0	$ 1.1	$ 2.9	$ 4.8	$ 2.5	$ 7.1
2010	$ 0.2	$ 0.1	$ 0.3	$ 0.6	$ 0.3	$ 0.8	$ 0.6	$ 0.3	$ 0.9	$ 3.6	$ 1.9	$ 5.5	$ 9.0	$ 4.6	$ 13.5
2011	$ 0.2	$ 0.1	$ 0.3	$ 0.6	$ 0.3	$ 0.9	$ 0.6	$ 0.3	$ 0.9	$ 3.8	$ 1.9	$ 5.7	$ 9.0	$ 4.6	$ 13.6
2012	$ 0.2	$ 0.1	$ 0.3	$ 0.6	$ 0.3	$ 0.9	$ 0.6	$ 0.2	$ 0.9	$ 3.8	$ 1.8	$ 5.8	$ 9.3	$ 4.9	$ 13.9
2013	$ 0.2	$ 0.1	$ 0.3	$ 0.6	$ 0.3	$ 1.0	$ 0.5	$ 0.2	$ 0.9	$ 3.7	$ 1.8	$ 5.8	$ 9.5	$ 5.1	$ 14.1
2014	$ 0.1	$ 0.1	$ 0.2	$ 0.5	$ 0.2	$ 0.8	$ 0.3	$ 0.1	$ 0.6	$ 2.6	$ 1.2	$ 4.0	$ 6.2	$ 3.4	$ 9.1
2015	$ 0.1	$ 0.0	$ 0.1	$ 0.4	$ 0.2	$ 0.6	$ 0.2	$ 0.0	$ 0.3	$ 1.4	$ 0.6	$ 2.2	$ 3.0	$ 1.8	$ 4.3
2016	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.1	$ 0.5	$ 0.1	$ 0.0	$ 0.3	$ 1.3	$ 0.6	$ 2.0	$ 2.8	$ 1.7	$ 4.0
2017	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.1	$ 0.5	$ 0.1	$ 0.0	$ 0.3	$ 1.2	$ 0.5	$ 1.9	$ 2.6	$ 1.6	$ 3.7
2018	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.1	$ 0.4	$ 0.1	$ 0.0	$ 0.2	$ 1.1	$ 0.5	$ 1.8	$ 2.5	$ 1.4	$ 3.5
2019	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.1	$ 0.4	$ 0.1	$ 0.0	$ 0.2	$ 1.1	$ 0.5	$ 1.7	$ 2.3	$ 1.4	$ 3.3
2020	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.1	$ 0.4	$ 0.1	$ 0.0	$ 0.2	$ 1.0	$ 0.4	$ 1.6	$ 2.2	$ 1.3	$ 3.1
2021	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.4	$ 0.1	$ 0.0	$ 0.2	$ 0.9	$ 0.4	$ 1.5	$ 2.0	$ 1.2	$ 2.9
2022	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.9	$ 0.4	$ 1.4	$ 1.9	$ 1.1	$ 2.7
2023	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.8	$ 0.3	$ 1.3	$ 1.8	$ 1.0	$ 2.5
2024	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.8	$ 0.3	$ 1.2	$ 1.6	$ 1.0	$ 2.3
2025	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.2	$ 0.7	$ 0.3	$ 1.1	$ 1.5	$ 0.9	$ 2.2
2026	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.7	$ 0.3	$ 1.0	$ 1.4	$ 0.8	$ 2.0
2027	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.6	$ 0.3	$ 1.0	$ 1.3	$ 0.8	$ 1.9
2028	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.6	$ 0.2	$ 0.9	$ 1.3	$ 0.7	$ 1.8
2029	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.5	$ 0.2	$ 0.8	$ 1.2	$ 0.7	$ 1.7
Total	**$ 2.2**	**$ 1.3**	**$ 3.2**	**$ 7.7**	**$ 4.2**	**$ 11.3**	**$ 7.0**	**$ 4.0**	**$ 10.2**	**$ 37.4**	**$ 20.0**	**$ 55.4**	**$ 83.7**	**$ 49.0**	**$ 119.6**
Ann.	**$ 0.2**	**$ 0.1**	**$ 0.3**	**$ 0.7**	**$ 0.4**	**$ 1.0**	**$ 0.6**	**$ 0.3**	**$ 0.9**	**$ 3.2**	**$ 1.7**	**$ 4.8**	**$ 7.2**	**$ 4.2**	**$ 10.3**

Year	10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2006	$ 2.4	$ 2.4	$ 2.4	$ 0.8	$ 0.8	$ 0.8	$ 2.5	$ 2.5	$ 2.5	$ 0.3	$ 0.3	$ 0.3
2007	$ 7.2	$ 7.2	$ 7.2	$ 4.2	$ 4.2	$ 4.2	$ 2.4	$ 2.4	$ 2.4	$ 0.3	$ 0.3	$ 0.3
2008	$ 4.6	$ 4.6	$ 4.6	$ 5.4	$ 2.9	$ 7.7	$ 28.9	$ 14.5	$ 42.1	$ 13.5	$ 6.9	$ 19.6
2009	$ 8.5	$ 4.6	$ 12.2	$ 10.1	$ 5.3	$ 14.6	$ 28.1	$ 14.2	$ 41.1	$ 13.3	$ 6.9	$ 19.5
2010	$ 16.0	$ 8.4	$ 23.1	$ 9.9	$ 5.2	$ 14.3	$ 27.4	$ 13.9	$ 40.2	$ 13.1	$ 6.8	$ 19.3
2011	$ 15.6	$ 8.2	$ 22.6	$ 9.8	$ 5.2	$ 14.1	$ 26.8	$ 13.8	$ 39.4	$ 12.9	$ 6.8	$ 19.1
2012	$ 14.6	$ 7.4	$ 21.5	$ 9.6	$ 5.1	$ 13.9	$ 26.0	$ 13.5	$ 38.3	$ 12.6	$ 6.7	$ 18.8
2013	$ 13.7	$ 6.7	$ 20.5	$ 5.6	$ 3.1	$ 8.1	$ 4.7	$ 2.8	$ 7.3	$ 2.8	$ 1.6	$ 4.4
2014	$ 7.6	$ 3.6	$ 11.6	$ 1.9	$ 1.2	$ 2.8	$ 4.4	$ 2.6	$ 6.9	$ 2.6	$ 1.5	$ 4.2
2015	$ 1.9	$ 0.7	$ 3.3	$ 1.8	$ 1.1	$ 2.6	$ 4.1	$ 2.5	$ 6.4	$ 2.4	$ 1.4	$ 3.9
2016	$ 1.8	$ 0.6	$ 3.1	$ 1.7	$ 1.0	$ 2.4	$ 3.8	$ 2.3	$ 6.0	$ 2.3	$ 1.3	$ 3.6
2017	$ 1.6	$ 0.6	$ 2.9	$ 1.5	$ 0.9	$ 2.3	$ 3.6	$ 2.2	$ 5.6	$ 2.1	$ 1.2	$ 3.4
2018	$ 1.5	$ 0.5	$ 2.7	$ 1.4	$ 0.9	$ 2.1	$ 3.4	$ 2.0	$ 5.2	$ 2.0	$ 1.1	$ 3.2
2019	$ 1.4	$ 0.5	$ 2.5	$ 1.4	$ 0.8	$ 2.0	$ 3.1	$ 1.9	$ 4.9	$ 1.8	$ 1.1	$ 3.0
2020	$ 1.3	$ 0.5	$ 2.3	$ 1.3	$ 0.8	$ 1.8	$ 2.9	$ 1.8	$ 4.6	$ 1.7	$ 1.0	$ 2.8
2021	$ 1.3	$ 0.4	$ 2.2	$ 1.2	$ 0.7	$ 1.7	$ 2.7	$ 1.6	$ 4.3	$ 1.6	$ 0.9	$ 2.6
2022	$ 1.2	$ 0.4	$ 2.0	$ 1.1	$ 0.7	$ 1.6	$ 2.6	$ 1.5	$ 4.0	$ 1.5	$ 0.9	$ 2.4
2023	$ 1.1	$ 0.4	$ 1.9	$ 1.0	$ 0.6	$ 1.5	$ 2.4	$ 1.4	$ 3.7	$ 1.4	$ 0.8	$ 2.3
2024	$ 1.0	$ 0.4	$ 1.8	$ 1.0	$ 0.6	$ 1.4	$ 2.2	$ 1.3	$ 3.5	$ 1.3	$ 0.8	$ 2.1
2025	$ 1.0	$ 0.3	$ 1.7	$ 0.9	$ 0.5	$ 1.3	$ 2.1	$ 1.3	$ 3.3	$ 1.2	$ 0.7	$ 2.0
2026	$ 0.9	$ 0.3	$ 1.6	$ 0.8	$ 0.5	$ 1.2	$ 2.0	$ 1.2	$ 3.0	$ 1.1	$ 0.7	$ 1.8
2027	$ 0.8	$ 0.3	$ 1.5	$ 0.8	$ 0.5	$ 1.1	$ 1.8	$ 1.1	$ 2.8	$ 1.1	$ 0.6	$ 1.7
2028	$ 0.8	$ 0.3	$ 1.4	$ 0.7	$ 0.4	$ 1.1	$ 1.7	$ 1.0	$ 2.7	$ 1.0	$ 0.6	$ 1.6
2029	$ 0.7	$ 0.3	$ 1.3	$ 0.7	$ 0.4	$ 1.0	$ 1.6	$ 1.0	$ 2.5	$ 0.9	$ 0.5	$ 1.5
Total	**$ 108.8**	**$ 59.5**	**$ 157.8**	**$ 74.6**	**$ 43.5**	**$ 105.9**	**$ 191.3**	**$ 104.3**	**$ 282.7**	**$ 94.8**	**$ 51.5**	**$ 143.4**
Ann.	**$ 9.3**	**$ 5.1**	**$ 13.5**	**$ 6.4**	**$ 3.7**	**$ 9.1**	**$ 16.4**	**$ 9.0**	**$ 24.3**	**$ 8.1**	**$ 4.4**	**$ 12.3**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2br Present Value of Capital Costs at 7% Discount Rate, by System Size
(Surface Water CWSs)

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5.3	$ 2.7	$ 7.6	$ 28.8	$ 14.4	$ 42.0	$ 13.5	$ 6.9	$ 19.6
2009	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.4	$ 0.3	$ 0.1	$ 0.4	$ 1.8	$ 0.9	$ 2.7	$ 4.6	$ 2.3	$ 6.9	$ 8.3	$ 4.3	$ 12.0	$ 9.8	$ 5.1	$ 14.2	$ 26.9	$ 13.5	$ 39.2	$ 12.6	$ 6.5	$ 18.3
2010	$ 0.1	$ 0.1	$ 0.2	$ 0.4	$ 0.2	$ 0.7	$ 0.5	$ 0.3	$ 0.8	$ 3.3	$ 1.7	$ 5.1	$ 8.5	$ 4.4	$ 12.9	$ 15.5	$ 8.0	$ 22.4	$ 9.2	$ 4.8	$ 13.3	$ 25.1	$ 12.6	$ 36.7	$ 11.8	$ 6.1	$ 17.1
2011	$ 0.1	$ 0.1	$ 0.2	$ 0.4	$ 0.2	$ 0.6	$ 0.5	$ 0.2	$ 0.8	$ 3.1	$ 1.6	$ 4.7	$ 8.0	$ 4.1	$ 12.0	$ 14.4	$ 7.5	$ 20.9	$ 8.6	$ 4.5	$ 12.4	$ 23.5	$ 11.8	$ 34.3	$ 11.0	$ 5.7	$ 16.0
2012	$ 0.1	$ 0.1	$ 0.2	$ 0.4	$ 0.2	$ 0.6	$ 0.5	$ 0.2	$ 0.7	$ 2.9	$ 1.5	$ 4.4	$ 7.4	$ 3.8	$ 11.3	$ 13.5	$ 7.0	$ 19.5	$ 8.0	$ 4.2	$ 11.6	$ 21.9	$ 11.0	$ 32.0	$ 10.3	$ 5.3	$ 15.0
2013	$ 0.1	$ 0.1	$ 0.2	$ 0.4	$ 0.2	$ 0.6	$ 0.4	$ 0.2	$ 0.7	$ 2.7	$ 1.4	$ 4.1	$ 6.9	$ 3.6	$ 10.5	$ 12.6	$ 6.6	$ 18.2	$ 3.8	$ 2.0	$ 5.4	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.2	$ 0.1	$ 0.3	$ 1.3	$ 0.6	$ 1.9	$ 3.2	$ 1.7	$ 4.9	$ 5.9	$ 3.1	$ 8.5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.7**	**$ 0.3**	**$ 1.1**	**$ 2.0**	**$ 1.0**	**$ 3.2**	**$ 2.4**	**$ 1.2**	**$ 3.8**	**$ 15.2**	**$ 7.7**	**$ 23.0**	**$ 38.7**	**$ 19.8**	**$ 58.5**	**$ 70.2**	**$ 36.5**	**$ 101.5**	**$ 44.7**	**$ 23.3**	**$ 64.6**	**$ 126.2**	**$ 63.3**	**$ 184.2**	**$ 59.0**	**$ 30.4**	**$ 86.1**
Ann.	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.2**	**$ 0.1**	**$ 0.3**	**$ 0.2**	**$ 0.1**	**$ 0.3**	**$ 1.3**	**$ 0.7**	**$ 2.0**	**$ 3.3**	**$ 1.7**	**$ 5.0**	**$ 6.0**	**$ 3.1**	**$ 8.7**	**$ 3.8**	**$ 2.0**	**$ 5.5**	**$ 10.8**	**$ 5.4**	**$ 15.8**	**$ 5.1**	**$ 2.6**	**$ 7.4**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bs Present Value of O&M Costs at 7% Discount Rate, by System Size
(Surface Water CWSs)

	<100			100-499			500-999		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1
2011	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.2
2012	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.4	$ 0.2	$ 0.1	$ 0.3
2013	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.2	$ 0.5	$ 0.2	$ 0.1	$ 0.4
2014	$ 0.1	$ 0.0	$ 0.1	$ 0.4	$ 0.2	$ 0.6	$ 0.3	$ 0.1	$ 0.4
2015	$ 0.1	$ 0.1	$ 0.1	$ 0.4	$ 0.2	$ 0.6	$ 0.3	$ 0.2	$ 0.4
2016	$ 0.1	$ 0.0	$ 0.1	$ 0.4	$ 0.2	$ 0.6	$ 0.3	$ 0.1	$ 0.4
2017	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.2	$ 0.5	$ 0.3	$ 0.1	$ 0.4
2018	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.2	$ 0.5	$ 0.2	$ 0.1	$ 0.4
2019	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.2	$ 0.5	$ 0.2	$ 0.1	$ 0.3
2020	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.1	$ 0.4	$ 0.2	$ 0.1	$ 0.3
2021	$ 0.1	$ 0.0	$ 0.1	$ 0.3	$ 0.1	$ 0.4	$ 0.2	$ 0.1	$ 0.3
2022	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.4	$ 0.2	$ 0.1	$ 0.3
2023	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.2	$ 0.1	$ 0.3
2024	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.2	$ 0.1	$ 0.2
2025	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.2	$ 0.1	$ 0.2
2026	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.2
2027	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.2
2028	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.2
2029	$ 0.0	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.2
Total	**$ 1.2**	**$ 0.6**	**$ 1.8**	**$ 5.1**	**$ 2.6**	**$ 7.6**	**$ 3.8**	**$ 1.9**	**$ 5.6**
Ann.	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ 0.4**	**$ 0.2**	**$ 0.6**	**$ 0.3**	**$ 0.2**	**$ 0.5**

	1,000-3,299			3,300-9,999			10,000-49,999		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.2	$ 0.1	$ 0.3	$ 0.4	$ 0.2	$ 0.5	$ 0.4	$ 0.2	$ 0.6
2011	$ 0.6	$ 0.3	$ 1.0	$ 1.0	$ 0.5	$ 1.5	$ 1.2	$ 0.7	$ 1.7
2012	$ 1.0	$ 0.5	$ 1.5	$ 1.6	$ 0.8	$ 2.4	$ 1.8	$ 1.0	$ 2.7
2013	$ 1.3	$ 0.7	$ 2.0	$ 2.1	$ 1.1	$ 3.1	$ 2.4	$ 1.4	$ 3.5
2014	$ 1.6	$ 0.8	$ 2.3	$ 2.5	$ 1.3	$ 3.7	$ 2.8	$ 1.6	$ 4.2
2015	$ 1.6	$ 0.8	$ 2.4	$ 2.6	$ 1.3	$ 3.9	$ 2.9	$ 1.7	$ 4.3
2016	$ 1.5	$ 0.8	$ 2.3	$ 2.4	$ 1.3	$ 3.6	$ 2.8	$ 1.6	$ 4.1
2017	$ 1.4	$ 0.7	$ 2.1	$ 2.3	$ 1.2	$ 3.4	$ 2.6	$ 1.5	$ 3.8
2018	$ 1.3	$ 0.7	$ 2.0	$ 2.1	$ 1.1	$ 3.2	$ 2.4	$ 1.4	$ 3.5
2019	$ 1.2	$ 0.6	$ 1.9	$ 2.0	$ 1.0	$ 2.9	$ 2.2	$ 1.3	$ 3.3
2020	$ 1.2	$ 0.6	$ 1.7	$ 1.9	$ 1.0	$ 2.8	$ 2.1	$ 1.2	$ 3.1
2021	$ 1.1	$ 0.6	$ 1.6	$ 1.7	$ 0.9	$ 2.6	$ 2.0	$ 1.1	$ 2.9
2022	$ 1.0	$ 0.5	$ 1.5	$ 1.6	$ 0.8	$ 2.4	$ 1.8	$ 1.1	$ 2.7
2023	$ 1.0	$ 0.5	$ 1.4	$ 1.5	$ 0.8	$ 2.2	$ 1.7	$ 1.0	$ 2.5
2024	$ 0.9	$ 0.5	$ 1.3	$ 1.4	$ 0.7	$ 2.1	$ 1.6	$ 0.9	$ 2.4
2025	$ 0.8	$ 0.4	$ 1.2	$ 1.3	$ 0.7	$ 2.0	$ 1.5	$ 0.9	$ 2.2
2026	$ 0.8	$ 0.4	$ 1.2	$ 1.2	$ 0.6	$ 1.8	$ 1.4	$ 0.8	$ 2.1
2027	$ 0.7	$ 0.4	$ 1.1	$ 1.2	$ 0.6	$ 1.7	$ 1.3	$ 0.8	$ 1.9
2028	$ 0.7	$ 0.4	$ 1.0	$ 1.1	$ 0.6	$ 1.6	$ 1.2	$ 0.7	$ 1.8
2029	$ 0.6	$ 0.3	$ 0.9	$ 1.0	$ 0.5	$ 1.5	$ 1.1	$ 0.7	$ 1.7
Total	**$ 20.7**	**$ 10.7**	**$ 30.9**	**$ 32.9**	**$ 17.0**	**$ 48.9**	**$ 37.2**	**$ 21.6**	**$ 54.9**
Ann.	**$ 1.8**	**$ 0.9**	**$ 2.6**	**$ 2.8**	**$ 1.5**	**$ 4.2**	**$ 3.2**	**$ 1.9**	**$ 4.7**

	50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 0.2	$ 0.1	$ 0.4	$ 1.2	$ 0.7	$ 1.9	$ 0.7	$ 0.4	$ 1.2
2010	$ 0.7	$ 0.4	$ 1.0	$ 2.2	$ 1.3	$ 3.5	$ 1.3	$ 0.8	$ 2.2
2011	$ 1.1	$ 0.6	$ 1.6	$ 3.1	$ 1.8	$ 4.9	$ 1.9	$ 1.1	$ 3.0
2012	$ 1.4	$ 0.8	$ 2.1	$ 3.9	$ 2.3	$ 6.1	$ 2.3	$ 1.4	$ 3.8
2013	$ 1.7	$ 1.0	$ 2.6	$ 4.6	$ 2.7	$ 7.2	$ 2.7	$ 1.6	$ 4.4
2014	$ 1.8	$ 1.0	$ 2.6	$ 4.3	$ 2.5	$ 6.7	$ 2.6	$ 1.5	$ 4.1
2015	$ 1.7	$ 1.0	$ 2.5	$ 4.0	$ 2.3	$ 6.3	$ 2.4	$ 1.4	$ 3.9
2016	$ 1.6	$ 0.9	$ 2.3	$ 3.7	$ 2.2	$ 5.9	$ 2.2	$ 1.3	$ 3.6
2017	$ 1.4	$ 0.8	$ 2.2	$ 3.5	$ 2.0	$ 5.5	$ 2.1	$ 1.2	$ 3.4
2018	$ 1.4	$ 0.8	$ 2.0	$ 3.2	$ 1.9	$ 5.1	$ 2.0	$ 1.1	$ 3.2
2019	$ 1.3	$ 0.7	$ 1.9	$ 3.0	$ 1.8	$ 4.8	$ 1.8	$ 1.1	$ 3.0
2020	$ 1.2	$ 0.7	$ 1.8	$ 2.8	$ 1.7	$ 4.5	$ 1.7	$ 1.0	$ 2.8
2021	$ 1.1	$ 0.6	$ 1.7	$ 2.7	$ 1.5	$ 4.2	$ 1.6	$ 0.9	$ 2.6
2022	$ 1.0	$ 0.6	$ 1.5	$ 2.5	$ 1.4	$ 3.9	$ 1.5	$ 0.9	$ 2.4
2023	$ 1.0	$ 0.6	$ 1.4	$ 2.3	$ 1.4	$ 3.6	$ 1.4	$ 0.8	$ 2.3
2024	$ 0.9	$ 0.5	$ 1.3	$ 2.2	$ 1.3	$ 3.4	$ 1.3	$ 0.8	$ 2.1
2025	$ 0.8	$ 0.5	$ 1.3	$ 2.0	$ 1.2	$ 3.2	$ 1.2	$ 0.7	$ 2.0
2026	$ 0.8	$ 0.5	$ 1.2	$ 1.9	$ 1.1	$ 3.0	$ 1.1	$ 0.7	$ 1.8
2027	$ 0.7	$ 0.4	$ 1.1	$ 1.8	$ 1.0	$ 2.8	$ 1.1	$ 0.6	$ 1.7
2028	$ 0.7	$ 0.4	$ 1.0	$ 1.7	$ 1.0	$ 2.6	$ 1.0	$ 0.6	$ 1.6
2029	$ 0.6	$ 0.4	$ 1.0	$ 1.5	$ 0.9	$ 2.4	$ 0.9	$ 0.5	$ 1.5
Total	**$ 23.1**	**$ 13.5**	**$ 34.5**	**$ 58.1**	**$ 33.9**	**$ 91.4**	**$ 34.9**	**$ 20.2**	**$ 56.4**
Ann.	**$ 2.0**	**$ 1.2**	**$ 3.0**	**$ 5.0**	**$ 2.9**	**$ 7.8**	**$ 3.0**	**$ 1.7**	**$ 4.8**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bt Present Value of Non-Treatment Costs at 7% Discount Rate, by System Size
(Surface Water CWSs)

Year	<100				
	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ 0.1	$ 0.0	$ -	$ -	$ -
2007	$ -	$ 0.1	$ 0.0	$ -	$ -
2008	$ 0.0	$ 0.2	$ 0.0	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ (0.0)	$ -
2013	$ -	$ -	$ -	$ (0.0)	$ 0.0
2014	$ -	$ -	$ -	$ (0.0)	$ 0.0
2015	$ -	$ -	$ -	$ (0.0)	$ 0.0
2016	$ -	$ -	$ -	$ (0.0)	$ 0.0
2017	$ -	$ -	$ -	$ (0.0)	$ 0.0
2018	$ -	$ -	$ -	$ (0.0)	$ 0.0
2019	$ -	$ -	$ -	$ (0.0)	$ 0.0
2020	$ -	$ -	$ -	$ (0.0)	$ 0.0
2021	$ -	$ -	$ -	$ (0.0)	$ 0.0
2022	$ -	$ -	$ -	$ (0.0)	$ 0.0
2023	$ -	$ -	$ -	$ (0.0)	$ 0.0
2024	$ -	$ -	$ -	$ (0.0)	$ 0.0
2025	$ -	$ -	$ -	$ (0.0)	$ 0.0
2026	$ -	$ -	$ -	$ (0.0)	$ 0.0
2027	$ -	$ -	$ -	$ (0.0)	$ 0.0
2028	$ -	$ -	$ -	$ (0.0)	$ 0.0
2029	$ -	$ -	$ -	$ (0.0)	$ 0.0
Total	**$ 0.2**	**$ 0.3**	**$ 0.1**	**$ (0.3)**	**$ 0.0**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ (0.0)**	**$ 0.0**

Year	100-499				
	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ 0.2	$ 0.1	$ -	$ -	$ -
2007	$ -	$ 0.2	$ 0.0	$ -	$ -
2008	$ 0.0	$ 0.4	$ 0.0	$ -	$ -
2009	$ 0.1	$ -	$ 0.1	$ -	$ -
2010	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ (0.0)	$ -
2013	$ -	$ -	$ -	$ (0.1)	$ 0.0
2014	$ -	$ -	$ -	$ (0.1)	$ 0.0
2015	$ -	$ -	$ -	$ (0.0)	$ 0.0
2016	$ -	$ -	$ -	$ (0.0)	$ 0.0
2017	$ -	$ -	$ -	$ (0.0)	$ 0.0
2018	$ -	$ -	$ -	$ (0.0)	$ 0.0
2019	$ -	$ -	$ -	$ (0.0)	$ 0.0
2020	$ -	$ -	$ -	$ (0.0)	$ 0.0
2021	$ -	$ -	$ -	$ (0.0)	$ 0.0
2022	$ -	$ -	$ -	$ (0.0)	$ 0.0
2023	$ -	$ -	$ -	$ (0.0)	$ 0.0
2024	$ -	$ -	$ -	$ (0.0)	$ 0.0
2025	$ -	$ -	$ -	$ (0.0)	$ 0.0
2026	$ -	$ -	$ -	$ (0.0)	$ 0.0
2027	$ -	$ -	$ -	$ (0.0)	$ 0.0
2028	$ -	$ -	$ -	$ (0.0)	$ 0.0
2029	$ -	$ -	$ -	$ (0.0)	$ 0.0
Total	**$ 0.4**	**$ 0.7**	**$ 0.1**	**$ (0.6)**	**$ 0.0**
Ann.	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ (0.1)**	**$ 0.0**

Year	500-999				
	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ 0.1	$ 0.2	$ -	$ -	$ -
2007	$ -	$ 0.6	$ 0.0	$ -	$ -
2008	$ 0.0	$ 1.5	$ 0.0	$ -	$ -
2009	$ 0.1	$ -	$ 0.1	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ (0.1)	$ -
2013	$ -	$ -	$ -	$ (0.2)	$ 0.0
2014	$ -	$ -	$ -	$ (0.2)	$ 0.0
2015	$ -	$ -	$ -	$ (0.1)	$ 0.0
2016	$ -	$ -	$ -	$ (0.1)	$ 0.0
2017	$ -	$ -	$ -	$ (0.1)	$ 0.0
2018	$ -	$ -	$ -	$ (0.1)	$ 0.0
2019	$ -	$ -	$ -	$ (0.1)	$ 0.0
2020	$ -	$ -	$ -	$ (0.1)	$ 0.0
2021	$ -	$ -	$ -	$ (0.1)	$ 0.0
2022	$ -	$ -	$ -	$ (0.1)	$ 0.0
2023	$ -	$ -	$ -	$ (0.1)	$ 0.0
2024	$ -	$ -	$ -	$ (0.1)	$ 0.0
2025	$ -	$ -	$ -	$ (0.1)	$ 0.0
2026	$ -	$ -	$ -	$ (0.1)	$ 0.0
2027	$ -	$ -	$ -	$ (0.1)	$ 0.0
2028	$ -	$ -	$ -	$ (0.1)	$ 0.0
2029	$ -	$ -	$ -	$ (0.1)	$ 0.0
Total	**$ 0.3**	**$ 2.3**	**$ 0.1**	**$ (1.9)**	**$ 0.0**
Ann.	**$ 0.0**	**$ 0.2**	**$ 0.0**	**$ (0.2)**	**$ 0.0**

Year	1,000-3,299				
	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.1	$ -	$ -	$ -	$ -
2006	$ 0.2	$ 0.4	$ -	$ -	$ -
2007	$ -	$ 1.0	$ 0.0	$ -	$ -
2008	$ 0.0	$ 2.7	$ 0.1	$ -	$ -
2009	$ 0.1	$ -	$ 0.1	$ -	$ -
2010	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ (0.2)	$ -
2013	$ -	$ -	$ -	$ (0.3)	$ 0.0
2014	$ -	$ -	$ -	$ (0.3)	$ 0.0
2015	$ -	$ -	$ -	$ (0.3)	$ 0.0
2016	$ -	$ -	$ -	$ (0.2)	$ 0.0
2017	$ -	$ -	$ -	$ (0.2)	$ 0.0
2018	$ -	$ -	$ -	$ (0.2)	$ 0.0
2019	$ -	$ -	$ -	$ (0.2)	$ 0.0
2020	$ -	$ -	$ -	$ (0.2)	$ 0.0
2021	$ -	$ -	$ -	$ (0.2)	$ 0.0
2022	$ -	$ -	$ -	$ (0.2)	$ 0.0
2023	$ -	$ -	$ -	$ (0.2)	$ 0.0
2024	$ -	$ -	$ -	$ (0.1)	$ 0.0
2025	$ -	$ -	$ -	$ (0.1)	$ 0.0
2026	$ -	$ -	$ -	$ (0.1)	$ 0.0
2027	$ -	$ -	$ -	$ (0.1)	$ 0.0
2028	$ -	$ -	$ -	$ (0.1)	$ 0.0
2029	$ -	$ -	$ -	$ (0.1)	$ 0.0
Total	**$ 0.5**	**$ 4.1**	**$ 0.2**	**$ (3.3)**	**$ 0.0**
Ann.	**$ 0.0**	**$ 0.3**	**$ 0.0**	**$ (0.3)**	**$ 0.0**

Year	3,300-9,999				
	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.1	$ -	$ -	$ -	$ -
2006	$ 0.2	$ 0.6	$ -	$ -	$ -
2007	$ -	$ 1.5	$ 0.0	$ -	$ -
2008	$ 0.0	$ 4.1	$ 0.0	$ -	$ -
2009	$ 0.1	$ -	$ 0.1	$ -	$ -
2010	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.3	$ -
2013	$ -	$ -	$ -	$ 0.5	$ 0.0
2014	$ -	$ -	$ -	$ 0.5	$ 0.0
2015	$ -	$ -	$ -	$ 0.4	$ 0.0
2016	$ -	$ -	$ -	$ 0.4	$ 0.0
2017	$ -	$ -	$ -	$ 0.4	$ 0.0
2018	$ -	$ -	$ -	$ 0.3	$ 0.0
2019	$ -	$ -	$ -	$ 0.3	$ 0.0
2020	$ -	$ -	$ -	$ 0.3	$ 0.0
2021	$ -	$ -	$ -	$ 0.3	$ 0.0
2022	$ -	$ -	$ -	$ 0.3	$ 0.0
2023	$ -	$ -	$ -	$ 0.2	$ 0.0
2024	$ -	$ -	$ -	$ 0.2	$ 0.0
2025	$ -	$ -	$ -	$ 0.2	$ 0.0
2026	$ -	$ -	$ -	$ 0.2	$ 0.0
2027	$ -	$ -	$ -	$ 0.2	$ 0.0
2028	$ -	$ -	$ -	$ 0.2	$ 0.0
2029	$ -	$ -	$ -	$ 0.2	$ 0.0
Total	**$ 0.5**	**$ 6.1**	**$ 0.2**	**$ 5.3**	**$ 0.1**
Ann.	**$ 0.0**	**$ 0.5**	**$ 0.0**	**$ 0.5**	**$ 0.0**

Year	10,000-49,999				
	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.2	$ -	$ -	$ -	$ -
2006	$ 0.3	$ 2.1	$ -	$ -	$ -
2007	$ -	$ 7.1	$ 0.1	$ -	$ -
2008	$ 0.1	$ 4.2	$ 0.2	$ -	$ -
2009	$ 0.1	$ -	$ 0.1	$ -	$ -
2010	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ (0.7)	$ -
2013	$ -	$ -	$ -	$ (1.3)	$ 0.0
2014	$ -	$ -	$ -	$ (1.2)	$ 0.0
2015	$ -	$ -	$ -	$ (1.1)	$ 0.0
2016	$ -	$ -	$ -	$ (1.0)	$ 0.0
2017	$ -	$ -	$ -	$ (1.0)	$ 0.0
2018	$ -	$ -	$ -	$ (0.9)	$ 0.0
2019	$ -	$ -	$ -	$ (0.8)	$ 0.0
2020	$ -	$ -	$ -	$ (0.8)	$ 0.0
2021	$ -	$ -	$ -	$ (0.7)	$ 0.0
2022	$ -	$ -	$ -	$ (0.7)	$ 0.0
2023	$ -	$ -	$ -	$ (0.6)	$ 0.0
2024	$ -	$ -	$ -	$ (0.6)	$ 0.0
2025	$ -	$ -	$ -	$ (0.6)	$ 0.0
2026	$ -	$ -	$ -	$ (0.5)	$ 0.0
2027	$ -	$ -	$ -	$ (0.5)	$ 0.0
2028	$ -	$ -	$ -	$ (0.5)	$ 0.0
2029	$ -	$ -	$ -	$ (0.4)	$ 0.0
Total	**$ 0.9**	**$ 13.5**	**$ 0.3**	**$ (13.8)**	**$ 0.5**
Ann.	**$ 0.1**	**$ 1.2**	**$ 0.0**	**$ (1.2)**	**$ 0.0**

Year	50,000-99,999				
	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.1	$ -	$ -	$ -	$ -
2006	$ -	$ 0.8	$ -	$ -	$ -
2007	$ -	$ 4.2	$ 0.0	$ -	$ -
2008	$ 0.1	$ -	$ 0.1	$ -	$ -
2009	$ 0.0	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.1	$ -
2012	$ -	$ -	$ -	$ 0.1	$ 0.0
2013	$ -	$ -	$ -	$ 0.1	$ 0.0
2014	$ -	$ -	$ -	$ 0.1	$ 0.0
2015	$ -	$ -	$ -	$ 0.1	$ 0.0
2016	$ -	$ -	$ -	$ 0.1	$ 0.0
2017	$ -	$ -	$ -	$ 0.1	$ 0.0
2018	$ -	$ -	$ -	$ 0.1	$ 0.0
2019	$ -	$ -	$ -	$ 0.1	$ 0.0
2020	$ -	$ -	$ -	$ 0.1	$ 0.0
2021	$ -	$ -	$ -	$ 0.1	$ 0.0
2022	$ -	$ -	$ -	$ 0.1	$ 0.0
2023	$ -	$ -	$ -	$ 0.1	$ 0.0
2024	$ -	$ -	$ -	$ 0.1	$ 0.0
2025	$ -	$ -	$ -	$ 0.0	$ 0.0
2026	$ -	$ -	$ -	$ 0.0	$ 0.0
2027	$ -	$ -	$ -	$ 0.0	$ 0.0
2028	$ -	$ -	$ -	$ 0.0	$ 0.0
2029	$ -	$ -	$ -	$ 0.0	$ 0.0
Total	**$ 0.2**	**$ 5.0**	**$ 0.1**	**$ 1.3**	**$ 0.2**
Ann.	**$ 0.0**	**$ 0.4**	**$ 0.0**	**$ 0.1**	**$ 0.0**

Year	100,000-999,999				
	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.1	$ -	$ -	$ -	$ -
2006	$ -	$ 2.5	$ -	$ -	$ -
2007	$ -	$ 2.3	$ 0.0	$ -	$ -
2008	$ 0.1	$ -	$ 0.0	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.2	$ -
2012	$ -	$ -	$ -	$ 0.2	$ 0.0
2013	$ -	$ -	$ -	$ 0.1	$ 0.0
2014	$ -	$ -	$ -	$ 0.1	$ 0.0
2015	$ -	$ -	$ -	$ 0.1	$ 0.0
2016	$ -	$ -	$ -	$ 0.1	$ 0.0
2017	$ -	$ -	$ -	$ 0.1	$ 0.0
2018	$ -	$ -	$ -	$ 0.1	$ 0.0
2019	$ -	$ -	$ -	$ 0.1	$ 0.0
2020	$ -	$ -	$ -	$ 0.1	$ 0.0
2021	$ -	$ -	$ -	$ 0.1	$ 0.0
2022	$ -	$ -	$ -	$ 0.1	$ 0.0
2023	$ -	$ -	$ -	$ 0.1	$ 0.0
2024	$ -	$ -	$ -	$ 0.1	$ 0.0
2025	$ -	$ -	$ -	$ 0.1	$ 0.0
2026	$ -	$ -	$ -	$ 0.1	$ 0.0
2027	$ -	$ -	$ -	$ 0.1	$ 0.0
2028	$ -	$ -	$ -	$ 0.1	$ 0.0
2029	$ -	$ -	$ -	$ 0.0	$ 0.0
Total	**$ 0.2**	**$ 4.8**	**$ 0.1**	**$ 1.8**	**$ 0.2**
Ann.	**$ 0.0**	**$ 0.4**	**$ 0.0**	**$ 0.2**	**$ 0.0**

Year	1,000,000+				
	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ 0.3	$ -	$ -	$ -
2007	$ -	$ 0.3	$ 0.0	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 0.0	$ 0.0
2013	$ -	$ -	$ -	$ 0.0	$ 0.0
2014	$ -	$ -	$ -	$ 0.0	$ 0.0
2015	$ -	$ -	$ -	$ 0.0	$ 0.0
2016	$ -	$ -	$ -	$ 0.0	$ 0.0
2017	$ -	$ -	$ -	$ 0.0	$ 0.0
2018	$ -	$ -	$ -	$ 0.0	$ 0.0
2019	$ -	$ -	$ -	$ 0.0	$ 0.0
2020	$ -	$ -	$ -	$ 0.0	$ 0.0
2021	$ -	$ -	$ -	$ 0.0	$ 0.0
2022	$ -	$ -	$ -	$ 0.0	$ 0.0
2023	$ -	$ -	$ -	$ 0.0	$ 0.0
2024	$ -	$ -	$ -	$ 0.0	$ 0.0
2025	$ -	$ -	$ -	$ 0.0	$ 0.0
2026	$ -	$ -	$ -	$ 0.0	$ 0.0
2027	$ -	$ -	$ -	$ 0.0	$ 0.0
2028	$ -	$ -	$ -	$ 0.0	$ 0.0
2029	$ -	$ -	$ -	$ 0.0	$ 0.0
Total	**$ 0.0**	**$ 0.6**	**$ 0.0**	**$ 0.2**	**$ 0.0**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bu Present Value of Total Costs at 7% Discount Rate, by System Size
(Surface Water NTNCWSs)

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2006	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2009	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2010	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.1	$ 0.4	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2011	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.1	$ 0.4	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2012	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.2	$ 0.5	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2013	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.1	$ 0.4	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.2	$ 0.5	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2014	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2015	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2016	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2017	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2018	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2019	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2020	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2021	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2022	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2023	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2024	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2025	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2026	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2027	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2028	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2029	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
Total	**$ 1.2**	**$ 0.6**	**$ 1.8**	**$ 2.9**	**$ 1.5**	**$ 4.4**	**$ 1.4**	**$ 0.7**	**$ 2.1**	**$ 2.8**	**$ 1.5**	**$ 4.2**	**$ 1.6**	**$ 0.9**	**$ 2.3**	**$ 0.5**	**$ 0.3**	**$ 0.8**	**$ -**	**$ -**	**$ -**	**$ 0.5**	**$ 0.3**	**$ 0.7**	**$ -**	**$ -**	**$ -**
Ann.	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ 0.3**	**$ 0.1**	**$ 0.4**	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ 0.2**	**$ 0.1**	**$ 0.4**	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ -**	**$ -**	**$ -**	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bv Present Value of Capital Costs at 7% Discount Rate, by System Size
(Surface Water NTNCWSs)

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2009	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2010	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.1	$ 0.4	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2011	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.1	$ 0.4	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -
2012	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.1	$ 0.3	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.1	$ -	$ -	$ -
2013	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.3	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.4**	**$ 0.2**	**$ 0.7**	**$ 0.8**	**$ 0.4**	**$ 1.3**	**$ 0.5**	**$ 0.3**	**$ 0.8**	**$ 1.2**	**$ 0.6**	**$ 1.8**	**$ 0.8**	**$ 0.4**	**$ 1.2**	**$ 0.3**	**$ 0.2**	**$ 0.5**	**$ -**	**$ -**	**$ -**	**$ 0.3**	**$ 0.1**	**$ 0.4**	**$ -**	**$ -**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bw Present Value of O&M Costs at 7% Discount Rate, by System Size
(Surface Water NTNCWSs)

Year	<100 Mean Value	<100 90 Percent Confidence Bound Lower (5th %tile)	<100 90 Percent Confidence Bound Upper (95th %tile)	100-499 Mean Value	100-499 90 Percent Confidence Bound Lower (5th %tile)	100-499 90 Percent Confidence Bound Upper (95th %tile)	500-999 Mean Value	500-999 90 Percent Confidence Bound Lower (5th %tile)	500-999 90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2011	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2012	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.1
2013	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1
2014	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1
2015	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1
2016	$ 0.1	$ 0.0	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1
2017	$ 0.1	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1
2018	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1
2019	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1
2020	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1
2021	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1
2022	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1
2023	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1
2024	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1
2025	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2026	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2027	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2028	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2029	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
Total	**$ 0.7**	**$ 0.4**	**$ 1.1**	**$ 2.1**	**$ 1.1**	**$ 3.1**	**$ 0.8**	**$ 0.4**	**$ 1.2**
Ann.	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.2**	**$ 0.1**	**$ 0.3**	**$ 0.1**	**$ 0.0**	**$ 0.1**

Year	1,000-3,299 Mean Value	1,000-3,299 90 Percent Confidence Bound Lower (5th %tile)	1,000-3,299 90 Percent Confidence Bound Upper (95th %tile)	3,300-9,999 Mean Value	3,300-9,999 90 Percent Confidence Bound Lower (5th %tile)	3,300-9,999 90 Percent Confidence Bound Upper (95th %tile)	10,000-49,999 Mean Value	10,000-49,999 90 Percent Confidence Bound Lower (5th %tile)	10,000-49,999 90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2011	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2012	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2013	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2014	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2015	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2016	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2017	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2018	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2019	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2020	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2021	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2022	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2023	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2024	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2025	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2026	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2027	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2028	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2029	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
Total	**$ 1.6**	**$ 0.8**	**$ 2.4**	**$ 0.7**	**$ 0.3**	**$ 1.0**	**$ 0.2**	**$ 0.1**	**$ 0.3**
Ann.	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**

Year	50,000-99,999 Mean Value	50,000-99,999 90 Percent Confidence Bound Lower (5th %tile)	50,000-99,999 90 Percent Confidence Bound Upper (95th %tile)	100,000-999,999 Mean Value	100,000-999,999 90 Percent Confidence Bound Lower (5th %tile)	100,000-999,999 90 Percent Confidence Bound Upper (95th %tile)	1,000,000+ Mean Value	1,000,000+ 90 Percent Confidence Bound Lower (5th %tile)	1,000,000+ 90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
Total	**$ -**	**$ -**	**$ -**	**$ 0.1**	**$ 0.1**	**$ 0.2**	**$ -**	**$ -**	**$ -**
Ann.	**$ -**	**$ -**	**$ -**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bx Present Value of Non-Treatment Costs at 7% Discount Rate, by System Size
(Surface Water NTNCWSs)

Year	<100 Implementation	<100 IDSE	<100 Monitoring Plans	<100 Monitoring	<100 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**

Year	100-499 Implementation	100-499 IDSE	100-499 Monitoring Plans	100-499 Monitoring	100-499 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**

Year	500-999 Implementation	500-999 IDSE	500-999 Monitoring Plans	500-999 Monitoring	500-999 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**

Year	1,000-3,299 Implementation	1,000-3,299 IDSE	1,000-3,299 Monitoring Plans	1,000-3,299 Monitoring	1,000-3,299 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ -**	**$ -**

Year	3,300-9,999 Implementation	3,300-9,999 IDSE	3,300-9,999 Monitoring Plans	3,300-9,999 Monitoring	3,300-9,999 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.1**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.0**	**$ -**

Year	10,000-49,999 Implementation	10,000-49,999 IDSE	10,000-49,999 Monitoring Plans	10,000-49,999 Monitoring	10,000-49,999 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ 0.0	$ -	$ -	$ -
2008	$ -	$ 0.0	$ 0.0	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**

Year	50,000-99,999 Implementation	50,000-99,999 IDSE	50,000-99,999 Monitoring Plans	50,000-99,999 Monitoring	50,000-99,999 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Ann.	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Year	100,000-999,999 Implementation	100,000-999,999 IDSE	100,000-999,999 Monitoring Plans	100,000-999,999 Monitoring	100,000-999,999 Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ 0.0	$ -	$ -	$ -
2007	$ -	$ 0.0	$ 0.0	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**

Year	1,000,000+ Implementation	1,000,000+ IDSE	1,000,000+ Monitoring Plans	1,000,000+ Monitoring	1,000,000+ Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Ann.	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2by Present Value of Total Costs at 7% Discount Rate, by System Size
(Ground Water CWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ 0.7	$ 0.7	$ 0.7	$ 0.8	$ 0.8	$ 0.8	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 0.2	$ 0.2	$ 0.2
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 1.4	$ 1.4	$ 1.4	$ 1.7	$ 1.7	$ 1.7	$ 0.8	$ 0.8	$ 0.8
2009	$ 1.1	$ 1.0	$ 1.2	$ 2.9	$ 2.6	$ 3.3	$ 1.8	$ 1.6	$ 2.1	$ 3.2	$ 2.8	$ 3.7	$ 4.7	$ 3.8	$ 5.5
2010	$ 1.3	$ 1.2	$ 1.5	$ 4.7	$ 4.0	$ 5.3	$ 2.8	$ 2.4	$ 3.2	$ 5.3	$ 4.4	$ 6.2	$ 8.4	$ 6.9	$ 10.0
2011	$ 1.1	$ 1.0	$ 1.3	$ 4.5	$ 3.8	$ 5.1	$ 2.7	$ 2.3	$ 3.1	$ 5.1	$ 4.2	$ 6.0	$ 8.1	$ 6.6	$ 9.6
2012	$ 1.2	$ 1.0	$ 1.3	$ 4.6	$ 4.0	$ 5.2	$ 2.9	$ 2.5	$ 3.2	$ 5.2	$ 4.4	$ 6.1	$ 7.9	$ 6.5	$ 9.3
2013	$ 1.2	$ 1.1	$ 1.4	$ 4.7	$ 4.1	$ 5.3	$ 3.0	$ 2.6	$ 3.4	$ 5.4	$ 4.6	$ 6.2	$ 7.7	$ 6.4	$ 9.1
2014	$ 0.8	$ 0.8	$ 0.9	$ 3.1	$ 2.8	$ 3.5	$ 2.0	$ 1.8	$ 2.2	$ 3.4	$ 3.0	$ 3.9	$ 4.3	$ 3.6	$ 5.0
2015	$ 0.5	$ 0.4	$ 0.5	$ 1.6	$ 1.5	$ 1.7	$ 1.1	$ 1.0	$ 1.1	$ 1.6	$ 1.5	$ 1.7	$ 1.2	$ 1.1	$ 1.3
2016	$ 0.4	$ 0.4	$ 0.5	$ 1.5	$ 1.4	$ 1.6	$ 1.0	$ 1.0	$ 1.1	$ 1.5	$ 1.4	$ 1.6	$ 1.1	$ 1.0	$ 1.2
2017	$ 0.4	$ 0.4	$ 0.4	$ 1.4	$ 1.3	$ 1.5	$ 0.9	$ 0.9	$ 1.0	$ 1.4	$ 1.3	$ 1.5	$ 1.1	$ 1.0	$ 1.1
2018	$ 0.4	$ 0.3	$ 0.4	$ 1.3	$ 1.2	$ 1.4	$ 0.9	$ 0.8	$ 0.9	$ 1.3	$ 1.2	$ 1.4	$ 1.0	$ 0.9	$ 1.1
2019	$ 0.3	$ 0.3	$ 0.4	$ 1.2	$ 1.1	$ 1.3	$ 0.8	$ 0.8	$ 0.9	$ 1.2	$ 1.1	$ 1.3	$ 0.9	$ 0.9	$ 1.0
2020	$ 0.3	$ 0.3	$ 0.3	$ 1.1	$ 1.1	$ 1.2	$ 0.8	$ 0.7	$ 0.8	$ 1.1	$ 1.0	$ 1.2	$ 0.9	$ 0.8	$ 0.9
2021	$ 0.3	$ 0.3	$ 0.3	$ 1.1	$ 1.0	$ 1.2	$ 0.7	$ 0.7	$ 0.8	$ 1.0	$ 1.0	$ 1.1	$ 0.8	$ 0.7	$ 0.9
2022	$ 0.3	$ 0.3	$ 0.3	$ 1.0	$ 0.9	$ 1.1	$ 0.7	$ 0.6	$ 0.7	$ 1.0	$ 0.9	$ 1.0	$ 0.7	$ 0.7	$ 0.8
2023	$ 0.3	$ 0.2	$ 0.3	$ 0.9	$ 0.9	$ 1.0	$ 0.6	$ 0.6	$ 0.7	$ 0.9	$ 0.8	$ 1.0	$ 0.7	$ 0.6	$ 0.8
2024	$ 0.2	$ 0.2	$ 0.3	$ 0.9	$ 0.8	$ 0.9	$ 0.6	$ 0.6	$ 0.6	$ 0.8	$ 0.8	$ 0.9	$ 0.7	$ 0.6	$ 0.7
2025	$ 0.2	$ 0.2	$ 0.2	$ 0.8	$ 0.8	$ 0.9	$ 0.6	$ 0.5	$ 0.6	$ 0.8	$ 0.7	$ 0.8	$ 0.6	$ 0.6	$ 0.7
2026	$ 0.2	$ 0.2	$ 0.2	$ 0.8	$ 0.7	$ 0.8	$ 0.5	$ 0.5	$ 0.5	$ 0.7	$ 0.7	$ 0.8	$ 0.6	$ 0.5	$ 0.6
2027	$ 0.2	$ 0.2	$ 0.2	$ 0.7	$ 0.7	$ 0.8	$ 0.5	$ 0.5	$ 0.5	$ 0.7	$ 0.6	$ 0.7	$ 0.5	$ 0.5	$ 0.6
2028	$ 0.2	$ 0.2	$ 0.2	$ 0.7	$ 0.6	$ 0.7	$ 0.4	$ 0.4	$ 0.5	$ 0.6	$ 0.6	$ 0.7	$ 0.5	$ 0.5	$ 0.5
2029	$ 0.2	$ 0.2	$ 0.2	$ 0.6	$ 0.6	$ 0.7	$ 0.4	$ 0.4	$ 0.4	$ 0.6	$ 0.6	$ 0.6	$ 0.5	$ 0.4	$ 0.5
Total	**$ 12.1**	**$ 11.1**	**$ 13.2**	**$ 41.2**	**$ 36.7**	**$ 45.7**	**$ 27.5**	**$ 24.9**	**$ 30.1**	**$ 44.9**	**$ 39.5**	**$ 50.3**	**$ 53.8**	**$ 45.7**	**$ 62.0**
Ann.	**$ 1.0**	**$ 1.0**	**$ 1.1**	**$ 3.5**	**$ 3.1**	**$ 3.9**	**$ 2.4**	**$ 2.1**	**$ 2.6**	**$ 3.9**	**$ 3.4**	**$ 4.3**	**$ 4.6**	**$ 3.9**	**$ 5.3**

Year	10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0
2006	$ 0.3	$ 0.3	$ 0.3	$ -	$ -	$ -	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2007	$ 0.6	$ 0.6	$ 0.6	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0
2008	$ 0.7	$ 0.7	$ 0.7	$ 1.1	$ 1.0	$ 1.2	$ 4.3	$ 3.8	$ 4.7	$ 0.5	$ 0.4	$ 0.5
2009	$ 4.2	$ 3.8	$ 4.6	$ 2.1	$ 1.9	$ 2.3	$ 4.3	$ 3.9	$ 4.8	$ 0.5	$ 0.4	$ 0.6
2010	$ 7.8	$ 7.1	$ 8.5	$ 2.1	$ 1.9	$ 2.3	$ 4.4	$ 3.9	$ 4.9	$ 0.5	$ 0.5	$ 0.6
2011	$ 7.8	$ 7.0	$ 8.5	$ 2.2	$ 2.0	$ 2.4	$ 4.4	$ 3.9	$ 4.8	$ 0.5	$ 0.5	$ 0.6
2012	$ 8.8	$ 8.1	$ 9.5	$ 2.3	$ 2.1	$ 2.5	$ 4.4	$ 4.0	$ 4.8	$ 0.5	$ 0.5	$ 0.6
2013	$ 9.6	$ 8.9	$ 10.3	$ 1.5	$ 1.4	$ 1.7	$ 1.4	$ 1.3	$ 1.5	$ 0.2	$ 0.2	$ 0.2
2014	$ 6.7	$ 6.3	$ 7.0	$ 0.8	$ 0.8	$ 0.8	$ 1.3	$ 1.2	$ 1.4	$ 0.2	$ 0.2	$ 0.2
2015	$ 3.8	$ 3.7	$ 3.9	$ 0.7	$ 0.7	$ 0.8	$ 1.2	$ 1.1	$ 1.3	$ 0.2	$ 0.2	$ 0.2
2016	$ 3.6	$ 3.5	$ 3.7	$ 0.7	$ 0.7	$ 0.7	$ 1.1	$ 1.1	$ 1.2	$ 0.2	$ 0.2	$ 0.2
2017	$ 3.3	$ 3.2	$ 3.4	$ 0.6	$ 0.6	$ 0.7	$ 1.1	$ 1.0	$ 1.1	$ 0.2	$ 0.1	$ 0.2
2018	$ 3.1	$ 3.0	$ 3.2	$ 0.6	$ 0.6	$ 0.6	$ 1.0	$ 0.9	$ 1.1	$ 0.1	$ 0.1	$ 0.2
2019	$ 2.9	$ 2.8	$ 3.0	$ 0.6	$ 0.5	$ 0.6	$ 0.9	$ 0.9	$ 1.0	$ 0.1	$ 0.1	$ 0.1
2020	$ 2.7	$ 2.6	$ 2.8	$ 0.5	$ 0.5	$ 0.6	$ 0.9	$ 0.8	$ 0.9	$ 0.1	$ 0.1	$ 0.1
2021	$ 2.5	$ 2.5	$ 2.6	$ 0.5	$ 0.5	$ 0.5	$ 0.8	$ 0.8	$ 0.9	$ 0.1	$ 0.1	$ 0.1
2022	$ 2.4	$ 2.3	$ 2.5	$ 0.5	$ 0.4	$ 0.5	$ 0.8	$ 0.7	$ 0.8	$ 0.1	$ 0.1	$ 0.1
2023	$ 2.2	$ 2.2	$ 2.3	$ 0.4	$ 0.4	$ 0.5	$ 0.7	$ 0.7	$ 0.8	$ 0.1	$ 0.1	$ 0.1
2024	$ 2.1	$ 2.0	$ 2.1	$ 0.4	$ 0.4	$ 0.4	$ 0.7	$ 0.6	$ 0.7	$ 0.1	$ 0.1	$ 0.1
2025	$ 1.9	$ 1.9	$ 2.0	$ 0.4	$ 0.4	$ 0.4	$ 0.6	$ 0.6	$ 0.7	$ 0.1	$ 0.1	$ 0.1
2026	$ 1.8	$ 1.8	$ 1.9	$ 0.4	$ 0.3	$ 0.4	$ 0.6	$ 0.5	$ 0.6	$ 0.1	$ 0.1	$ 0.1
2027	$ 1.7	$ 1.6	$ 1.8	$ 0.3	$ 0.3	$ 0.3	$ 0.5	$ 0.5	$ 0.6	$ 0.1	$ 0.1	$ 0.1
2028	$ 1.6	$ 1.5	$ 1.6	$ 0.3	$ 0.3	$ 0.3	$ 0.5	$ 0.5	$ 0.5	$ 0.1	$ 0.1	$ 0.1
2029	$ 1.5	$ 1.4	$ 1.5	$ 0.3	$ 0.3	$ 0.3	$ 0.5	$ 0.4	$ 0.5	$ 0.1	$ 0.1	$ 0.1
Total	**$ 83.7**	**$ 78.9**	**$ 88.4**	**$ 19.6**	**$ 18.2**	**$ 21.1**	**$ 36.5**	**$ 33.2**	**$ 39.8**	**$ 4.8**	**$ 4.3**	**$ 5.2**
Ann.	**$ 7.2**	**$ 6.8**	**$ 7.6**	**$ 1.7**	**$ 1.6**	**$ 1.8**	**$ 3.1**	**$ 2.8**	**$ 3.4**	**$ 0.4**	**$ 0.4**	**$ 0.4**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2bz Present Value of Capital Costs at 7% Discount Rate, by System Size
(Ground Water CWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.1	$ 1.0	$ 1.2	$ 4.2	$ 3.8	$ 4.7	$ 0.5	$ 0.4	$ 0.5
2009	$ 0.6	$ 0.5	$ 0.6	$ 2.2	$ 1.9	$ 2.6	$ 1.3	$ 1.1	$ 1.6	$ 2.6	$ 2.2	$ 3.1	$ 4.4	$ 3.6	$ 5.2	$ 3.9	$ 3.6	$ 4.3	$ 2.0	$ 1.8	$ 2.2	$ 4.0	$ 3.5	$ 4.4	$ 0.5	$ 0.4	$ 0.5
2010	$ 1.0	$ 0.9	$ 1.2	$ 4.1	$ 3.5	$ 4.8	$ 2.5	$ 2.1	$ 2.9	$ 4.9	$ 4.0	$ 5.8	$ 8.2	$ 6.7	$ 9.8	$ 7.4	$ 6.6	$ 8.1	$ 1.9	$ 1.7	$ 2.1	$ 3.7	$ 3.3	$ 4.1	$ 0.4	$ 0.4	$ 0.5
2011	$ 1.0	$ 0.8	$ 1.1	$ 3.9	$ 3.3	$ 4.5	$ 2.4	$ 2.0	$ 2.7	$ 4.6	$ 3.8	$ 5.4	$ 7.7	$ 6.2	$ 9.1	$ 6.9	$ 6.2	$ 7.5	$ 1.7	$ 1.6	$ 1.9	$ 3.5	$ 3.1	$ 3.8	$ 0.4	$ 0.3	$ 0.4
2012	$ 0.9	$ 0.8	$ 1.0	$ 3.6	$ 3.1	$ 4.2	$ 2.2	$ 1.9	$ 2.5	$ 4.3	$ 3.5	$ 5.1	$ 7.2	$ 5.8	$ 8.5	$ 6.4	$ 5.8	$ 7.0	$ 1.6	$ 1.5	$ 1.8	$ 3.2	$ 2.9	$ 3.6	$ 0.4	$ 0.3	$ 0.4
2013	$ 0.8	$ 0.7	$ 1.0	$ 3.4	$ 2.9	$ 3.9	$ 2.1	$ 1.7	$ 2.4	$ 4.0	$ 3.3	$ 4.7	$ 6.7	$ 5.4	$ 8.0	$ 6.0	$ 5.4	$ 6.6	$ 0.8	$ 0.7	$ 0.8	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ 0.4	$ 0.3	$ 0.5	$ 1.6	$ 1.3	$ 1.8	$ 1.0	$ 0.8	$ 1.1	$ 1.9	$ 1.5	$ 2.2	$ 3.1	$ 2.5	$ 3.7	$ 2.8	$ 2.5	$ 3.1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 4.7**	**$ 4.1**	**$ 5.4**	**$ 18.8**	**$ 15.9**	**$ 21.7**	**$ 11.4**	**$ 9.6**	**$ 13.2**	**$ 22.3**	**$ 18.3**	**$ 26.3**	**$ 37.3**	**$ 30.3**	**$ 44.3**	**$ 33.4**	**$ 30.2**	**$ 36.6**	**$ 9.1**	**$ 8.1**	**$ 10.0**	**$ 18.6**	**$ 16.5**	**$ 20.6**	**$ 2.1**	**$ 1.9**	**$ 2.4**
Ann.	**$ 0.4**	**$ 0.3**	**$ 0.5**	**$ 1.6**	**$ 1.4**	**$ 1.9**	**$ 1.0**	**$ 0.8**	**$ 1.1**	**$ 1.9**	**$ 1.6**	**$ 2.3**	**$ 3.2**	**$ 2.6**	**$ 3.8**	**$ 2.9**	**$ 2.6**	**$ 3.1**	**$ 0.8**	**$ 0.7**	**$ 0.9**	**$ 1.6**	**$ 1.4**	**$ 1.8**	**$ 0.2**	**$ 0.2**	**$ 0.2**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2ca Present Value of O&M Costs at 7% Discount Rate, by System Size
(Ground Water CWSs)

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.1	$ 0.1	$ 0.1	$ 0.4	$ 0.4	$ 0.4	$ 0.1	$ 0.1	$ 0.1
2010	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.2	$ 0.2	$ 0.3	$ 0.7	$ 0.7	$ 0.8	$ 0.1	$ 0.1	$ 0.1
2011	$ 0.2	$ 0.2	$ 0.2	$ 0.6	$ 0.6	$ 0.7	$ 0.3	$ 0.3	$ 0.4	$ 0.5	$ 0.5	$ 0.5	$ 0.4	$ 0.4	$ 0.5	$ 0.9	$ 0.8	$ 0.9	$ 0.4	$ 0.3	$ 0.4	$ 1.0	$ 0.9	$ 1.1	$ 0.2	$ 0.1	$ 0.2
2012	$ 0.3	$ 0.2	$ 0.3	$ 1.0	$ 0.9	$ 1.0	$ 0.5	$ 0.5	$ 0.6	$ 0.8	$ 0.7	$ 0.8	$ 0.7	$ 0.6	$ 0.7	$ 1.4	$ 1.3	$ 1.4	$ 0.5	$ 0.5	$ 0.5	$ 1.2	$ 1.1	$ 1.3	$ 0.2	$ 0.2	$ 0.2
2013	$ 0.3	$ 0.3	$ 0.4	$ 1.2	$ 1.1	$ 1.3	$ 0.7	$ 0.6	$ 0.7	$ 1.0	$ 0.9	$ 1.1	$ 0.9	$ 0.8	$ 0.9	$ 1.8	$ 1.7	$ 1.9	$ 0.6	$ 0.5	$ 0.6	$ 1.4	$ 1.3	$ 1.5	$ 0.2	$ 0.2	$ 0.2
2014	$ 0.4	$ 0.4	$ 0.4	$ 1.5	$ 1.4	$ 1.6	$ 0.8	$ 0.7	$ 0.9	$ 1.2	$ 1.1	$ 1.3	$ 1.0	$ 0.9	$ 1.1	$ 2.2	$ 2.0	$ 2.3	$ 0.6	$ 0.6	$ 0.6	$ 1.3	$ 1.3	$ 1.4	$ 0.2	$ 0.2	$ 0.2
2015	$ 0.4	$ 0.4	$ 0.4	$ 1.6	$ 1.4	$ 1.7	$ 0.8	$ 0.8	$ 0.9	$ 1.3	$ 1.1	$ 1.4	$ 1.1	$ 1.0	$ 1.2	$ 2.2	$ 2.1	$ 2.4	$ 0.6	$ 0.5	$ 0.6	$ 1.3	$ 1.2	$ 1.3	$ 0.2	$ 0.2	$ 0.2
2016	$ 0.4	$ 0.4	$ 0.4	$ 1.5	$ 1.3	$ 1.6	$ 0.8	$ 0.7	$ 0.8	$ 1.2	$ 1.1	$ 1.3	$ 1.0	$ 0.9	$ 1.1	$ 2.1	$ 2.0	$ 2.2	$ 0.5	$ 0.5	$ 0.6	$ 1.2	$ 1.1	$ 1.3	$ 0.2	$ 0.2	$ 0.2
2017	$ 0.4	$ 0.3	$ 0.4	$ 1.4	$ 1.3	$ 1.5	$ 0.7	$ 0.7	$ 0.8	$ 1.1	$ 1.0	$ 1.2	$ 0.9	$ 0.9	$ 1.0	$ 2.0	$ 1.8	$ 2.1	$ 0.5	$ 0.5	$ 0.5	$ 1.1	$ 1.0	$ 1.2	$ 0.2	$ 0.2	$ 0.2
2018	$ 0.3	$ 0.3	$ 0.4	$ 1.3	$ 1.2	$ 1.4	$ 0.7	$ 0.6	$ 0.7	$ 1.0	$ 0.9	$ 1.1	$ 0.9	$ 0.8	$ 0.9	$ 1.8	$ 1.7	$ 1.9	$ 0.5	$ 0.4	$ 0.5	$ 1.0	$ 1.0	$ 1.1	$ 0.2	$ 0.1	$ 0.2
2019	$ 0.3	$ 0.3	$ 0.3	$ 1.2	$ 1.1	$ 1.3	$ 0.6	$ 0.6	$ 0.7	$ 1.0	$ 0.9	$ 1.0	$ 0.8	$ 0.7	$ 0.9	$ 1.7	$ 1.6	$ 1.8	$ 0.4	$ 0.4	$ 0.5	$ 1.0	$ 0.9	$ 1.0	$ 0.1	$ 0.1	$ 0.2
2020	$ 0.3	$ 0.3	$ 0.3	$ 1.1	$ 1.0	$ 1.2	$ 0.6	$ 0.5	$ 0.6	$ 0.9	$ 0.8	$ 1.0	$ 0.8	$ 0.7	$ 0.8	$ 1.6	$ 1.5	$ 1.7	$ 0.4	$ 0.4	$ 0.4	$ 0.9	$ 0.8	$ 1.0	$ 0.1	$ 0.1	$ 0.1
2021	$ 0.3	$ 0.3	$ 0.3	$ 1.0	$ 1.0	$ 1.1	$ 0.6	$ 0.5	$ 0.6	$ 0.8	$ 0.8	$ 0.9	$ 0.7	$ 0.7	$ 0.8	$ 1.5	$ 1.4	$ 1.6	$ 0.4	$ 0.4	$ 0.4	$ 0.8	$ 0.8	$ 0.9	$ 0.1	$ 0.1	$ 0.1
2022	$ 0.3	$ 0.2	$ 0.3	$ 1.0	$ 0.9	$ 1.0	$ 0.5	$ 0.5	$ 0.6	$ 0.8	$ 0.7	$ 0.9	$ 0.7	$ 0.6	$ 0.7	$ 1.4	$ 1.3	$ 1.5	$ 0.4	$ 0.3	$ 0.4	$ 0.8	$ 0.7	$ 0.8	$ 0.1	$ 0.1	$ 0.1
2023	$ 0.2	$ 0.2	$ 0.3	$ 0.9	$ 0.8	$ 1.0	$ 0.5	$ 0.4	$ 0.5	$ 0.7	$ 0.7	$ 0.8	$ 0.6	$ 0.6	$ 0.7	$ 1.3	$ 1.2	$ 1.4	$ 0.3	$ 0.3	$ 0.4	$ 0.7	$ 0.7	$ 0.8	$ 0.1	$ 0.1	$ 0.1
2024	$ 0.2	$ 0.2	$ 0.2	$ 0.8	$ 0.8	$ 0.9	$ 0.5	$ 0.4	$ 0.5	$ 0.7	$ 0.6	$ 0.7	$ 0.6	$ 0.5	$ 0.6	$ 1.2	$ 1.1	$ 1.3	$ 0.3	$ 0.3	$ 0.3	$ 0.7	$ 0.6	$ 0.7	$ 0.1	$ 0.1	$ 0.1
2025	$ 0.2	$ 0.2	$ 0.2	$ 0.8	$ 0.7	$ 0.9	$ 0.4	$ 0.4	$ 0.5	$ 0.6	$ 0.6	$ 0.7	$ 0.5	$ 0.5	$ 0.6	$ 1.1	$ 1.1	$ 1.2	$ 0.3	$ 0.3	$ 0.3	$ 0.6	$ 0.6	$ 0.7	$ 0.1	$ 0.1	$ 0.1
2026	$ 0.2	$ 0.2	$ 0.2	$ 0.7	$ 0.7	$ 0.8	$ 0.4	$ 0.4	$ 0.4	$ 0.6	$ 0.5	$ 0.6	$ 0.5	$ 0.5	$ 0.5	$ 1.1	$ 1.0	$ 1.1	$ 0.3	$ 0.3	$ 0.3	$ 0.6	$ 0.6	$ 0.6	$ 0.1	$ 0.1	$ 0.1
2027	$ 0.2	$ 0.2	$ 0.2	$ 0.7	$ 0.6	$ 0.7	$ 0.4	$ 0.3	$ 0.4	$ 0.6	$ 0.5	$ 0.6	$ 0.5	$ 0.4	$ 0.5	$ 1.0	$ 0.9	$ 1.0	$ 0.3	$ 0.2	$ 0.3	$ 0.6	$ 0.5	$ 0.6	$ 0.1	$ 0.1	$ 0.1
2028	$ 0.2	$ 0.2	$ 0.2	$ 0.6	$ 0.6	$ 0.7	$ 0.3	$ 0.3	$ 0.4	$ 0.5	$ 0.5	$ 0.6	$ 0.4	$ 0.4	$ 0.5	$ 0.9	$ 0.9	$ 1.0	$ 0.2	$ 0.2	$ 0.3	$ 0.5	$ 0.5	$ 0.6	$ 0.1	$ 0.1	$ 0.1
2029	$ 0.2	$ 0.1	$ 0.2	$ 0.6	$ 0.6	$ 0.7	$ 0.3	$ 0.3	$ 0.3	$ 0.5	$ 0.4	$ 0.5	$ 0.4	$ 0.4	$ 0.4	$ 0.9	$ 0.8	$ 0.9	$ 0.2	$ 0.2	$ 0.2	$ 0.5	$ 0.5	$ 0.5	$ 0.1	$ 0.1	$ 0.1
Total	**$ 5.3**	**$ 4.9**	**$ 5.6**	**$ 19.7**	**$ 18.1**	**$ 21.3**	**$ 10.5**	**$ 9.7**	**$ 11.4**	**$ 15.9**	**$ 14.5**	**$ 17.3**	**$ 13.5**	**$ 12.4**	**$ 14.6**	**$ 28.3**	**$ 26.7**	**$ 29.8**	**$ 7.9**	**$ 7.4**	**$ 8.4**	**$ 18.3**	**$ 17.1**	**$ 19.6**	**$ 2.8**	**$ 2.6**	**$ 3.0**
Ann.	**$ 0.5**	**$ 0.4**	**$ 0.5**	**$ 1.7**	**$ 1.6**	**$ 1.8**	**$ 0.9**	**$ 0.8**	**$ 1.0**	**$ 1.4**	**$ 1.2**	**$ 1.5**	**$ 1.2**	**$ 1.1**	**$ 1.3**	**$ 2.4**	**$ 2.3**	**$ 2.6**	**$ 0.7**	**$ 0.6**	**$ 0.7**	**$ 1.6**	**$ 1.5**	**$ 1.7**	**$ 0.2**	**$ 0.2**	**$ 0.3**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2cb Present Value of Non-Treatment Costs at 7% Discount Rate, by System Size
(Ground Water CWSs)

Year	<100 Implementation	<100 IDSE	<100 Monitoring Plans	<100 Monitoring	<100 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.7	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ 0.2	$ -	$ -	$ -
2009	$ 0.3	$ -	$ 0.3	$ -	$ -
2010	$ 0.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 1.2**	**$ 0.2**	**$ 0.3**	**$ 0.5**	**$ -**
Ann.	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**

Year	100-499 Implementation	100-499 IDSE	100-499 Monitoring Plans	100-499 Monitoring	100-499 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.8	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ 0.2	$ -	$ -	$ -
2009	$ 0.3	$ -	$ 0.4	$ -	$ -
2010	$ 0.3	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.1	$ -
2014	$ -	$ -	$ -	$ 0.1	$ -
2015	$ -	$ -	$ -	$ 0.1	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 1.4**	**$ 0.2**	**$ 0.4**	**$ 0.7**	**$ -**
Ann.	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ -**

Year	500-999 Implementation	500-999 IDSE	500-999 Monitoring Plans	500-999 Monitoring	500-999 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.4	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ 1.4	$ -	$ -	$ -
2009	$ 0.1	$ -	$ 0.3	$ -	$ -
2010	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.2	$ -
2013	$ -	$ -	$ -	$ 0.3	$ -
2014	$ -	$ -	$ -	$ 0.3	$ -
2015	$ -	$ -	$ -	$ 0.3	$ -
2016	$ -	$ -	$ -	$ 0.2	$ -
2017	$ -	$ -	$ -	$ 0.2	$ -
2018	$ -	$ -	$ -	$ 0.2	$ -
2019	$ -	$ -	$ -	$ 0.2	$ -
2020	$ -	$ -	$ -	$ 0.2	$ -
2021	$ -	$ -	$ -	$ 0.2	$ -
2022	$ -	$ -	$ -	$ 0.2	$ -
2023	$ -	$ -	$ -	$ 0.1	$ -
2024	$ -	$ -	$ -	$ 0.1	$ -
2025	$ -	$ -	$ -	$ 0.1	$ -
2026	$ -	$ -	$ -	$ 0.1	$ -
2027	$ -	$ -	$ -	$ 0.1	$ -
2028	$ -	$ -	$ -	$ 0.1	$ -
2029	$ -	$ -	$ -	$ 0.1	$ -
Total	**$ 0.7**	**$ 1.4**	**$ 0.3**	**$ 3.1**	**$ -**
Ann.	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.3**	**$ -**

Year	1,000-3,299 Implementation	1,000-3,299 IDSE	1,000-3,299 Monitoring Plans	1,000-3,299 Monitoring	1,000-3,299 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.4	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ 1.7	$ -	$ -	$ -
2009	$ 0.2	$ -	$ 0.4	$ -	$ -
2010	$ 0.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.2	$ -
2013	$ -	$ -	$ -	$ 0.3	$ -
2014	$ -	$ -	$ -	$ 0.3	$ -
2015	$ -	$ -	$ -	$ 0.3	$ -
2016	$ -	$ -	$ -	$ 0.3	$ -
2017	$ -	$ -	$ -	$ 0.3	$ -
2018	$ -	$ -	$ -	$ 0.2	$ -
2019	$ -	$ -	$ -	$ 0.2	$ -
2020	$ -	$ -	$ -	$ 0.2	$ -
2021	$ -	$ -	$ -	$ 0.2	$ -
2022	$ -	$ -	$ -	$ 0.2	$ -
2023	$ -	$ -	$ -	$ 0.2	$ -
2024	$ -	$ -	$ -	$ 0.2	$ -
2025	$ -	$ -	$ -	$ 0.2	$ -
2026	$ -	$ -	$ -	$ 0.1	$ -
2027	$ -	$ -	$ -	$ 0.1	$ -
2028	$ -	$ -	$ -	$ 0.1	$ -
2029	$ -	$ -	$ -	$ 0.1	$ -
Total	**$ 0.8**	**$ 1.7**	**$ 0.4**	**$ 3.8**	**$ -**
Ann.	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.3**	**$ -**

Year	3,300-9,999 Implementation	3,300-9,999 IDSE	3,300-9,999 Monitoring Plans	3,300-9,999 Monitoring	3,300-9,999 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.2	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ 0.8	$ -	$ -	$ -
2009	$ 0.1	$ -	$ 0.2	$ -	$ -
2010	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.1	$ -
2013	$ -	$ -	$ -	$ 0.2	$ -
2014	$ -	$ -	$ -	$ 0.1	$ -
2015	$ -	$ -	$ -	$ 0.1	$ -
2016	$ -	$ -	$ -	$ 0.1	$ -
2017	$ -	$ -	$ -	$ 0.1	$ -
2018	$ -	$ -	$ -	$ 0.1	$ -
2019	$ -	$ -	$ -	$ 0.1	$ -
2020	$ -	$ -	$ -	$ 0.1	$ -
2021	$ -	$ -	$ -	$ 0.1	$ -
2022	$ -	$ -	$ -	$ 0.1	$ -
2023	$ -	$ -	$ -	$ 0.1	$ -
2024	$ -	$ -	$ -	$ 0.1	$ -
2025	$ -	$ -	$ -	$ 0.1	$ -
2026	$ -	$ -	$ -	$ 0.1	$ -
2027	$ -	$ -	$ -	$ 0.1	$ -
2028	$ -	$ -	$ -	$ 0.1	$ -
2029	$ -	$ -	$ -	$ 0.1	$ -
Total	**$ 0.4**	**$ 0.8**	**$ 0.2**	**$ 1.7**	**$ -**
Ann.	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ -**

Year	10,000-49,999 Implementation	10,000-49,999 IDSE	10,000-49,999 Monitoring Plans	10,000-49,999 Monitoring	10,000-49,999 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.3	$ -	$ -	$ -	$ -
2007	$ -	$ 0.6	$ -	$ -	$ -
2008	$ -	$ 0.6	$ 0.1	$ -	$ -
2009	$ 0.1	$ -	$ 0.1	$ -	$ -
2010	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 1.0	$ -
2013	$ -	$ -	$ -	$ 1.8	$ -
2014	$ -	$ -	$ -	$ 1.7	$ -
2015	$ -	$ -	$ -	$ 1.6	$ -
2016	$ -	$ -	$ -	$ 1.5	$ -
2017	$ -	$ -	$ -	$ 1.4	$ -
2018	$ -	$ -	$ -	$ 1.3	$ -
2019	$ -	$ -	$ -	$ 1.2	$ -
2020	$ -	$ -	$ -	$ 1.1	$ -
2021	$ -	$ -	$ -	$ 1.1	$ -
2022	$ -	$ -	$ -	$ 1.0	$ -
2023	$ -	$ -	$ -	$ 0.9	$ -
2024	$ -	$ -	$ -	$ 0.9	$ -
2025	$ -	$ -	$ -	$ 0.8	$ -
2026	$ -	$ -	$ -	$ 0.8	$ -
2027	$ -	$ -	$ -	$ 0.7	$ -
2028	$ -	$ -	$ -	$ 0.7	$ -
2029	$ -	$ -	$ -	$ 0.6	$ -
Total	**$ 0.6**	**$ 1.2**	**$ 0.2**	**$ 20.0**	**$ -**
Ann.	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 1.7**	**$ -**

Year	50,000-99,999 Implementation	50,000-99,999 IDSE	50,000-99,999 Monitoring Plans	50,000-99,999 Monitoring	50,000-99,999 Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ 0.1	$ -	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ 0.0	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.1	$ -
2012	$ -	$ -	$ -	$ 0.2	$ -
2013	$ -	$ -	$ -	$ 0.2	$ -
2014	$ -	$ -	$ -	$ 0.2	$ -
2015	$ -	$ -	$ -	$ 0.2	$ -
2016	$ -	$ -	$ -	$ 0.2	$ -
2017	$ -	$ -	$ -	$ 0.2	$ -
2018	$ -	$ -	$ -	$ 0.1	$ -
2019	$ -	$ -	$ -	$ 0.1	$ -
2020	$ -	$ -	$ -	$ 0.1	$ -
2021	$ -	$ -	$ -	$ 0.1	$ -
2022	$ -	$ -	$ -	$ 0.1	$ -
2023	$ -	$ -	$ -	$ 0.1	$ -
2024	$ -	$ -	$ -	$ 0.1	$ -
2025	$ -	$ -	$ -	$ 0.1	$ -
2026	$ -	$ -	$ -	$ 0.1	$ -
2027	$ -	$ -	$ -	$ 0.1	$ -
2028	$ -	$ -	$ -	$ 0.1	$ -
2029	$ -	$ -	$ -	$ 0.1	$ -
Total	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 2.4**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.2**	**$ -**

Year	100,000-999,999 Implementation	100,000-999,999 IDSE	100,000-999,999 Monitoring Plans	100,000-999,999 Monitoring	100,000-999,999 Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ 0.1	$ -	$ -	$ -
2007	$ -	$ 0.1	$ 0.0	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ (0.1)	$ -
2012	$ -	$ -	$ -	$ (0.1)	$ -
2013	$ -	$ -	$ -	$ (0.0)	$ -
2014	$ -	$ -	$ -	$ (0.0)	$ -
2015	$ -	$ -	$ -	$ (0.0)	$ -
2016	$ -	$ -	$ -	$ (0.0)	$ -
2017	$ -	$ -	$ -	$ (0.0)	$ -
2018	$ -	$ -	$ -	$ (0.0)	$ -
2019	$ -	$ -	$ -	$ (0.0)	$ -
2020	$ -	$ -	$ -	$ (0.0)	$ -
2021	$ -	$ -	$ -	$ (0.0)	$ -
2022	$ -	$ -	$ -	$ (0.0)	$ -
2023	$ -	$ -	$ -	$ (0.0)	$ -
2024	$ -	$ -	$ -	$ (0.0)	$ -
2025	$ -	$ -	$ -	$ (0.0)	$ -
2026	$ -	$ -	$ -	$ (0.0)	$ -
2027	$ -	$ -	$ -	$ (0.0)	$ -
2028	$ -	$ -	$ -	$ (0.0)	$ -
2029	$ -	$ -	$ -	$ (0.0)	$ -
Total	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ (0.6)**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ (0.1)**	**$ -**

Year	1,000,000+ Implementation	1,000,000+ IDSE	1,000,000+ Monitoring Plans	1,000,000+ Monitoring	1,000,000+ Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ 0.0	$ -	$ -	$ -
2007	$ -	$ 0.0	$ 0.0	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ (0.0)	$ -
2012	$ -	$ -	$ -	$ (0.0)	$ -
2013	$ -	$ -	$ -	$ (0.0)	$ -
2014	$ -	$ -	$ -	$ (0.0)	$ -
2015	$ -	$ -	$ -	$ (0.0)	$ -
2016	$ -	$ -	$ -	$ (0.0)	$ -
2017	$ -	$ -	$ -	$ (0.0)	$ -
2018	$ -	$ -	$ -	$ (0.0)	$ -
2019	$ -	$ -	$ -	$ (0.0)	$ -
2020	$ -	$ -	$ -	$ (0.0)	$ -
2021	$ -	$ -	$ -	$ (0.0)	$ -
2022	$ -	$ -	$ -	$ (0.0)	$ -
2023	$ -	$ -	$ -	$ (0.0)	$ -
2024	$ -	$ -	$ -	$ (0.0)	$ -
2025	$ -	$ -	$ -	$ (0.0)	$ -
2026	$ -	$ -	$ -	$ (0.0)	$ -
2027	$ -	$ -	$ -	$ (0.0)	$ -
2028	$ -	$ -	$ -	$ (0.0)	$ -
2029	$ -	$ -	$ -	$ (0.0)	$ -
Total	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ (0.2)**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ (0.0)**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2cc Present Value of Total Costs at 7% Discount Rate, by System Size
(Ground Water NTNCWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2006	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2009	$ 0.4	$ 0.4	$ 0.5	$ 0.5	$ 0.5	$ 0.6	$ 0.2	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2010	$ 0.5	$ 0.4	$ 0.6	$ 0.7	$ 0.6	$ 0.8	$ 0.3	$ 0.3	$ 0.4	$ 0.2	$ 0.2	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2011	$ 0.4	$ 0.4	$ 0.5	$ 0.7	$ 0.6	$ 0.8	$ 0.3	$ 0.3	$ 0.4	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2012	$ 0.5	$ 0.4	$ 0.5	$ 0.7	$ 0.6	$ 0.8	$ 0.4	$ 0.4	$ 0.4	$ 0.2	$ 0.2	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2013	$ 0.5	$ 0.5	$ 0.6	$ 0.8	$ 0.7	$ 0.9	$ 0.5	$ 0.4	$ 0.5	$ 0.3	$ 0.2	$ 0.3	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2014	$ 0.4	$ 0.4	$ 0.4	$ 0.5	$ 0.5	$ 0.6	$ 0.3	$ 0.3	$ 0.4	$ 0.2	$ 0.2	$ 0.2	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2015	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2016	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.3	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2017	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.2	$ 0.3	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2018	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2019	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2020	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2021	$ 0.2	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2022	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2023	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2024	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2025	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2026	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2027	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2028	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2029	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
Total	**$ 5.3**	**$ 4.9**	**$ 5.7**	**$ 7.1**	**$ 6.4**	**$ 7.8**	**$ 4.2**	**$ 3.9**	**$ 4.6**	**$ 2.1**	**$ 1.9**	**$ 2.3**	**$ 0.4**	**$ 0.3**	**$ 0.5**	**$ 0.2**	**$ 0.2**	**$ 0.2**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ -**	**$ -**	**$ -**
Ann.	**$ 0.5**	**$ 0.4**	**$ 0.5**	**$ 0.6**	**$ 0.5**	**$ 0.7**	**$ 0.4**	**$ 0.3**	**$ 0.4**	**$ 0.2**	**$ 0.2**	**$ 0.2**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2cd Present Value of Capital Costs at 7% Discount Rate, by System Size
(Ground Water NTNCWSs)

	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2009	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.3	$ 0.4	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2010	$ 0.4	$ 0.3	$ 0.5	$ 0.6	$ 0.5	$ 0.7	$ 0.3	$ 0.3	$ 0.4	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2011	$ 0.4	$ 0.3	$ 0.4	$ 0.6	$ 0.5	$ 0.7	$ 0.3	$ 0.2	$ 0.3	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2012	$ 0.3	$ 0.3	$ 0.4	$ 0.5	$ 0.5	$ 0.6	$ 0.3	$ 0.2	$ 0.3	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2013	$ 0.3	$ 0.3	$ 0.4	$ 0.5	$ 0.4	$ 0.6	$ 0.3	$ 0.2	$ 0.3	$ 0.2	$ 0.1	$ 0.2	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ 0.2	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 1.8**	**$ 1.5**	**$ 2.0**	**$ 2.9**	**$ 2.4**	**$ 3.3**	**$ 1.4**	**$ 1.2**	**$ 1.6**	**$ 0.9**	**$ 0.7**	**$ 1.1**	**$ 0.3**	**$ 0.2**	**$ 0.3**	**$ 0.1**	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**
Ann.	**$ 0.2**	**$ 0.1**	**$ 0.2**	**$ 0.2**	**$ 0.2**	**$ 0.3**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.2a through rr.

Exhibit J.2ce Present Value of O&M Costs at 7% Discount Rate, by System Size
(Ground Water NTNCWSs)

Year	<100			100-499			500-999			1,000-3,299			3,300-9,999			10,000-49,999			50,000-99,999			100,000-999,999			1,000,000+		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2010	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2011	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2012	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2013	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2014	$ 0.2	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2015	$ 0.2	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.3	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2016	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2017	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2018	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2019	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2020	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2021	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2022	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2023	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2024	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2025	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2026	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2027	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2028	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
2029	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -
Total	**$ 2.0**	**$ 1.8**	**$ 2.1**	**$ 3.0**	**$ 2.7**	**$ 3.2**	**$ 1.2**	**$ 1.1**	**$ 1.3**	**$ 0.5**	**$ 0.5**	**$ 0.6**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**
Ann.	**$ 0.2**	**$ 0.2**	**$ 0.2**	**$ 0.3**	**$ 0.2**	**$ 0.3**	**$ 0.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Exhibit J.2cf Present Value of Non-Treatment Costs at 7% Discount Rate, by System Size
(Ground Water NTNCWSs)

Year	<100 Implementation	<100 IDSE	<100 Monitoring Plans	<100 Monitoring	<100 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.2	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.1	$ -	$ 0.1	$ -	$ -
2010	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.1	$ -
2014	$ -	$ -	$ -	$ 0.1	$ -
2015	$ -	$ -	$ -	$ 0.1	$ -
2016	$ -	$ -	$ -	$ 0.1	$ -
2017	$ -	$ -	$ -	$ 0.1	$ -
2018	$ -	$ -	$ -	$ 0.1	$ -
2019	$ -	$ -	$ -	$ 0.1	$ -
2020	$ -	$ -	$ -	$ 0.1	$ -
2021	$ -	$ -	$ -	$ 0.1	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.4**	**$ -**	**$ 0.1**	**$ 1.0**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.1**	**$ -**

Year	100-499 Implementation	100-499 IDSE	100-499 Monitoring Plans	100-499 Monitoring	100-499 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.2	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.1	$ -	$ 0.1	$ -	$ -
2010	$ 0.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.1	$ -
2014	$ -	$ -	$ -	$ 0.1	$ -
2015	$ -	$ -	$ -	$ 0.1	$ -
2016	$ -	$ -	$ -	$ 0.1	$ -
2017	$ -	$ -	$ -	$ 0.1	$ -
2018	$ -	$ -	$ -	$ 0.1	$ -
2019	$ -	$ -	$ -	$ 0.1	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.3**	**$ -**	**$ 0.1**	**$ 0.8**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.1**	**$ -**

Year	500-999 Implementation	500-999 IDSE	500-999 Monitoring Plans	500-999 Monitoring	500-999 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.1	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.1	$ -
2013	$ -	$ -	$ -	$ 0.1	$ -
2014	$ -	$ -	$ -	$ 0.1	$ -
2015	$ -	$ -	$ -	$ 0.1	$ -
2016	$ -	$ -	$ -	$ 0.1	$ -
2017	$ -	$ -	$ -	$ 0.1	$ -
2018	$ -	$ -	$ -	$ 0.1	$ -
2019	$ -	$ -	$ -	$ 0.1	$ -
2020	$ -	$ -	$ -	$ 0.1	$ -
2021	$ -	$ -	$ -	$ 0.1	$ -
2022	$ -	$ -	$ -	$ 0.1	$ -
2023	$ -	$ -	$ -	$ 0.1	$ -
2024	$ -	$ -	$ -	$ 0.1	$ -
2025	$ -	$ -	$ -	$ 0.1	$ -
2026	$ -	$ -	$ -	$ 0.1	$ -
2027	$ -	$ -	$ -	$ 0.1	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.1**	**$ -**	**$ 0.0**	**$ 1.5**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.1**	**$ -**

Year	1,000-3,299 Implementation	1,000-3,299 IDSE	1,000-3,299 Monitoring Plans	1,000-3,299 Monitoring	1,000-3,299 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.1	$ -
2014	$ -	$ -	$ -	$ 0.1	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.6**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.1**	**$ -**

Year	3,300-9,999 Implementation	3,300-9,999 IDSE	3,300-9,999 Monitoring Plans	3,300-9,999 Monitoring	3,300-9,999 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.1**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.0**	**$ -**

Year	10,000-49,999 Implementation	10,000-49,999 IDSE	10,000-49,999 Monitoring Plans	10,000-49,999 Monitoring	10,000-49,999 Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ 0.0	$ -	$ -	$ -	$ -
2007	$ -	$ 0.0	$ -	$ -	$ -
2008	$ -	$ 0.0	$ 0.0	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.1**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**

Year	50,000-99,999 Implementation	50,000-99,999 IDSE	50,000-99,999 Monitoring Plans	50,000-99,999 Monitoring	50,000-99,999 Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ 0.0	$ -	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ 0.0	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**

Year	100,000-999,999 Implementation	100,000-999,999 IDSE	100,000-999,999 Monitoring Plans	100,000-999,999 Monitoring	100,000-999,999 Significant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ 0.0	$ -	$ -
2008	$ 0.0	$ -	$ 0.0	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.0**	**$ -**
Ann.	**$ 0.0**	**$ -**	**$ 0.0**	**$ 0.0**	**$ -**

Year	1,000,000+ Implementation	1,000,000+ IDSE	1,000,000+ Monitoring Plans	1,000,000+ Monitoring	1,000,000+ Significant Excursion
2005	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -
2009	$ -	$ -	$ -	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -	$ -
2013	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -
2015	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -
Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Ann.	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.2a through rr.

Section J.3
Cost Projections (Alternative 1)

Exhibit J.3a Projections of Stage 2 DBPR PWS Costs

(All Surface Water CWSs)

Alternative 1

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.69	$ -	$ -	$ -	$ -	$ 0.69	$ 0.69	$ 0.69
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.34	$ 8.46	$ -	$ -	$ -	$ 9.80	$ 9.80	$ 9.80
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.45	$ 0.22	$ -	$ -	$ 22.67	$ 22.67	$ 22.67
2008	$ 274.81	$ 144.65	$ 415.95	$ -	$ -	$ -	$ 0.60	$ 18.62	$ 0.62	$ -	$ -	$ 294.65	$ 164.49	$ 435.78
2009	$ 356.94	$ 188.03	$ 539.48	$ 25.04	$ 13.33	$ 36.97	$ 0.75	$ -	$ 0.88	$ -	$ -	$ 383.60	$ 202.99	$ 578.08
2010	$ 414.70	$ 218.56	$ 626.39	$ 56.35	$ 30.00	$ 83.18	$ 0.67	$ -	$ -	$ -	$ -	$ 471.72	$ 249.24	$ 710.24
2011	$ 414.70	$ 218.56	$ 626.39	$ 92.07	$ 49.03	$ 135.90	$ -	$ -	$ -	$ 0.42	$ -	$ 507.20	$ 268.01	$ 762.70
2012	$ 414.70	$ 218.56	$ 626.39	$ 127.80	$ 68.05	$ 188.61	$ -	$ -	$ -	$ (0.77)	$ 0.06	$ 541.79	$ 285.91	$ 814.29
2013	$ 139.89	$ 73.91	$ 210.44	$ 163.52	$ 87.08	$ 241.33	$ -	$ -	$ -	$ (2.07)	$ 0.15	$ 301.49	$ 159.07	$ 449.84
2014	$ 57.77	$ 30.54	$ 86.91	$ 174.21	$ 92.77	$ 257.07	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 230.12	$ 121.46	$ 342.12
2015	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2016	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2017	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2018	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2019	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2020	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2021	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2022	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2023	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2024	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2025	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2026	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2027	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2028	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72
2029	$ -	$ -	$ -	$ 178.63	$ 95.13	$ 263.57	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 176.77	$ 93.27	$ 261.72

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1b and Exhibits D.1 through D.6.

Exhibit J.3b Projections of Stage 2 DBPR PWS Costs

(All Surface Water NTNCWSs)

Alternative 1

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.08	$ 0.01	$ -	$ -	$ -	$ 0.09	$ 0.09	$ 0.09
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.04	$ 0.00	$ -	$ -	$ 0.04	$ 0.04	$ 0.04
2008	$ 0.38	$ 0.20	$ 0.57	$ -	$ -	$ -	$ 0.00	$ 0.02	$ 0.00	$ -	$ -	$ 0.40	$ 0.22	$ 0.60
2009	$ 2.02	$ 1.07	$ 3.04	$ 0.03	$ 0.02	$ 0.05	$ 0.04	$ -	$ 0.04	$ -	$ -	$ 2.13	$ 1.16	$ 3.17
2010	$ 3.67	$ 1.94	$ 5.51	$ 0.22	$ 0.12	$ 0.32	$ 0.04	$ -	$ -	$ -	$ -	$ 3.92	$ 2.09	$ 5.87
2011	$ 3.67	$ 1.94	$ 5.51	$ 0.55	$ 0.29	$ 0.81	$ -	$ -	$ -	$ 0.00	$ -	$ 4.22	$ 2.23	$ 6.33
2012	$ 3.67	$ 1.94	$ 5.51	$ 0.89	$ 0.47	$ 1.31	$ -	$ -	$ -	$ 0.02	$ -	$ 4.57	$ 2.43	$ 6.83
2013	$ 3.29	$ 1.74	$ 4.93	$ 1.22	$ 0.65	$ 1.80	$ -	$ -	$ -	$ 0.03	$ -	$ 4.54	$ 2.42	$ 6.76
2014	$ 1.64	$ 0.87	$ 2.47	$ 1.53	$ 0.81	$ 2.25	$ -	$ -	$ -	$ 0.03	$ -	$ 3.20	$ 1.71	$ 4.74
2015	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2016	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2017	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2018	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2019	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2020	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2021	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2022	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2023	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2024	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2025	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2026	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2027	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2028	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50
2029	$ -	$ -	$ -	$ 1.68	$ 0.89	$ 2.47	$ -	$ -	$ -	$ 0.03	$ -	$ 1.71	$ 0.92	$ 2.50

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1b and Exhibits D.1 through D.6.

Exhibit J.3c Projections of Stage 2 DBPR PWS Costs
(All Surface Water Systems)

Alternative 1

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.69	$ -	$ -	$ -	$ -	$ 0.69	$ 0.69	$ 0.69
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.42	$ 8.48	$ -	$ -	$ -	$ 9.90	$ 9.90	$ 9.90
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.49	$ 0.22	$ -	$ -	$ 22.71	$ 22.71	$ 22.71
2008	$ 275.19	$ 144.85	$ 416.52	$ -	$ -	$ -	$ 0.60	$ 18.64	$ 0.62	$ -	$ -	$ 295.05	$ 164.71	$ 436.38
2009	$ 358.96	$ 189.09	$ 542.52	$ 25.07	$ 13.35	$ 37.02	$ 0.79	$ -	$ 0.91	$ -	$ -	$ 385.74	$ 204.15	$ 581.24
2010	$ 418.37	$ 220.50	$ 631.90	$ 56.56	$ 30.12	$ 83.50	$ 0.71	$ -	$ -	$ -	$ -	$ 475.64	$ 251.33	$ 716.11
2011	$ 418.37	$ 220.50	$ 631.90	$ 92.63	$ 49.32	$ 136.71	$ -	$ -	$ -	$ 0.42	$ -	$ 511.42	$ 270.25	$ 769.03
2012	$ 418.37	$ 220.50	$ 631.90	$ 128.69	$ 68.53	$ 189.92	$ -	$ -	$ -	$ (0.75)	$ 0.06	$ 546.36	$ 288.34	$ 821.12
2013	$ 143.17	$ 75.65	$ 215.37	$ 164.75	$ 87.73	$ 243.13	$ -	$ -	$ -	$ (2.04)	$ 0.15	$ 306.03	$ 161.49	$ 456.61
2014	$ 59.41	$ 31.41	$ 89.38	$ 175.74	$ 93.59	$ 259.32	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 233.32	$ 123.17	$ 346.87
2015	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2016	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2017	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2018	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2019	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2020	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2021	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2022	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2023	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2024	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2025	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2026	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2027	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2028	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22
2029	$ -	$ -	$ -	$ 180.30	$ 96.02	$ 266.04	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 178.48	$ 94.20	$ 264.22

Note: All values in millions of year 2003 dollars.
Source: Derived from Exhibits J.1b and Exhibits D.1 through D.6.

Exhibit J.3d Projections of Stage 2 DBPR PWS Costs
(All Ground Water CWSs)

Alternative 1

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.42	$ 0.09	$ -	$ -	$ -	$ 3.51	$ 3.51	$ 3.51
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.09	$ 0.02	$ -	$ -	$ 1.11	$ 1.11	$ 1.11
2008	$ 23.24	$ 20.12	$ 26.37	$ -	$ -	$ -	$ 0.05	$ 6.66	$ 0.22	$ -	$ -	$ 30.16	$ 27.04	$ 33.29
2009	$ 66.85	$ 57.36	$ 76.36	$ 2.50	$ 2.31	$ 2.70	$ 1.73	$ -	$ 2.58	$ -	$ -	$ 73.66	$ 63.98	$ 83.37
2010	$ 106.33	$ 91.03	$ 121.69	$ 8.63	$ 7.98	$ 9.28	$ 1.71	$ -	$ -	$ -	$ -	$ 116.68	$ 100.73	$ 132.68
2011	$ 106.33	$ 91.03	$ 121.69	$ 17.99	$ 16.67	$ 19.32	$ -	$ -	$ -	$ 0.08	$ -	$ 124.41	$ 107.78	$ 141.09
2012	$ 106.33	$ 91.03	$ 121.69	$ 27.36	$ 25.35	$ 29.36	$ -	$ -	$ -	$ 2.95	$ -	$ 136.64	$ 119.34	$ 154.00
2013	$ 83.09	$ 70.91	$ 95.32	$ 36.72	$ 34.03	$ 39.40	$ -	$ -	$ -	$ 5.63	$ -	$ 125.44	$ 110.58	$ 140.35
2014	$ 39.49	$ 33.67	$ 45.33	$ 43.58	$ 40.41	$ 46.74	$ -	$ -	$ -	$ 5.63	$ -	$ 88.69	$ 79.71	$ 97.70
2015	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2016	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2017	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2018	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2019	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2020	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2021	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2022	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2023	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2024	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2025	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2026	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2027	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2028	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83
2029	$ -	$ -	$ -	$ 46.81	$ 43.42	$ 50.20	$ -	$ -	$ -	$ 5.63	$ -	$ 52.44	$ 49.05	$ 55.83

Note: All values in millions of year 2003 dollars.
Source: Derived from Exhibits J.1b and Exhibits D.1 through D.6.

Exhibit J.3e Projections of Stage 2 DBPR PWS Costs
(All Ground Water NTNCWSs)

Alternative 1

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.56	$ -	$ -	$ -	$ -	$ 0.56	$ 0.56	$ 0.56
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2008	$ 0.03	$ 0.02	$ 0.03	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ 0.03	$ 0.02	$ 0.03
2009	$ 1.72	$ 1.47	$ 1.98	$ 0.00	$ 0.00	$ 0.00	$ 0.28	$ -	$ 0.46	$ -	$ -	$ 2.47	$ 2.21	$ 2.73
2010	$ 3.42	$ 2.91	$ 3.93	$ 0.17	$ 0.16	$ 0.18	$ 0.28	$ -	$ -	$ -	$ -	$ 3.87	$ 3.34	$ 4.39
2011	$ 3.42	$ 2.91	$ 3.93	$ 0.50	$ 0.47	$ 0.54	$ -	$ -	$ -	$ 0.00	$ -	$ 3.92	$ 3.37	$ 4.47
2012	$ 3.42	$ 2.91	$ 3.93	$ 0.83	$ 0.77	$ 0.89	$ -	$ -	$ -	$ 0.37	$ -	$ 4.62	$ 4.05	$ 5.19
2013	$ 3.39	$ 2.88	$ 3.90	$ 1.16	$ 1.08	$ 1.25	$ -	$ -	$ -	$ 0.73	$ -	$ 5.28	$ 4.69	$ 5.87
2014	$ 1.69	$ 1.44	$ 1.95	$ 1.49	$ 1.38	$ 1.60	$ -	$ -	$ -	$ 0.73	$ -	$ 3.91	$ 3.55	$ 4.27
2015	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2016	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2017	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2018	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2019	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2020	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2021	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2022	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2023	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2024	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2025	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2026	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2027	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2028	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50
2029	$ -	$ -	$ -	$ 1.66	$ 1.54	$ 1.77	$ -	$ -	$ -	$ 0.73	$ -	$ 2.39	$ 2.27	$ 2.50

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1b and Exhibits D.1 through D.6.

Exhibit J.3f Projections of Stage 2 DBPR PWS Costs

(All Ground Water Systems)

Alternative 1

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.98	$ 0.09	$ -	$ -	$ -	$ 4.07	$ 4.07	$ 4.07
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.09	$ 0.02	$ -	$ -	$ 1.11	$ 1.11	$ 1.11
2008	$ 23.27	$ 20.15	$ 26.40	$ -	$ -	$ -	$ 0.05	$ 6.66	$ 0.22	$ -	$ -	$ 30.19	$ 27.07	$ 33.32
2009	$ 68.57	$ 58.83	$ 78.34	$ 2.51	$ 2.31	$ 2.70	$ 2.01	$ -	$ 3.04	$ -	$ -	$ 76.13	$ 66.19	$ 86.10
2010	$ 109.75	$ 93.94	$ 125.61	$ 8.80	$ 8.14	$ 9.46	$ 1.99	$ -	$ -	$ -	$ -	$ 120.54	$ 104.07	$ 137.07
2011	$ 109.75	$ 93.94	$ 125.61	$ 18.49	$ 17.13	$ 19.86	$ -	$ -	$ -	$ 0.08	$ -	$ 128.33	$ 111.15	$ 145.55
2012	$ 109.75	$ 93.94	$ 125.61	$ 28.19	$ 26.12	$ 30.26	$ -	$ -	$ -	$ 3.32	$ -	$ 141.26	$ 123.38	$ 159.19
2013	$ 86.48	$ 73.80	$ 99.22	$ 37.88	$ 35.11	$ 40.65	$ -	$ -	$ -	$ 6.36	$ -	$ 130.72	$ 115.27	$ 146.23
2014	$ 41.18	$ 35.11	$ 47.27	$ 45.07	$ 41.80	$ 48.34	$ -	$ -	$ -	$ 6.36	$ -	$ 92.61	$ 83.27	$ 101.97
2015	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2016	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2017	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2018	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2019	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2020	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2021	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2022	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2023	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2024	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2025	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2026	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2027	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2028	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34
2029	$ -	$ -	$ -	$ 48.47	$ 44.96	$ 51.98	$ -	$ -	$ -	$ 6.36	$ -	$ 54.82	$ 51.32	$ 58.34

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1b and Exhibits D.1 through D.6.

Exhibit J.3g Projections of Stage 2 DBPR PWS Costs

(All Systems)

Alternative 1

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.76	$ -	$ -	$ -	$ -	$ 0.76	$ 0.76	$ 0.76
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 5.40	$ 8.56	$ -	$ -	$ -	$ 13.96	$ 13.96	$ 13.96
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 23.58	$ 0.24	$ -	$ -	$ 23.81	$ 23.81	$ 23.81
2008	$ 298.46	$ 165.00	$ 442.92	$ -	$ -	$ -	$ 0.65	$ 25.30	$ 0.83	$ -	$ -	$ 325.24	$ 191.78	$ 469.70
2009	$ 427.53	$ 247.92	$ 620.86	$ 27.58	$ 15.66	$ 39.72	$ 2.81	$ -	$ 3.95	$ -	$ -	$ 461.87	$ 270.34	$ 667.34
2010	$ 528.12	$ 314.44	$ 757.51	$ 65.37	$ 38.26	$ 92.96	$ 2.70	$ -	$ -	$ -	$ -	$ 596.19	$ 355.40	$ 853.17
2011	$ 528.12	$ 314.44	$ 757.51	$ 111.12	$ 66.45	$ 156.57	$ -	$ -	$ -	$ 0.51	$ -	$ 639.75	$ 381.40	$ 914.58
2012	$ 528.12	$ 314.44	$ 757.51	$ 156.87	$ 94.65	$ 220.17	$ -	$ -	$ -	$ 2.57	$ 0.06	$ 687.62	$ 411.72	$ 980.31
2013	$ 229.66	$ 149.45	$ 314.59	$ 202.63	$ 122.84	$ 283.78	$ -	$ -	$ -	$ 4.32	$ 0.15	$ 436.75	$ 276.76	$ 602.83
2014	$ 100.59	$ 66.52	$ 136.65	$ 220.80	$ 135.39	$ 307.66	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 325.92	$ 206.44	$ 448.84
2015	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2016	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2017	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2018	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2019	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2020	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2021	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2022	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2023	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2024	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2025	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2026	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2027	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2028	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55
2029	$ -	$ -	$ -	$ 228.77	$ 140.98	$ 318.02	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 233.30	$ 145.51	$ 322.55

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1b and Exhibits D.1 through D.6.

Exhibit J.3h Projections of Stage 2 DBPR Primacy Agency Costs

Alternative 1

Year	Implementation Costs	IDSE Costs	Monitoring Plan Costs	Compliance Monitoring Costs	Significant Excursion Report Costs
2005	$ 3.88	$ -	$ -	$ -	$ -
2006	$ 3.88	$ 0.04	$ -	$ -	$ -
2007	$ -	$ 0.13	$ 0.02	$ -	$ -
2008	$ -	$ 2.06	$ 0.06	$ -	$ -
2009	$ -	$ -	$ 0.85	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 1.59	$ 0.11
2012	$ -	$ -	$ -	$ 1.59	$ 0.11
2013	$ -	$ -	$ -	$ 1.59	$ 0.11
2014	$ -	$ -	$ -	$ 1.59	$ 0.11
2015	$ -	$ -	$ -	$ 1.59	$ 0.11
2016	$ -	$ -	$ -	$ 1.59	$ 0.11
2017	$ -	$ -	$ -	$ 1.59	$ 0.11
2018	$ -	$ -	$ -	$ 1.59	$ 0.11
2019	$ -	$ -	$ -	$ 1.59	$ 0.11
2020	$ -	$ -	$ -	$ 1.59	$ 0.11
2021	$ -	$ -	$ -	$ 1.59	$ 0.11
2022	$ -	$ -	$ -	$ 1.59	$ 0.11
2023	$ -	$ -	$ -	$ 1.59	$ 0.11
2024	$ -	$ -	$ -	$ 1.59	$ 0.11
2025	$ -	$ -	$ -	$ 1.59	$ 0.11
2026	$ -	$ -	$ -	$ 1.59	$ 0.11
2027	$ -	$ -	$ -	$ 1.59	$ 0.11
2028	$ -	$ -	$ -	$ 1.59	$ 0.11
2029	$ -	$ -	$ -	$ 1.59	$ 0.11

Note: All values in millions of year 2003 dollars.
Source: Derived from Exhibits J.1h and D.7.

Exhibit J.3i Present Value of Annual Cost Projections at 3% Discount Rate (All Systems and Primacy Agencies)

Alternative 1

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Primacy Agencies	Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound				90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Point Estimate	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.6	$ 0.6	$ 0.6	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 3.7	$ 4.4	$ 4.4	$ 4.4
2006	$ 9.0	$ 9.0	$ 9.0	$ 0.1	$ 0.1	$ 0.1	$ 3.2	$ 3.2	$ 3.2	$ 0.5	$ 0.5	$ 0.5	$ 3.6	$ 16.4	$ 16.4	$ 16.4
2007	$ 20.1	$ 20.1	$ 20.1	$ 0.0	$ 0.0	$ 0.0	$ 1.0	$ 1.0	$ 1.0	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 21.3	$ 21.3	$ 21.3
2008	$ 254.2	$ 141.9	$ 375.9	$ 0.3	$ 0.2	$ 0.5	$ 26.0	$ 23.3	$ 28.7	$ 0.0	$ 0.0	$ 0.0	$ 1.8	$ 282.4	$ 167.2	$ 407.0
2009	$ 321.3	$ 170.0	$ 484.1	$ 1.8	$ 1.0	$ 2.7	$ 61.7	$ 53.6	$ 69.8	$ 2.1	$ 1.9	$ 2.3	$ 0.7	$ 387.5	$ 227.1	$ 559.6
2010	$ 383.6	$ 202.7	$ 577.5	$ 3.2	$ 1.7	$ 4.8	$ 94.9	$ 81.9	$ 107.9	$ 3.1	$ 2.7	$ 3.6	$ -	$ 484.8	$ 289.0	$ 693.7
2011	$ 400.4	$ 211.6	$ 602.1	$ 3.3	$ 1.8	$ 5.0	$ 98.2	$ 85.1	$ 111.4	$ 3.1	$ 2.7	$ 3.5	$ 1.3	$ 506.4	$ 302.4	$ 723.3
2012	$ 415.2	$ 219.1	$ 624.1	$ 3.5	$ 1.9	$ 5.2	$ 104.7	$ 91.5	$ 118.0	$ 3.5	$ 3.1	$ 4.0	$ 1.3	$ 528.3	$ 316.9	$ 752.6
2013	$ 224.3	$ 118.4	$ 334.7	$ 3.4	$ 1.8	$ 5.0	$ 93.3	$ 82.3	$ 104.4	$ 3.9	$ 3.5	$ 4.4	$ 1.3	$ 326.3	$ 207.2	$ 449.8
2014	$ 166.2	$ 87.7	$ 247.2	$ 2.3	$ 1.2	$ 3.4	$ 64.1	$ 57.6	$ 70.6	$ 2.8	$ 2.6	$ 3.1	$ 1.2	$ 236.7	$ 150.4	$ 325.5
2015	$ 124.0	$ 65.4	$ 183.6	$ 1.2	$ 0.6	$ 1.8	$ 36.8	$ 34.4	$ 39.2	$ 1.7	$ 1.6	$ 1.8	$ 1.2	$ 164.8	$ 103.3	$ 227.4
2016	$ 120.4	$ 63.5	$ 178.2	$ 1.2	$ 0.6	$ 1.7	$ 35.7	$ 33.4	$ 38.0	$ 1.6	$ 1.5	$ 1.7	$ 1.2	$ 160.0	$ 100.2	$ 220.8
2017	$ 116.9	$ 61.7	$ 173.0	$ 1.1	$ 0.6	$ 1.7	$ 34.7	$ 32.4	$ 36.9	$ 1.6	$ 1.5	$ 1.7	$ 1.1	$ 155.4	$ 97.3	$ 214.4
2018	$ 113.5	$ 59.9	$ 168.0	$ 1.1	$ 0.6	$ 1.6	$ 33.7	$ 31.5	$ 35.8	$ 1.5	$ 1.5	$ 1.6	$ 1.1	$ 150.8	$ 94.5	$ 208.1
2019	$ 110.2	$ 58.1	$ 163.1	$ 1.1	$ 0.6	$ 1.6	$ 32.7	$ 30.6	$ 34.8	$ 1.5	$ 1.4	$ 1.6	$ 1.1	$ 146.4	$ 91.7	$ 202.1
2020	$ 106.9	$ 56.4	$ 158.3	$ 1.0	$ 0.6	$ 1.5	$ 31.7	$ 29.7	$ 33.8	$ 1.4	$ 1.4	$ 1.5	$ 1.0	$ 142.2	$ 89.1	$ 196.2
2021	$ 103.8	$ 54.8	$ 153.7	$ 1.0	$ 0.5	$ 1.5	$ 30.8	$ 28.8	$ 32.8	$ 1.4	$ 1.3	$ 1.5	$ 1.0	$ 138.0	$ 86.5	$ 190.5
2022	$ 100.8	$ 53.2	$ 149.3	$ 1.0	$ 0.5	$ 1.4	$ 29.9	$ 28.0	$ 31.8	$ 1.4	$ 1.3	$ 1.4	$ 1.0	$ 134.0	$ 84.0	$ 184.9
2023	$ 97.9	$ 51.6	$ 144.9	$ 0.9	$ 0.5	$ 1.4	$ 29.0	$ 27.2	$ 30.9	$ 1.3	$ 1.3	$ 1.4	$ 0.9	$ 130.1	$ 81.5	$ 179.5
2024	$ 95.0	$ 50.1	$ 140.7	$ 0.9	$ 0.5	$ 1.3	$ 28.2	$ 26.4	$ 30.0	$ 1.3	$ 1.2	$ 1.3	$ 0.9	$ 126.3	$ 79.1	$ 174.3
2025	$ 92.3	$ 48.7	$ 136.6	$ 0.9	$ 0.5	$ 1.3	$ 27.4	$ 25.6	$ 29.1	$ 1.2	$ 1.2	$ 1.3	$ 0.9	$ 122.6	$ 76.8	$ 169.2
2026	$ 89.6	$ 47.3	$ 132.6	$ 0.9	$ 0.5	$ 1.3	$ 26.6	$ 24.9	$ 28.3	$ 1.2	$ 1.1	$ 1.3	$ 0.9	$ 119.1	$ 74.6	$ 164.3
2027	$ 87.0	$ 45.9	$ 128.7	$ 0.8	$ 0.5	$ 1.2	$ 25.8	$ 24.1	$ 27.5	$ 1.2	$ 1.1	$ 1.2	$ 0.8	$ 115.6	$ 72.4	$ 159.5
2028	$ 84.4	$ 44.5	$ 125.0	$ 0.8	$ 0.4	$ 1.2	$ 25.0	$ 23.4	$ 26.7	$ 1.1	$ 1.1	$ 1.2	$ 0.8	$ 112.2	$ 70.3	$ 154.9
2029	$ 82.0	$ 43.2	$ 121.4	$ 0.8	$ 0.4	$ 1.2	$ 24.3	$ 22.7	$ 25.9	$ 1.1	$ 1.1	$ 1.2	$ 0.8	$ 109.0	$ 68.3	$ 150.4
Total	**$ 3,719.4**	**$ 1,985.5**	**$ 5,532.4**	**$ 32.7**	**$ 17.6**	**$ 48.3**	**$ 999.4**	**$ 902.5**	**$ 1,096.6**	**$ 39.7**	**$ 36.5**	**$ 42.9**	**$ 29.8**	**$ 4,821.1**	**$ 2,971.9**	**$ 6,750.1**
Ann.	**$ 213.6**	**$ 114.0**	**$ 317.7**	**$ 1.9**	**$ 1.0**	**$ 2.8**	**$ 57.4**	**$ 51.8**	**$ 63.0**	**$ 2.3**	**$ 2.1**	**$ 2.5**	**$ 1.7**	**$ 276.9**	**$ 170.7**	**$ 387.6**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.3a through h.

Exhibit J.3j Present Value of Annual Treatment Cost Projections at 3% Discount Rate (All Systems)

Alternative 1

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ 237.1	$ 124.8	$ 358.8	$ 0.3	$ 0.2	$ 0.5	$ 20.1	$ 17.4	$ 22.7	$ 0.0	$ 0.0	$ 0.0	$ 257.5	$ 142.3	$ 382.1
2009	$ 298.9	$ 157.5	$ 451.8	$ 1.7	$ 0.9	$ 2.5	$ 56.0	$ 48.0	$ 63.9	$ 1.4	$ 1.2	$ 1.7	$ 358.1	$ 207.6	$ 520.0
2010	$ 337.2	$ 177.7	$ 509.3	$ 3.0	$ 1.6	$ 4.5	$ 86.5	$ 74.0	$ 98.9	$ 2.8	$ 2.4	$ 3.2	$ 429.4	$ 255.7	$ 615.9
2011	$ 327.4	$ 172.5	$ 494.5	$ 2.9	$ 1.5	$ 4.3	$ 83.9	$ 71.9	$ 96.1	$ 2.7	$ 2.3	$ 3.1	$ 416.9	$ 248.2	$ 598.0
2012	$ 317.8	$ 167.5	$ 480.1	$ 2.8	$ 1.5	$ 4.2	$ 81.5	$ 69.8	$ 93.3	$ 2.6	$ 2.2	$ 3.0	$ 404.8	$ 241.0	$ 580.6
2013	$ 104.1	$ 55.0	$ 156.6	$ 2.4	$ 1.3	$ 3.7	$ 61.8	$ 52.8	$ 70.9	$ 2.5	$ 2.1	$ 2.9	$ 170.9	$ 111.2	$ 234.1
2014	$ 41.7	$ 22.1	$ 62.8	$ 1.2	$ 0.6	$ 1.8	$ 28.5	$ 24.3	$ 32.7	$ 1.2	$ 1.0	$ 1.4	$ 72.7	$ 48.1	$ 98.7
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 1,664.2**	**$ 877.1**	**$ 2,513.8**	**$ 14.3**	**$ 7.6**	**$ 21.5**	**$ 418.3**	**$ 358.1**	**$ 478.6**	**$ 13.3**	**$ 11.3**	**$ 15.3**	**$ 2,110.1**	**$ 1,254.1**	**$ 3,029.3**
Ann.	**$ 95.6**	**$ 50.4**	**$ 144.4**	**$ 0.8**	**$ 0.4**	**$ 1.2**	**$ 24.0**	**$ 20.6**	**$ 27.5**	**$ 0.8**	**$ 0.7**	**$ 0.9**	**$ 121.2**	**$ 72.0**	**$ 174.0**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.3a through h.

Exhibit J.3k Present Value of Annual Treatment Cost Projections at 3% Discount Rate
(All Systems)

Alternative 1

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 21.0	$ 11.2	$ 31.0	$ 0.0	$ 0.0	$ 0.0	$ 2.1	$ 1.9	$ 2.3	$ 0.0	$ 0.0	$ 0.0	$ 23.1	$ 13.1	$ 33.3
2010	$ 45.8	$ 24.4	$ 67.6	$ 0.2	$ 0.1	$ 0.3	$ 7.0	$ 6.5	$ 7.5	$ 0.1	$ 0.1	$ 0.1	$ 53.1	$ 31.1	$ 75.6
2011	$ 72.7	$ 38.7	$ 107.3	$ 0.4	$ 0.2	$ 0.6	$ 14.2	$ 13.2	$ 15.3	$ 0.4	$ 0.4	$ 0.4	$ 87.7	$ 52.5	$ 123.6
2012	$ 97.9	$ 52.2	$ 144.6	$ 0.7	$ 0.4	$ 1.0	$ 21.0	$ 19.4	$ 22.5	$ 0.6	$ 0.6	$ 0.7	$ 120.2	$ 72.5	$ 168.7
2013	$ 121.7	$ 64.8	$ 179.6	$ 0.9	$ 0.5	$ 1.3	$ 27.3	$ 25.3	$ 29.3	$ 0.9	$ 0.8	$ 0.9	$ 150.8	$ 91.4	$ 211.2
2014	$ 125.9	$ 67.0	$ 185.7	$ 1.1	$ 0.6	$ 1.6	$ 31.5	$ 29.2	$ 33.8	$ 1.1	$ 1.0	$ 1.2	$ 159.5	$ 97.8	$ 222.3
2015	$ 125.3	$ 66.7	$ 184.9	$ 1.2	$ 0.6	$ 1.7	$ 32.8	$ 30.5	$ 35.2	$ 1.2	$ 1.1	$ 1.2	$ 160.5	$ 98.9	$ 223.1
2016	$ 121.6	$ 64.8	$ 179.5	$ 1.1	$ 0.6	$ 1.7	$ 31.9	$ 29.6	$ 34.2	$ 1.1	$ 1.0	$ 1.2	$ 155.8	$ 96.0	$ 216.6
2017	$ 118.1	$ 62.9	$ 174.3	$ 1.1	$ 0.6	$ 1.6	$ 30.9	$ 28.7	$ 33.2	$ 1.1	$ 1.0	$ 1.2	$ 151.2	$ 93.2	$ 210.3
2018	$ 114.7	$ 61.1	$ 169.2	$ 1.1	$ 0.6	$ 1.6	$ 30.0	$ 27.9	$ 32.2	$ 1.1	$ 1.0	$ 1.1	$ 146.8	$ 90.5	$ 204.1
2019	$ 111.3	$ 59.3	$ 164.2	$ 1.0	$ 0.6	$ 1.5	$ 29.2	$ 27.1	$ 31.3	$ 1.0	$ 1.0	$ 1.1	$ 142.6	$ 87.9	$ 198.2
2020	$ 108.1	$ 57.6	$ 159.5	$ 1.0	$ 0.5	$ 1.5	$ 28.3	$ 26.3	$ 30.4	$ 1.0	$ 0.9	$ 1.1	$ 138.4	$ 85.3	$ 192.4
2021	$ 104.9	$ 55.9	$ 154.8	$ 1.0	$ 0.5	$ 1.5	$ 27.5	$ 25.5	$ 29.5	$ 1.0	$ 0.9	$ 1.0	$ 134.4	$ 82.8	$ 186.8
2022	$ 101.9	$ 54.2	$ 150.3	$ 1.0	$ 0.5	$ 1.4	$ 26.7	$ 24.8	$ 28.6	$ 0.9	$ 0.9	$ 1.0	$ 130.5	$ 80.4	$ 181.4
2023	$ 98.9	$ 52.7	$ 145.9	$ 0.9	$ 0.5	$ 1.4	$ 25.9	$ 24.0	$ 27.8	$ 0.9	$ 0.9	$ 1.0	$ 126.7	$ 78.1	$ 176.1
2024	$ 96.0	$ 51.1	$ 141.7	$ 0.9	$ 0.5	$ 1.3	$ 25.2	$ 23.3	$ 27.0	$ 0.9	$ 0.8	$ 1.0	$ 123.0	$ 75.8	$ 171.0
2025	$ 93.2	$ 49.6	$ 137.6	$ 0.9	$ 0.5	$ 1.3	$ 24.4	$ 22.7	$ 26.2	$ 0.9	$ 0.8	$ 0.9	$ 119.4	$ 73.6	$ 166.0
2026	$ 90.5	$ 48.2	$ 133.6	$ 0.9	$ 0.5	$ 1.3	$ 23.7	$ 22.0	$ 25.4	$ 0.8	$ 0.8	$ 0.9	$ 115.9	$ 71.4	$ 161.1
2027	$ 87.9	$ 46.8	$ 129.7	$ 0.8	$ 0.4	$ 1.2	$ 23.0	$ 21.4	$ 24.7	$ 0.8	$ 0.8	$ 0.9	$ 112.5	$ 69.4	$ 156.4
2028	$ 85.3	$ 45.4	$ 125.9	$ 0.8	$ 0.4	$ 1.2	$ 22.4	$ 20.7	$ 24.0	$ 0.8	$ 0.7	$ 0.8	$ 109.3	$ 67.3	$ 151.9
2029	$ 82.8	$ 44.1	$ 122.2	$ 0.8	$ 0.4	$ 1.1	$ 21.7	$ 20.1	$ 23.3	$ 0.8	$ 0.7	$ 0.8	$ 106.1	$ 65.4	$ 147.5
Total	**$ 2,025.5**	**$ 1,078.6**	**$ 2,988.8**	**$ 17.8**	**$ 9.5**	**$ 26.2**	**$ 506.8**	**$ 470.0**	**$ 543.6**	**$ 17.4**	**$ 16.1**	**$ 18.6**	**$ 2,567.4**	**$ 1,574.3**	**$ 3,577.3**
Ann.	**$ 116.3**	**$ 61.9**	**$ 171.6**	**$ 1.0**	**$ 0.5**	**$ 1.5**	**$ 29.1**	**$ 27.0**	**$ 31.2**	**$ 1.0**	**$ 0.9**	**$ 1.1**	**$ 147.4**	**$ 90.4**	**$ 205.4**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.3a through h.

Exhibit J.3l Present Value of Annual Non-Treatment Cost Projections at 3% Discount Rate
(All Systems)

Alternative 1

	Surface Water CWS					Surface Water NTNCWS					Disinfecting Ground Water CWS					Disinfecting Ground Water NTNCWS					Total				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.6	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.7	$ -	$ -	$ -	$ -
2006	$ 1.2	$ 7.7	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 3.1	$ 0.1	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 4.9	$ 7.8	$ -	$ -	$ -
2007	$ -	$ 19.9	$ 0.2	$ -	$ -	$ -	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 1.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 20.9	$ 0.2	$ -	$ -
2008	$ 0.5	$ 16.1	$ 0.5	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ 0.0	$ 5.7	$ 0.2	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ 0.6	$ 21.8	$ 0.7	$ -	$ -
2009	$ 0.6	$ -	$ 0.7	$ -	$ -	$ 0.0	$ -	$ 0.0	$ -	$ -	$ 1.5	$ -	$ 2.2	$ -	$ -	$ 0.2	$ -	$ 0.4	$ -	$ -	$ 2.4	$ -	$ 3.3	$ -	$ -
2010	$ 0.5	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.4	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 2.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.4	$ -
2012	$ -	$ -	$ -	$ (0.6)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.3	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 2.0	$ 0.0
2013	$ -	$ -	$ -	$ (1.5)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 4.2	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 3.2	$ 0.1
2014	$ -	$ -	$ -	$ (1.5)	$ 0.2	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 4.1	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 3.1	$ 0.2
2015	$ -	$ -	$ -	$ (1.5)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.9	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 3.0	$ 0.1
2016	$ -	$ -	$ -	$ (1.4)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.8	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 2.9	$ 0.1
2017	$ -	$ -	$ -	$ (1.4)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.7	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 2.9	$ 0.1
2018	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.6	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 2.8	$ 0.1
2019	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.5	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 2.7	$ 0.1
2020	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.4	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.6	$ 0.1
2021	$ -	$ -	$ -	$ (1.2)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.3	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.5	$ 0.1
2022	$ -	$ -	$ -	$ (1.2)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.2	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.5	$ 0.1
2023	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.1	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.4	$ 0.1
2024	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.0	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.3	$ 0.1
2025	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.9	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.3	$ 0.1
2026	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.9	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.2	$ 0.1
2027	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.8	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.1	$ 0.1
2028	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.7	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 2.1	$ 0.1
2029	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.6	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 2.0	$ 0.1
Total	**$ 3.6**	**$ 43.8**	**$ 1.5**	**$ (21.1)**	**$ 2.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.3**	**$ -**	**$ 6.1**	**$ 6.8**	**$ 2.4**	**$ 59.1**	**$ -**	**$ 1.0**	**$ 0.0**	**$ 0.4**	**$ 7.6**	**$ -**	**$ 10.8**	**$ 50.6**	**$ 4.2**	**$ 45.9**	**$ 2.1**
Ann.	**$ 0.2**	**$ 2.5**	**$ 0.1**	**$ (1.2)**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ 0.3**	**$ 0.4**	**$ 0.1**	**$ 3.4**	**$ -**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.4**	**$ -**	**$ 0.6**	**$ 2.9**	**$ 0.2**	**$ 2.6**	**$ 0.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.3a through h.

Exhibit J.3m Present Value of Annual Cost Projections at 7% Discount Rate
(All Systems and Primacy Agencies)

Alternative 1

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Primacy Agencies	Total		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Point Estimate	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ 0.6	$ 0.6	$ 0.6	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 3.4	$ 4.1	$ 4.1	$ 4.1
2006	$ 8.0	$ 8.0	$ 8.0	$ 0.1	$ 0.1	$ 0.1	$ 2.9	$ 2.9	$ 2.9	$ 0.5	$ 0.5	$ 0.5	$ 3.2	$ 14.6	$ 14.6	$ 14.6
2007	$ 17.3	$ 17.3	$ 17.3	$ 0.0	$ 0.0	$ 0.0	$ 0.8	$ 0.8	$ 0.8	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 18.3	$ 18.3	$ 18.3
2008	$ 210.1	$ 117.3	$ 310.7	$ 0.3	$ 0.2	$ 0.4	$ 21.5	$ 19.3	$ 23.7	$ 0.0	$ 0.0	$ 0.0	$ 1.5	$ 233.4	$ 138.2	$ 336.4
2009	$ 255.6	$ 135.3	$ 385.2	$ 1.4	$ 0.8	$ 2.1	$ 49.1	$ 42.6	$ 55.6	$ 1.6	$ 1.5	$ 1.8	$ 0.6	$ 308.3	$ 180.7	$ 445.2
2010	$ 293.8	$ 155.2	$ 442.3	$ 2.4	$ 1.3	$ 3.7	$ 72.7	$ 62.7	$ 82.6	$ 2.4	$ 2.1	$ 2.7	$ -	$ 371.3	$ 221.3	$ 531.3
2011	$ 295.2	$ 156.0	$ 443.9	$ 2.5	$ 1.3	$ 3.7	$ 72.4	$ 62.7	$ 82.1	$ 2.3	$ 2.0	$ 2.6	$ -	$ 373.3	$ 223.0	$ 533.3
2012	$ 294.7	$ 155.5	$ 442.9	$ 2.5	$ 1.3	$ 3.7	$ 74.3	$ 64.9	$ 83.8	$ 2.5	$ 2.2	$ 2.8	$ -	$ 375.0	$ 224.9	$ 534.2
2013	$ 153.3	$ 80.9	$ 228.7	$ 2.3	$ 1.2	$ 3.4	$ 63.8	$ 56.2	$ 71.3	$ 2.7	$ 2.4	$ 3.0	$ -	$ 222.9	$ 141.6	$ 307.3
2014	$ 109.3	$ 57.7	$ 162.5	$ 1.5	$ 0.8	$ 2.3	$ 42.1	$ 37.9	$ 46.4	$ 1.9	$ 1.7	$ 2.0	$ -	$ 155.7	$ 98.9	$ 214.1
2015	$ 78.5	$ 41.4	$ 116.2	$ 0.8	$ 0.4	$ 1.1	$ 23.3	$ 21.8	$ 24.8	$ 1.1	$ 1.0	$ 1.1	$ -	$ 104.3	$ 65.4	$ 144.0
2016	$ 73.4	$ 38.7	$ 108.6	$ 0.7	$ 0.4	$ 1.0	$ 21.8	$ 20.4	$ 23.2	$ 1.0	$ 0.9	$ 1.0	$ -	$ 97.5	$ 61.1	$ 134.6
2017	$ 68.6	$ 36.2	$ 101.5	$ 0.7	$ 0.4	$ 1.0	$ 20.3	$ 19.0	$ 21.7	$ 0.9	$ 0.9	$ 1.0	$ -	$ 91.1	$ 57.1	$ 125.8
2018	$ 64.1	$ 33.8	$ 94.9	$ 0.6	$ 0.3	$ 0.9	$ 19.0	$ 17.8	$ 20.2	$ 0.9	$ 0.8	$ 0.9	$ -	$ 85.2	$ 53.4	$ 117.5
2019	$ 59.9	$ 31.6	$ 88.7	$ 0.6	$ 0.3	$ 0.8	$ 17.8	$ 16.6	$ 18.9	$ 0.8	$ 0.8	$ 0.8	$ -	$ 79.6	$ 49.9	$ 109.8
2020	$ 56.0	$ 29.5	$ 82.9	$ 0.5	$ 0.3	$ 0.8	$ 16.6	$ 15.5	$ 17.7	$ 0.8	$ 0.7	$ 0.8	$ -	$ 74.4	$ 46.6	$ 102.7
2021	$ 52.3	$ 27.6	$ 77.4	$ 0.5	$ 0.3	$ 0.7	$ 15.5	$ 14.5	$ 16.5	$ 0.7	$ 0.7	$ 0.7	$ -	$ 69.5	$ 43.6	$ 95.9
2022	$ 48.9	$ 25.8	$ 72.4	$ 0.5	$ 0.3	$ 0.7	$ 14.5	$ 13.6	$ 15.4	$ 0.7	$ 0.6	$ 0.7	$ -	$ 65.0	$ 40.7	$ 89.7
2023	$ 45.7	$ 24.1	$ 67.6	$ 0.4	$ 0.2	$ 0.6	$ 13.6	$ 12.7	$ 14.4	$ 0.6	$ 0.6	$ 0.6	$ -	$ 60.7	$ 38.0	$ 83.8
2024	$ 42.7	$ 22.5	$ 63.2	$ 0.4	$ 0.2	$ 0.6	$ 12.7	$ 11.8	$ 13.5	$ 0.6	$ 0.5	$ 0.6	$ -	$ 56.8	$ 35.6	$ 78.3
2025	$ 39.9	$ 21.1	$ 59.1	$ 0.4	$ 0.2	$ 0.6	$ 11.8	$ 11.1	$ 12.6	$ 0.5	$ 0.5	$ 0.6	$ -	$ 53.0	$ 33.2	$ 73.2
2026	$ 37.3	$ 19.7	$ 55.2	$ 0.4	$ 0.2	$ 0.5	$ 11.1	$ 10.3	$ 11.8	$ 0.5	$ 0.5	$ 0.5	$ -	$ 49.6	$ 31.1	$ 68.4
2027	$ 34.8	$ 18.4	$ 51.6	$ 0.3	$ 0.2	$ 0.5	$ 10.3	$ 9.7	$ 11.0	$ 0.5	$ 0.4	$ 0.5	$ -	$ 46.3	$ 29.0	$ 63.9
2028	$ 32.6	$ 17.2	$ 48.2	$ 0.3	$ 0.2	$ 0.5	$ 9.7	$ 9.0	$ 10.3	$ 0.4	$ 0.4	$ 0.5	$ -	$ 43.3	$ 27.1	$ 59.7
2029	$ 30.4	$ 16.1	$ 45.1	$ 0.3	$ 0.2	$ 0.4	$ 9.0	$ 8.4	$ 9.6	$ 0.4	$ 0.4	$ 0.4	$ -	$ 40.5	$ 25.4	$ 55.8
Total	**$ 2,402.7**	**$ 1,287.3**	**$ 3,574.6**	**$ 20.4**	**$ 11.0**	**$ 30.2**	**$ 626.6**	**$ 562.4**	**$ 690.9**	**$ 24.2**	**$ 22.1**	**$ 26.3**	**$ 8.8**	**$ 3,093.7**	**$ 1,902.5**	**$ 4,341.8**
Ann.	**$ 206.2**	**$ 110.5**	**$ 306.7**	**$ 1.8**	**$ 0.9**	**$ 2.6**	**$ 53.8**	**$ 48.3**	**$ 59.3**	**$ 2.1**	**$ 1.9**	**$ 2.3**	**$ 0.8**	**$ 265.5**	**$ 163.3**	**$ 372.6**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.3a through h.

Exhibit J.3n Present Value of Annual Treatment Cost Projections at 7% Discount Rate
(All Systems)

Alternative 1

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ 195.9	$ 103.1	$ 296.6	$ 0.3	$ 0.1	$ 0.4	$ 16.6	$ 14.3	$ 18.8	$ 0.0	$ 0.0	$ 0.0	$ 212.8	$ 117.6	$ 315.8
2009	$ 237.8	$ 125.3	$ 359.5	$ 1.3	$ 0.7	$ 2.0	$ 44.5	$ 38.2	$ 50.9	$ 1.1	$ 1.0	$ 1.3	$ 284.9	$ 165.2	$ 413.7
2010	$ 258.3	$ 136.1	$ 390.1	$ 2.3	$ 1.2	$ 3.4	$ 66.2	$ 56.7	$ 75.8	$ 2.1	$ 1.8	$ 2.4	$ 328.9	$ 195.8	$ 471.7
2011	$ 241.4	$ 127.2	$ 364.6	$ 2.1	$ 1.1	$ 3.2	$ 61.9	$ 53.0	$ 70.8	$ 2.0	$ 1.7	$ 2.3	$ 307.4	$ 183.0	$ 440.9
2012	$ 225.6	$ 118.9	$ 340.7	$ 2.0	$ 1.1	$ 3.0	$ 57.8	$ 49.5	$ 66.2	$ 1.9	$ 1.6	$ 2.1	$ 287.3	$ 171.0	$ 412.0
2013	$ 71.1	$ 37.6	$ 107.0	$ 1.7	$ 0.9	$ 2.5	$ 42.2	$ 36.0	$ 48.5	$ 1.7	$ 1.5	$ 2.0	$ 116.7	$ 76.0	$ 159.9
2014	$ 27.4	$ 14.5	$ 41.3	$ 0.8	$ 0.4	$ 1.2	$ 18.8	$ 16.0	$ 21.5	$ 0.8	$ 0.7	$ 0.9	$ 47.8	$ 31.6	$ 64.9
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 1,257.5**	**$ 662.7**	**$ 1,899.7**	**$ 10.5**	**$ 5.5**	**$ 15.8**	**$ 308.1**	**$ 263.8**	**$ 352.5**	**$ 9.7**	**$ 8.2**	**$ 11.1**	**$ 1,585.7**	**$ 940.3**	**$ 2,279.0**
Ann.	**$ 107.9**	**$ 56.9**	**$ 163.0**	**$ 0.9**	**$ 0.5**	**$ 1.4**	**$ 26.4**	**$ 22.6**	**$ 30.2**	**$ 0.8**	**$ 0.7**	**$ 1.0**	**$ 136.1**	**$ 80.7**	**$ 195.6**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.3a through h.

Exhibit J.3o Present Value of Annual Treatment Cost Projections at 7% Discount Rate
(All Systems)

Alternative 1

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 16.7	$ 8.9	$ 24.6	$ 0.0	$ 0.0	$ 0.0	$ 1.7	$ 1.5	$ 1.8	$ 0.0	$ 0.0	$ 0.0	$ 18.4	$ 10.4	$ 26.5
2010	$ 35.1	$ 18.7	$ 51.8	$ 0.1	$ 0.1	$ 0.2	$ 5.4	$ 5.0	$ 5.8	$ 0.1	$ 0.1	$ 0.1	$ 40.7	$ 23.8	$ 57.9
2011	$ 53.6	$ 28.5	$ 79.1	$ 0.3	$ 0.2	$ 0.5	$ 10.5	$ 9.7	$ 11.2	$ 0.3	$ 0.3	$ 0.3	$ 64.7	$ 38.7	$ 91.1
2012	$ 69.5	$ 37.0	$ 102.6	$ 0.5	$ 0.3	$ 0.7	$ 14.9	$ 13.8	$ 16.0	$ 0.5	$ 0.4	$ 0.5	$ 85.3	$ 51.5	$ 119.8
2013	$ 83.1	$ 44.3	$ 122.7	$ 0.6	$ 0.3	$ 0.9	$ 18.7	$ 17.3	$ 20.0	$ 0.6	$ 0.5	$ 0.6	$ 103.0	$ 62.4	$ 144.3
2014	$ 82.8	$ 44.1	$ 122.1	$ 0.7	$ 0.4	$ 1.1	$ 20.7	$ 19.2	$ 22.2	$ 0.7	$ 0.7	$ 0.8	$ 104.9	$ 64.3	$ 146.2
2015	$ 79.3	$ 42.2	$ 117.0	$ 0.7	$ 0.4	$ 1.1	$ 20.8	$ 19.3	$ 22.3	$ 0.7	$ 0.7	$ 0.8	$ 101.6	$ 62.6	$ 141.2
2016	$ 74.1	$ 39.5	$ 109.4	$ 0.7	$ 0.4	$ 1.0	$ 19.4	$ 18.0	$ 20.8	$ 0.7	$ 0.6	$ 0.7	$ 94.9	$ 58.5	$ 132.0
2017	$ 69.3	$ 36.9	$ 102.2	$ 0.7	$ 0.3	$ 1.0	$ 18.2	$ 16.8	$ 19.5	$ 0.6	$ 0.6	$ 0.7	$ 88.7	$ 54.7	$ 123.3
2018	$ 64.7	$ 34.5	$ 95.5	$ 0.6	$ 0.3	$ 0.9	$ 17.0	$ 15.7	$ 18.2	$ 0.6	$ 0.6	$ 0.6	$ 82.9	$ 51.1	$ 115.3
2019	$ 60.5	$ 32.2	$ 89.3	$ 0.6	$ 0.3	$ 0.8	$ 15.9	$ 14.7	$ 17.0	$ 0.6	$ 0.5	$ 0.6	$ 77.5	$ 47.8	$ 107.7
2020	$ 56.5	$ 30.1	$ 83.4	$ 0.5	$ 0.3	$ 0.8	$ 14.8	$ 13.7	$ 15.9	$ 0.5	$ 0.5	$ 0.6	$ 72.4	$ 44.6	$ 100.7
2021	$ 52.8	$ 28.1	$ 78.0	$ 0.5	$ 0.3	$ 0.7	$ 13.8	$ 12.8	$ 14.9	$ 0.5	$ 0.5	$ 0.5	$ 67.7	$ 41.7	$ 94.1
2022	$ 49.4	$ 26.3	$ 72.9	$ 0.5	$ 0.2	$ 0.7	$ 12.9	$ 12.0	$ 13.9	$ 0.5	$ 0.4	$ 0.5	$ 63.3	$ 39.0	$ 87.9
2023	$ 46.2	$ 24.6	$ 68.1	$ 0.4	$ 0.2	$ 0.6	$ 12.1	$ 11.2	$ 13.0	$ 0.4	$ 0.4	$ 0.5	$ 59.1	$ 36.4	$ 82.2
2024	$ 43.1	$ 23.0	$ 63.7	$ 0.4	$ 0.2	$ 0.6	$ 11.3	$ 10.5	$ 12.1	$ 0.4	$ 0.4	$ 0.4	$ 55.3	$ 34.0	$ 76.8
2025	$ 40.3	$ 21.5	$ 59.5	$ 0.4	$ 0.2	$ 0.6	$ 10.6	$ 9.8	$ 11.3	$ 0.4	$ 0.3	$ 0.4	$ 51.6	$ 31.8	$ 71.8
2026	$ 37.7	$ 20.1	$ 55.6	$ 0.4	$ 0.2	$ 0.5	$ 9.9	$ 9.2	$ 10.6	$ 0.3	$ 0.3	$ 0.4	$ 48.3	$ 29.7	$ 67.1
2027	$ 35.2	$ 18.8	$ 52.0	$ 0.3	$ 0.2	$ 0.5	$ 9.2	$ 8.6	$ 9.9	$ 0.3	$ 0.3	$ 0.3	$ 45.1	$ 27.8	$ 62.7
2028	$ 32.9	$ 17.5	$ 48.6	$ 0.3	$ 0.2	$ 0.5	$ 8.6	$ 8.0	$ 9.3	$ 0.3	$ 0.3	$ 0.3	$ 42.2	$ 26.0	$ 58.6
2029	$ 30.8	$ 16.4	$ 45.4	$ 0.3	$ 0.2	$ 0.4	$ 8.1	$ 7.5	$ 8.6	$ 0.3	$ 0.3	$ 0.3	$ 39.4	$ 24.3	$ 54.8
Total	**$ 1,113.7**	**$ 593.1**	**$ 1,643.4**	**$ 9.6**	**$ 5.1**	**$ 14.1**	**$ 274.3**	**$ 254.4**	**$ 294.3**	**$ 9.3**	**$ 8.6**	**$ 10.0**	**$ 1,406.9**	**$ 861.2**	**$ 1,961.8**
Ann.	**$ 95.6**	**$ 50.9**	**$ 141.0**	**$ 0.8**	**$ 0.4**	**$ 1.2**	**$ 23.5**	**$ 21.8**	**$ 25.3**	**$ 0.8**	**$ 0.7**	**$ 0.9**	**$ 120.7**	**$ 73.9**	**$ 168.3**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.3a through h.

Exhibit J.3p Present Value of Annual Cost Projections at 7% Discount Rate
(All Systems)

Alternative 1

	Surface Water CWS				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.6	$ -	$ -	$ -	$ -
2006	$ 1.1	$ 6.9	$ -	$ -	$ -
2007	$ -	$ 17.1	$ 0.2	$ -	$ -
2008	$ 0.4	$ 13.3	$ 0.4	$ -	$ -
2009	$ 0.5	$ -	$ 0.6	$ -	$ -
2010	$ 0.4	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.2	$ -
2012	$ -	$ -	$ -	$ (0.4)	$ 0.0
2013	$ -	$ -	$ -	$ (1.1)	$ 0.1
2014	$ -	$ -	$ -	$ (1.0)	$ 0.1
2015	$ -	$ -	$ -	$ (0.9)	$ 0.1
2016	$ -	$ -	$ -	$ (0.9)	$ 0.1
2017	$ -	$ -	$ -	$ (0.8)	$ 0.1
2018	$ -	$ -	$ -	$ (0.7)	$ 0.1
2019	$ -	$ -	$ -	$ (0.7)	$ 0.1
2020	$ -	$ -	$ -	$ (0.7)	$ 0.1
2021	$ -	$ -	$ -	$ (0.6)	$ 0.1
2022	$ -	$ -	$ -	$ (0.6)	$ 0.1
2023	$ -	$ -	$ -	$ (0.5)	$ 0.1
2024	$ -	$ -	$ -	$ (0.5)	$ 0.1
2025	$ -	$ -	$ -	$ (0.5)	$ 0.0
2026	$ -	$ -	$ -	$ (0.4)	$ 0.0
2027	$ -	$ -	$ -	$ (0.4)	$ 0.0
2028	$ -	$ -	$ -	$ (0.4)	$ 0.0
2029	$ -	$ -	$ -	$ (0.4)	$ 0.0
Total	**$ 3.0**	**$ 37.3**	**$ 1.2**	**$ (11.2)**	**$ 1.1**
Ann.	**$ 0.3**	**$ 3.2**	**$ 0.1**	**$ (1.0)**	**$ 0.1**

	Surface Water NTNCWS				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ 0.1	$ 0.0	$ -	$ -	$ -
2007	$ -	$ 0.0	$ 0.0	$ -	$ -
2008	$ 0.0	$ 0.0	$ 0.0	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.2**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**

	Disinfecting Ground Water CWS				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.1	$ -	$ -	$ -	$ -
2006	$ 2.8	$ 0.1	$ -	$ -	$ -
2007	$ -	$ 0.8	$ 0.0	$ -	$ -
2008	$ 0.0	$ 4.7	$ 0.2	$ -	$ -
2009	$ 1.2	$ -	$ 1.7	$ -	$ -
2010	$ 1.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 1.6	$ -
2013	$ -	$ -	$ -	$ 2.9	$ -
2014	$ -	$ -	$ -	$ 2.7	$ -
2015	$ -	$ -	$ -	$ 2.5	$ -
2016	$ -	$ -	$ -	$ 2.3	$ -
2017	$ -	$ -	$ -	$ 2.2	$ -
2018	$ -	$ -	$ -	$ 2.0	$ -
2019	$ -	$ -	$ -	$ 1.9	$ -
2020	$ -	$ -	$ -	$ 1.8	$ -
2021	$ -	$ -	$ -	$ 1.7	$ -
2022	$ -	$ -	$ -	$ 1.6	$ -
2023	$ -	$ -	$ -	$ 1.5	$ -
2024	$ -	$ -	$ -	$ 1.4	$ -
2025	$ -	$ -	$ -	$ 1.3	$ -
2026	$ -	$ -	$ -	$ 1.2	$ -
2027	$ -	$ -	$ -	$ 1.1	$ -
2028	$ -	$ -	$ -	$ 1.0	$ -
2029	$ -	$ -	$ -	$ 1.0	$ -
Total	**$ 5.1**	**$ 5.6**	**$ 1.9**	**$ 31.5**	**$ -**
Ann.	**$ 0.4**	**$ 0.5**	**$ 0.2**	**$ 2.7**	**$ -**

	Disinfecting Ground Water NTNCWS				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ 0.5	$ -	$ -	$ -	$ -
2007	$ -	$ 0.0	$ 0.0	$ -	$ -
2008	$ 0.0	$ 0.0	$ 0.0	$ -	$ -
2009	$ 0.2	$ -	$ 0.3	$ -	$ -
2010	$ 0.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 0.2	$ -
2013	$ -	$ -	$ -	$ 0.4	$ -
2014	$ -	$ -	$ -	$ 0.3	$ -
2015	$ -	$ -	$ -	$ 0.3	$ -
2016	$ -	$ -	$ -	$ 0.3	$ -
2017	$ -	$ -	$ -	$ 0.3	$ -
2018	$ -	$ -	$ -	$ 0.3	$ -
2019	$ -	$ -	$ -	$ 0.2	$ -
2020	$ -	$ -	$ -	$ 0.2	$ -
2021	$ -	$ -	$ -	$ 0.2	$ -
2022	$ -	$ -	$ -	$ 0.2	$ -
2023	$ -	$ -	$ -	$ 0.2	$ -
2024	$ -	$ -	$ -	$ 0.2	$ -
2025	$ -	$ -	$ -	$ 0.2	$ -
2026	$ -	$ -	$ -	$ 0.2	$ -
2027	$ -	$ -	$ -	$ 0.1	$ -
2028	$ -	$ -	$ -	$ 0.1	$ -
2029	$ -	$ -	$ -	$ 0.1	$ -
Total	**$ 0.8**	**$ 0.0**	**$ 0.3**	**$ 4.1**	**$ -**
Ann.	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.3**	**$ -**

	Total				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.7	$ -	$ -	$ -	$ -
2006	$ 4.4	$ 7.0	$ -	$ -	$ -
2007	$ -	$ 18.0	$ 0.2	$ -	$ -
2008	$ 0.5	$ 18.0	$ 0.6	$ -	$ -
2009	$ 1.9	$ -	$ 2.6	$ -	$ -
2010	$ 1.7	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.3	$ -
2012	$ -	$ -	$ -	$ 1.4	$ 0.0
2013	$ -	$ -	$ -	$ 2.2	$ 0.1
2014	$ -	$ -	$ -	$ 2.1	$ 0.1
2015	$ -	$ -	$ -	$ 1.9	$ 0.1
2016	$ -	$ -	$ -	$ 1.8	$ 0.1
2017	$ -	$ -	$ -	$ 1.7	$ 0.1
2018	$ -	$ -	$ -	$ 1.6	$ 0.1
2019	$ -	$ -	$ -	$ 1.5	$ 0.1
2020	$ -	$ -	$ -	$ 1.4	$ 0.1
2021	$ -	$ -	$ -	$ 1.3	$ 0.1
2022	$ -	$ -	$ -	$ 1.2	$ 0.1
2023	$ -	$ -	$ -	$ 1.1	$ 0.1
2024	$ -	$ -	$ -	$ 1.0	$ 0.1
2025	$ -	$ -	$ -	$ 1.0	$ 0.0
2026	$ -	$ -	$ -	$ 0.9	$ 0.0
2027	$ -	$ -	$ -	$ 0.9	$ 0.0
2028	$ -	$ -	$ -	$ 0.8	$ 0.0
2029	$ -	$ -	$ -	$ 0.7	$ 0.0
Total	**$ 9.1**	**$ 43.0**	**$ 3.4**	**$ 24.6**	**$ 1.1**
Ann.	**$ 0.8**	**$ 3.7**	**$ 0.3**	**$ 2.1**	**$ 0.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.3a through h.

Section J.4
Cost Projections (Alternative 2)

Exhibit J.4a Projections of Stage 2 DBPR PWS Costs

(All Surface Water CWSs)

Alternative 2

Year	Treatment Capital Costs: Mean Value	Treatment Capital Costs: 90 Percent Confidence Bound: Lower (5th %tile)	Treatment Capital Costs: 90 Percent Confidence Bound: Upper (95th %tile)	Treatment O&M Costs: Mean Value	Treatment O&M Costs: 90 Percent Confidence Bound: Lower (5th %tile)	Treatment O&M Costs: 90 Percent Confidence Bound: Upper (95th %tile)	Non-Treatment Costs: Implementation	Non-Treatment Costs: IDSE	Non-Treatment Costs: Monitoring Plans	Non-Treatment Costs: Monitoring	Non-Treatment Costs: Significant Excursion	All Stage 2 DBPR Costs: Mean Value	All Stage 2 DBPR Costs: 90 Percent Confidence Bound: Lower (5th %tile)	All Stage 2 DBPR Costs: 90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.69	$ -	$ -	$ -	$ -	$ 0.69	$ 0.69	$ 0.69
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.34	$ 8.46	$ -	$ -	$ -	$ 9.80	$ 9.80	$ 9.80
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.45	$ 0.22	$ -	$ -	$ 22.67	$ 22.67	$ 22.67
2008	$ 463.79	$ 384.09	$ 547.91	$ -	$ -	$ -	$ 0.60	$ 18.62	$ 0.62	$ -	$ -	$ 483.62	$ 403.92	$ 567.74
2009	$ 694.08	$ 574.54	$ 820.65	$ 26.85	$ 22.67	$ 31.13	$ 0.75	$ -	$ 0.88	$ -	$ -	$ 722.56	$ 598.85	$ 853.41
2010	$ 874.24	$ 723.50	$ 1,034.12	$ 70.85	$ 59.82	$ 82.15	$ 0.67	$ -	$ -	$ -	$ -	$ 945.75	$ 783.98	$ 1,116.94
2011	$ 874.24	$ 723.50	$ 1,034.12	$ 129.42	$ 109.25	$ 150.09	$ -	$ -	$ -	$ 0.42	$ -	$ 1,004.08	$ 833.17	$ 1,184.63
2012	$ 874.24	$ 723.50	$ 1,034.12	$ 188.00	$ 158.68	$ 218.03	$ -	$ -	$ -	$ (0.77)	$ 0.06	$ 1,061.53	$ 881.47	$ 1,251.44
2013	$ 410.45	$ 339.41	$ 486.21	$ 246.57	$ 208.12	$ 285.97	$ -	$ -	$ -	$ (2.07)	$ 0.15	$ 655.10	$ 545.60	$ 770.26
2014	$ 180.16	$ 148.95	$ 213.47	$ 278.29	$ 234.87	$ 322.78	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 456.60	$ 381.97	$ 534.40
2015	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2016	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2017	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2018	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2019	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2020	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2021	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2022	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2023	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2024	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2025	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2026	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2027	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2028	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84
2029	$ -	$ -	$ -	$ 292.87	$ 247.17	$ 339.70	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 291.01	$ 245.31	$ 337.84

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1c and Exhibits D.1 through D.6.

Exhibit J.4b Projections of Stage 2 DBPR PWS Costs

(All Surface Water NTNCWSs)

Alternative 2

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.08	$ 0.01	$ -	$ -	$ -	$ 0.09	$ 0.09	$ 0.09
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.04	$ 0.00	$ -	$ -	$ 0.04	$ 0.04	$ 0.04
2008	$ 0.63	$ 0.52	$ 0.75	$ -	$ -	$ -	$ 0.00	$ 0.02	$ 0.00	$ -	$ -	$ 0.66	$ 0.55	$ 0.77
2009	$ 7.70	$ 6.37	$ 9.13	$ 0.03	$ 0.03	$ 0.04	$ 0.04	$ -	$ 0.04	$ -	$ -	$ 7.81	$ 6.47	$ 9.25
2010	$ 14.77	$ 12.21	$ 17.51	$ 0.99	$ 0.83	$ 1.15	$ 0.04	$ -	$ -	$ -	$ -	$ 15.80	$ 13.08	$ 18.70
2011	$ 14.77	$ 12.21	$ 17.51	$ 2.86	$ 2.41	$ 3.32	$ -	$ -	$ -	$ 0.00	$ -	$ 17.63	$ 14.62	$ 20.84
2012	$ 14.77	$ 12.21	$ 17.51	$ 4.73	$ 3.98	$ 5.50	$ -	$ -	$ -	$ 0.02	$ -	$ 19.52	$ 16.21	$ 23.03
2013	$ 14.14	$ 11.69	$ 16.77	$ 6.60	$ 5.56	$ 7.68	$ -	$ -	$ -	$ 0.03	$ -	$ 20.77	$ 17.28	$ 24.47
2014	$ 7.07	$ 5.84	$ 8.38	$ 8.44	$ 7.11	$ 9.82	$ -	$ -	$ -	$ 0.03	$ -	$ 15.54	$ 12.98	$ 18.23
2015	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2016	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2017	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2018	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2019	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2020	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2021	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2022	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2023	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2024	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2025	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2026	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2027	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2028	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91
2029	$ -	$ -	$ -	$ 9.36	$ 7.88	$ 10.89	$ -	$ -	$ -	$ 0.03	$ -	$ 9.39	$ 7.91	$ 10.91

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1c and Exhibits D.1 through D.6.

Exhibit J.4c Projections of Stage 2 DBPR PWS Costs

(All Surface Water Systems)

Alternative 2

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.69	$ -	$ -	$ -	$ -	$ 0.69	$ 0.69	$ 0.69
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.42	$ 8.48	$ -	$ -	$ -	$ 9.90	$ 9.90	$ 9.90
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.49	$ 0.22	$ -	$ -	$ 22.71	$ 22.71	$ 22.71
2008	$ 464.42	$ 384.61	$ 548.66	$ -	$ -	$ -	$ 0.60	$ 18.64	$ 0.62	$ -	$ -	$ 484.28	$ 404.47	$ 568.52
2009	$ 701.78	$ 580.91	$ 829.78	$ 26.88	$ 22.70	$ 31.17	$ 0.79	$ -	$ 0.91	$ -	$ -	$ 730.37	$ 605.32	$ 862.65
2010	$ 889.01	$ 735.71	$ 1,051.64	$ 71.84	$ 60.65	$ 83.30	$ 0.71	$ -	$ -	$ -	$ -	$ 961.55	$ 797.07	$ 1,135.64
2011	$ 889.01	$ 735.71	$ 1,051.64	$ 132.28	$ 111.66	$ 153.41	$ -	$ -	$ -	$ 0.42	$ -	$ 1,021.71	$ 847.79	$ 1,205.47
2012	$ 889.01	$ 735.71	$ 1,051.64	$ 192.73	$ 162.67	$ 223.53	$ -	$ -	$ -	$ (0.75)	$ 0.06	$ 1,081.04	$ 897.69	$ 1,274.48
2013	$ 424.58	$ 351.10	$ 502.98	$ 253.17	$ 213.68	$ 293.65	$ -	$ -	$ -	$ (2.04)	$ 0.15	$ 675.87	$ 562.88	$ 794.73
2014	$ 187.23	$ 154.80	$ 221.85	$ 286.74	$ 241.98	$ 332.60	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 472.14	$ 394.95	$ 552.63
2015	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2016	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2017	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2018	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2019	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2020	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2021	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2022	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2023	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2024	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2025	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2026	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2027	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2028	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76
2029	$ -	$ -	$ -	$ 302.23	$ 255.05	$ 350.58	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 300.40	$ 253.22	$ 348.76

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1c and Exhibits D.1 through D.6.

Exhibit J.4d Projections of Stage 2 DBPR PWS Costs
(All Ground Water CWSs)

Alternative 2

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.42	$ 0.09	$ -	$ -	$ -	$ 3.51	$ 3.51	$ 3.51
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.09	$ 0.02	$ -	$ -	$ 1.11	$ 1.11	$ 1.11
2008	$ 16.58	$ 14.40	$ 18.77	$ -	$ -	$ -	$ 0.05	$ 6.66	$ 0.22	$ -	$ -	$ 23.50	$ 21.31	$ 25.69
2009	$ 50.81	$ 44.04	$ 57.56	$ 1.70	$ 1.56	$ 1.83	$ 1.73	$ -	$ 2.58	$ -	$ -	$ 56.82	$ 49.92	$ 63.70
2010	$ 81.96	$ 71.01	$ 92.89	$ 6.03	$ 5.58	$ 6.47	$ 1.71	$ -	$ -	$ -	$ -	$ 89.70	$ 78.30	$ 101.08
2011	$ 81.96	$ 71.01	$ 92.89	$ 12.71	$ 11.81	$ 13.62	$ -	$ -	$ -	$ 0.08	$ -	$ 94.75	$ 82.89	$ 106.59
2012	$ 81.96	$ 71.01	$ 92.89	$ 19.40	$ 18.03	$ 20.77	$ -	$ -	$ -	$ 2.95	$ -	$ 104.31	$ 91.99	$ 116.61
2013	$ 65.38	$ 56.61	$ 74.12	$ 26.08	$ 24.25	$ 27.92	$ -	$ -	$ -	$ 5.63	$ -	$ 97.09	$ 86.49	$ 107.67
2014	$ 31.16	$ 26.96	$ 35.34	$ 31.07	$ 28.91	$ 33.23	$ -	$ -	$ -	$ 5.63	$ -	$ 67.85	$ 61.50	$ 74.20
2015	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2016	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2017	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2018	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2019	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2020	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2021	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2022	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2023	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2024	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2025	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2026	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2027	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2028	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37
2029	$ -	$ -	$ -	$ 33.42	$ 31.11	$ 35.74	$ -	$ -	$ -	$ 5.63	$ -	$ 39.05	$ 36.74	$ 41.37

Note: All values in millions of year 2003 dollars.
Source: Derived from Exhibits J.1c and Exhibits D.1 through D.6.

Exhibit J.4e Projections of Stage 2 DBPR PWS Costs

(All Ground Water NTNCWSs)

Alternative 2

Year	Treatment Capital Costs: Mean Value	Treatment Capital Costs: 90 Percent Confidence Bound: Lower (5th %tile)	Treatment Capital Costs: 90 Percent Confidence Bound: Upper (95th %tile)	Treatment O&M Costs: Mean Value	Treatment O&M Costs: 90 Percent Confidence Bound: Lower (5th %tile)	Treatment O&M Costs: 90 Percent Confidence Bound: Upper (95th %tile)	Non-Treatment Costs: Implementation	Non-Treatment Costs: IDSE	Non-Treatment Costs: Monitoring Plans	Non-Treatment Costs: Monitoring	Non-Treatment Costs: Significant Excursion	All Stage 2 DBPR Costs: Mean Value	All Stage 2 DBPR Costs: 90 Percent Confidence Bound: Lower (5th %tile)	All Stage 2 DBPR Costs: 90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.56	$ -	$ -	$ -	$ -	$ 0.56	$ 0.56	$ 0.56
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2008	$ 0.02	$ 0.01	$ 0.02	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ 0.02	$ 0.02	$ 0.02
2009	$ 1.60	$ 1.38	$ 1.82	$ 0.00	$ 0.00	$ 0.00	$ 0.28	$ -	$ 0.46	$ -	$ -	$ 2.35	$ 2.12	$ 2.57
2010	$ 3.18	$ 2.74	$ 3.62	$ 0.13	$ 0.12	$ 0.14	$ 0.28	$ -	$ -	$ -	$ -	$ 3.59	$ 3.14	$ 4.04
2011	$ 3.18	$ 2.74	$ 3.62	$ 0.39	$ 0.37	$ 0.42	$ -	$ -	$ -	$ 0.00	$ -	$ 3.58	$ 3.11	$ 4.04
2012	$ 3.18	$ 2.74	$ 3.62	$ 0.65	$ 0.61	$ 0.70	$ -	$ -	$ -	$ 0.37	$ -	$ 4.20	$ 3.72	$ 4.68
2013	$ 3.17	$ 2.73	$ 3.60	$ 0.91	$ 0.85	$ 0.97	$ -	$ -	$ -	$ 0.73	$ -	$ 4.81	$ 4.31	$ 5.30
2014	$ 1.58	$ 1.36	$ 1.80	$ 1.17	$ 1.09	$ 1.25	$ -	$ -	$ -	$ 0.73	$ -	$ 3.48	$ 3.18	$ 3.78
2015	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2016	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2017	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2018	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2019	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2020	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2021	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2022	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2023	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2024	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2025	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2026	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2027	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2028	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12
2029	$ -	$ -	$ -	$ 1.30	$ 1.21	$ 1.39	$ -	$ -	$ -	$ 0.73	$ -	$ 2.03	$ 1.94	$ 2.12

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1c and Exhibits D.1 through D.6.

Exhibit J.4f Projections of Stage 2 DBPR PWS Costs

(All Ground Water Systems)

Alternative 2

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.98	$ 0.09	$ -	$ -	$ -	$ 4.07	$ 4.07	$ 4.07
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.09	$ 0.02	$ -	$ -	$ 1.11	$ 1.11	$ 1.11
2008	$ 16.60	$ 14.41	$ 18.79	$ -	$ -	$ -	$ 0.05	$ 6.66	$ 0.22	$ -	$ -	$ 23.52	$ 21.33	$ 25.71
2009	$ 52.41	$ 45.42	$ 59.38	$ 1.70	$ 1.56	$ 1.83	$ 2.01	$ -	$ 3.04	$ -	$ -	$ 59.16	$ 52.04	$ 66.27
2010	$ 85.15	$ 73.75	$ 96.51	$ 6.16	$ 5.71	$ 6.61	$ 1.99	$ -	$ -	$ -	$ -	$ 93.30	$ 81.45	$ 105.12
2011	$ 85.15	$ 73.75	$ 96.51	$ 13.11	$ 12.17	$ 14.04	$ -	$ -	$ -	$ 0.08	$ -	$ 98.33	$ 86.00	$ 110.63
2012	$ 85.15	$ 73.75	$ 96.51	$ 20.05	$ 18.64	$ 21.47	$ -	$ -	$ -	$ 3.32	$ -	$ 108.52	$ 95.70	$ 121.30
2013	$ 68.55	$ 59.34	$ 77.73	$ 26.99	$ 25.10	$ 28.89	$ -	$ -	$ -	$ 6.36	$ -	$ 101.90	$ 90.80	$ 112.98
2014	$ 32.74	$ 28.32	$ 37.13	$ 32.24	$ 30.00	$ 34.48	$ -	$ -	$ -	$ 6.36	$ -	$ 71.33	$ 64.68	$ 77.98
2015	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2016	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2017	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2018	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2019	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2020	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2021	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2022	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2023	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2024	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2025	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2026	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2027	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2028	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49
2029	$ -	$ -	$ -	$ 34.72	$ 32.32	$ 37.13	$ -	$ -	$ -	$ 6.36	$ -	$ 41.08	$ 38.68	$ 43.49

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1c and Exhibits D.1 through D.6.

Exhibit J.4g Projections of Stage 2 DBPR PWS Costs
(All Systems)

Alternative 2

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.76	$ -	$ -	$ -	$ -	$ 0.76	$ 0.76	$ 0.76
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 5.40	$ 8.56	$ -	$ -	$ -	$ 13.96	$ 13.96	$ 13.96
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 23.58	$ 0.24	$ -	$ -	$ 23.81	$ 23.81	$ 23.81
2008	$ 481.02	$ 399.03	$ 567.44	$ -	$ -	$ -	$ 0.65	$ 25.30	$ 0.83	$ -	$ -	$ 507.80	$ 425.80	$ 594.22
2009	$ 754.19	$ 626.34	$ 889.16	$ 28.58	$ 24.27	$ 33.00	$ 2.81	$ -	$ 3.95	$ -	$ -	$ 789.53	$ 657.36	$ 928.92
2010	$ 974.15	$ 809.46	$ 1,148.15	$ 78.00	$ 66.36	$ 89.91	$ 2.70	$ -	$ -	$ -	$ -	$ 1,054.85	$ 878.51	$ 1,240.76
2011	$ 974.15	$ 809.46	$ 1,148.15	$ 145.39	$ 123.83	$ 167.45	$ -	$ -	$ -	$ 0.51	$ -	$ 1,120.05	$ 933.79	$ 1,316.11
2012	$ 974.15	$ 809.46	$ 1,148.15	$ 212.78	$ 181.30	$ 245.00	$ -	$ -	$ -	$ 2.57	$ 0.06	$ 1,189.56	$ 993.39	$ 1,395.77
2013	$ 493.13	$ 410.43	$ 580.70	$ 280.17	$ 238.78	$ 322.54	$ -	$ -	$ -	$ 4.32	$ 0.15	$ 777.77	$ 653.68	$ 907.71
2014	$ 219.96	$ 183.12	$ 258.99	$ 318.98	$ 271.98	$ 367.08	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 543.47	$ 459.64	$ 630.60
2015	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2016	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2017	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2018	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2019	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2020	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2021	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2022	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2023	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2024	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2025	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2026	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2027	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2028	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25
2029	$ -	$ -	$ -	$ 336.95	$ 287.37	$ 387.71	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 341.48	$ 291.90	$ 392.25

Note: All values in millions of year 2003 dollars.
Source: Derived from Exhibits J.1c and Exhibits D.1 through D.6.

Exhibit J.4h Projections of Stage 2 DBPR Primacy Agency Costs

Alternative 2

Year	Implementation Costs	IDSE Costs	Monitoring Plan Costs	Compliance Monitoring Costs	Significant Excursion Report Costs
2005	$ 3.88	$ -	$ -	$ -	$ -
2006	$ 3.88	$ 0.04	$ -	$ -	$ -
2007	$ -	$ 0.13	$ 0.02	$ -	$ -
2008	$ -	$ 2.06	$ 0.06	$ -	$ -
2009	$ -	$ -	$ 0.85	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 1.59	$ 0.11
2012	$ -	$ -	$ -	$ 1.59	$ 0.11
2013	$ -	$ -	$ -	$ 1.59	$ 0.11
2014	$ -	$ -	$ -	$ 1.59	$ 0.11
2015	$ -	$ -	$ -	$ 1.59	$ 0.11
2016	$ -	$ -	$ -	$ 1.59	$ 0.11
2017	$ -	$ -	$ -	$ 1.59	$ 0.11
2018	$ -	$ -	$ -	$ 1.59	$ 0.11
2019	$ -	$ -	$ -	$ 1.59	$ 0.11
2020	$ -	$ -	$ -	$ 1.59	$ 0.11
2021	$ -	$ -	$ -	$ 1.59	$ 0.11
2022	$ -	$ -	$ -	$ 1.59	$ 0.11
2023	$ -	$ -	$ -	$ 1.59	$ 0.11
2024	$ -	$ -	$ -	$ 1.59	$ 0.11
2025	$ -	$ -	$ -	$ 1.59	$ 0.11
2026	$ -	$ -	$ -	$ 1.59	$ 0.11
2027	$ -	$ -	$ -	$ 1.59	$ 0.11
2028	$ -	$ -	$ -	$ 1.59	$ 0.11
2029	$ -	$ -	$ -	$ 1.59	$ 0.11

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1h and D.7.

Exhibit J.4i Present Value of Annual Cost Projections at 3% Discount Rate
(All Systems and Primacy Agencies)

Alternative 2

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Primacy Agencies	Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound				90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Point Estimate	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.6	$ 0.6	$ 0.6	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 3.7	$ 4.4	$ 4.4	$ 4.4
2006	$ 9.0	$ 9.0	$ 9.0	$ 0.1	$ 0.1	$ 0.1	$ 3.2	$ 3.2	$ 3.2	$ 0.5	$ 0.5	$ 0.5	$ 3.6	$ 16.4	$ 16.4	$ 16.4
2007	$ 20.1	$ 20.1	$ 20.1	$ 0.0	$ 0.0	$ 0.0	$ 1.0	$ 1.0	$ 1.0	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 21.3	$ 21.3	$ 21.3
2008	$ 417.2	$ 348.4	$ 489.7	$ 0.6	$ 0.5	$ 0.7	$ 20.3	$ 18.4	$ 22.2	$ 0.0	$ 0.0	$ 0.0	$ 1.8	$ 439.9	$ 369.1	$ 514.4
2009	$ 605.1	$ 501.5	$ 714.7	$ 6.5	$ 5.4	$ 7.7	$ 47.6	$ 41.8	$ 53.3	$ 2.0	$ 1.8	$ 2.1	$ 0.7	$ 661.9	$ 551.2	$ 778.7
2010	$ 769.0	$ 637.5	$ 908.2	$ 12.8	$ 10.6	$ 15.2	$ 72.9	$ 63.7	$ 82.2	$ 2.9	$ 2.6	$ 3.3	$ -	$ 857.7	$ 714.3	$ 1,008.8
2011	$ 792.6	$ 657.7	$ 935.2	$ 13.9	$ 11.5	$ 16.5	$ 74.8	$ 65.4	$ 84.1	$ 2.8	$ 2.5	$ 3.2	$ 1.3	$ 885.5	$ 738.5	$ 1,040.3
2012	$ 813.6	$ 675.6	$ 959.1	$ 15.0	$ 12.4	$ 17.7	$ 79.9	$ 70.5	$ 89.4	$ 3.2	$ 2.8	$ 3.6	$ 1.3	$ 913.0	$ 762.7	$ 1,071.1
2013	$ 487.5	$ 406.0	$ 573.1	$ 15.5	$ 12.9	$ 18.2	$ 72.2	$ 64.4	$ 80.1	$ 3.6	$ 3.2	$ 3.9	$ 1.3	$ 580.0	$ 487.7	$ 676.7
2014	$ 329.9	$ 275.9	$ 386.1	$ 11.2	$ 9.4	$ 13.2	$ 49.0	$ 44.4	$ 53.6	$ 2.5	$ 2.3	$ 2.7	$ 1.2	$ 393.8	$ 333.3	$ 456.8
2015	$ 204.1	$ 172.1	$ 237.0	$ 6.6	$ 5.5	$ 7.7	$ 27.4	$ 25.8	$ 29.0	$ 1.4	$ 1.4	$ 1.5	$ 1.2	$ 240.7	$ 205.9	$ 276.3
2016	$ 198.2	$ 167.0	$ 230.1	$ 6.4	$ 5.4	$ 7.4	$ 26.6	$ 25.0	$ 28.2	$ 1.4	$ 1.3	$ 1.4	$ 1.2	$ 233.7	$ 199.9	$ 268.3
2017	$ 192.4	$ 162.2	$ 223.4	$ 6.2	$ 5.2	$ 7.2	$ 25.8	$ 24.3	$ 27.4	$ 1.3	$ 1.3	$ 1.4	$ 1.1	$ 226.9	$ 194.1	$ 260.4
2018	$ 186.8	$ 157.5	$ 216.8	$ 6.0	$ 5.1	$ 7.0	$ 25.1	$ 23.6	$ 26.6	$ 1.3	$ 1.2	$ 1.4	$ 1.1	$ 220.3	$ 188.5	$ 252.9
2019	$ 181.3	$ 152.9	$ 210.5	$ 5.9	$ 4.9	$ 6.8	$ 24.3	$ 22.9	$ 25.8	$ 1.3	$ 1.2	$ 1.3	$ 1.1	$ 213.9	$ 183.0	$ 245.5
2020	$ 176.1	$ 148.4	$ 204.4	$ 5.7	$ 4.8	$ 6.6	$ 23.6	$ 22.2	$ 25.0	$ 1.2	$ 1.2	$ 1.3	$ 1.0	$ 207.6	$ 177.6	$ 238.3
2021	$ 170.9	$ 144.1	$ 198.4	$ 5.5	$ 4.6	$ 6.4	$ 22.9	$ 21.6	$ 24.3	$ 1.2	$ 1.1	$ 1.2	$ 1.0	$ 201.6	$ 172.5	$ 231.4
2022	$ 166.0	$ 139.9	$ 192.7	$ 5.4	$ 4.5	$ 6.2	$ 22.3	$ 21.0	$ 23.6	$ 1.2	$ 1.1	$ 1.2	$ 1.0	$ 195.7	$ 167.4	$ 224.7
2023	$ 161.1	$ 135.8	$ 187.1	$ 5.2	$ 4.4	$ 6.0	$ 21.6	$ 20.3	$ 22.9	$ 1.1	$ 1.1	$ 1.2	$ 0.9	$ 190.0	$ 162.6	$ 218.1
2024	$ 156.4	$ 131.9	$ 181.6	$ 5.0	$ 4.3	$ 5.9	$ 21.0	$ 19.7	$ 22.2	$ 1.1	$ 1.0	$ 1.1	$ 0.9	$ 184.5	$ 157.8	$ 211.8
2025	$ 151.9	$ 128.0	$ 176.3	$ 4.9	$ 4.1	$ 5.7	$ 20.4	$ 19.2	$ 21.6	$ 1.1	$ 1.0	$ 1.1	$ 0.9	$ 179.1	$ 153.2	$ 205.6
2026	$ 147.5	$ 124.3	$ 171.2	$ 4.8	$ 4.0	$ 5.5	$ 19.8	$ 18.6	$ 21.0	$ 1.0	$ 1.0	$ 1.1	$ 0.9	$ 173.9	$ 148.8	$ 199.6
2027	$ 143.2	$ 120.7	$ 166.2	$ 4.6	$ 3.9	$ 5.4	$ 19.2	$ 18.1	$ 20.4	$ 1.0	$ 1.0	$ 1.0	$ 0.8	$ 168.8	$ 144.4	$ 193.8
2028	$ 139.0	$ 117.2	$ 161.4	$ 4.5	$ 3.8	$ 5.2	$ 18.7	$ 17.5	$ 19.8	$ 1.0	$ 0.9	$ 1.0	$ 0.8	$ 163.9	$ 140.2	$ 188.2
2029	$ 134.9	$ 113.7	$ 156.7	$ 4.4	$ 3.7	$ 5.1	$ 18.1	$ 17.0	$ 19.2	$ 0.9	$ 0.9	$ 1.0	$ 0.8	$ 159.1	$ 136.1	$ 182.7
Total	**$ 6,754.3**	**$ 5,648.0**	**$ 7,909.5**	**$ 156.6**	**$ 131.1**	**$ 183.3**	**$ 757.9**	**$ 689.7**	**$ 826.0**	**$ 35.0**	**$ 32.4**	**$ 37.7**	**$ 29.8**	**$ 7,733.7**	**$ 6,530.9**	**$ 8,986.3**
Ann.	**$ 387.9**	**$ 324.4**	**$ 454.2**	**$ 9.0**	**$ 7.5**	**$ 10.5**	**$ 43.5**	**$ 39.6**	**$ 47.4**	**$ 2.0**	**$ 1.9**	**$ 2.2**	**$ 1.7**	**$ 444.1**	**$ 375.1**	**$ 516.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.4a through h.

Exhibit J.4j Present Value of Annual Treatment Cost Projections at 3% Discount Rate
(All Systems)

Alternative 2

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ 400.1	$ 331.3	$ 472.6	$ 0.5	$ 0.5	$ 0.6	$ 14.3	$ 12.4	$ 16.2	$ 0.0	$ 0.0	$ 0.0	$ 414.9	$ 344.2	$ 489.5
2009	$ 581.3	$ 481.2	$ 687.3	$ 6.5	$ 5.3	$ 7.6	$ 42.6	$ 36.9	$ 48.2	$ 1.3	$ 1.2	$ 1.5	$ 631.6	$ 524.5	$ 744.7
2010	$ 710.8	$ 588.3	$ 840.8	$ 12.0	$ 9.9	$ 14.2	$ 66.6	$ 57.7	$ 75.5	$ 2.6	$ 2.2	$ 2.9	$ 792.1	$ 658.2	$ 933.6
2011	$ 690.1	$ 571.1	$ 816.3	$ 11.7	$ 9.6	$ 13.8	$ 64.7	$ 56.1	$ 73.3	$ 2.5	$ 2.2	$ 2.9	$ 769.0	$ 639.0	$ 906.4
2012	$ 670.0	$ 554.5	$ 792.6	$ 11.3	$ 9.4	$ 13.4	$ 62.8	$ 54.4	$ 71.2	$ 2.4	$ 2.1	$ 2.8	$ 746.6	$ 620.4	$ 880.0
2013	$ 305.4	$ 252.6	$ 361.8	$ 10.5	$ 8.7	$ 12.5	$ 48.6	$ 42.1	$ 55.2	$ 2.4	$ 2.0	$ 2.7	$ 366.9	$ 305.4	$ 432.1
2014	$ 130.2	$ 107.6	$ 154.2	$ 5.1	$ 4.2	$ 6.1	$ 22.5	$ 19.5	$ 25.5	$ 1.1	$ 1.0	$ 1.3	$ 158.9	$ 132.3	$ 187.1
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 3,487.9**	**$ 2,886.6**	**$ 4,125.7**	**$ 57.6**	**$ 47.6**	**$ 68.3**	**$ 322.2**	**$ 279.1**	**$ 365.1**	**$ 12.4**	**$ 10.7**	**$ 14.1**	**$ 3,880.1**	**$ 3,224.0**	**$ 4,573.2**
Ann.	**$ 200.3**	**$ 165.8**	**$ 236.9**	**$ 3.3**	**$ 2.7**	**$ 3.9**	**$ 18.5**	**$ 16.0**	**$ 21.0**	**$ 0.7**	**$ 0.6**	**$ 0.8**	**$ 222.8**	**$ 185.1**	**$ 262.6**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.4a through h.

Exhibit J.4k Present Value of Annual Treatment Cost Projections at 3% Discount Rate
(All Systems)

Alternative 2

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 22.5	$ 19.0	$ 26.1	$ 0.0	$ 0.0	$ 0.0	$ 1.4	$ 1.3	$ 1.5	$ 0.0	$ 0.0	$ 0.0	$ 23.9	$ 20.3	$ 27.6
2010	$ 57.6	$ 48.6	$ 66.8	$ 0.8	$ 0.7	$ 0.9	$ 4.9	$ 4.5	$ 5.3	$ 0.1	$ 0.1	$ 0.1	$ 63.4	$ 54.0	$ 73.1
2011	$ 102.2	$ 86.2	$ 118.5	$ 2.3	$ 1.9	$ 2.6	$ 10.0	$ 9.3	$ 10.8	$ 0.3	$ 0.3	$ 0.3	$ 114.8	$ 97.8	$ 132.2
2012	$ 144.1	$ 121.6	$ 167.1	$ 3.6	$ 3.1	$ 4.2	$ 14.9	$ 13.8	$ 15.9	$ 0.5	$ 0.5	$ 0.5	$ 163.1	$ 139.0	$ 187.8
2013	$ 183.5	$ 154.9	$ 212.8	$ 4.9	$ 4.1	$ 5.7	$ 19.4	$ 18.0	$ 20.8	$ 0.7	$ 0.6	$ 0.7	$ 208.5	$ 177.7	$ 240.0
2014	$ 201.0	$ 169.7	$ 233.2	$ 6.1	$ 5.1	$ 7.1	$ 22.4	$ 20.9	$ 24.0	$ 0.8	$ 0.8	$ 0.9	$ 230.4	$ 196.5	$ 265.2
2015	$ 205.4	$ 173.4	$ 238.3	$ 6.6	$ 5.5	$ 7.6	$ 23.4	$ 21.8	$ 25.1	$ 0.9	$ 0.9	$ 1.0	$ 236.3	$ 201.6	$ 271.9
2016	$ 199.4	$ 168.3	$ 231.3	$ 6.4	$ 5.4	$ 7.4	$ 22.8	$ 21.2	$ 24.3	$ 0.9	$ 0.8	$ 0.9	$ 229.4	$ 195.7	$ 264.0
2017	$ 193.6	$ 163.4	$ 224.6	$ 6.2	$ 5.2	$ 7.2	$ 22.1	$ 20.6	$ 23.6	$ 0.9	$ 0.8	$ 0.9	$ 222.8	$ 190.0	$ 256.3
2018	$ 188.0	$ 158.6	$ 218.0	$ 6.0	$ 5.1	$ 7.0	$ 21.5	$ 20.0	$ 22.9	$ 0.8	$ 0.8	$ 0.9	$ 216.3	$ 184.5	$ 248.9
2019	$ 182.5	$ 154.0	$ 211.7	$ 5.8	$ 4.9	$ 6.8	$ 20.8	$ 19.4	$ 22.3	$ 0.8	$ 0.8	$ 0.9	$ 210.0	$ 179.1	$ 241.6
2020	$ 177.2	$ 149.5	$ 205.5	$ 5.7	$ 4.8	$ 6.6	$ 20.2	$ 18.8	$ 21.6	$ 0.8	$ 0.7	$ 0.8	$ 203.9	$ 173.9	$ 234.6
2021	$ 172.0	$ 145.2	$ 199.5	$ 5.5	$ 4.6	$ 6.4	$ 19.6	$ 18.3	$ 21.0	$ 0.8	$ 0.7	$ 0.8	$ 197.9	$ 168.8	$ 227.7
2022	$ 167.0	$ 141.0	$ 193.7	$ 5.3	$ 4.5	$ 6.2	$ 19.1	$ 17.7	$ 20.4	$ 0.7	$ 0.7	$ 0.8	$ 192.2	$ 163.9	$ 221.1
2023	$ 162.2	$ 136.8	$ 188.1	$ 5.2	$ 4.4	$ 6.0	$ 18.5	$ 17.2	$ 19.8	$ 0.7	$ 0.7	$ 0.8	$ 186.6	$ 159.1	$ 214.7
2024	$ 157.4	$ 132.9	$ 182.6	$ 5.0	$ 4.2	$ 5.9	$ 18.0	$ 16.7	$ 19.2	$ 0.7	$ 0.7	$ 0.7	$ 181.1	$ 154.5	$ 208.4
2025	$ 152.8	$ 129.0	$ 177.3	$ 4.9	$ 4.1	$ 5.7	$ 17.4	$ 16.2	$ 18.7	$ 0.7	$ 0.6	$ 0.7	$ 175.9	$ 150.0	$ 202.3
2026	$ 148.4	$ 125.2	$ 172.1	$ 4.7	$ 4.0	$ 5.5	$ 16.9	$ 15.8	$ 18.1	$ 0.7	$ 0.6	$ 0.7	$ 170.7	$ 145.6	$ 196.5
2027	$ 144.1	$ 121.6	$ 167.1	$ 4.6	$ 3.9	$ 5.4	$ 16.4	$ 15.3	$ 17.6	$ 0.6	$ 0.6	$ 0.7	$ 165.8	$ 141.4	$ 190.7
2028	$ 139.9	$ 118.0	$ 162.2	$ 4.5	$ 3.8	$ 5.2	$ 16.0	$ 14.9	$ 17.1	$ 0.6	$ 0.6	$ 0.7	$ 160.9	$ 137.2	$ 185.2
2029	$ 135.8	$ 114.6	$ 157.5	$ 4.3	$ 3.7	$ 5.0	$ 15.5	$ 14.4	$ 16.6	$ 0.6	$ 0.6	$ 0.6	$ 156.2	$ 133.3	$ 179.8
Total	**$ 3,236.6**	**$ 2,731.6**	**$ 3,754.1**	**$ 98.5**	**$ 82.9**	**$ 114.5**	**$ 361.3**	**$ 336.2**	**$ 386.5**	**$ 13.7**	**$ 12.7**	**$ 14.6**	**$ 3,710.1**	**$ 3,163.5**	**$ 4,269.6**
Ann.	**$ 185.9**	**$ 156.9**	**$ 215.6**	**$ 5.7**	**$ 4.8**	**$ 6.6**	**$ 20.8**	**$ 19.3**	**$ 22.2**	**$ 0.8**	**$ 0.7**	**$ 0.8**	**$ 213.1**	**$ 181.7**	**$ 245.2**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.4a through h.

Exhibit J.4l Present Value of Annual Non-Treatment Cost Projections at 3% Discount Rate
(All Systems)

Alternative 2

	Surface Water CWS					Surface Water NTNCWS					Disinfecting Ground Water CWS					Disinfecting Ground Water NTNCWS					Total				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.6	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.7	$ -	$ -	$ -	$ -
2006	$ 1.2	$ 7.7	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 3.1	$ 0.1	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 4.9	$ 7.8	$ -	$ -	$ -
2007	$ -	$ 19.9	$ 0.2	$ -	$ -	$ -	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 1.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 20.9	$ 0.2	$ -	$ -
2008	$ 0.5	$ 16.1	$ 0.5	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ 0.0	$ 5.7	$ 0.2	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ 0.6	$ 21.8	$ 0.7	$ -	$ -
2009	$ 0.6	$ -	$ 0.7	$ -	$ -	$ 0.0	$ -	$ 0.0	$ -	$ -	$ 1.5	$ -	$ 2.2	$ -	$ -	$ 0.2	$ -	$ 0.4	$ -	$ -	$ 2.4	$ -	$ 3.3	$ -	$ -
2010	$ 0.5	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.4	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 2.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.4	$ -
2012	$ -	$ -	$ -	$ (0.6)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.3	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 2.0	$ 0.0
2013	$ -	$ -	$ -	$ (1.5)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 4.2	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 3.2	$ 0.1
2014	$ -	$ -	$ -	$ (1.5)	$ 0.2	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 4.1	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 3.1	$ 0.2
2015	$ -	$ -	$ -	$ (1.5)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.9	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 3.0	$ 0.1
2016	$ -	$ -	$ -	$ (1.4)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.8	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 2.9	$ 0.1
2017	$ -	$ -	$ -	$ (1.4)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.7	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 2.9	$ 0.1
2018	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.6	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 2.8	$ 0.1
2019	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.5	$ -	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 2.7	$ 0.1
2020	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.4	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.6	$ 0.1
2021	$ -	$ -	$ -	$ (1.2)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.3	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.5	$ 0.1
2022	$ -	$ -	$ -	$ (1.2)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.2	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.5	$ 0.1
2023	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.1	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.4	$ 0.1
2024	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 3.0	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.3	$ 0.1
2025	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.9	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.3	$ 0.1
2026	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.9	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.2	$ 0.1
2027	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.8	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.1	$ 0.1
2028	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.7	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 2.1	$ 0.1
2029	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.6	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 2.0	$ 0.1
Total	**$ 3.6**	**$ 43.8**	**$ 1.5**	**$ (21.1)**	**$ 2.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.3**	**$ -**	**$ 6.1**	**$ 6.8**	**$ 2.4**	**$ 59.1**	**$ -**	**$ 1.0**	**$ 0.0**	**$ 0.4**	**$ 7.6**	**$ -**	**$ 10.8**	**$ 50.6**	**$ 4.2**	**$ 45.9**	**$ 2.1**
Ann.	**$ 0.2**	**$ 2.5**	**$ 0.1**	**$ (1.2)**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ 0.3**	**$ 0.4**	**$ 0.1**	**$ 3.4**	**$ -**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.4**	**$ -**	**$ 0.6**	**$ 2.9**	**$ 0.2**	**$ 2.6**	**$ 0.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.4a through h.

Exhibit J.4m Present Value of Annual Cost Projections at 7% Discount Rate
(All Systems and Primacy Agencies)

Alternative 2

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Primacy Agencies	Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound				90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Point Estimate	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.6	$ 0.6	$ 0.6	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 3.4	$ 4.1	$ 4.1	$ 4.1
2006	$ 8.0	$ 8.0	$ 8.0	$ 0.1	$ 0.1	$ 0.1	$ 2.9	$ 2.9	$ 2.9	$ 0.5	$ 0.5	$ 0.5	$ 3.2	$ 14.6	$ 14.6	$ 14.6
2007	$ 17.3	$ 17.3	$ 17.3	$ 0.0	$ 0.0	$ 0.0	$ 0.8	$ 0.8	$ 0.8	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 18.3	$ 18.3	$ 18.3
2008	$ 344.8	$ 288.0	$ 404.8	$ 0.5	$ 0.4	$ 0.6	$ 16.8	$ 15.2	$ 18.3	$ 0.0	$ 0.0	$ 0.0	$ 1.5	$ 363.6	$ 305.1	$ 425.2
2009	$ 481.5	$ 399.0	$ 568.7	$ 5.2	$ 4.3	$ 6.2	$ 37.9	$ 33.3	$ 42.4	$ 1.6	$ 1.4	$ 1.7	$ 0.6	$ 526.7	$ 438.6	$ 619.5
2010	$ 589.0	$ 488.2	$ 695.6	$ 9.8	$ 8.1	$ 11.6	$ 55.9	$ 48.8	$ 62.9	$ 2.2	$ 2.0	$ 2.5	$ -	$ 656.9	$ 547.1	$ 772.7
2011	$ 584.4	$ 484.9	$ 689.5	$ 10.3	$ 8.5	$ 12.1	$ 55.1	$ 48.2	$ 62.0	$ 2.1	$ 1.8	$ 2.4	$ -	$ 652.9	$ 544.5	$ 767.0
2012	$ 577.4	$ 479.5	$ 680.7	$ 10.6	$ 8.8	$ 12.5	$ 56.7	$ 50.0	$ 63.4	$ 2.3	$ 2.0	$ 2.5	$ -	$ 648.0	$ 541.3	$ 760.1
2013	$ 333.0	$ 277.4	$ 391.6	$ 10.6	$ 8.8	$ 12.4	$ 49.4	$ 44.0	$ 54.7	$ 2.4	$ 2.2	$ 2.7	$ -	$ 396.2	$ 333.2	$ 462.3
2014	$ 216.9	$ 181.5	$ 253.9	$ 7.4	$ 6.2	$ 8.7	$ 32.2	$ 29.2	$ 35.3	$ 1.7	$ 1.5	$ 1.8	$ -	$ 259.0	$ 219.2	$ 300.4
2015	$ 129.2	$ 108.9	$ 150.0	$ 4.2	$ 3.5	$ 4.8	$ 17.3	$ 16.3	$ 18.4	$ 0.9	$ 0.9	$ 0.9	$ -	$ 152.4	$ 130.4	$ 174.9
2016	$ 120.8	$ 101.8	$ 140.2	$ 3.9	$ 3.3	$ 4.5	$ 16.2	$ 15.2	$ 17.2	$ 0.8	$ 0.8	$ 0.9	$ -	$ 142.4	$ 121.8	$ 163.5
2017	$ 112.9	$ 95.1	$ 131.0	$ 3.6	$ 3.1	$ 4.2	$ 15.1	$ 14.2	$ 16.0	$ 0.8	$ 0.8	$ 0.8	$ -	$ 133.1	$ 113.9	$ 152.8
2018	$ 105.5	$ 88.9	$ 122.5	$ 3.4	$ 2.9	$ 4.0	$ 14.2	$ 13.3	$ 15.0	$ 0.7	$ 0.7	$ 0.8	$ -	$ 124.4	$ 106.4	$ 142.8
2019	$ 98.6	$ 83.1	$ 114.4	$ 3.2	$ 2.7	$ 3.7	$ 13.2	$ 12.4	$ 14.0	$ 0.7	$ 0.7	$ 0.7	$ -	$ 116.3	$ 99.5	$ 133.4
2020	$ 92.1	$ 77.7	$ 107.0	$ 3.0	$ 2.5	$ 3.5	$ 12.4	$ 11.6	$ 13.1	$ 0.6	$ 0.6	$ 0.7	$ -	$ 108.6	$ 92.9	$ 124.7
2021	$ 86.1	$ 72.6	$ 100.0	$ 2.8	$ 2.3	$ 3.2	$ 11.6	$ 10.9	$ 12.2	$ 0.6	$ 0.6	$ 0.6	$ -	$ 101.5	$ 86.9	$ 116.6
2022	$ 80.5	$ 67.8	$ 93.4	$ 2.6	$ 2.2	$ 3.0	$ 10.8	$ 10.2	$ 11.4	$ 0.6	$ 0.5	$ 0.6	$ -	$ 94.9	$ 81.2	$ 108.9
2023	$ 75.2	$ 63.4	$ 87.3	$ 2.4	$ 2.0	$ 2.8	$ 10.1	$ 9.5	$ 10.7	$ 0.5	$ 0.5	$ 0.5	$ -	$ 88.7	$ 75.9	$ 101.8
2024	$ 70.3	$ 59.2	$ 81.6	$ 2.3	$ 1.9	$ 2.6	$ 9.4	$ 8.9	$ 10.0	$ 0.5	$ 0.5	$ 0.5	$ -	$ 82.9	$ 70.9	$ 95.1
2025	$ 65.7	$ 55.4	$ 76.3	$ 2.1	$ 1.8	$ 2.5	$ 8.8	$ 8.3	$ 9.3	$ 0.5	$ 0.4	$ 0.5	$ -	$ 77.5	$ 66.3	$ 88.9
2026	$ 61.4	$ 51.7	$ 71.3	$ 2.0	$ 1.7	$ 2.3	$ 8.2	$ 7.7	$ 8.7	$ 0.4	$ 0.4	$ 0.4	$ -	$ 72.4	$ 61.9	$ 83.1
2027	$ 57.4	$ 48.4	$ 66.6	$ 1.9	$ 1.6	$ 2.2	$ 7.7	$ 7.2	$ 8.2	$ 0.4	$ 0.4	$ 0.4	$ -	$ 67.7	$ 57.9	$ 77.7
2028	$ 53.6	$ 45.2	$ 62.2	$ 1.7	$ 1.5	$ 2.0	$ 7.2	$ 6.8	$ 7.6	$ 0.4	$ 0.4	$ 0.4	$ -	$ 63.2	$ 54.1	$ 72.6
2029	$ 50.1	$ 42.2	$ 58.2	$ 1.6	$ 1.4	$ 1.9	$ 6.7	$ 6.3	$ 7.1	$ 0.3	$ 0.3	$ 0.4	$ -	$ 59.1	$ 50.6	$ 67.8
Total	**$ 4,412.1**	**$ 3,685.8**	**$ 5,172.4**	**$ 95.1**	**$ 79.5**	**$ 111.5**	**$ 476.7**	**$ 431.4**	**$ 521.9**	**$ 21.5**	**$ 19.8**	**$ 23.2**	**$ 8.8**	**$ 5,025.2**	**$ 4,236.3**	**$ 5,848.8**
Ann.	**$ 378.6**	**$ 316.3**	**$ 443.8**	**$ 8.2**	**$ 6.8**	**$ 9.6**	**$ 40.9**	**$ 37.0**	**$ 44.8**	**$ 1.8**	**$ 1.7**	**$ 2.0**	**$ 0.8**	**$ 431.2**	**$ 363.5**	**$ 501.9**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.4a through h.

Exhibit J.4n Present Value of Annual Treatment Cost Projections at 7% Discount Rate
(All Systems)

Alternative 2

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ 330.7	$ 273.9	$ 390.7	$ 0.5	$ 0.4	$ 0.5	$ 11.8	$ 10.3	$ 13.4	$ 0.0	$ 0.0	$ 0.0	$ 343.0	$ 284.5	$ 404.6
2009	$ 462.5	$ 382.8	$ 546.8	$ 5.1	$ 4.2	$ 6.1	$ 33.9	$ 29.3	$ 38.4	$ 1.1	$ 0.9	$ 1.2	$ 502.5	$ 417.4	$ 592.5
2010	$ 544.4	$ 450.6	$ 644.0	$ 9.2	$ 7.6	$ 10.9	$ 51.0	$ 44.2	$ 57.8	$ 2.0	$ 1.7	$ 2.3	$ 606.7	$ 504.1	$ 715.0
2011	$ 508.8	$ 421.1	$ 601.9	$ 8.6	$ 7.1	$ 10.2	$ 47.7	$ 41.3	$ 54.1	$ 1.9	$ 1.6	$ 2.1	$ 567.0	$ 471.1	$ 668.2
2012	$ 475.5	$ 393.5	$ 562.5	$ 8.0	$ 6.6	$ 9.5	$ 44.6	$ 38.6	$ 50.5	$ 1.7	$ 1.5	$ 2.0	$ 529.9	$ 440.3	$ 624.5
2013	$ 208.7	$ 172.5	$ 247.2	$ 7.2	$ 5.9	$ 8.5	$ 33.2	$ 28.8	$ 37.7	$ 1.6	$ 1.4	$ 1.8	$ 250.7	$ 208.6	$ 295.2
2014	$ 85.6	$ 70.8	$ 101.4	$ 3.4	$ 2.8	$ 4.0	$ 14.8	$ 12.8	$ 16.8	$ 0.8	$ 0.6	$ 0.9	$ 104.5	$ 87.0	$ 123.0
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 2,616.2**	**$ 2,165.2**	**$ 3,094.4**	**$ 42.0**	**$ 34.7**	**$ 49.7**	**$ 237.0**	**$ 205.4**	**$ 268.6**	**$ 9.0**	**$ 7.8**	**$ 10.2**	**$ 2,904.2**	**$ 2,413.0**	**$ 3,423.1**
Ann.	**$ 224.5**	**$ 185.8**	**$ 265.5**	**$ 3.6**	**$ 3.0**	**$ 4.3**	**$ 20.3**	**$ 17.6**	**$ 23.1**	**$ 0.8**	**$ 0.7**	**$ 0.9**	**$ 249.2**	**$ 207.1**	**$ 293.7**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.4a through h.

Exhibit J.4o Present Value of Annual Treatment Cost Projections at 7% Discount Rate
(All Systems)

Alternative 2

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 17.9	$ 15.1	$ 20.7	$ 0.0	$ 0.0	$ 0.0	$ 1.1	$ 1.0	$ 1.2	$ 0.0	$ 0.0	$ 0.0	$ 19.0	$ 16.2	$ 22.0
2010	$ 44.1	$ 37.3	$ 51.2	$ 0.6	$ 0.5	$ 0.7	$ 3.8	$ 3.5	$ 4.0	$ 0.1	$ 0.1	$ 0.1	$ 48.6	$ 41.3	$ 56.0
2011	$ 75.3	$ 63.6	$ 87.4	$ 1.7	$ 1.4	$ 1.9	$ 7.4	$ 6.9	$ 7.9	$ 0.2	$ 0.2	$ 0.2	$ 84.6	$ 72.1	$ 97.5
2012	$ 102.3	$ 86.3	$ 118.6	$ 2.6	$ 2.2	$ 3.0	$ 10.6	$ 9.8	$ 11.3	$ 0.4	$ 0.3	$ 0.4	$ 115.7	$ 98.6	$ 133.3
2013	$ 125.3	$ 105.8	$ 145.4	$ 3.4	$ 2.8	$ 3.9	$ 13.3	$ 12.3	$ 14.2	$ 0.5	$ 0.4	$ 0.5	$ 142.4	$ 121.4	$ 164.0
2014	$ 132.2	$ 111.6	$ 153.4	$ 4.0	$ 3.4	$ 4.7	$ 14.8	$ 13.7	$ 15.8	$ 0.6	$ 0.5	$ 0.6	$ 151.5	$ 129.2	$ 174.4
2015	$ 130.0	$ 109.7	$ 150.8	$ 4.2	$ 3.5	$ 4.8	$ 14.8	$ 13.8	$ 15.9	$ 0.6	$ 0.5	$ 0.6	$ 149.6	$ 127.6	$ 172.1
2016	$ 121.5	$ 102.6	$ 141.0	$ 3.9	$ 3.3	$ 4.5	$ 13.9	$ 12.9	$ 14.8	$ 0.5	$ 0.5	$ 0.6	$ 139.8	$ 119.2	$ 160.9
2017	$ 113.6	$ 95.9	$ 131.7	$ 3.6	$ 3.1	$ 4.2	$ 13.0	$ 12.1	$ 13.9	$ 0.5	$ 0.5	$ 0.5	$ 130.7	$ 111.4	$ 150.4
2018	$ 106.1	$ 89.6	$ 123.1	$ 3.4	$ 2.9	$ 3.9	$ 12.1	$ 11.3	$ 13.0	$ 0.5	$ 0.4	$ 0.5	$ 122.1	$ 104.2	$ 140.5
2019	$ 99.2	$ 83.7	$ 115.1	$ 3.2	$ 2.7	$ 3.7	$ 11.3	$ 10.5	$ 12.1	$ 0.4	$ 0.4	$ 0.5	$ 114.1	$ 97.3	$ 131.3
2020	$ 92.7	$ 78.2	$ 107.5	$ 3.0	$ 2.5	$ 3.4	$ 10.6	$ 9.8	$ 11.3	$ 0.4	$ 0.4	$ 0.4	$ 106.7	$ 91.0	$ 122.7
2021	$ 86.6	$ 73.1	$ 100.5	$ 2.8	$ 2.3	$ 3.2	$ 9.9	$ 9.2	$ 10.6	$ 0.4	$ 0.4	$ 0.4	$ 99.7	$ 85.0	$ 114.7
2022	$ 81.0	$ 68.3	$ 93.9	$ 2.6	$ 2.2	$ 3.0	$ 9.2	$ 8.6	$ 9.9	$ 0.4	$ 0.3	$ 0.4	$ 93.2	$ 79.5	$ 107.2
2023	$ 75.7	$ 63.9	$ 87.8	$ 2.4	$ 2.0	$ 2.8	$ 8.6	$ 8.0	$ 9.2	$ 0.3	$ 0.3	$ 0.4	$ 87.1	$ 74.3	$ 100.2
2024	$ 70.7	$ 59.7	$ 82.0	$ 2.3	$ 1.9	$ 2.6	$ 8.1	$ 7.5	$ 8.6	$ 0.3	$ 0.3	$ 0.3	$ 81.4	$ 69.4	$ 93.6
2025	$ 66.1	$ 55.8	$ 76.7	$ 2.1	$ 1.8	$ 2.5	$ 7.5	$ 7.0	$ 8.1	$ 0.3	$ 0.3	$ 0.3	$ 76.1	$ 64.9	$ 87.5
2026	$ 61.8	$ 52.1	$ 71.7	$ 2.0	$ 1.7	$ 2.3	$ 7.1	$ 6.6	$ 7.5	$ 0.3	$ 0.3	$ 0.3	$ 71.1	$ 60.6	$ 81.8
2027	$ 57.7	$ 48.7	$ 67.0	$ 1.8	$ 1.6	$ 2.1	$ 6.6	$ 6.1	$ 7.0	$ 0.3	$ 0.2	$ 0.3	$ 66.4	$ 56.7	$ 76.4
2028	$ 54.0	$ 45.5	$ 62.6	$ 1.7	$ 1.5	$ 2.0	$ 6.2	$ 5.7	$ 6.6	$ 0.2	$ 0.2	$ 0.3	$ 62.1	$ 52.9	$ 71.4
2029	$ 50.4	$ 42.6	$ 58.5	$ 1.6	$ 1.4	$ 1.9	$ 5.8	$ 5.4	$ 6.2	$ 0.2	$ 0.2	$ 0.2	$ 58.0	$ 49.5	$ 66.8
Total	**$ 1,764.4**	**$ 1,489.2**	**$ 2,046.5**	**$ 52.8**	**$ 44.4**	**$ 61.3**	**$ 195.5**	**$ 181.9**	**$ 209.1**	**$ 7.3**	**$ 6.8**	**$ 7.8**	**$ 2,020.0**	**$ 1,722.2**	**$ 2,324.7**
Ann.	**$ 151.4**	**$ 127.8**	**$ 175.6**	**$ 4.5**	**$ 3.8**	**$ 5.3**	**$ 16.8**	**$ 15.6**	**$ 17.9**	**$ 0.6**	**$ 0.6**	**$ 0.7**	**$ 173.3**	**$ 147.8**	**$ 199.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.4a through h.

Exhibit J.4p Present Value of Annual Cost Projections at 7% Discount Rate
(All Systems)

Alternative 2

	Surface Water CWS				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.6	$ -	$ -	$ -	$ -
2006	$ 1.1	$ 6.9	$ -	$ -	$ -
2007	$ -	$ 17.1	$ 0.2	$ -	$ -
2008	$ 0.4	$ 13.3	$ 0.4	$ -	$ -
2009	$ 0.5	$ -	$ 0.6	$ -	$ -
2010	$ 0.4	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.2	$ -
2012	$ -	$ -	$ -	$ (0.4)	$ 0.0
2013	$ -	$ -	$ -	$ (1.1)	$ 0.1
2014	$ -	$ -	$ -	$ (1.0)	$ 0.1
2015	$ -	$ -	$ -	$ (0.9)	$ 0.1
2016	$ -	$ -	$ -	$ (0.9)	$ 0.1
2017	$ -	$ -	$ -	$ (0.8)	$ 0.1
2018	$ -	$ -	$ -	$ (0.7)	$ 0.1
2019	$ -	$ -	$ -	$ (0.7)	$ 0.1
2020	$ -	$ -	$ -	$ (0.7)	$ 0.1
2021	$ -	$ -	$ -	$ (0.6)	$ 0.1
2022	$ -	$ -	$ -	$ (0.6)	$ 0.1
2023	$ -	$ -	$ -	$ (0.5)	$ 0.1
2024	$ -	$ -	$ -	$ (0.5)	$ 0.1
2025	$ -	$ -	$ -	$ (0.5)	$ 0.0
2026	$ -	$ -	$ -	$ (0.4)	$ 0.0
2027	$ -	$ -	$ -	$ (0.4)	$ 0.0
2028	$ -	$ -	$ -	$ (0.4)	$ 0.0
2029	$ -	$ -	$ -	$ (0.4)	$ 0.0
Total	**$ 3.0**	**$ 37.3**	**$ 1.2**	**$ (11.2)**	**$ 1.1**
Ann.	**$ 0.3**	**$ 3.2**	**$ 0.1**	**$ (1.0)**	**$ 0.1**

	Surface Water NTNCWS				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ 0.1	$ 0.0	$ -	$ -	$ -
2007	$ -	$ 0.0	$ 0.0	$ -	$ -
2008	$ 0.0	$ 0.0	$ 0.0	$ -	$ -
2009	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.2**	**$ -**
Ann.	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**

	Disinfecting Ground Water CWS				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.1	$ -	$ -	$ -	$ -
2006	$ 2.8	$ 0.1	$ -	$ -	$ -
2007	$ -	$ 0.8	$ 0.0	$ -	$ -
2008	$ 0.0	$ 4.7	$ 0.2	$ -	$ -
2009	$ 1.2	$ -	$ 1.7	$ -	$ -
2010	$ 1.1	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 1.6	$ -
2013	$ -	$ -	$ -	$ 2.9	$ -
2014	$ -	$ -	$ -	$ 2.7	$ -
2015	$ -	$ -	$ -	$ 2.5	$ -
2016	$ -	$ -	$ -	$ 2.3	$ -
2017	$ -	$ -	$ -	$ 2.2	$ -
2018	$ -	$ -	$ -	$ 2.0	$ -
2019	$ -	$ -	$ -	$ 1.9	$ -
2020	$ -	$ -	$ -	$ 1.8	$ -
2021	$ -	$ -	$ -	$ 1.7	$ -
2022	$ -	$ -	$ -	$ 1.6	$ -
2023	$ -	$ -	$ -	$ 1.5	$ -
2024	$ -	$ -	$ -	$ 1.4	$ -
2025	$ -	$ -	$ -	$ 1.3	$ -
2026	$ -	$ -	$ -	$ 1.2	$ -
2027	$ -	$ -	$ -	$ 1.1	$ -
2028	$ -	$ -	$ -	$ 1.0	$ -
2029	$ -	$ -	$ -	$ 1.0	$ -
Total	**$ 5.1**	**$ 5.6**	**$ 1.9**	**$ 31.5**	**$ -**
Ann.	**$ 0.4**	**$ 0.5**	**$ 0.2**	**$ 2.7**	**$ -**

	Disinfecting Ground Water NTNCWS				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.0	$ -	$ -	$ -	$ -
2006	$ 0.5	$ -	$ -	$ -	$ -
2007	$ -	$ 0.0	$ 0.0	$ -	$ -
2008	$ 0.0	$ 0.0	$ 0.0	$ -	$ -
2009	$ 0.2	$ -	$ 0.3	$ -	$ -
2010	$ 0.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 0.2	$ -
2013	$ -	$ -	$ -	$ 0.4	$ -
2014	$ -	$ -	$ -	$ 0.3	$ -
2015	$ -	$ -	$ -	$ 0.3	$ -
2016	$ -	$ -	$ -	$ 0.3	$ -
2017	$ -	$ -	$ -	$ 0.3	$ -
2018	$ -	$ -	$ -	$ 0.3	$ -
2019	$ -	$ -	$ -	$ 0.2	$ -
2020	$ -	$ -	$ -	$ 0.2	$ -
2021	$ -	$ -	$ -	$ 0.2	$ -
2022	$ -	$ -	$ -	$ 0.2	$ -
2023	$ -	$ -	$ -	$ 0.2	$ -
2024	$ -	$ -	$ -	$ 0.2	$ -
2025	$ -	$ -	$ -	$ 0.2	$ -
2026	$ -	$ -	$ -	$ 0.2	$ -
2027	$ -	$ -	$ -	$ 0.1	$ -
2028	$ -	$ -	$ -	$ 0.1	$ -
2029	$ -	$ -	$ -	$ 0.1	$ -
Total	**$ 0.8**	**$ 0.0**	**$ 0.3**	**$ 4.1**	**$ -**
Ann.	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.3**	**$ -**

	Total				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.7	$ -	$ -	$ -	$ -
2006	$ 4.4	$ 7.0	$ -	$ -	$ -
2007	$ -	$ 18.0	$ 0.2	$ -	$ -
2008	$ 0.5	$ 18.0	$ 0.6	$ -	$ -
2009	$ 1.9	$ -	$ 2.6	$ -	$ -
2010	$ 1.7	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.3	$ -
2012	$ -	$ -	$ -	$ 1.4	$ 0.0
2013	$ -	$ -	$ -	$ 2.2	$ 0.1
2014	$ -	$ -	$ -	$ 2.1	$ 0.1
2015	$ -	$ -	$ -	$ 1.9	$ 0.1
2016	$ -	$ -	$ -	$ 1.8	$ 0.1
2017	$ -	$ -	$ -	$ 1.7	$ 0.1
2018	$ -	$ -	$ -	$ 1.6	$ 0.1
2019	$ -	$ -	$ -	$ 1.5	$ 0.1
2020	$ -	$ -	$ -	$ 1.4	$ 0.1
2021	$ -	$ -	$ -	$ 1.3	$ 0.1
2022	$ -	$ -	$ -	$ 1.2	$ 0.1
2023	$ -	$ -	$ -	$ 1.1	$ 0.1
2024	$ -	$ -	$ -	$ 1.0	$ 0.1
2025	$ -	$ -	$ -	$ 1.0	$ 0.0
2026	$ -	$ -	$ -	$ 0.9	$ 0.0
2027	$ -	$ -	$ -	$ 0.9	$ 0.0
2028	$ -	$ -	$ -	$ 0.8	$ 0.0
2029	$ -	$ -	$ -	$ 0.7	$ 0.0
Total	**$ 9.1**	**$ 43.0**	**$ 3.4**	**$ 24.6**	**$ 1.1**
Ann.	**$ 0.8**	**$ 3.7**	**$ 0.3**	**$ 2.1**	**$ 0.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.4a through h.

Section J.5
Cost Projections (Alternative 3)

Exhibit J.5a Projections of Stage 2 DBPR PWS Costs
(All Surface Water CWSs)

Alternative 3

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.69	$ -	$ -	$ -	$ -	$ 0.69	$ 0.69	$ 0.69
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.34	$ 8.46	$ -	$ -	$ -	$ 9.80	$ 9.80	$ 9.80
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.45	$ 0.22	$ -	$ -	$ 22.67	$ 22.67	$ 22.67
2008	$ 751.61	$ 614.14	$ 896.73	$ -	$ -	$ -	$ 0.60	$ 18.62	$ 0.62	$ -	$ -	$ 771.44	$ 633.97	$ 916.56
2009	$ 1,103.45	$ 900.53	$ 1,318.20	$ 40.64	$ 33.78	$ 47.61	$ 0.75	$ -	$ 0.88	$ -	$ -	$ 1,145.72	$ 935.95	$ 1,367.44
2010	$ 1,374.75	$ 1,121.29	$ 1,643.38	$ 107.18	$ 89.06	$ 125.65	$ 0.67	$ -	$ -	$ -	$ -	$ 1,482.59	$ 1,211.02	$ 1,769.70
2011	$ 1,374.75	$ 1,121.29	$ 1,643.38	$ 195.72	$ 162.60	$ 229.55	$ -	$ -	$ -	$ 0.42	$ -	$ 1,570.88	$ 1,284.31	$ 1,873.34
2012	$ 1,374.75	$ 1,121.29	$ 1,643.38	$ 284.26	$ 236.13	$ 333.44	$ -	$ -	$ -	$ (0.77)	$ 0.06	$ 1,658.30	$ 1,356.72	$ 1,976.11
2013	$ 623.14	$ 507.16	$ 746.65	$ 372.80	$ 309.66	$ 437.33	$ -	$ -	$ -	$ (2.07)	$ 0.15	$ 994.02	$ 814.90	$ 1,182.06
2014	$ 271.29	$ 220.76	$ 325.18	$ 420.70	$ 349.41	$ 493.62	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 690.14	$ 568.32	$ 816.94
2015	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2016	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2017	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2018	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2019	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2020	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2021	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2022	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2023	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2024	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2025	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2026	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2027	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2028	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62
2029	$ -	$ -	$ -	$ 442.70	$ 367.67	$ 519.47	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 440.85	$ 365.81	$ 517.62

Note: All values in millions of year 2003 dollars.
Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.5b Projections of Stage 2 DBPR PWS Costs
(All Surface Water NTNCWSs)

Alternative 3

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.08	$ 0.01	$ -	$ -	$ -	$ 0.09	$ 0.09	$ 0.09
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.04	$ 0.00	$ -	$ -	$ 0.04	$ 0.04	$ 0.04
2008	$ 1.03	$ 0.84	$ 1.22	$ -	$ -	$ -	$ 0.00	$ 0.02	$ 0.00	$ -	$ -	$ 1.05	$ 0.86	$ 1.25
2009	$ 11.11	$ 9.05	$ 13.31	$ 0.05	$ 0.04	$ 0.06	$ 0.04	$ -	$ 0.04	$ -	$ -	$ 11.24	$ 9.17	$ 13.45
2010	$ 21.19	$ 17.27	$ 25.40	$ 1.50	$ 1.24	$ 1.77	$ 0.04	$ -	$ -	$ -	$ -	$ 22.73	$ 18.56	$ 27.21
2011	$ 21.19	$ 17.27	$ 25.40	$ 4.35	$ 3.61	$ 5.12	$ -	$ -	$ -	$ 0.00	$ -	$ 25.54	$ 20.88	$ 30.52
2012	$ 21.19	$ 17.27	$ 25.40	$ 7.20	$ 5.97	$ 8.47	$ -	$ -	$ -	$ 0.02	$ -	$ 28.41	$ 23.25	$ 33.89
2013	$ 20.16	$ 16.43	$ 24.18	$ 10.05	$ 8.33	$ 11.83	$ -	$ -	$ -	$ 0.03	$ -	$ 30.24	$ 24.79	$ 36.03
2014	$ 10.08	$ 8.22	$ 12.09	$ 12.85	$ 10.65	$ 15.12	$ -	$ -	$ -	$ 0.03	$ -	$ 22.96	$ 18.89	$ 27.24
2015	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2016	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2017	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2018	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2019	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2020	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2021	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2022	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2023	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2024	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2025	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2026	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2027	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2028	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80
2029	$ -	$ -	$ -	$ 14.25	$ 11.81	$ 16.77	$ -	$ -	$ -	$ 0.03	$ -	$ 14.28	$ 11.83	$ 16.80

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.5c Projections of Stage 2 DBPR PWS Costs
(All Surface Water Systems)

Alternative 3

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.69	$ -	$ -	$ -	$ -	$ 0.69	$ 0.69	$ 0.69
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.42	$ 8.48	$ -	$ -	$ -	$ 9.90	$ 9.90	$ 9.90
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.49	$ 0.22	$ -	$ -	$ 22.71	$ 22.71	$ 22.71
2008	$ 752.63	$ 614.97	$ 897.95	$ -	$ -	$ -	$ 0.60	$ 18.64	$ 0.62	$ -	$ -	$ 772.49	$ 634.83	$ 917.81
2009	$ 1,114.56	$ 909.59	$ 1,331.51	$ 40.69	$ 33.82	$ 47.67	$ 0.79	$ -	$ 0.91	$ -	$ -	$ 1,156.96	$ 945.12	$ 1,380.89
2010	$ 1,395.93	$ 1,138.56	$ 1,668.78	$ 108.68	$ 90.31	$ 127.42	$ 0.71	$ -	$ -	$ -	$ -	$ 1,505.32	$ 1,229.58	$ 1,796.90
2011	$ 1,395.93	$ 1,138.56	$ 1,668.78	$ 200.07	$ 166.20	$ 234.67	$ -	$ -	$ -	$ 0.42	$ -	$ 1,596.43	$ 1,305.19	$ 1,903.87
2012	$ 1,395.93	$ 1,138.56	$ 1,668.78	$ 291.46	$ 242.10	$ 341.91	$ -	$ -	$ -	$ (0.75)	$ 0.06	$ 1,686.70	$ 1,379.97	$ 2,010.00
2013	$ 643.30	$ 523.59	$ 770.83	$ 382.85	$ 317.99	$ 449.16	$ -	$ -	$ -	$ (2.04)	$ 0.15	$ 1,024.26	$ 839.69	$ 1,218.10
2014	$ 281.37	$ 228.98	$ 337.26	$ 433.55	$ 360.06	$ 508.74	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 713.10	$ 587.21	$ 844.18
2015	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2016	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2017	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2018	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2019	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2020	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2021	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2022	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2023	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2024	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2025	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2026	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2027	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2028	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42
2029	$ -	$ -	$ -	$ 456.95	$ 379.47	$ 536.24	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 455.13	$ 377.65	$ 534.42

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.5d Projections of Stage 2 DBPR PWS Costs

(All Ground Water CWSs)

Alternative 3

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.42	$ 0.09	$ -	$ -	$ -	$ 3.51	$ 3.51	$ 3.51
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.09	$ 0.02	$ -	$ -	$ 1.11	$ 1.11	$ 1.11
2008	$ 19.20	$ 16.63	$ 21.76	$ -	$ -	$ -	$ 0.05	$ 6.66	$ 0.22	$ -	$ -	$ 26.12	$ 23.55	$ 28.67
2009	$ 55.25	$ 47.64	$ 62.88	$ 1.85	$ 1.70	$ 1.99	$ 1.73	$ -	$ 2.58	$ -	$ -	$ 61.41	$ 53.65	$ 69.19
2010	$ 87.74	$ 75.54	$ 99.97	$ 6.50	$ 6.01	$ 6.98	$ 1.71	$ -	$ -	$ -	$ -	$ 95.94	$ 83.27	$ 108.67
2011	$ 87.74	$ 75.54	$ 99.97	$ 13.65	$ 12.65	$ 14.65	$ -	$ -	$ -	$ 0.08	$ -	$ 101.46	$ 88.28	$ 114.70
2012	$ 87.74	$ 75.54	$ 99.97	$ 20.80	$ 19.29	$ 22.31	$ -	$ -	$ -	$ 2.95	$ -	$ 111.49	$ 97.79	$ 125.24
2013	$ 68.54	$ 58.92	$ 78.22	$ 27.95	$ 25.94	$ 29.98	$ -	$ -	$ -	$ 5.63	$ -	$ 102.12	$ 90.48	$ 113.82
2014	$ 32.48	$ 27.91	$ 37.09	$ 33.26	$ 30.88	$ 35.65	$ -	$ -	$ -	$ 5.63	$ -	$ 71.37	$ 64.41	$ 78.37
2015	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2016	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2017	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2018	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2019	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2020	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2021	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2022	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2023	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2024	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2025	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2026	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2027	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2028	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95
2029	$ -	$ -	$ -	$ 35.76	$ 33.20	$ 38.32	$ -	$ -	$ -	$ 5.63	$ -	$ 41.39	$ 38.83	$ 43.95

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.5e Projections of Stage 2 DBPR PWS Costs
(All Ground Water NTNCWSs)

Alternative 3

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.56	$ -	$ -	$ -	$ -	$ 0.56	$ 0.56	$ 0.56
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2008	$ 0.02	$ 0.02	$ 0.02	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ 0.02	$ 0.02	$ 0.02
2009	$ 1.43	$ 1.22	$ 1.63	$ 0.00	$ 0.00	$ 0.00	$ 0.28	$ -	$ 0.46	$ -	$ -	$ 2.17	$ 1.96	$ 2.38
2010	$ 2.83	$ 2.42	$ 3.24	$ 0.13	$ 0.12	$ 0.14	$ 0.28	$ -	$ -	$ -	$ -	$ 3.24	$ 2.82	$ 3.66
2011	$ 2.83	$ 2.42	$ 3.24	$ 0.38	$ 0.36	$ 0.41	$ -	$ -	$ -	$ 0.00	$ -	$ 3.22	$ 2.78	$ 3.66
2012	$ 2.83	$ 2.42	$ 3.24	$ 0.64	$ 0.59	$ 0.69	$ -	$ -	$ -	$ 0.37	$ -	$ 3.84	$ 3.38	$ 4.29
2013	$ 2.81	$ 2.40	$ 3.22	$ 0.89	$ 0.83	$ 0.96	$ -	$ -	$ -	$ 0.73	$ -	$ 4.43	$ 3.96	$ 4.90
2014	$ 1.40	$ 1.20	$ 1.61	$ 1.15	$ 1.06	$ 1.23	$ -	$ -	$ -	$ 0.73	$ -	$ 3.28	$ 2.99	$ 3.56
2015	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2016	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2017	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2018	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2019	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2020	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2021	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2022	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2023	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2024	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2025	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2026	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2027	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2028	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09
2029	$ -	$ -	$ -	$ 1.27	$ 1.18	$ 1.36	$ -	$ -	$ -	$ 0.73	$ -	$ 2.00	$ 1.91	$ 2.09

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.5f Projections of Stage 2 DBPR PWS Costs

(All Ground Water Systems)

Alternative 3

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.98	$ 0.09	$ -	$ -	$ -	$ 4.07	$ 4.07	$ 4.07
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.09	$ 0.02	$ -	$ -	$ 1.11	$ 1.11	$ 1.11
2008	$ 19.22	$ 16.65	$ 21.78	$ -	$ -	$ -	$ 0.05	$ 6.66	$ 0.22	$ -	$ -	$ 26.14	$ 23.57	$ 28.70
2009	$ 56.68	$ 48.86	$ 64.52	$ 1.85	$ 1.70	$ 1.99	$ 2.01	$ -	$ 3.04	$ -	$ -	$ 63.58	$ 55.61	$ 71.56
2010	$ 90.57	$ 77.96	$ 103.21	$ 6.63	$ 6.13	$ 7.12	$ 1.99	$ -	$ -	$ -	$ -	$ 99.19	$ 86.09	$ 112.33
2011	$ 90.57	$ 77.96	$ 103.21	$ 14.03	$ 13.01	$ 15.06	$ -	$ -	$ -	$ 0.08	$ -	$ 104.68	$ 91.05	$ 118.36
2012	$ 90.57	$ 77.96	$ 103.21	$ 21.44	$ 19.89	$ 23.00	$ -	$ -	$ -	$ 3.32	$ -	$ 115.33	$ 101.17	$ 129.53
2013	$ 71.35	$ 61.32	$ 81.44	$ 28.85	$ 26.76	$ 30.93	$ -	$ -	$ -	$ 6.36	$ -	$ 106.56	$ 94.44	$ 118.73
2014	$ 33.89	$ 29.10	$ 38.70	$ 34.41	$ 31.94	$ 36.88	$ -	$ -	$ -	$ 6.36	$ -	$ 74.65	$ 67.40	$ 81.93
2015	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2016	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2017	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2018	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2019	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2020	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2021	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2022	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2023	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2024	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2025	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2026	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2027	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2028	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04
2029	$ -	$ -	$ -	$ 37.03	$ 34.38	$ 39.69	$ -	$ -	$ -	$ 6.36	$ -	$ 43.39	$ 40.74	$ 46.04

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.5g Projections of Stage 2 DBPR PWS Costs

(All Systems)

Alternative 3

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.76	$ -	$ -	$ -	$ -	$ 0.76	$ 0.76	$ 0.76
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 5.40	$ 8.56	$ -	$ -	$ -	$ 13.96	$ 13.96	$ 13.96
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 23.58	$ 0.24	$ -	$ -	$ 23.81	$ 23.81	$ 23.81
2008	$ 771.85	$ 631.62	$ 919.73	$ -	$ -	$ -	$ 0.65	$ 25.30	$ 0.83	$ -	$ -	$ 798.63	$ 658.40	$ 946.51
2009	$ 1,171.24	$ 958.45	$ 1,396.03	$ 42.54	$ 35.53	$ 49.67	$ 2.81	$ -	$ 3.95	$ -	$ -	$ 1,220.54	$ 1,000.73	$ 1,452.46
2010	$ 1,486.50	$ 1,216.53	$ 1,771.99	$ 115.31	$ 96.44	$ 134.54	$ 2.70	$ -	$ -	$ -	$ -	$ 1,604.51	$ 1,315.67	$ 1,909.23
2011	$ 1,486.50	$ 1,216.53	$ 1,771.99	$ 214.10	$ 179.21	$ 249.73	$ -	$ -	$ -	$ 0.51	$ -	$ 1,701.11	$ 1,396.24	$ 2,022.22
2012	$ 1,486.50	$ 1,216.53	$ 1,771.99	$ 312.90	$ 261.98	$ 364.91	$ -	$ -	$ -	$ 2.57	$ 0.06	$ 1,802.03	$ 1,481.14	$ 2,139.53
2013	$ 714.65	$ 584.91	$ 852.26	$ 411.70	$ 344.75	$ 480.10	$ -	$ -	$ -	$ 4.32	$ 0.15	$ 1,130.81	$ 934.13	$ 1,336.83
2014	$ 315.26	$ 258.08	$ 375.96	$ 467.96	$ 392.00	$ 545.62	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 787.75	$ 654.61	$ 926.11
2015	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2016	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2017	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2018	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2019	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2020	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2021	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2022	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2023	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2024	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2025	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2026	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2027	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2028	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46
2029	$ -	$ -	$ -	$ 493.99	$ 413.85	$ 575.93	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 498.52	$ 418.39	$ 580.46

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.5h Projections of Stage 2 DBPR Primacy Agency Costs

Alternative 3

Year	Implementation Costs	IDSE Costs	Monitoring Plan Costs	Compliance Monitoring Costs	Significant Excursion Report Costs
2005	$ 3.88	$ -	$ -	$ -	$ -
2006	$ 3.88	$ 0.04	$ -	$ -	$ -
2007	$ -	$ 0.13	$ 0.02	$ -	$ -
2008	$ -	$ 2.06	$ 0.06	$ -	$ -
2009	$ -	$ -	$ 0.85	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 1.59	$ 0.11
2012	$ -	$ -	$ -	$ 1.59	$ 0.11
2013	$ -	$ -	$ -	$ 1.59	$ 0.11
2014	$ -	$ -	$ -	$ 1.59	$ 0.11
2015	$ -	$ -	$ -	$ 1.59	$ 0.11
2016	$ -	$ -	$ -	$ 1.59	$ 0.11
2017	$ -	$ -	$ -	$ 1.59	$ 0.11
2018	$ -	$ -	$ -	$ 1.59	$ 0.11
2019	$ -	$ -	$ -	$ 1.59	$ 0.11
2020	$ -	$ -	$ -	$ 1.59	$ 0.11
2021	$ -	$ -	$ -	$ 1.59	$ 0.11
2022	$ -	$ -	$ -	$ 1.59	$ 0.11
2023	$ -	$ -	$ -	$ 1.59	$ 0.11
2024	$ -	$ -	$ -	$ 1.59	$ 0.11
2025	$ -	$ -	$ -	$ 1.59	$ 0.11
2026	$ -	$ -	$ -	$ 1.59	$ 0.11
2027	$ -	$ -	$ -	$ 1.59	$ 0.11
2028	$ -	$ -	$ -	$ 1.59	$ 0.11
2029	$ -	$ -	$ -	$ 1.59	$ 0.11

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1h and D.7.

Exhibit J.5i Present Value of Annual Cost Projections at 3% Discount Rate
(All Systems and Primacy Agencies)

Alternative 3

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Primacy Agencies	Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound				90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Point Estimate	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.6	$ 0.6	$ 0.6	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 3.7	$ 4.4	$ 4.4	$ 4.4
2006	$ 9.0	$ 9.0	$ 9.0	$ 0.1	$ 0.1	$ 0.1	$ 3.2	$ 3.2	$ 3.2	$ 0.5	$ 0.5	$ 0.5	$ 3.6	$ 16.4	$ 16.4	$ 16.4
2007	$ 20.1	$ 20.1	$ 20.1	$ 0.0	$ 0.0	$ 0.0	$ 1.0	$ 1.0	$ 1.0	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 21.3	$ 21.3	$ 21.3
2008	$ 665.5	$ 546.9	$ 790.6	$ 0.9	$ 0.7	$ 1.1	$ 22.5	$ 20.3	$ 24.7	$ 0.0	$ 0.0	$ 0.0	$ 1.8	$ 690.7	$ 569.8	$ 818.3
2009	$ 959.5	$ 783.8	$ 1,145.2	$ 9.4	$ 7.7	$ 11.3	$ 51.4	$ 44.9	$ 57.9	$ 1.8	$ 1.6	$ 2.0	$ 0.7	$ 1,022.9	$ 838.8	$ 1,217.1
2010	$ 1,205.5	$ 984.7	$ 1,438.9	$ 18.5	$ 15.1	$ 22.1	$ 78.0	$ 67.7	$ 88.4	$ 2.6	$ 2.3	$ 3.0	$ -	$ 1,304.6	$ 1,069.8	$ 1,552.4
2011	$ 1,240.1	$ 1,013.8	$ 1,478.8	$ 20.2	$ 16.5	$ 24.1	$ 80.1	$ 69.7	$ 90.5	$ 2.5	$ 2.2	$ 2.9	$ 1.3	$ 1,344.2	$ 1,103.6	$ 1,597.7
2012	$ 1,270.9	$ 1,039.8	$ 1,514.5	$ 21.8	$ 17.8	$ 26.0	$ 85.4	$ 74.9	$ 96.0	$ 2.9	$ 2.6	$ 3.3	$ 1.3	$ 1,382.4	$ 1,136.5	$ 1,641.1
2013	$ 739.6	$ 606.4	$ 879.6	$ 22.5	$ 18.4	$ 26.8	$ 76.0	$ 67.3	$ 84.7	$ 3.3	$ 2.9	$ 3.6	$ 1.3	$ 842.7	$ 696.3	$ 996.0
2014	$ 498.6	$ 410.6	$ 590.2	$ 16.6	$ 13.6	$ 19.7	$ 51.6	$ 46.5	$ 56.6	$ 2.4	$ 2.2	$ 2.6	$ 1.2	$ 570.3	$ 474.1	$ 670.3
2015	$ 309.2	$ 256.6	$ 363.0	$ 10.0	$ 8.3	$ 11.8	$ 29.0	$ 27.2	$ 30.8	$ 1.4	$ 1.3	$ 1.5	$ 1.2	$ 350.8	$ 294.6	$ 408.3
2016	$ 300.2	$ 249.1	$ 352.5	$ 9.7	$ 8.1	$ 11.4	$ 28.2	$ 26.4	$ 29.9	$ 1.4	$ 1.3	$ 1.4	$ 1.2	$ 340.6	$ 286.1	$ 396.4
2017	$ 291.5	$ 241.8	$ 342.2	$ 9.4	$ 7.8	$ 11.1	$ 27.4	$ 25.7	$ 29.1	$ 1.3	$ 1.3	$ 1.4	$ 1.1	$ 330.7	$ 277.7	$ 384.9
2018	$ 283.0	$ 234.8	$ 332.2	$ 9.2	$ 7.6	$ 10.8	$ 26.6	$ 24.9	$ 28.2	$ 1.3	$ 1.2	$ 1.3	$ 1.1	$ 321.1	$ 269.6	$ 373.7
2019	$ 274.7	$ 228.0	$ 322.6	$ 8.9	$ 7.4	$ 10.5	$ 25.8	$ 24.2	$ 27.4	$ 1.2	$ 1.2	$ 1.3	$ 1.1	$ 311.7	$ 261.8	$ 362.8
2020	$ 266.7	$ 221.3	$ 313.2	$ 8.6	$ 7.2	$ 10.2	$ 25.0	$ 23.5	$ 26.6	$ 1.2	$ 1.2	$ 1.3	$ 1.0	$ 302.6	$ 254.2	$ 352.2
2021	$ 259.0	$ 214.9	$ 304.0	$ 8.4	$ 7.0	$ 9.9	$ 24.3	$ 22.8	$ 25.8	$ 1.2	$ 1.1	$ 1.2	$ 1.0	$ 293.8	$ 246.8	$ 342.0
2022	$ 251.4	$ 208.6	$ 295.2	$ 8.1	$ 6.7	$ 9.6	$ 23.6	$ 22.1	$ 25.1	$ 1.1	$ 1.1	$ 1.2	$ 1.0	$ 285.3	$ 239.6	$ 332.0
2023	$ 244.1	$ 202.5	$ 286.6	$ 7.9	$ 6.6	$ 9.3	$ 22.9	$ 21.5	$ 24.3	$ 1.1	$ 1.1	$ 1.2	$ 0.9	$ 277.0	$ 232.6	$ 322.3
2024	$ 237.0	$ 196.6	$ 278.2	$ 7.7	$ 6.4	$ 9.0	$ 22.2	$ 20.9	$ 23.6	$ 1.1	$ 1.0	$ 1.1	$ 0.9	$ 268.9	$ 225.8	$ 312.9
2025	$ 230.1	$ 190.9	$ 270.1	$ 7.5	$ 6.2	$ 8.8	$ 21.6	$ 20.3	$ 22.9	$ 1.0	$ 1.0	$ 1.1	$ 0.9	$ 261.1	$ 219.2	$ 303.8
2026	$ 223.4	$ 185.4	$ 262.3	$ 7.2	$ 6.0	$ 8.5	$ 21.0	$ 19.7	$ 22.3	$ 1.0	$ 1.0	$ 1.1	$ 0.9	$ 253.5	$ 212.9	$ 295.0
2027	$ 216.9	$ 180.0	$ 254.6	$ 7.0	$ 5.8	$ 8.3	$ 20.4	$ 19.1	$ 21.6	$ 1.0	$ 0.9	$ 1.0	$ 0.8	$ 246.1	$ 206.7	$ 286.4
2028	$ 210.6	$ 174.7	$ 247.2	$ 6.8	$ 5.7	$ 8.0	$ 19.8	$ 18.5	$ 21.0	$ 1.0	$ 0.9	$ 1.0	$ 0.8	$ 238.9	$ 200.6	$ 278.0
2029	$ 204.4	$ 169.6	$ 240.0	$ 6.6	$ 5.5	$ 7.8	$ 19.2	$ 18.0	$ 20.4	$ 0.9	$ 0.9	$ 1.0	$ 0.8	$ 232.0	$ 194.8	$ 269.9
Total	**$ 10,411.4**	**$ 8,570.6**	**$ 12,331.7**	**$ 233.1**	**$ 192.1**	**$ 276.0**	**$ 806.3**	**$ 730.6**	**$ 882.2**	**$ 33.4**	**$ 30.8**	**$ 35.9**	**$ 29.8**	**$ 11,514.0**	**$ 9,553.9**	**$ 13,555.6**
Ann.	**$ 597.9**	**$ 492.2**	**$ 708.2**	**$ 13.4**	**$ 11.0**	**$ 15.9**	**$ 46.3**	**$ 42.0**	**$ 50.7**	**$ 1.9**	**$ 1.8**	**$ 2.1**	**$ 1.7**	**$ 661.2**	**$ 548.7**	**$ 778.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.5a through h.

Exhibit J.5j Present Value of Annual Treatment Cost Projections at 3% Discount Rate
(All Systems)

Alternative 3

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ 648.3	$ 529.8	$ 773.5	$ 0.9	$ 0.7	$ 1.1	$ 16.6	$ 14.3	$ 18.8	$ 0.0	$ 0.0	$ 0.0	$ 665.8	$ 544.8	$ 793.4
2009	$ 924.1	$ 754.2	$ 1,104.0	$ 9.3	$ 7.6	$ 11.1	$ 46.3	$ 39.9	$ 52.7	$ 1.2	$ 1.0	$ 1.4	$ 980.9	$ 802.7	$ 1,169.2
2010	$ 1,117.8	$ 911.7	$ 1,336.2	$ 17.2	$ 14.0	$ 20.7	$ 71.3	$ 61.4	$ 81.3	$ 2.3	$ 2.0	$ 2.6	$ 1,208.7	$ 989.1	$ 1,440.8
2011	$ 1,085.2	$ 885.2	$ 1,297.3	$ 16.7	$ 13.6	$ 20.0	$ 69.3	$ 59.6	$ 78.9	$ 2.2	$ 1.9	$ 2.6	$ 1,173.5	$ 960.3	$ 1,398.8
2012	$ 1,053.6	$ 859.4	$ 1,259.5	$ 16.2	$ 13.2	$ 19.5	$ 67.2	$ 57.9	$ 76.6	$ 2.2	$ 1.9	$ 2.5	$ 1,139.3	$ 932.4	$ 1,358.1
2013	$ 463.7	$ 377.4	$ 555.6	$ 15.0	$ 12.2	$ 18.0	$ 51.0	$ 43.8	$ 58.2	$ 2.1	$ 1.8	$ 2.4	$ 531.8	$ 435.2	$ 634.2
2014	$ 196.0	$ 159.5	$ 234.9	$ 7.3	$ 5.9	$ 8.7	$ 23.5	$ 20.2	$ 26.8	$ 1.0	$ 0.9	$ 1.2	$ 227.7	$ 186.4	$ 271.6
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 5,488.8**	**$ 4,477.0**	**$ 6,561.0**	**$ 82.7**	**$ 67.4**	**$ 99.1**	**$ 345.1**	**$ 297.2**	**$ 393.3**	**$ 11.0**	**$ 9.4**	**$ 12.6**	**$ 5,927.6**	**$ 4,851.0**	**$ 7,066.0**
Ann.	**$ 315.2**	**$ 257.1**	**$ 376.8**	**$ 4.7**	**$ 3.9**	**$ 5.7**	**$ 19.8**	**$ 17.1**	**$ 22.6**	**$ 0.6**	**$ 0.5**	**$ 0.7**	**$ 340.4**	**$ 278.6**	**$ 405.8**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.5a through h.

Exhibit J.5k Present Value of Annual Treatment Cost Projections at 3% Discount Rate
(All Systems)

Alternative 3

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 34.0	$ 28.3	$ 39.9	$ 0.0	$ 0.0	$ 0.1	$ 1.5	$ 1.4	$ 1.7	$ 0.0	$ 0.0	$ 0.0	$ 35.6	$ 29.8	$ 41.6
2010	$ 87.1	$ 72.4	$ 102.2	$ 1.2	$ 1.0	$ 1.4	$ 5.3	$ 4.9	$ 5.7	$ 0.1	$ 0.1	$ 0.1	$ 93.8	$ 78.4	$ 109.4
2011	$ 154.5	$ 128.4	$ 181.2	$ 3.4	$ 2.8	$ 4.0	$ 10.8	$ 10.0	$ 11.6	$ 0.3	$ 0.3	$ 0.3	$ 169.0	$ 141.5	$ 197.1
2012	$ 217.9	$ 181.0	$ 255.6	$ 5.5	$ 4.6	$ 6.5	$ 15.9	$ 14.8	$ 17.1	$ 0.5	$ 0.5	$ 0.5	$ 239.8	$ 200.8	$ 279.7
2013	$ 277.4	$ 230.4	$ 325.4	$ 7.5	$ 6.2	$ 8.8	$ 20.8	$ 19.3	$ 22.3	$ 0.7	$ 0.6	$ 0.7	$ 306.3	$ 256.5	$ 357.2
2014	$ 303.9	$ 252.4	$ 356.6	$ 9.3	$ 7.7	$ 10.9	$ 24.0	$ 22.3	$ 25.8	$ 0.8	$ 0.8	$ 0.9	$ 338.1	$ 283.2	$ 394.2
2015	$ 310.5	$ 257.9	$ 364.3	$ 10.0	$ 8.3	$ 11.8	$ 25.1	$ 23.3	$ 26.9	$ 0.9	$ 0.8	$ 1.0	$ 346.5	$ 290.3	$ 403.9
2016	$ 301.5	$ 250.4	$ 353.7	$ 9.7	$ 8.0	$ 11.4	$ 24.4	$ 22.6	$ 26.1	$ 0.9	$ 0.8	$ 0.9	$ 336.4	$ 281.8	$ 392.2
2017	$ 292.7	$ 243.1	$ 343.4	$ 9.4	$ 7.8	$ 11.1	$ 23.6	$ 22.0	$ 25.3	$ 0.8	$ 0.8	$ 0.9	$ 326.6	$ 273.6	$ 380.8
2018	$ 284.2	$ 236.0	$ 333.4	$ 9.1	$ 7.6	$ 10.8	$ 23.0	$ 21.3	$ 24.6	$ 0.8	$ 0.8	$ 0.9	$ 317.1	$ 265.6	$ 369.7
2019	$ 275.9	$ 229.1	$ 323.7	$ 8.9	$ 7.4	$ 10.5	$ 22.3	$ 20.7	$ 23.9	$ 0.8	$ 0.7	$ 0.8	$ 307.8	$ 257.9	$ 358.9
2020	$ 267.8	$ 222.4	$ 314.3	$ 8.6	$ 7.1	$ 10.1	$ 21.6	$ 20.1	$ 23.2	$ 0.8	$ 0.7	$ 0.8	$ 298.9	$ 250.4	$ 348.4
2021	$ 260.0	$ 216.0	$ 305.1	$ 8.4	$ 6.9	$ 9.9	$ 21.0	$ 19.5	$ 22.5	$ 0.7	$ 0.7	$ 0.8	$ 290.2	$ 243.1	$ 338.3
2022	$ 252.5	$ 209.7	$ 296.2	$ 8.1	$ 6.7	$ 9.6	$ 20.4	$ 18.9	$ 21.9	$ 0.7	$ 0.7	$ 0.8	$ 281.7	$ 236.0	$ 328.4
2023	$ 245.1	$ 203.6	$ 287.6	$ 7.9	$ 6.5	$ 9.3	$ 19.8	$ 18.4	$ 21.2	$ 0.7	$ 0.7	$ 0.8	$ 273.5	$ 229.1	$ 318.9
2024	$ 238.0	$ 197.6	$ 279.2	$ 7.7	$ 6.3	$ 9.0	$ 19.2	$ 17.8	$ 20.6	$ 0.7	$ 0.6	$ 0.7	$ 265.5	$ 222.5	$ 309.6
2025	$ 231.0	$ 191.9	$ 271.1	$ 7.4	$ 6.2	$ 8.8	$ 18.7	$ 17.3	$ 20.0	$ 0.7	$ 0.6	$ 0.7	$ 257.8	$ 216.0	$ 300.6
2026	$ 224.3	$ 186.3	$ 263.2	$ 7.2	$ 6.0	$ 8.5	$ 18.1	$ 16.8	$ 19.4	$ 0.6	$ 0.6	$ 0.7	$ 250.3	$ 209.7	$ 291.8
2027	$ 217.8	$ 180.9	$ 255.5	$ 7.0	$ 5.8	$ 8.2	$ 17.6	$ 16.3	$ 18.9	$ 0.6	$ 0.6	$ 0.7	$ 243.0	$ 203.6	$ 283.3
2028	$ 211.4	$ 175.6	$ 248.1	$ 6.8	$ 5.6	$ 8.0	$ 17.1	$ 15.9	$ 18.3	$ 0.6	$ 0.6	$ 0.7	$ 235.9	$ 197.7	$ 275.1
2029	$ 205.3	$ 170.5	$ 240.9	$ 6.6	$ 5.5	$ 7.8	$ 16.6	$ 15.4	$ 17.8	$ 0.6	$ 0.5	$ 0.6	$ 229.1	$ 191.9	$ 267.1
Total	**$ 4,892.8**	**$ 4,063.7**	**$ 5,740.9**	**$ 149.9**	**$ 124.2**	**$ 176.4**	**$ 386.8**	**$ 359.1**	**$ 414.6**	**$ 13.4**	**$ 12.4**	**$ 14.3**	**$ 5,442.9**	**$ 4,559.3**	**$ 6,346.1**
Ann.	**$ 281.0**	**$ 233.4**	**$ 329.7**	**$ 8.6**	**$ 7.1**	**$ 10.1**	**$ 22.2**	**$ 20.6**	**$ 23.8**	**$ 0.8**	**$ 0.7**	**$ 0.8**	**$ 312.6**	**$ 261.8**	**$ 364.4**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.5a through h.

Exhibit J.5l Present Value of Annual Non-Treatment Cost Projections at 3% Discount Rate
(All Systems)

Alternative 3

	Surface Water CWS					Surface Water NTNCWS				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.6	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -
2006	$ 1.2	$ 7.7	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -
2007	$ -	$ 19.9	$ 0.2	$ -	$ -	$ -	$ 0.0	$ 0.0	$ -	$ -
2008	$ 0.5	$ 16.1	$ 0.5	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -
2009	$ 0.6	$ -	$ 0.7	$ -	$ -	$ 0.0	$ -	$ 0.0	$ -	$ -
2010	$ 0.5	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ (0.6)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -
2013	$ -	$ -	$ -	$ (1.5)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2014	$ -	$ -	$ -	$ (1.5)	$ 0.2	$ -	$ -	$ -	$ 0.0	$ -
2015	$ -	$ -	$ -	$ (1.5)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2016	$ -	$ -	$ -	$ (1.4)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2017	$ -	$ -	$ -	$ (1.4)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2018	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2019	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2020	$ -	$ -	$ -	$ (1.3)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2021	$ -	$ -	$ -	$ (1.2)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2022	$ -	$ -	$ -	$ (1.2)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2023	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2024	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2025	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2026	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2027	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2028	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
2029	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -
Total	**$ 3.6**	**$ 43.8**	**$ 1.5**	**$ (21.1)**	**$ 2.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.3**	**$ -**
Ann.	**$ 0.2**	**$ 2.5**	**$ 0.1**	**$ (1.2)**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**

	Disinfecting Ground Water CWS					Disinfecting Ground Water NTNCWS				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.1	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -
2006	$ 3.1	$ 0.1	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -
2007	$ -	$ 1.0	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ -	$ -
2008	$ 0.0	$ 5.7	$ 0.2	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -
2009	$ 1.5	$ -	$ 2.2	$ -	$ -	$ 0.2	$ -	$ 0.4	$ -	$ -
2010	$ 1.4	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.0	$ -
2012	$ -	$ -	$ -	$ 2.3	$ -	$ -	$ -	$ -	$ 0.3	$ -
2013	$ -	$ -	$ -	$ 4.2	$ -	$ -	$ -	$ -	$ 0.5	$ -
2014	$ -	$ -	$ -	$ 4.1	$ -	$ -	$ -	$ -	$ 0.5	$ -
2015	$ -	$ -	$ -	$ 3.9	$ -	$ -	$ -	$ -	$ 0.5	$ -
2016	$ -	$ -	$ -	$ 3.8	$ -	$ -	$ -	$ -	$ 0.5	$ -
2017	$ -	$ -	$ -	$ 3.7	$ -	$ -	$ -	$ -	$ 0.5	$ -
2018	$ -	$ -	$ -	$ 3.6	$ -	$ -	$ -	$ -	$ 0.5	$ -
2019	$ -	$ -	$ -	$ 3.5	$ -	$ -	$ -	$ -	$ 0.5	$ -
2020	$ -	$ -	$ -	$ 3.4	$ -	$ -	$ -	$ -	$ 0.4	$ -
2021	$ -	$ -	$ -	$ 3.3	$ -	$ -	$ -	$ -	$ 0.4	$ -
2022	$ -	$ -	$ -	$ 3.2	$ -	$ -	$ -	$ -	$ 0.4	$ -
2023	$ -	$ -	$ -	$ 3.1	$ -	$ -	$ -	$ -	$ 0.4	$ -
2024	$ -	$ -	$ -	$ 3.0	$ -	$ -	$ -	$ -	$ 0.4	$ -
2025	$ -	$ -	$ -	$ 2.9	$ -	$ -	$ -	$ -	$ 0.4	$ -
2026	$ -	$ -	$ -	$ 2.9	$ -	$ -	$ -	$ -	$ 0.4	$ -
2027	$ -	$ -	$ -	$ 2.8	$ -	$ -	$ -	$ -	$ 0.4	$ -
2028	$ -	$ -	$ -	$ 2.7	$ -	$ -	$ -	$ -	$ 0.3	$ -
2029	$ -	$ -	$ -	$ 2.6	$ -	$ -	$ -	$ -	$ 0.3	$ -
Total	**$ 6.1**	**$ 6.8**	**$ 2.4**	**$ 59.1**	**$ -**	**$ 1.0**	**$ 0.0**	**$ 0.4**	**$ 7.6**	**$ -**
Ann.	**$ 0.3**	**$ 0.4**	**$ 0.1**	**$ 3.4**	**$ -**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.4**	**$ -**

	Total				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.7	$ -	$ -	$ -	$ -
2006	$ 4.9	$ 7.8	$ -	$ -	$ -
2007	$ -	$ 20.9	$ 0.2	$ -	$ -
2008	$ 0.6	$ 21.8	$ 0.7	$ -	$ -
2009	$ 2.4	$ -	$ 3.3	$ -	$ -
2010	$ 2.2	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.4	$ -
2012	$ -	$ -	$ -	$ 2.0	$ 0.0
2013	$ -	$ -	$ -	$ 3.2	$ 0.1
2014	$ -	$ -	$ -	$ 3.1	$ 0.2
2015	$ -	$ -	$ -	$ 3.0	$ 0.1
2016	$ -	$ -	$ -	$ 2.9	$ 0.1
2017	$ -	$ -	$ -	$ 2.9	$ 0.1
2018	$ -	$ -	$ -	$ 2.8	$ 0.1
2019	$ -	$ -	$ -	$ 2.7	$ 0.1
2020	$ -	$ -	$ -	$ 2.6	$ 0.1
2021	$ -	$ -	$ -	$ 2.5	$ 0.1
2022	$ -	$ -	$ -	$ 2.5	$ 0.1
2023	$ -	$ -	$ -	$ 2.4	$ 0.1
2024	$ -	$ -	$ -	$ 2.3	$ 0.1
2025	$ -	$ -	$ -	$ 2.3	$ 0.1
2026	$ -	$ -	$ -	$ 2.2	$ 0.1
2027	$ -	$ -	$ -	$ 2.1	$ 0.1
2028	$ -	$ -	$ -	$ 2.1	$ 0.1
2029	$ -	$ -	$ -	$ 2.0	$ 0.1
Total	**$ 10.8**	**$ 50.6**	**$ 4.2**	**$ 45.9**	**$ 2.1**
Ann.	**$ 0.6**	**$ 2.9**	**$ 0.2**	**$ 2.6**	**$ 0.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.5a through h.

Exhibit J.5m Present Value of Annual Cost Projections at 7% Discount Rate
(All Systems and Primacy Agencies)

Alternative 3

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Primacy Agencies	Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound				90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Point Estimate	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.6	$ 0.6	$ 0.6	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 3.4	$ 4.1	$ 4.1	$ 4.1
2006	$ 8.0	$ 8.0	$ 8.0	$ 0.1	$ 0.1	$ 0.1	$ 2.9	$ 2.9	$ 2.9	$ 0.5	$ 0.5	$ 0.5	$ 3.2	$ 14.6	$ 14.6	$ 14.6
2007	$ 17.3	$ 17.3	$ 17.3	$ 0.0	$ 0.0	$ 0.0	$ 0.8	$ 0.8	$ 0.8	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 18.3	$ 18.3	$ 18.3
2008	$ 550.0	$ 452.0	$ 653.5	$ 0.7	$ 0.6	$ 0.9	$ 18.6	$ 16.8	$ 20.4	$ 0.0	$ 0.0	$ 0.0	$ 1.5	$ 570.9	$ 470.9	$ 676.4
2009	$ 763.4	$ 623.7	$ 911.2	$ 7.5	$ 6.1	$ 9.0	$ 40.9	$ 35.7	$ 46.1	$ 1.4	$ 1.3	$ 1.6	$ 0.6	$ 813.9	$ 667.4	$ 968.4
2010	$ 923.3	$ 754.2	$ 1,102.1	$ 14.2	$ 11.6	$ 16.9	$ 59.7	$ 51.9	$ 67.7	$ 2.0	$ 1.8	$ 2.3	$ -	$ 999.2	$ 819.3	$ 1,189.0
2011	$ 914.3	$ 747.5	$ 1,090.3	$ 14.9	$ 12.2	$ 17.8	$ 59.1	$ 51.4	$ 66.8	$ 1.9	$ 1.6	$ 2.1	$ -	$ 991.1	$ 813.6	$ 1,177.9
2012	$ 902.0	$ 738.0	$ 1,074.9	$ 15.5	$ 12.6	$ 18.4	$ 60.6	$ 53.2	$ 68.1	$ 2.1	$ 1.8	$ 2.3	$ -	$ 981.1	$ 806.6	$ 1,164.7
2013	$ 505.3	$ 414.3	$ 600.9	$ 15.4	$ 12.6	$ 18.3	$ 51.9	$ 46.0	$ 57.9	$ 2.3	$ 2.0	$ 2.5	$ -	$ 575.7	$ 475.7	$ 680.4
2014	$ 327.9	$ 270.0	$ 388.1	$ 10.9	$ 9.0	$ 12.9	$ 33.9	$ 30.6	$ 37.2	$ 1.6	$ 1.4	$ 1.7	$ -	$ 375.1	$ 311.8	$ 440.8
2015	$ 195.7	$ 162.4	$ 229.8	$ 6.3	$ 5.3	$ 7.5	$ 18.4	$ 17.2	$ 19.5	$ 0.9	$ 0.8	$ 0.9	$ -	$ 222.1	$ 186.5	$ 258.5
2016	$ 182.9	$ 151.8	$ 214.8	$ 5.9	$ 4.9	$ 7.0	$ 17.2	$ 16.1	$ 18.2	$ 0.8	$ 0.8	$ 0.9	$ -	$ 207.6	$ 174.3	$ 241.6
2017	$ 171.0	$ 141.9	$ 200.7	$ 5.5	$ 4.6	$ 6.5	$ 16.1	$ 15.1	$ 17.0	$ 0.8	$ 0.7	$ 0.8	$ -	$ 194.0	$ 162.9	$ 225.8
2018	$ 159.8	$ 132.6	$ 187.6	$ 5.2	$ 4.3	$ 6.1	$ 15.0	$ 14.1	$ 15.9	$ 0.7	$ 0.7	$ 0.8	$ -	$ 181.3	$ 152.3	$ 211.0
2019	$ 149.3	$ 123.9	$ 175.3	$ 4.8	$ 4.0	$ 5.7	$ 14.0	$ 13.2	$ 14.9	$ 0.7	$ 0.6	$ 0.7	$ -	$ 169.4	$ 142.3	$ 197.2
2020	$ 139.6	$ 115.8	$ 163.9	$ 4.5	$ 3.7	$ 5.3	$ 13.1	$ 12.3	$ 13.9	$ 0.6	$ 0.6	$ 0.7	$ -	$ 158.4	$ 133.0	$ 184.3
2021	$ 130.4	$ 108.2	$ 153.1	$ 4.2	$ 3.5	$ 5.0	$ 12.2	$ 11.5	$ 13.0	$ 0.6	$ 0.6	$ 0.6	$ -	$ 148.0	$ 124.3	$ 172.2
2022	$ 121.9	$ 101.1	$ 143.1	$ 3.9	$ 3.3	$ 4.6	$ 11.4	$ 10.7	$ 12.2	$ 0.6	$ 0.5	$ 0.6	$ -	$ 138.3	$ 116.2	$ 161.0
2023	$ 113.9	$ 94.5	$ 133.8	$ 3.7	$ 3.1	$ 4.3	$ 10.7	$ 10.0	$ 11.4	$ 0.5	$ 0.5	$ 0.5	$ -	$ 129.3	$ 108.6	$ 150.4
2024	$ 106.5	$ 88.3	$ 125.0	$ 3.4	$ 2.9	$ 4.1	$ 10.0	$ 9.4	$ 10.6	$ 0.5	$ 0.5	$ 0.5	$ -	$ 120.8	$ 101.5	$ 140.6
2025	$ 99.5	$ 82.6	$ 116.8	$ 3.2	$ 2.7	$ 3.8	$ 9.3	$ 8.8	$ 9.9	$ 0.5	$ 0.4	$ 0.5	$ -	$ 112.9	$ 94.8	$ 131.4
2026	$ 93.0	$ 77.2	$ 109.2	$ 3.0	$ 2.5	$ 3.5	$ 8.7	$ 8.2	$ 9.3	$ 0.4	$ 0.4	$ 0.4	$ -	$ 105.5	$ 88.6	$ 122.8
2027	$ 86.9	$ 72.1	$ 102.0	$ 2.8	$ 2.3	$ 3.3	$ 8.2	$ 7.7	$ 8.7	$ 0.4	$ 0.4	$ 0.4	$ -	$ 98.6	$ 82.8	$ 114.8
2028	$ 81.2	$ 67.4	$ 95.4	$ 2.6	$ 2.2	$ 3.1	$ 7.6	$ 7.2	$ 8.1	$ 0.4	$ 0.4	$ 0.4	$ -	$ 92.2	$ 77.4	$ 107.3
2029	$ 75.9	$ 63.0	$ 89.1	$ 2.5	$ 2.0	$ 2.9	$ 7.1	$ 6.7	$ 7.6	$ 0.3	$ 0.3	$ 0.4	$ -	$ 86.1	$ 72.3	$ 100.2
Total	**$ 6,819.7**	**$ 5,608.3**	**$ 8,086.6**	**$ 140.9**	**$ 116.0**	**$ 167.0**	**$ 507.7**	**$ 457.4**	**$ 558.1**	**$ 20.4**	**$ 18.7**	**$ 22.0**	**$ 8.8**	**$ 7,508.4**	**$ 6,220.1**	**$ 8,853.6**
Ann.	**$ 585.2**	**$ 481.3**	**$ 693.9**	**$ 12.1**	**$ 10.0**	**$ 14.3**	**$ 43.6**	**$ 39.2**	**$ 47.9**	**$ 1.7**	**$ 1.6**	**$ 1.9**	**$ 0.8**	**$ 644.3**	**$ 533.8**	**$ 759.7**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.5a through h.

Exhibit J.5n Present Value of Annual Treatment Cost Projections at 7% Discount Rate
(All Systems)

Alternative 3

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ 535.9	$ 437.9	$ 639.4	$ 0.7	$ 0.6	$ 0.9	$ 13.7	$ 11.9	$ 15.5	$ 0.0	$ 0.0	$ 0.0	$ 550.3	$ 450.3	$ 655.8
2009	$ 735.3	$ 600.1	$ 878.4	$ 7.4	$ 6.0	$ 8.9	$ 36.8	$ 31.7	$ 41.9	$ 1.0	$ 0.8	$ 1.1	$ 780.4	$ 638.7	$ 930.2
2010	$ 856.1	$ 698.3	$ 1,023.4	$ 13.2	$ 10.8	$ 15.8	$ 54.6	$ 47.0	$ 62.3	$ 1.8	$ 1.5	$ 2.0	$ 925.7	$ 757.6	$ 1,103.5
2011	$ 800.1	$ 652.6	$ 956.5	$ 12.3	$ 10.1	$ 14.8	$ 51.1	$ 44.0	$ 58.2	$ 1.6	$ 1.4	$ 1.9	$ 865.2	$ 708.0	$ 1,031.3
2012	$ 747.8	$ 609.9	$ 893.9	$ 11.5	$ 9.4	$ 13.8	$ 47.7	$ 41.1	$ 54.4	$ 1.5	$ 1.3	$ 1.8	$ 808.6	$ 661.7	$ 963.8
2013	$ 316.8	$ 257.8	$ 379.6	$ 10.2	$ 8.4	$ 12.3	$ 34.8	$ 29.9	$ 39.8	$ 1.4	$ 1.2	$ 1.6	$ 363.3	$ 297.3	$ 433.2
2014	$ 128.9	$ 104.9	$ 154.5	$ 4.8	$ 3.9	$ 5.7	$ 15.4	$ 13.3	$ 17.6	$ 0.7	$ 0.6	$ 0.8	$ 149.8	$ 122.6	$ 178.6
2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 4,120.8**	**$ 3,361.4**	**$ 4,925.5**	**$ 60.2**	**$ 49.1**	**$ 72.2**	**$ 254.2**	**$ 218.9**	**$ 289.6**	**$ 8.0**	**$ 6.8**	**$ 9.2**	**$ 4,443.3**	**$ 3,636.3**	**$ 5,296.5**
Ann.	**$ 353.6**	**$ 288.4**	**$ 422.7**	**$ 5.2**	**$ 4.2**	**$ 6.2**	**$ 21.8**	**$ 18.8**	**$ 24.9**	**$ 0.7**	**$ 0.6**	**$ 0.8**	**$ 381.3**	**$ 312.0**	**$ 454.5**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.5a through h.

Exhibit J.5o Present Value of Annual Treatment Cost Projections at 7% Discount Rate
(All Systems)

Alternative 3

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009	$ 27.1	$ 22.5	$ 31.7	$ 0.0	$ 0.0	$ 0.0	$ 1.2	$ 1.1	$ 1.3	$ 0.0	$ 0.0	$ 0.0	$ 28.3	$ 23.7	$ 33.1
2010	$ 66.7	$ 55.5	$ 78.2	$ 0.9	$ 0.8	$ 1.1	$ 4.0	$ 3.7	$ 4.3	$ 0.1	$ 0.1	$ 0.1	$ 71.8	$ 60.1	$ 83.8
2011	$ 113.9	$ 94.6	$ 133.6	$ 2.5	$ 2.1	$ 3.0	$ 7.9	$ 7.4	$ 8.5	$ 0.2	$ 0.2	$ 0.2	$ 124.6	$ 104.3	$ 145.3
2012	$ 154.6	$ 128.4	$ 181.4	$ 3.9	$ 3.2	$ 4.6	$ 11.3	$ 10.5	$ 12.1	$ 0.3	$ 0.3	$ 0.4	$ 170.2	$ 142.5	$ 198.5
2013	$ 189.5	$ 157.4	$ 222.3	$ 5.1	$ 4.2	$ 6.0	$ 14.2	$ 13.2	$ 15.2	$ 0.5	$ 0.4	$ 0.5	$ 209.3	$ 175.3	$ 244.1
2014	$ 199.9	$ 166.0	$ 234.5	$ 6.1	$ 5.1	$ 7.2	$ 15.8	$ 14.7	$ 16.9	$ 0.5	$ 0.5	$ 0.6	$ 222.3	$ 186.2	$ 259.2
2015	$ 196.6	$ 163.2	$ 230.7	$ 6.3	$ 5.2	$ 7.4	$ 15.9	$ 14.7	$ 17.0	$ 0.6	$ 0.5	$ 0.6	$ 219.3	$ 183.8	$ 255.7
2016	$ 183.7	$ 152.6	$ 215.6	$ 5.9	$ 4.9	$ 7.0	$ 14.8	$ 13.8	$ 15.9	$ 0.5	$ 0.5	$ 0.6	$ 205.0	$ 171.7	$ 239.0
2017	$ 171.7	$ 142.6	$ 201.5	$ 5.5	$ 4.6	$ 6.5	$ 13.9	$ 12.9	$ 14.9	$ 0.5	$ 0.5	$ 0.5	$ 191.6	$ 160.5	$ 223.4
2018	$ 160.5	$ 133.3	$ 188.3	$ 5.2	$ 4.3	$ 6.1	$ 13.0	$ 12.0	$ 13.9	$ 0.5	$ 0.4	$ 0.5	$ 179.0	$ 150.0	$ 208.7
2019	$ 150.0	$ 124.5	$ 176.0	$ 4.8	$ 4.0	$ 5.7	$ 12.1	$ 11.2	$ 13.0	$ 0.4	$ 0.4	$ 0.5	$ 167.3	$ 140.2	$ 195.1
2020	$ 140.1	$ 116.4	$ 164.5	$ 4.5	$ 3.7	$ 5.3	$ 11.3	$ 10.5	$ 12.1	$ 0.4	$ 0.4	$ 0.4	$ 156.4	$ 131.0	$ 182.3
2021	$ 131.0	$ 108.8	$ 153.7	$ 4.2	$ 3.5	$ 5.0	$ 10.6	$ 9.8	$ 11.3	$ 0.4	$ 0.3	$ 0.4	$ 146.2	$ 122.4	$ 170.4
2022	$ 122.4	$ 101.7	$ 143.6	$ 3.9	$ 3.3	$ 4.6	$ 9.9	$ 9.2	$ 10.6	$ 0.4	$ 0.3	$ 0.4	$ 136.6	$ 114.4	$ 159.2
2023	$ 114.4	$ 95.0	$ 134.2	$ 3.7	$ 3.1	$ 4.3	$ 9.2	$ 8.6	$ 9.9	$ 0.3	$ 0.3	$ 0.4	$ 127.7	$ 106.9	$ 148.8
2024	$ 106.9	$ 88.8	$ 125.5	$ 3.4	$ 2.9	$ 4.1	$ 8.6	$ 8.0	$ 9.3	$ 0.3	$ 0.3	$ 0.3	$ 119.3	$ 100.0	$ 139.1
2025	$ 99.9	$ 83.0	$ 117.3	$ 3.2	$ 2.7	$ 3.8	$ 8.1	$ 7.5	$ 8.6	$ 0.3	$ 0.3	$ 0.3	$ 111.5	$ 93.4	$ 130.0
2026	$ 93.4	$ 77.6	$ 109.6	$ 3.0	$ 2.5	$ 3.5	$ 7.5	$ 7.0	$ 8.1	$ 0.3	$ 0.2	$ 0.3	$ 104.2	$ 87.3	$ 121.5
2027	$ 87.3	$ 72.5	$ 102.4	$ 2.8	$ 2.3	$ 3.3	$ 7.1	$ 6.5	$ 7.6	$ 0.3	$ 0.2	$ 0.3	$ 97.4	$ 81.6	$ 113.5
2028	$ 81.6	$ 67.7	$ 95.7	$ 2.6	$ 2.2	$ 3.1	$ 6.6	$ 6.1	$ 7.1	$ 0.2	$ 0.2	$ 0.3	$ 91.0	$ 76.3	$ 106.1
2029	$ 76.2	$ 63.3	$ 89.5	$ 2.5	$ 2.0	$ 2.9	$ 6.2	$ 5.7	$ 6.6	$ 0.2	$ 0.2	$ 0.2	$ 85.1	$ 71.3	$ 99.2
Total	**$ 2,667.4**	**$ 2,215.4**	**$ 3,129.6**	**$ 80.3**	**$ 66.5**	**$ 94.5**	**$ 209.3**	**$ 194.3**	**$ 224.3**	**$ 7.2**	**$ 6.6**	**$ 7.7**	**$ 2,964.1**	**$ 2,482.8**	**$ 3,456.1**
Ann.	**$ 228.9**	**$ 190.1**	**$ 268.6**	**$ 6.9**	**$ 5.7**	**$ 8.1**	**$ 18.0**	**$ 16.7**	**$ 19.3**	**$ 0.6**	**$ 0.6**	**$ 0.7**	**$ 254.4**	**$ 213.1**	**$ 296.6**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.

Source: Derived from Exhibits J.5a through h.

Exhibit J.5p Present Value of Annual Cost Projections at 7% Discount Rate
(All Systems)

Alternative 3

	Surface Water CWS					Surface Water NTNCWS					Disinfecting Ground Water CWS					Disinfecting Ground Water NTNCWS					Total				
	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion
2005	$ 0.6	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.7	$ -	$ -	$ -	$ -
2006	$ 1.1	$ 6.9	$ -	$ -	$ -	$ 0.1	$ 0.0	$ -	$ -	$ -	$ 2.8	$ 0.1	$ -	$ -	$ -	$ 0.5	$ -	$ -	$ -	$ -	$ 4.4	$ 7.0	$ -	$ -	$ -
2007	$ -	$ 17.1	$ 0.2	$ -	$ -	$ -	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 0.8	$ 0.0	$ -	$ -	$ -	$ 0.0	$ 0.0	$ -	$ -	$ -	$ 18.0	$ 0.2	$ -	$ -
2008	$ 0.4	$ 13.3	$ 0.4	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ 0.0	$ 4.7	$ 0.2	$ -	$ -	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ 0.5	$ 18.0	$ 0.6	$ -	$ -
2009	$ 0.5	$ -	$ 0.6	$ -	$ -	$ 0.0	$ -	$ 0.0	$ -	$ -	$ 1.2	$ -	$ 1.7	$ -	$ -	$ 0.2	$ -	$ 0.3	$ -	$ -	$ 1.9	$ -	$ 2.6	$ -	$ -
2010	$ 0.4	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.1	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.7	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 0.3	$ -
2012	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.6	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.4	$ 0.0
2013	$ -	$ -	$ -	$ (1.1)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.9	$ -	$ -	$ -	$ -	$ 0.4	$ -	$ -	$ -	$ -	$ 2.2	$ 0.1
2014	$ -	$ -	$ -	$ (1.0)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.7	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 2.1	$ 0.1
2015	$ -	$ -	$ -	$ (0.9)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.5	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 1.9	$ 0.1
2016	$ -	$ -	$ -	$ (0.9)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.3	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 1.8	$ 0.1
2017	$ -	$ -	$ -	$ (0.8)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.2	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 1.7	$ 0.1
2018	$ -	$ -	$ -	$ (0.7)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 2.0	$ -	$ -	$ -	$ -	$ 0.3	$ -	$ -	$ -	$ -	$ 1.6	$ 0.1
2019	$ -	$ -	$ -	$ (0.7)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.9	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.5	$ 0.1
2020	$ -	$ -	$ -	$ (0.7)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.8	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.4	$ 0.1
2021	$ -	$ -	$ -	$ (0.6)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.7	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.3	$ 0.1
2022	$ -	$ -	$ -	$ (0.6)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.6	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.2	$ 0.1
2023	$ -	$ -	$ -	$ (0.5)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.5	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.1	$ 0.1
2024	$ -	$ -	$ -	$ (0.5)	$ 0.1	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.4	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.0	$ 0.1
2025	$ -	$ -	$ -	$ (0.5)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.3	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 1.0	$ 0.0
2026	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.2	$ -	$ -	$ -	$ -	$ 0.2	$ -	$ -	$ -	$ -	$ 0.9	$ 0.0
2027	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.1	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.9	$ 0.0
2028	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.8	$ 0.0
2029	$ -	$ -	$ -	$ (0.4)	$ 0.0	$ -	$ -	$ -	$ 0.0	$ -	$ -	$ -	$ -	$ 1.0	$ -	$ -	$ -	$ -	$ 0.1	$ -	$ -	$ -	$ -	$ 0.7	$ 0.0
Total	**$ 3.0**	**$ 37.3**	**$ 1.2**	**$ (11.2)**	**$ 1.1**	**$ 0.1**	**$ 0.1**	**$ 0.0**	**$ 0.2**	**$ -**	**$ 5.1**	**$ 5.6**	**$ 1.9**	**$ 31.5**	**$ -**	**$ 0.8**	**$ 0.0**	**$ 0.3**	**$ 4.1**	**$ -**	**$ 9.1**	**$ 43.0**	**$ 3.4**	**$ 24.6**	**$ 1.1**
Ann.	**$ 0.3**	**$ 3.2**	**$ 0.1**	**$ (1.0)**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ 0.0**	**$ -**	**$ 0.4**	**$ 0.5**	**$ 0.2**	**$ 2.7**	**$ -**	**$ 0.1**	**$ 0.0**	**$ 0.0**	**$ 0.3**	**$ -**	**$ 0.8**	**$ 3.7**	**$ 0.3**	**$ 2.1**	**$ 0.1**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.5a through h.

Section J.6
Cost Projections
Preferred Alternative, 20% Safety Margin

Exhibit J.6a Projections of Stage 2 DBPR PWS Costs
(All Surface Water CWSs)

Preferred Alternative, 20% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.69	$ -	$ -	$ -	$ -	$ 0.69	$ 0.69	$ 0.69
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.34	$ 8.46	$ -	$ -	$ -	$ 9.80	$ 9.80	$ 9.80
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.45	$ 0.22	$ -	$ -	$ 22.67	$ 22.67	$ 22.67
2008	$ 60.05	$ 30.86	$ 91.03	$ -	$ -	$ -	$ 0.60	$ 18.62	$ 0.62	$ -	$ -	$ 79.88	$ 50.69	$ 110.86
2009	$ 88.76	$ 45.67	$ 134.49	$ 3.58	$ 1.86	$ 5.32	$ 0.75	$ -	$ 0.88	$ -	$ -	$ 93.97	$ 49.16	$ 141.44
2010	$ 110.63	$ 56.96	$ 167.64	$ 9.36	$ 4.86	$ 13.90	$ 0.67	$ -	$ -	$ -	$ -	$ 120.67	$ 62.49	$ 182.21
2011	$ 110.63	$ 56.96	$ 167.64	$ 16.96	$ 8.81	$ 25.17	$ -	$ -	$ -	$ 0.42	$ -	$ 128.01	$ 66.19	$ 193.23
2012	$ 110.63	$ 56.96	$ 167.64	$ 24.55	$ 12.75	$ 36.44	$ -	$ -	$ -	$ (0.77)	$ 0.06	$ 134.48	$ 69.01	$ 203.38
2013	$ 50.59	$ 26.10	$ 76.61	$ 32.14	$ 16.69	$ 47.72	$ -	$ -	$ -	$ (2.07)	$ 0.15	$ 80.80	$ 40.87	$ 122.41
2014	$ 21.88	$ 11.29	$ 33.14	$ 36.15	$ 18.78	$ 53.67	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 56.17	$ 28.21	$ 84.96
2015	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2016	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2017	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2018	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2019	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2020	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2021	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2022	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2023	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2024	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2025	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2026	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2027	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2028	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50
2029	$ -	$ -	$ -	$ 37.96	$ 19.72	$ 56.36	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 36.10	$ 17.86	$ 54.50

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.6b Projections of Stage 2 DBPR PWS Costs
(All Surface Water NTNCWSs)

Preferred Alternative, 20% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.08	$ 0.01	$ -	$ -	$ -	$ 0.09	$ 0.09	$ 0.09
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.04	$ 0.00	$ -	$ -	$ 0.04	$ 0.04	$ 0.04
2008	$ 0.08	$ 0.04	$ 0.12	$ -	$ -	$ -	$ 0.00	$ 0.02	$ 0.00	$ -	$ -	$ 0.11	$ 0.07	$ 0.15
2009	$ 0.80	$ 0.41	$ 1.23	$ 0.00	$ 0.00	$ 0.01	$ 0.04	$ -	$ 0.04	$ -	$ -	$ 0.88	$ 0.49	$ 1.31
2010	$ 1.51	$ 0.77	$ 2.33	$ 0.12	$ 0.06	$ 0.17	$ 0.04	$ -	$ -	$ -	$ -	$ 1.67	$ 0.88	$ 2.54
2011	$ 1.51	$ 0.77	$ 2.33	$ 0.34	$ 0.18	$ 0.50	$ -	$ -	$ -	$ 0.00	$ -	$ 1.86	$ 0.95	$ 2.83
2012	$ 1.51	$ 0.77	$ 2.33	$ 0.56	$ 0.29	$ 0.83	$ -	$ -	$ -	$ 0.02	$ -	$ 2.09	$ 1.08	$ 3.18
2013	$ 1.43	$ 0.73	$ 2.20	$ 0.78	$ 0.40	$ 1.16	$ -	$ -	$ -	$ 0.03	$ -	$ 2.24	$ 1.17	$ 3.39
2014	$ 0.72	$ 0.37	$ 1.10	$ 1.00	$ 0.52	$ 1.48	$ -	$ -	$ -	$ 0.03	$ -	$ 1.74	$ 0.91	$ 2.61
2015	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2016	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2017	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2018	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2019	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2020	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2021	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2022	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2023	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2024	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2025	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2026	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2027	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2028	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67
2029	$ -	$ -	$ -	$ 1.10	$ 0.57	$ 1.64	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.60	$ 1.67

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.6c Projections of Stage 2 DBPR PWS Costs

(All Surface Water Systems)

Preferred Alternative, 20% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.69	$ -	$ -	$ -	$ -	$ 0.69	$ 0.69	$ 0.69
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.42	$ 8.48	$ -	$ -	$ -	$ 9.90	$ 9.90	$ 9.90
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.49	$ 0.22	$ -	$ -	$ 22.71	$ 22.71	$ 22.71
2008	$ 60.13	$ 30.90	$ 91.15	$ -	$ -	$ -	$ 0.60	$ 18.64	$ 0.62	$ -	$ -	$ 79.99	$ 50.76	$ 111.01
2009	$ 89.56	$ 46.08	$ 135.72	$ 3.59	$ 1.86	$ 5.32	$ 0.79	$ -	$ 0.91	$ -	$ -	$ 94.85	$ 49.65	$ 142.75
2010	$ 112.15	$ 57.74	$ 169.97	$ 9.48	$ 4.92	$ 14.08	$ 0.71	$ -	$ -	$ -	$ -	$ 122.34	$ 63.37	$ 184.75
2011	$ 112.15	$ 57.74	$ 169.97	$ 17.29	$ 8.98	$ 25.68	$ -	$ -	$ -	$ 0.42	$ -	$ 129.87	$ 67.14	$ 196.07
2012	$ 112.15	$ 57.74	$ 169.97	$ 25.11	$ 13.04	$ 37.28	$ -	$ -	$ -	$ (0.75)	$ 0.06	$ 136.57	$ 70.09	$ 206.55
2013	$ 52.02	$ 26.83	$ 78.81	$ 32.92	$ 17.10	$ 48.88	$ -	$ -	$ -	$ (2.04)	$ 0.15	$ 83.05	$ 42.04	$ 125.80
2014	$ 22.59	$ 11.66	$ 34.25	$ 37.14	$ 19.29	$ 55.15	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 57.91	$ 29.12	$ 87.57
2015	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2016	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2017	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2018	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2019	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2020	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2021	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2022	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2023	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2024	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2025	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2026	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2027	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2028	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17
2029	$ -	$ -	$ -	$ 39.06	$ 20.29	$ 58.00	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 37.24	$ 18.46	$ 56.17

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.6d Projections of Stage 2 DBPR PWS Costs
(All Ground Water CWSs)

Preferred Alternative, 20% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.42	$ 0.09	$ -	$ -	$ -	$ 3.51	$ 3.51	$ 3.51
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.09	$ 0.02	$ -	$ -	$ 1.11	$ 1.11	$ 1.11
2008	$ 8.11	$ 7.22	$ 9.00	$ -	$ -	$ -	$ 0.05	$ 6.66	$ 0.22	$ -	$ -	$ 15.03	$ 14.14	$ 15.92
2009	$ 32.23	$ 27.71	$ 36.76	$ 0.78	$ 0.73	$ 0.83	$ 1.73	$ -	$ 2.58	$ -	$ -	$ 37.32	$ 32.75	$ 41.91
2010	$ 54.86	$ 46.87	$ 62.87	$ 3.35	$ 3.11	$ 3.58	$ 1.71	$ -	$ -	$ -	$ -	$ 59.91	$ 51.69	$ 68.16
2011	$ 54.86	$ 46.87	$ 62.87	$ 7.57	$ 7.03	$ 8.11	$ -	$ -	$ -	$ 0.08	$ -	$ 62.50	$ 53.98	$ 71.06
2012	$ 54.86	$ 46.87	$ 62.87	$ 11.79	$ 10.95	$ 12.63	$ -	$ -	$ -	$ 2.95	$ -	$ 69.60	$ 60.77	$ 78.46
2013	$ 46.75	$ 39.65	$ 53.87	$ 16.01	$ 14.87	$ 17.16	$ -	$ -	$ -	$ 5.63	$ -	$ 68.39	$ 60.15	$ 76.66
2014	$ 22.63	$ 19.16	$ 26.11	$ 19.46	$ 18.06	$ 20.85	$ -	$ -	$ -	$ 5.63	$ -	$ 47.71	$ 42.85	$ 52.59
2015	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2016	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2017	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2018	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2019	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2020	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2021	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2022	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2023	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2024	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2025	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2026	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2027	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2028	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2029	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26

Note: All values in millions of year 2003 dollars.
Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.6e Projections of Stage 2 DBPR PWS Costs
(All Ground Water NTNCWSs)

Preferred Alternative, 20% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.56	$ -	$ -	$ -	$ -	$ 0.56	$ 0.56	$ 0.56
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2008	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ 0.01	$ 0.01	$ 0.01
2009	$ 1.30	$ 1.09	$ 1.50	$ 0.00	$ 0.00	$ 0.00	$ 0.28	$ -	$ 0.46	$ -	$ -	$ 2.04	$ 1.84	$ 2.24
2010	$ 2.58	$ 2.18	$ 2.99	$ 0.12	$ 0.11	$ 0.13	$ 0.28	$ -	$ -	$ -	$ -	$ 2.99	$ 2.57	$ 3.40
2011	$ 2.58	$ 2.18	$ 2.99	$ 0.37	$ 0.34	$ 0.40	$ -	$ -	$ -	$ 0.00	$ -	$ 2.96	$ 2.52	$ 3.39
2012	$ 2.58	$ 2.18	$ 2.99	$ 0.61	$ 0.57	$ 0.66	$ -	$ -	$ -	$ 0.37	$ -	$ 3.56	$ 3.11	$ 4.01
2013	$ 2.58	$ 2.17	$ 2.98	$ 0.86	$ 0.79	$ 0.93	$ -	$ -	$ -	$ 0.73	$ -	$ 4.16	$ 3.69	$ 4.63
2014	$ 1.29	$ 1.08	$ 1.49	$ 1.10	$ 1.02	$ 1.19	$ -	$ -	$ -	$ 0.73	$ -	$ 3.12	$ 2.83	$ 3.40
2015	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2016	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2017	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2018	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2019	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2020	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2021	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2022	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2023	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2024	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2025	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2026	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2027	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2028	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2029	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.6f Projections of Stage 2 DBPR PWS Costs

(All Ground Water Systems)

Preferred Alternative, 20% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.98	$ 0.09	$ -	$ -	$ -	$ 4.07	$ 4.07	$ 4.07
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.09	$ 0.02	$ -	$ -	$ 1.11	$ 1.11	$ 1.11
2008	$ 8.12	$ 7.23	$ 9.01	$ -	$ -	$ -	$ 0.05	$ 6.66	$ 0.22	$ -	$ -	$ 15.04	$ 14.15	$ 15.93
2009	$ 33.53	$ 28.81	$ 38.26	$ 0.78	$ 0.73	$ 0.83	$ 2.01	$ -	$ 3.04	$ -	$ -	$ 39.36	$ 34.59	$ 44.15
2010	$ 57.44	$ 49.05	$ 65.86	$ 3.47	$ 3.22	$ 3.71	$ 1.99	$ -	$ -	$ -	$ -	$ 62.90	$ 54.26	$ 71.56
2011	$ 57.44	$ 49.05	$ 65.86	$ 7.94	$ 7.37	$ 8.51	$ -	$ -	$ -	$ 0.08	$ -	$ 65.46	$ 56.50	$ 74.45
2012	$ 57.44	$ 49.05	$ 65.86	$ 12.40	$ 11.52	$ 13.30	$ -	$ -	$ -	$ 3.32	$ -	$ 73.17	$ 63.88	$ 82.47
2013	$ 49.32	$ 41.82	$ 56.85	$ 16.87	$ 15.66	$ 18.09	$ -	$ -	$ -	$ 6.36	$ -	$ 72.55	$ 63.84	$ 81.29
2014	$ 23.91	$ 20.24	$ 27.60	$ 20.56	$ 19.08	$ 22.04	$ -	$ -	$ -	$ 6.36	$ -	$ 50.83	$ 45.68	$ 56.00
2015	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2016	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2017	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2018	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2019	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2020	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2021	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2022	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2023	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2024	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2025	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2026	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2027	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2028	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2029	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.6g Projections of Stage 2 DBPR PWS Costs

(All Systems)

Preferred Alternative, 20% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.76	$ -	$ -	$ -	$ -	$ 0.76	$ 0.76	$ 0.76
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 5.40	$ 8.56	$ -	$ -	$ -	$ 13.96	$ 13.96	$ 13.96
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 23.58	$ 0.24	$ -	$ -	$ 23.81	$ 23.81	$ 23.81
2008	$ 68.25	$ 38.13	$ 100.16	$ -	$ -	$ -	$ 0.65	$ 25.30	$ 0.83	$ -	$ -	$ 95.03	$ 64.91	$ 126.94
2009	$ 123.09	$ 74.89	$ 173.98	$ 4.37	$ 2.59	$ 6.16	$ 2.81	$ -	$ 3.95	$ -	$ -	$ 134.21	$ 84.24	$ 186.90
2010	$ 169.59	$ 106.78	$ 235.82	$ 12.95	$ 8.15	$ 17.79	$ 2.70	$ -	$ -	$ -	$ -	$ 185.24	$ 117.63	$ 256.31
2011	$ 169.59	$ 106.78	$ 235.82	$ 25.23	$ 16.35	$ 34.18	$ -	$ -	$ -	$ 0.51	$ -	$ 195.33	$ 123.64	$ 270.51
2012	$ 169.59	$ 106.78	$ 235.82	$ 37.51	$ 24.56	$ 50.57	$ -	$ -	$ -	$ 2.57	$ 0.06	$ 209.73	$ 133.97	$ 289.03
2013	$ 101.34	$ 68.66	$ 135.66	$ 49.79	$ 32.76	$ 66.96	$ -	$ -	$ -	$ 4.32	$ 0.15	$ 155.60	$ 105.88	$ 207.09
2014	$ 46.50	$ 31.90	$ 61.84	$ 57.70	$ 38.37	$ 77.19	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 108.74	$ 74.80	$ 143.57
2015	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2016	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2017	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2018	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2019	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2020	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2021	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2022	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2023	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2024	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2025	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2026	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2027	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2028	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49
2029	$ -	$ -	$ -	$ 61.40	$ 41.02	$ 81.95	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 65.93	$ 45.55	$ 86.49

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.6h Projections of Stage 2 DBPR Primacy Agency Costs

Preferred Alternative, 20% Safety Margin

Year	Implementation Costs	IDSE Costs	Monitoring Plan Costs	Compliance Monitoring Costs	Significant Excursion Report Costs
2005	$ 3.88	$ -	$ -	$ -	$ -
2006	$ 3.88	$ 0.04	$ -	$ -	$ -
2007	$ -	$ 0.13	$ 0.02	$ -	$ -
2008	$ -	$ 2.06	$ 0.06	$ -	$ -
2009	$ -	$ -	$ 0.85	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 1.59	$ 0.11
2012	$ -	$ -	$ -	$ 1.59	$ 0.11
2013	$ -	$ -	$ -	$ 1.59	$ 0.11
2014	$ -	$ -	$ -	$ 1.59	$ 0.11
2015	$ -	$ -	$ -	$ 1.59	$ 0.11
2016	$ -	$ -	$ -	$ 1.59	$ 0.11
2017	$ -	$ -	$ -	$ 1.59	$ 0.11
2018	$ -	$ -	$ -	$ 1.59	$ 0.11
2019	$ -	$ -	$ -	$ 1.59	$ 0.11
2020	$ -	$ -	$ -	$ 1.59	$ 0.11
2021	$ -	$ -	$ -	$ 1.59	$ 0.11
2022	$ -	$ -	$ -	$ 1.59	$ 0.11
2023	$ -	$ -	$ -	$ 1.59	$ 0.11
2024	$ -	$ -	$ -	$ 1.59	$ 0.11
2025	$ -	$ -	$ -	$ 1.59	$ 0.11
2026	$ -	$ -	$ -	$ 1.59	$ 0.11
2027	$ -	$ -	$ -	$ 1.59	$ 0.11
2028	$ -	$ -	$ -	$ 1.59	$ 0.11
2029	$ -	$ -	$ -	$ 1.59	$ 0.11

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1h and D.7.

Exhibit J.6i Present Value of Annual Cost Projections at 3% Discount Rate
(All Systems and Primacy Agencies)

Preferred Alternative, 20% Safety Margin

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Primacy Agencies	Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound				90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Point Estimate	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.6	$ 0.6	$ 0.6	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 3.7	$ 4.4	$ 4.4	$ 4.4
2006	$ 9.0	$ 9.0	$ 9.0	$ 0.1	$ 0.1	$ 0.1	$ 3.2	$ 3.2	$ 3.2	$ 0.5	$ 0.5	$ 0.5	$ 3.6	$ 16.4	$ 16.4	$ 16.4
2007	$ 20.1	$ 20.1	$ 20.1	$ 0.0	$ 0.0	$ 0.0	$ 1.0	$ 1.0	$ 1.0	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 21.3	$ 21.3	$ 21.3
2008	$ 68.9	$ 43.7	$ 95.6	$ 0.1	$ 0.1	$ 0.1	$ 13.0	$ 12.2	$ 13.7	$ 0.0	$ 0.0	$ 0.0	$ 1.8	$ 83.8	$ 57.8	$ 111.3
2009	$ 78.7	$ 41.2	$ 118.5	$ 0.7	$ 0.4	$ 1.1	$ 31.3	$ 27.4	$ 35.1	$ 1.7	$ 1.5	$ 1.9	$ 0.7	$ 113.1	$ 71.3	$ 157.2
2010	$ 98.1	$ 50.8	$ 148.2	$ 1.4	$ 0.7	$ 2.1	$ 48.7	$ 42.0	$ 55.4	$ 2.4	$ 2.1	$ 2.8	$ -	$ 150.6	$ 95.6	$ 208.4
2011	$ 101.1	$ 52.3	$ 152.5	$ 1.5	$ 0.8	$ 2.2	$ 49.3	$ 42.6	$ 56.1	$ 2.3	$ 2.0	$ 2.7	$ 1.3	$ 155.5	$ 99.0	$ 214.9
2012	$ 103.1	$ 52.9	$ 155.9	$ 1.6	$ 0.8	$ 2.4	$ 53.3	$ 46.6	$ 60.1	$ 2.7	$ 2.4	$ 3.1	$ 1.3	$ 162.1	$ 104.0	$ 222.8
2013	$ 60.1	$ 30.4	$ 91.1	$ 1.7	$ 0.9	$ 2.5	$ 50.9	$ 44.8	$ 57.0	$ 3.1	$ 2.7	$ 3.4	$ 1.3	$ 117.1	$ 80.1	$ 155.4
2014	$ 40.6	$ 20.4	$ 61.4	$ 1.3	$ 0.7	$ 1.9	$ 34.5	$ 31.0	$ 38.0	$ 2.3	$ 2.0	$ 2.5	$ 1.2	$ 79.8	$ 55.3	$ 104.9
2015	$ 25.3	$ 12.5	$ 38.2	$ 0.8	$ 0.4	$ 1.2	$ 18.8	$ 17.7	$ 19.8	$ 1.4	$ 1.3	$ 1.4	$ 1.2	$ 47.4	$ 33.1	$ 61.9
2016	$ 24.6	$ 12.2	$ 37.1	$ 0.8	$ 0.4	$ 1.1	$ 18.2	$ 17.2	$ 19.2	$ 1.3	$ 1.3	$ 1.4	$ 1.2	$ 46.1	$ 32.2	$ 60.1
2017	$ 23.9	$ 11.8	$ 36.0	$ 0.7	$ 0.4	$ 1.1	$ 17.7	$ 16.7	$ 18.7	$ 1.3	$ 1.2	$ 1.4	$ 1.1	$ 44.7	$ 31.2	$ 58.3
2018	$ 23.2	$ 11.5	$ 35.0	$ 0.7	$ 0.4	$ 1.1	$ 17.2	$ 16.2	$ 18.1	$ 1.3	$ 1.2	$ 1.3	$ 1.1	$ 43.4	$ 30.3	$ 56.6
2019	$ 22.5	$ 11.1	$ 34.0	$ 0.7	$ 0.4	$ 1.0	$ 16.7	$ 15.7	$ 17.6	$ 1.2	$ 1.2	$ 1.3	$ 1.1	$ 42.2	$ 29.4	$ 55.0
2020	$ 21.8	$ 10.8	$ 33.0	$ 0.7	$ 0.4	$ 1.0	$ 16.2	$ 15.3	$ 17.1	$ 1.2	$ 1.1	$ 1.2	$ 1.0	$ 40.9	$ 28.6	$ 53.4
2021	$ 21.2	$ 10.5	$ 32.0	$ 0.7	$ 0.4	$ 1.0	$ 15.7	$ 14.8	$ 16.6	$ 1.1	$ 1.1	$ 1.2	$ 1.0	$ 39.7	$ 27.8	$ 51.8
2022	$ 20.6	$ 10.2	$ 31.1	$ 0.6	$ 0.3	$ 1.0	$ 15.3	$ 14.4	$ 16.1	$ 1.1	$ 1.1	$ 1.2	$ 1.0	$ 38.6	$ 27.0	$ 50.3
2023	$ 20.0	$ 9.9	$ 30.2	$ 0.6	$ 0.3	$ 0.9	$ 14.8	$ 14.0	$ 15.6	$ 1.1	$ 1.0	$ 1.1	$ 0.9	$ 37.5	$ 26.2	$ 48.8
2024	$ 19.4	$ 9.6	$ 29.3	$ 0.6	$ 0.3	$ 0.9	$ 14.4	$ 13.6	$ 15.2	$ 1.1	$ 1.0	$ 1.1	$ 0.9	$ 36.4	$ 25.4	$ 47.4
2025	$ 18.8	$ 9.3	$ 28.4	$ 0.6	$ 0.3	$ 0.9	$ 14.0	$ 13.2	$ 14.7	$ 1.0	$ 1.0	$ 1.1	$ 0.9	$ 35.3	$ 24.7	$ 46.0
2026	$ 18.3	$ 9.0	$ 27.6	$ 0.6	$ 0.3	$ 0.8	$ 13.6	$ 12.8	$ 14.3	$ 1.0	$ 0.9	$ 1.0	$ 0.9	$ 34.3	$ 23.9	$ 44.7
2027	$ 17.8	$ 8.8	$ 26.8	$ 0.6	$ 0.3	$ 0.8	$ 13.2	$ 12.4	$ 13.9	$ 1.0	$ 0.9	$ 1.0	$ 0.8	$ 33.3	$ 23.2	$ 43.4
2028	$ 17.2	$ 8.5	$ 26.0	$ 0.5	$ 0.3	$ 0.8	$ 12.8	$ 12.0	$ 13.5	$ 0.9	$ 0.9	$ 1.0	$ 0.8	$ 32.3	$ 22.6	$ 42.1
2029	$ 16.7	$ 8.3	$ 25.3	$ 0.5	$ 0.3	$ 0.8	$ 12.4	$ 11.7	$ 13.1	$ 0.9	$ 0.9	$ 0.9	$ 0.8	$ 31.4	$ 21.9	$ 40.9
Total	**$ 891.7**	**$ 475.4**	**$ 1,322.9**	**$ 18.1**	**$ 9.6**	**$ 26.9**	**$ 515.9**	**$ 468.4**	**$ 563.5**	**$ 31.9**	**$ 29.3**	**$ 34.5**	**$ 29.8**	**$ 1,487.3**	**$ 1,012.6**	**$ 1,977.6**
Ann.	**$ 51.2**	**$ 27.3**	**$ 76.0**	**$ 1.0**	**$ 0.6**	**$ 1.5**	**$ 29.6**	**$ 26.9**	**$ 32.4**	**$ 1.8**	**$ 1.7**	**$ 2.0**	**$ 1.7**	**$ 85.4**	**$ 58.2**	**$ 113.6**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.6a through h.

Section J.7
Cost Projections
Preferred Alternative, 25% Safety Margin

Exhibit J.7a Projections of Stage 2 DBPR PWS Costs
(All Surface Water CWSs)

Preferred Alternative, 25% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.69	$ -	$ -	$ -	$ -	$ 0.69	$ 0.69	$ 0.69
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.34	$ 8.46	$ -	$ -	$ -	$ 9.80	$ 9.80	$ 9.80
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.45	$ 0.22	$ -	$ -	$ 22.67	$ 22.67	$ 22.67
2008	$ 73.10	$ 47.73	$ 100.80	$ -	$ -	$ -	$ 0.60	$ 18.62	$ 0.62	$ -	$ -	$ 92.93	$ 67.56	$ 120.63
2009	$ 104.74	$ 66.91	$ 145.81	$ 2.90	$ 1.92	$ 3.90	$ 0.75	$ -	$ 0.88	$ -	$ -	$ 109.26	$ 70.46	$ 151.34
2010	$ 128.44	$ 80.91	$ 179.89	$ 7.92	$ 5.10	$ 10.82	$ 0.67	$ -	$ -	$ -	$ -	$ 137.03	$ 86.68	$ 191.38
2011	$ 128.44	$ 80.91	$ 179.89	$ 14.72	$ 9.29	$ 20.27	$ -	$ -	$ -	$ 0.42	$ -	$ 143.58	$ 90.62	$ 200.58
2012	$ 128.44	$ 80.91	$ 179.89	$ 21.52	$ 13.48	$ 29.72	$ -	$ -	$ -	$ (0.77)	$ 0.06	$ 149.25	$ 93.68	$ 208.91
2013	$ 55.34	$ 33.18	$ 79.09	$ 28.32	$ 17.67	$ 39.18	$ -	$ -	$ -	$ (2.07)	$ 0.15	$ 81.74	$ 48.93	$ 116.35
2014	$ 23.70	$ 14.00	$ 34.08	$ 32.23	$ 19.93	$ 44.73	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 54.07	$ 32.08	$ 76.95
2015	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2016	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2017	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2018	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2019	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2020	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2021	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2022	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2023	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2024	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2025	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2026	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2027	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2028	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41
2029	$ -	$ -	$ -	$ 34.00	$ 20.95	$ 47.26	$ -	$ -	$ -	$ (2.07)	$ 0.21	$ 32.14	$ 19.09	$ 45.41

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.7b Projections of Stage 2 DBPR PWS Costs

(All Surface Water NTNCWSs)

Preferred Alternative, 25% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.08	$ 0.01	$ -	$ -	$ -	$ 0.09	$ 0.09	$ 0.09
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.04	$ 0.00	$ -	$ -	$ 0.04	$ 0.04	$ 0.04
2008	$ 0.10	$ 0.06	$ 0.13	$ -	$ -	$ -	$ 0.00	$ 0.02	$ 0.00	$ -	$ -	$ 0.12	$ 0.09	$ 0.16
2009	$ 0.82	$ 0.44	$ 1.24	$ 0.00	$ 0.00	$ 0.00	$ 0.04	$ -	$ 0.04	$ -	$ -	$ 0.90	$ 0.52	$ 1.32
2010	$ 1.55	$ 0.82	$ 2.35	$ 0.12	$ 0.06	$ 0.17	$ 0.04	$ -	$ -	$ -	$ -	$ 1.70	$ 0.92	$ 2.56
2011	$ 1.55	$ 0.82	$ 2.35	$ 0.33	$ 0.18	$ 0.49	$ -	$ -	$ -	$ 0.00	$ -	$ 1.89	$ 1.00	$ 2.85
2012	$ 1.55	$ 0.82	$ 2.35	$ 0.55	$ 0.29	$ 0.82	$ -	$ -	$ -	$ 0.02	$ -	$ 2.12	$ 1.13	$ 3.18
2013	$ 1.45	$ 0.76	$ 2.21	$ 0.77	$ 0.41	$ 1.14	$ -	$ -	$ -	$ 0.03	$ -	$ 2.25	$ 1.19	$ 3.39
2014	$ 0.72	$ 0.38	$ 1.11	$ 0.99	$ 0.52	$ 1.46	$ -	$ -	$ -	$ 0.03	$ -	$ 1.74	$ 0.93	$ 2.60
2015	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2016	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2017	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2018	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2019	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2020	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2021	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2022	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2023	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2024	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2025	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2026	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2027	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2028	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65
2029	$ -	$ -	$ -	$ 1.10	$ 0.58	$ 1.62	$ -	$ -	$ -	$ 0.03	$ -	$ 1.13	$ 0.61	$ 1.65

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.7c Projections of Stage 2 DBPR PWS Costs
(All Surface Water Systems)

Preferred Alternative, 25% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound		Mean Value	90 Percent Confidence Bound		Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound	
		Lower (5th %tile)	Upper (95th %tile)		Lower (5th %tile)	Upper (95th %tile)							Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.69	$ -	$ -	$ -	$ -	$ 0.69	$ 0.69	$ 0.69
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.42	$ 8.48	$ -	$ -	$ -	$ 9.90	$ 9.90	$ 9.90
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.49	$ 0.22	$ -	$ -	$ 22.71	$ 22.71	$ 22.71
2008	$ 73.19	$ 47.79	$ 100.93	$ -	$ -	$ -	$ 0.60	$ 18.64	$ 0.62	$ -	$ -	$ 93.05	$ 67.65	$ 120.79
2009	$ 105.56	$ 67.35	$ 147.05	$ 2.90	$ 1.93	$ 3.91	$ 0.79	$ -	$ 0.91	$ -	$ -	$ 110.17	$ 70.98	$ 152.67
2010	$ 129.98	$ 81.73	$ 182.24	$ 8.04	$ 5.16	$ 10.99	$ 0.71	$ -	$ -	$ -	$ -	$ 138.73	$ 87.60	$ 193.94
2011	$ 129.98	$ 81.73	$ 182.24	$ 15.06	$ 9.46	$ 20.76	$ -	$ -	$ -	$ 0.42	$ -	$ 145.47	$ 91.62	$ 203.43
2012	$ 129.98	$ 81.73	$ 182.24	$ 22.08	$ 13.77	$ 30.54	$ -	$ -	$ -	$ (0.75)	$ 0.06	$ 151.37	$ 94.81	$ 212.09
2013	$ 56.79	$ 33.94	$ 81.31	$ 29.10	$ 18.07	$ 40.32	$ -	$ -	$ -	$ (2.04)	$ 0.15	$ 83.99	$ 50.12	$ 119.73
2014	$ 24.42	$ 14.38	$ 35.19	$ 33.21	$ 20.45	$ 46.19	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 55.81	$ 33.01	$ 79.55
2015	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2016	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2017	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2018	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2019	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2020	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2021	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2022	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2023	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2024	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2025	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2026	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2027	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2028	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06
2029	$ -	$ -	$ -	$ 35.09	$ 21.52	$ 48.89	$ -	$ -	$ -	$ (2.04)	$ 0.21	$ 33.27	$ 19.70	$ 47.06

Note: All values in millions of year 2003 dollars.
Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.7d Projections of Stage 2 DBPR PWS Costs
(All Ground Water CWSs)

Preferred Alternative, 25% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound Lower (5th %tile)	90 Percent Confidence Bound Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.42	$ 0.09	$ -	$ -	$ -	$ 3.51	$ 3.51	$ 3.51
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.09	$ 0.02	$ -	$ -	$ 1.11	$ 1.11	$ 1.11
2008	$ 8.11	$ 7.22	$ 9.00	$ -	$ -	$ -	$ 0.05	$ 6.66	$ 0.22	$ -	$ -	$ 15.03	$ 14.14	$ 15.92
2009	$ 32.23	$ 27.71	$ 36.76	$ 0.78	$ 0.73	$ 0.83	$ 1.73	$ -	$ 2.58	$ -	$ -	$ 37.32	$ 32.75	$ 41.91
2010	$ 54.86	$ 46.87	$ 62.87	$ 3.35	$ 3.11	$ 3.58	$ 1.71	$ -	$ -	$ -	$ -	$ 59.91	$ 51.69	$ 68.16
2011	$ 54.86	$ 46.87	$ 62.87	$ 7.57	$ 7.03	$ 8.11	$ -	$ -	$ -	$ 0.08	$ -	$ 62.50	$ 53.98	$ 71.06
2012	$ 54.86	$ 46.87	$ 62.87	$ 11.79	$ 10.95	$ 12.63	$ -	$ -	$ -	$ 2.95	$ -	$ 69.60	$ 60.77	$ 78.46
2013	$ 46.75	$ 39.65	$ 53.87	$ 16.01	$ 14.87	$ 17.16	$ -	$ -	$ -	$ 5.63	$ -	$ 68.39	$ 60.15	$ 76.66
2014	$ 22.63	$ 19.16	$ 26.11	$ 19.46	$ 18.06	$ 20.85	$ -	$ -	$ -	$ 5.63	$ -	$ 47.71	$ 42.85	$ 52.59
2015	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2016	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2017	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2018	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2019	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2020	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2021	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2022	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2023	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2024	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2025	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2026	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2027	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2028	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26
2029	$ -	$ -	$ -	$ 21.11	$ 19.60	$ 22.63	$ -	$ -	$ -	$ 5.63	$ -	$ 26.74	$ 25.23	$ 28.26

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.7e Projections of Stage 2 DBPR PWS Costs
(All Ground Water NTNCWSs)

Preferred Alternative, 25% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Significant Excursion	Mean Value	90 Percent Confidence Bound: Lower (5th %tile)	90 Percent Confidence Bound: Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.56	$ -	$ -	$ -	$ -	$ 0.56	$ 0.56	$ 0.56
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.00	$ -	$ -	$ 0.00	$ 0.00	$ 0.00
2008	$ 0.01	$ 0.01	$ 0.01	$ -	$ -	$ -	$ 0.00	$ 0.00	$ 0.00	$ -	$ -	$ 0.01	$ 0.01	$ 0.01
2009	$ 1.30	$ 1.09	$ 1.50	$ 0.00	$ 0.00	$ 0.00	$ 0.28	$ -	$ 0.46	$ -	$ -	$ 2.04	$ 1.84	$ 2.24
2010	$ 2.58	$ 2.18	$ 2.99	$ 0.12	$ 0.11	$ 0.13	$ 0.28	$ -	$ -	$ -	$ -	$ 2.99	$ 2.57	$ 3.40
2011	$ 2.58	$ 2.18	$ 2.99	$ 0.37	$ 0.34	$ 0.40	$ -	$ -	$ -	$ 0.00	$ -	$ 2.96	$ 2.52	$ 3.39
2012	$ 2.58	$ 2.18	$ 2.99	$ 0.61	$ 0.57	$ 0.66	$ -	$ -	$ -	$ 0.37	$ -	$ 3.56	$ 3.11	$ 4.01
2013	$ 2.58	$ 2.17	$ 2.98	$ 0.86	$ 0.79	$ 0.93	$ -	$ -	$ -	$ 0.73	$ -	$ 4.16	$ 3.69	$ 4.63
2014	$ 1.29	$ 1.08	$ 1.49	$ 1.10	$ 1.02	$ 1.19	$ -	$ -	$ -	$ 0.73	$ -	$ 3.12	$ 2.83	$ 3.40
2015	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2016	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2017	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2018	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2019	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2020	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2021	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2022	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2023	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2024	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2025	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2026	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2027	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2028	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05
2029	$ -	$ -	$ -	$ 1.23	$ 1.13	$ 1.32	$ -	$ -	$ -	$ 0.73	$ -	$ 1.95	$ 1.86	$ 2.05

Note: All values in millions of year 2003 dollars.
Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.7f Projections of Stage 2 DBPR PWS Costs
(All Ground Water Systems)

Preferred Alternative, 25% Safety Margin

Year	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.07	$ -	$ -	$ -	$ -	$ 0.07	$ 0.07	$ 0.07
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 3.98	$ 0.09	$ -	$ -	$ -	$ 4.07	$ 4.07	$ 4.07
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1.09	$ 0.02	$ -	$ -	$ 1.11	$ 1.11	$ 1.11
2008	$ 8.12	$ 7.23	$ 9.01	$ -	$ -	$ -	$ 0.05	$ 6.66	$ 0.22	$ -	$ -	$ 15.04	$ 14.15	$ 15.93
2009	$ 33.53	$ 28.81	$ 38.26	$ 0.78	$ 0.73	$ 0.83	$ 2.01	$ -	$ 3.04	$ -	$ -	$ 39.36	$ 34.59	$ 44.15
2010	$ 57.44	$ 49.05	$ 65.86	$ 3.47	$ 3.22	$ 3.71	$ 1.99	$ -	$ -	$ -	$ -	$ 62.90	$ 54.26	$ 71.56
2011	$ 57.44	$ 49.05	$ 65.86	$ 7.94	$ 7.37	$ 8.51	$ -	$ -	$ -	$ 0.08	$ -	$ 65.46	$ 56.50	$ 74.45
2012	$ 57.44	$ 49.05	$ 65.86	$ 12.40	$ 11.52	$ 13.30	$ -	$ -	$ -	$ 3.32	$ -	$ 73.17	$ 63.88	$ 82.47
2013	$ 49.32	$ 41.82	$ 56.85	$ 16.87	$ 15.66	$ 18.09	$ -	$ -	$ -	$ 6.36	$ -	$ 72.55	$ 63.84	$ 81.29
2014	$ 23.91	$ 20.24	$ 27.60	$ 20.56	$ 19.08	$ 22.04	$ -	$ -	$ -	$ 6.36	$ -	$ 50.83	$ 45.68	$ 56.00
2015	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2016	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2017	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2018	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2019	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2020	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2021	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2022	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2023	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2024	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2025	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2026	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2027	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2028	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31
2029	$ -	$ -	$ -	$ 22.34	$ 20.73	$ 23.95	$ -	$ -	$ -	$ 6.36	$ -	$ 28.70	$ 27.09	$ 30.31

Note: All values in millions of year 2003 dollars.
Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.7g Projections of Stage 2 DBPR PWS Costs

(All Systems)

Preferred Alternative, 25% Safety Margin

	Treatment Capital Costs			Treatment O&M Costs			Non-Treatment Costs					All Stage 2 DBPR Costs		
		90 Percent Confidence Bound			90 Percent Confidence Bound								90 Percent Confidence Bound	
Year	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Implementation	IDSE	Monitoring Plans	Monitoring	Siginificant Excursion	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.76	$ -	$ -	$ -	$ -	$ 0.76	$ 0.76	$ 0.76
2006	$ -	$ -	$ -	$ -	$ -	$ -	$ 5.40	$ 8.56	$ -	$ -	$ -	$ 13.96	$ 13.96	$ 13.96
2007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 23.58	$ 0.24	$ -	$ -	$ 23.81	$ 23.81	$ 23.81
2008	$ 81.31	$ 55.02	$ 109.95	$ -	$ -	$ -	$ 0.65	$ 25.30	$ 0.83	$ -	$ -	$ 108.09	$ 81.80	$ 136.72
2009	$ 139.09	$ 96.16	$ 185.32	$ 3.68	$ 2.65	$ 4.74	$ 2.81	$ -	$ 3.95	$ -	$ -	$ 149.53	$ 105.57	$ 196.82
2010	$ 187.43	$ 130.78	$ 248.10	$ 11.51	$ 8.38	$ 14.70	$ 2.70	$ -	$ -	$ -	$ -	$ 201.63	$ 141.86	$ 265.50
2011	$ 187.43	$ 130.78	$ 248.10	$ 23.00	$ 16.83	$ 29.27	$ -	$ -	$ -	$ 0.51	$ -	$ 210.93	$ 148.12	$ 277.88
2012	$ 187.43	$ 130.78	$ 248.10	$ 34.48	$ 25.28	$ 43.84	$ -	$ -	$ -	$ 2.57	$ 0.06	$ 224.54	$ 158.69	$ 294.57
2013	$ 106.11	$ 75.76	$ 138.15	$ 45.97	$ 33.73	$ 58.41	$ -	$ -	$ -	$ 4.32	$ 0.15	$ 156.55	$ 113.96	$ 201.03
2014	$ 48.34	$ 34.62	$ 62.78	$ 53.77	$ 39.53	$ 68.23	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 106.64	$ 78.69	$ 135.55
2015	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2016	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2017	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2018	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2019	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2020	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2021	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2022	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2023	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2024	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2025	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2026	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2027	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2028	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37
2029	$ -	$ -	$ -	$ 57.43	$ 42.25	$ 72.84	$ -	$ -	$ -	$ 4.32	$ 0.21	$ 61.96	$ 46.78	$ 77.37

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1d and Exhibits D.1 through D.6.

Exhibit J.7h Projections of Stage 2 DBPR Primacy Agency Costs

Preferred Alternative, 25% Safety Margin

Year	Implementation Costs	IDSE Costs	Monitoring Plan Costs	Compliance Monitoring Costs	Significant Excursion Report Costs
2005	$ 3.88	$ -	$ -	$ -	$ -
2006	$ 3.88	$ 0.04	$ -	$ -	$ -
2007	$ -	$ 0.13	$ 0.02	$ -	$ -
2008	$ -	$ 2.06	$ 0.06	$ -	$ -
2009	$ -	$ -	$ 0.85	$ -	$ -
2010	$ -	$ -	$ -	$ -	$ -
2011	$ -	$ -	$ -	$ 1.59	$ 0.11
2012	$ -	$ -	$ -	$ 1.59	$ 0.11
2013	$ -	$ -	$ -	$ 1.59	$ 0.11
2014	$ -	$ -	$ -	$ 1.59	$ 0.11
2015	$ -	$ -	$ -	$ 1.59	$ 0.11
2016	$ -	$ -	$ -	$ 1.59	$ 0.11
2017	$ -	$ -	$ -	$ 1.59	$ 0.11
2018	$ -	$ -	$ -	$ 1.59	$ 0.11
2019	$ -	$ -	$ -	$ 1.59	$ 0.11
2020	$ -	$ -	$ -	$ 1.59	$ 0.11
2021	$ -	$ -	$ -	$ 1.59	$ 0.11
2022	$ -	$ -	$ -	$ 1.59	$ 0.11
2023	$ -	$ -	$ -	$ 1.59	$ 0.11
2024	$ -	$ -	$ -	$ 1.59	$ 0.11
2025	$ -	$ -	$ -	$ 1.59	$ 0.11
2026	$ -	$ -	$ -	$ 1.59	$ 0.11
2027	$ -	$ -	$ -	$ 1.59	$ 0.11
2028	$ -	$ -	$ -	$ 1.59	$ 0.11
2029	$ -	$ -	$ -	$ 1.59	$ 0.11

Note: All values in millions of year 2003 dollars.

Source: Derived from Exhibits J.1h and D.7.

Exhibit J.7i Present Value of Annual Cost Projections at 3% Discount Rate
(All Systems and Primacy Agencies)

Preferred Alternative, 25% Safety Margin

	Surface Water CWS			Surface Water NTNCWS			Disinfecting Ground Water CWS			Disinfecting Ground Water NTNCWS			Primacy Agencies	Total		
		90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound				90 Percent Confidence Bound	
	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Mean Value	Lower (5th %tile)	Upper (95th %tile)	Point Estimate	Mean Value	Lower (5th %tile)	Upper (95th %tile)
2005	$ 0.6	$ 0.6	$ 0.6	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.0	$ 0.0	$ 0.0	$ 3.7	$ 4.4	$ 4.4	$ 4.4
2006	$ 9.0	$ 9.0	$ 9.0	$ 0.1	$ 0.1	$ 0.1	$ 3.2	$ 3.2	$ 3.2	$ 0.5	$ 0.5	$ 0.5	$ 3.6	$ 16.4	$ 16.4	$ 16.4
2007	$ 20.1	$ 20.1	$ 20.1	$ 0.0	$ 0.0	$ 0.0	$ 1.0	$ 1.0	$ 1.0	$ 0.0	$ 0.0	$ 0.0	$ 0.1	$ 21.3	$ 21.3	$ 21.3
2008	$ 80.2	$ 58.3	$ 104.1	$ 0.1	$ 0.1	$ 0.1	$ 13.0	$ 12.2	$ 13.7	$ 0.0	$ 0.0	$ 0.0	$ 1.8	$ 95.1	$ 72.4	$ 119.8
2009	$ 91.5	$ 59.0	$ 126.7	$ 0.8	$ 0.4	$ 1.1	$ 31.3	$ 27.4	$ 35.1	$ 1.7	$ 1.5	$ 1.9	$ 0.7	$ 125.9	$ 89.1	$ 165.5
2010	$ 111.4	$ 70.5	$ 155.6	$ 1.4	$ 0.8	$ 2.1	$ 48.7	$ 42.0	$ 55.4	$ 2.4	$ 2.1	$ 2.8	$ -	$ 163.9	$ 115.3	$ 215.9
2011	$ 113.3	$ 71.5	$ 158.3	$ 1.5	$ 0.8	$ 2.2	$ 49.3	$ 42.6	$ 56.1	$ 2.3	$ 2.0	$ 2.7	$ 1.3	$ 167.9	$ 118.3	$ 220.7
2012	$ 114.4	$ 71.8	$ 160.1	$ 1.6	$ 0.9	$ 2.4	$ 53.3	$ 46.6	$ 60.1	$ 2.7	$ 2.4	$ 3.1	$ 1.3	$ 173.4	$ 122.9	$ 227.1
2013	$ 60.8	$ 36.4	$ 86.6	$ 1.7	$ 0.9	$ 2.5	$ 50.9	$ 44.8	$ 57.0	$ 3.1	$ 2.7	$ 3.4	$ 1.3	$ 117.8	$ 86.1	$ 150.9
2014	$ 39.1	$ 23.2	$ 55.6	$ 1.3	$ 0.7	$ 1.9	$ 34.5	$ 31.0	$ 38.0	$ 2.3	$ 2.0	$ 2.5	$ 1.2	$ 78.3	$ 58.1	$ 99.2
2015	$ 22.5	$ 13.4	$ 31.8	$ 0.8	$ 0.4	$ 1.2	$ 18.8	$ 17.7	$ 19.8	$ 1.4	$ 1.3	$ 1.4	$ 1.2	$ 44.7	$ 34.0	$ 55.5
2016	$ 21.9	$ 13.0	$ 30.9	$ 0.8	$ 0.4	$ 1.1	$ 18.2	$ 17.2	$ 19.2	$ 1.3	$ 1.3	$ 1.4	$ 1.2	$ 43.4	$ 33.0	$ 53.8
2017	$ 21.2	$ 12.6	$ 30.0	$ 0.7	$ 0.4	$ 1.1	$ 17.7	$ 16.7	$ 18.7	$ 1.3	$ 1.2	$ 1.4	$ 1.1	$ 42.1	$ 32.1	$ 52.3
2018	$ 20.6	$ 12.3	$ 29.1	$ 0.7	$ 0.4	$ 1.1	$ 17.2	$ 16.2	$ 18.1	$ 1.3	$ 1.2	$ 1.3	$ 1.1	$ 40.9	$ 31.1	$ 50.8
2019	$ 20.0	$ 11.9	$ 28.3	$ 0.7	$ 0.4	$ 1.0	$ 16.7	$ 15.7	$ 17.6	$ 1.2	$ 1.2	$ 1.3	$ 1.1	$ 39.7	$ 30.2	$ 49.3
2020	$ 19.4	$ 11.6	$ 27.5	$ 0.7	$ 0.4	$ 1.0	$ 16.2	$ 15.3	$ 17.1	$ 1.2	$ 1.1	$ 1.2	$ 1.0	$ 38.5	$ 29.3	$ 47.8
2021	$ 18.9	$ 11.2	$ 26.7	$ 0.7	$ 0.4	$ 1.0	$ 15.7	$ 14.8	$ 16.6	$ 1.1	$ 1.1	$ 1.2	$ 1.0	$ 37.4	$ 28.5	$ 46.5
2022	$ 18.3	$ 10.9	$ 25.9	$ 0.6	$ 0.3	$ 0.9	$ 15.3	$ 14.4	$ 16.1	$ 1.1	$ 1.1	$ 1.2	$ 1.0	$ 36.3	$ 27.7	$ 45.1
2023	$ 17.8	$ 10.6	$ 25.1	$ 0.6	$ 0.3	$ 0.9	$ 14.8	$ 14.0	$ 15.6	$ 1.1	$ 1.0	$ 1.1	$ 0.9	$ 35.3	$ 26.8	$ 43.8
2024	$ 17.3	$ 10.3	$ 24.4	$ 0.6	$ 0.3	$ 0.9	$ 14.4	$ 13.6	$ 15.2	$ 1.1	$ 1.0	$ 1.1	$ 0.9	$ 34.2	$ 26.1	$ 42.5
2025	$ 16.8	$ 10.0	$ 23.7	$ 0.6	$ 0.3	$ 0.9	$ 14.0	$ 13.2	$ 14.7	$ 1.0	$ 1.0	$ 1.1	$ 0.9	$ 33.2	$ 25.3	$ 41.3
2026	$ 16.3	$ 9.7	$ 23.0	$ 0.6	$ 0.3	$ 0.8	$ 13.6	$ 12.8	$ 14.3	$ 1.0	$ 0.9	$ 1.0	$ 0.9	$ 32.3	$ 24.6	$ 40.1
2027	$ 15.8	$ 9.4	$ 22.3	$ 0.6	$ 0.3	$ 0.8	$ 13.2	$ 12.4	$ 13.9	$ 1.0	$ 0.9	$ 1.0	$ 0.8	$ 31.3	$ 23.9	$ 38.9
2028	$ 15.4	$ 9.1	$ 21.7	$ 0.5	$ 0.3	$ 0.8	$ 12.8	$ 12.0	$ 13.5	$ 0.9	$ 0.9	$ 1.0	$ 0.8	$ 30.4	$ 23.2	$ 37.8
2029	$ 14.9	$ 8.9	$ 21.1	$ 0.5	$ 0.3	$ 0.8	$ 12.4	$ 11.7	$ 13.1	$ 0.9	$ 0.9	$ 0.9	$ 0.8	$ 29.5	$ 22.5	$ 36.7
Total	**$ 917.7**	**$ 585.1**	**$ 1,268.4**	**$ 18.1**	**$ 9.8**	**$ 26.8**	**$ 515.9**	**$ 468.4**	**$ 563.5**	**$ 31.9**	**$ 29.3**	**$ 34.5**	**$ 29.8**	**$ 1,513.4**	**$ 1,122.4**	**$ 1,923.0**
Ann.	**$ 52.7**	**$ 33.6**	**$ 72.8**	**$ 1.0**	**$ 0.6**	**$ 1.5**	**$ 29.6**	**$ 26.9**	**$ 32.4**	**$ 1.8**	**$ 1.7**	**$ 2.0**	**$ 1.7**	**$ 86.9**	**$ 64.5**	**$ 110.4**

Notes: Present values in millions of 2003 dollars. Estimates are discounted to 2005.
Detail may not add exactly to totals due to independent rounding.
Ann = value of total annualized at discount rate.
Source: Derived from Exhibits J.7a through h.

Appendix K

Description of Stage 2 Cost and Benefits Models

Appendix K
Description of Stage 2 Cost and Benefits Models

K.1 Summary

This appendix describes the SAS cost and benefits models used for the Stage 2 DBPR. A detailed description of the non-treatment cost model is provided in Appendix H of this document, and is therefore not included in this Appendix.

An overview flowchart is provided for each of the components of the cost and benefits models, followed by a detailed description of the input and output files used in each component. [Note to EPA: descriptions of the input and output files for CreateInput2.sas, TreatmentCostModelEndingTechnology.sas, and SmallPlantsAffordability.sas will be provided in the next draft.] This appendix is organized as follows:

Exhibit K.1	Flowchart of Stage 2 Cost Model
Exhibit K.2a	Flowchart of prog1.sas
Exhibit K.2b	Input/Output Files for prog1.sas
Exhibit K.2c	Description of Inputs to prog1.sas
Exhibit K.3a	Flowchart of CreateInput1.sas
Exhibit K.3b	Input/Output Files for CreateInput1.sas
Exhibit K.3c	Description of Inputs to CreateInput1.sas
Exhibit K.4a	Flowchart of Treatment Cost Model.sas
Exhibit K.4b	Input/Output Files for Treatment Cost Model.sas
Exhibit K.5a	Flowchart of CreateInput2.sas
Exhibit K.5b	Input/Output Files for CreateInput2.sas
Exhibit K.6a	Flowchart of HH.sas (Household Model)
Exhibit K.6b	Input/Output Files for HH.sas (Household Model)
Exhibit K.7a	Flowchart of SmallPlants.sas
Exhibit K.7b	Input/Output Files for SmallPlants.sas
Exhibit K.8a	Flowchart of Discounting.sas
Exhibit K.8b	Input/Output Files for Discounting.sas
Exhibit K.9a	Flowchart of TreatmentCostModelEndingTechnology.sas
Exhibit K.9b	Input/Output Files for TreatmentCostModelEndingTechnology.sas
Exhibit K.10a	Flowchart of CreateInput1Afford.sas
Exhibit K.10b	Input/Output Files for CreateInput1Afford.sas
Exhibit K.11	Flowchart of Stage2Benefits_CasesAvoided.sas

Exhibit K.1 Flowchart of Stage 2 Cost Model

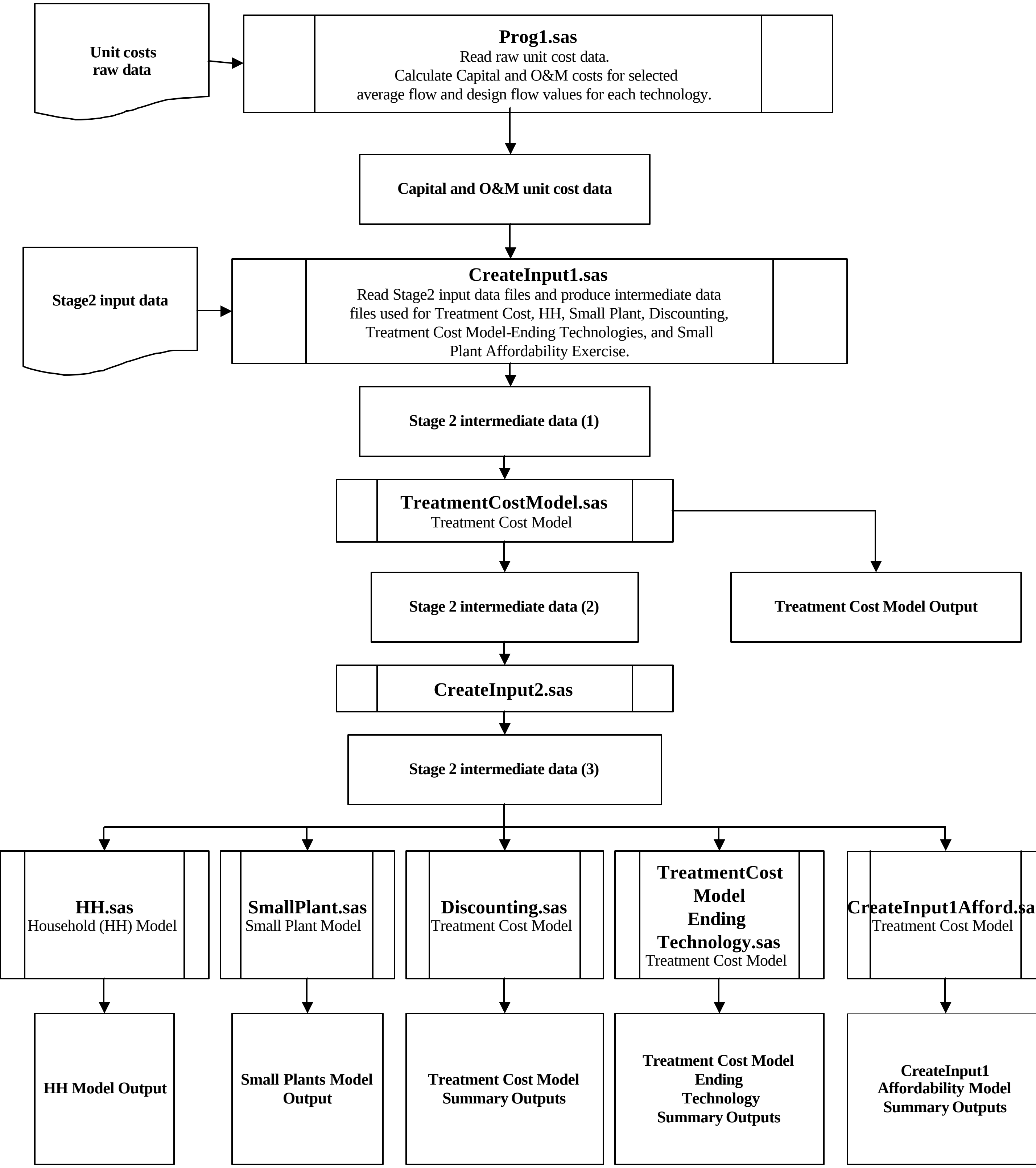


Exhibit K.2a Flowchart of prog1.sas

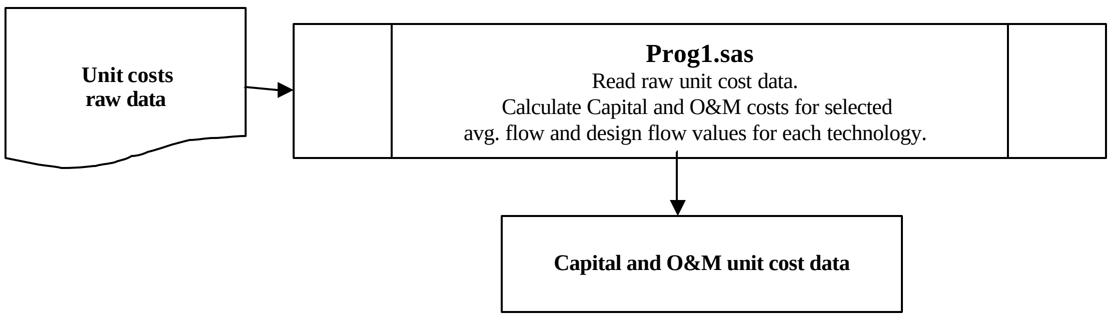


Exhibit K.2b Input/Output Files for prog1.sas

INPUT

Labor Rates.xls
Stage 2 Cost Summary_bag Filter.xls
Stage 2 Cost Summary_cartridge Filter.xls
Stage 2 Cost Summary_bci_history.xls
Stage 2 Cost Summary_cci_history.xls
Stage 2 Cost Summary_capital_cost_indices.xls
Stage 2 Cost Summary_technology_cost_base_year.xls
Stage 2 Cost Summary_convert_to_chloramines_0.55NH3_dose.xls
Stage 2 Cost Summary_convert_to_chloramines_0.15NH3_dose.xls
Stage 2 Cost Summary_GAC_EBCT_20_d240.xls
Stage 2 Cost Summary_GAC_EBCT_20_d90.xls
Stage 2 Cost Summary_GAC_EBCT_10_d360.xls
Stage 2 Cost Summary_nanofiltration.xls
Stage 2 Cost Summary_microfiltration.xls
Stage 2 Cost Summary_chlorinedioxide.xls
Stage 2 Cost Summary_Ozone_0_5log.xls
Stage 2 Cost Summary_Ozone_1log.xls
Stage 2 Cost Summary_Ozone_2log.xls
Stage 2 Cost Summary_UV40MJ_CM2.xls

(see Exhibit K-1c for a description of input files to prog1.sas)

prog1.sas

This program uses data from various excel inputs and recalculates and re-creates outputs originally provided in the various input sheets. The program recreates the Stage 2 Cost Summary spreadsheets using SAS, and produces input files used by CreateInput1.sas

OUTPUT

Capital and O&M costs based on average and design flows are calc ulated and saved as the following files:

Unit Cost_BAG_FILTER.xls
Unit Cost_CARTRIDGE_FILTER.xls
Unit Cost_TECHNOLOGY_COST_BASE_YEAR.xls
Unit Cost_convert_to_chloramine_055NH3.xls
Unit Cost_convert_to_chloramine_015NH3.xls
Unit Cost_GAC_EBCT_20_240d.xls
Unit Cost_GAC_EBCT_20_90d.xls
Unit Cost_GAC_EBCT_10_360d.xls
UnitCost_NANOFILTRATION.xls
Unit Cost_MICROFILTRATION.xls
Unit Cost_CHLORINEDIOXIDE.xls
Unit Cost_OZONE_0_5LOG.xls
Unit Cost_OZONE_1LOG.xls
Unit Cost_OZONE_2LOG.xls
Unit Cost_.UV40mJ_CM2.xls
Unit Cost_UV2X200MJ_CM2.xls

Exhibit K.2c
Description of Inputs to prog1.sas

Name of Input File	Description of Input File
Labor Rates.xls	Provides technical and managerial labor rates corresponding to average and design flow for the nine size categories.
Stage 2 Cost Summary_bag Filter.xls	Provides useful life and costs associated with bag filters corresponding to design and average flows.
Stage 2 Cost Summary_cartridge Filter.xls	Provides useful life and costs associated with cartridge filters corresponding to design and average flows.
Stage 2 Cost Summary_bci_history.xls	Provides monthly and annual BCI from 1915-2003.
Stage 2 Cost Summary_cci_history.xls	Provides monthly and annual CCI from 1915-2002. Only January CCI provided for 2003.
Stage 2 Cost Summary_capital_cost_indices.xls	Provides capital cost indices – month (annual), year (2003)
Stage 2 Cost Summary_technology_cost_base_year.xls	Provides month and year that costs were developed in for nine technologies
Stage 2 Cost Summary_convert_to_chloramines_0.55NH3_dose.xls	Provides useful life and equations to figure out system chemical feed and various costs based on parameter values and average and design flow provided in spreadsheet.
Stage 2 Cost Summary_convert_to_chloramines_0.15NH3_dose.xls	Provides useful life and equations to figure out system chemical feed and various costs based on parameter values and average and design flow provided in spreadsheet.
Stage 2 Cost Summary_GAC_EBCT_20_d240.xls	Provides useful life, operator training, and number of GAC contactors in use corresponding to average and design flow.
Stage 2 Cost Summary_GAC_EBCT_20_d90.xls	Provides useful life, operator training, and number of GAC contactors in use corresponding to average and design flow.
Stage 2 Cost Summary_GAC_EBCT_10_d360.xls	Provides useful life, operator training, and number of GAC contactors in use corresponding to average and design flow.
Stage 2 Cost Summary_nanofiltration.xls	Provides useful life and various parameter values corresponding to average and design flow.
Stage 2 Cost Summary_microfiltration.xls	Provides useful life and various parameter values corresponding to average and design flow.
Stage 2 Cost Summary_chlorinedioxide.xls	Provides useful life and various parameter values corresponding to average and design flow.
Stage 2 Cost Summary_Ozone_0_5log.xls	Provides average and maximum dose transferred, useful life, and various parameter values corresponding to average and design flow.
Stage 2 Cost Summary_Ozone_1log.xls	Provides average and maximum dose transferred, useful life, and various parameter values corresponding to average and design flow.
Stage 2 Cost Summary_Ozone_2log.xls	Provides average and maximum dose transferred, useful life, and various parameter values corresponding to average and design flow.
Stage 2 Cost Summary_UV40MJ_CM2.xls	Provides number and size of reactors, and equations to figure out number of reactors, footprint, electrical costs, and various other costs based on parameter values and average and design flow provided in spreadsheet.

Exhibit K.3a Flowchart of CreateInput1.sas

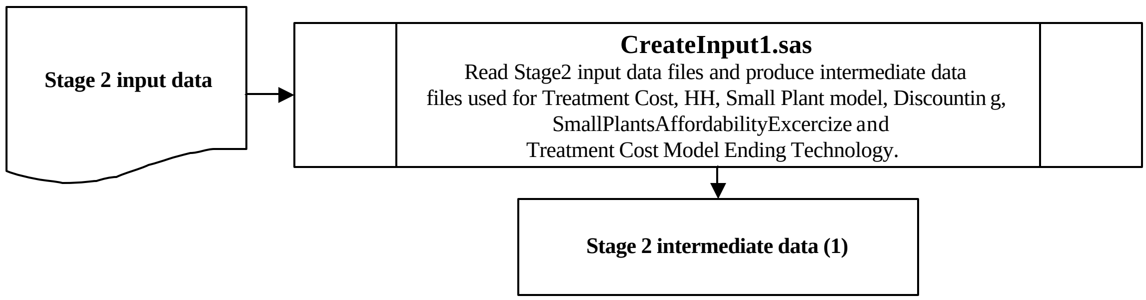


Exhibit K.3b Input/Output Files for CreateInput1.sas

INPUT

SDWIS Inventory.mdb
Common cost inputs_Percent Mixed Systems.xls
Common cost inputs_Other cost inputs.xls
Common cost inputs_Plants per System Treatment.xls
Common cost inputs_Percent Disinfecting.xls
Common cost inputs_Common Household Numbers.xls

(see Exhibit K-3c for a description of input files to CreateInput1.sas)

CreateInput1.sas

This program used the Stage2 input data files to produce intermediate data files used for the following models –

- Treatment Cost Model
- Household Cost Model
- Small Plant Model
- Discounting Model
- Treatment Cost Model-Ending Technologies
- CreateInput1Affordability Model

OUTPUT *[Description of files to be provided]*

Stage 2 Treatment Cost Model_Numbers of Plants.xls
Stage 2 Drivers Plantbaseline.xls
Stage 2 Drivers_Percentage_PublicPrivate.xls
Stage 2 Drivers_Households.xls
Stage 2 Flows.xls
CLM_GW_CWS_convert_to_chloramine_015nh3.xls
CLM_GW_CWS_flows.xls
CLM_GW_NTNCWS_convert_to_chloramine_015nh3.xls
CLM_GW_NTNCWS_flows.xls
CLM_SW_CWS_convert_to_chloramine_055nh3.xls
CLM_SW_CWS_flows.xls
CLM_SW_NTNCWS_convert_to_chloramine_055nh3.xls
CLM_SW_NTNCWS_flows.xls
CLX_SW_CWS_chlorinedioxide.xls
CLX_SW_CWS_flows.xls
CLX_SW_NTNCWS_chlorinedioxide.xls
CLX_SW_NTNCWS_flows.xls
GAC10_SW_CWS_GAC_EBCT_10_360d.xls
GAC10_SW_NTNCWS_flows.xls
GAC10_SW_NTNCWS_GAC_EBCT_10_360d.xls
GAC20_GW_CWS_flows.xls
GAC20_GW_CWS_GAC_EBCT_20_240d.xls
GAC20_GW_NTNCWS_flows.xls
GAC20_GW_NTNCWS_GAC_EBCT_20_240d.xls
GAC20_SW_CWS_flows.xls
GAC20_SW_CWS_GAC_EBCT_20_90d.xls
GAC20_SW_NTNCWS_flows.xls
GAC20_SW_NTNCWS_GAC_EBCT_20_90d.xls
Membranes_GW_CWS_flows.xls
Membranes_GW_CWS_nanofiltration.xls
Membranes_GW_NTNCWS_flows.xls
Membranes_GW_NTNCWS_nanofiltration.xls
Membranes_SW_CWS_flows.xls
Membranes_SW_CWS_nanofiltration.xls
Membranes_SW_NTNCWS_flows.xls
Membranes_SW_NTNCWS_nanofiltration.xls
MF_UF_SW_CWS_flows.xls
MF_UF_SW_CWS_microfiltration.xls
MF_UF_SW_NTNCWS_flows.xls
MF_UF_SW_NTNCWS_microfiltration.xls
O3_GW_CWS_flows.xls
O3_GW_CWS_Ozone_0_5log.xls
O3_GW_NTNCWS_flows.xls
O3_GW_NTNCWS_Ozone_0_5log.xls
O3_SW_CWS_flows.xls
O3_SW_CWS_Ozone_0_5log.xls
O3_SW_NTNCWS_flows.xls
O3_SW_NTNCWS_Ozone_0_5log.xls
Unit Cost_BAG_FILTER.xls
Unit Cost_BCI_HISTORY.xls
Unit Cost_CAPITAL_COST_INDICES.xls
Unit Cost_CARTRIDGE_FILTER.xls
Unit Cost_CCI_HISTORY.xls
Unit Cost_CFP_COSTS.xls
Unit Cost_CHLORINEDIOXIDE.xls
Unit Cost_convert_to_chloramine_015NH3.xls
Unit Cost_convert_to_chloramine_055NH3.xls
Unit Cost_COST_FACTOR_SUMMARY.xls
Unit Cost_GAC_EBCT_10_360d.xls
Unit Cost_GAC_EBCT_20_90d.xls
Unit Cost_GAC_EBCT_20_240d.xls
Unit Cost_MICROFILTRATION.xls
Unit Cost_NANOFILTRATION.xls
Unit Cost_OZONE_0_5LOG.xls
Unit Cost_OZONE_1LOG.xls
Unit Cost_OZONE_2LOG.xls
Unit Cost_TECHNOLOGY_COST_BASE_YEAR.xls
Unit Cost_TWG_COSTS.xls
Unit Cost_UV2X200MJ_CM2.xls
Unit Cost_UV40MJ_CM2.xls
UV_GW_CWS_flows.xls
UV_GW_CWS_UV2X200MJ_CM2.xls
UV_GW_NTNCWS_flows.xls
UV_GW_NTNCWS_UV2X200MJ_CM2.xls
UV_SW_CWS_flows.xls
UV_SW_CWS_UV40MJ_CM2.xls
UV_SW_NTNCWS_flows.xls
UV_SW_NTNCWS_UV40MJ_CM2.xls
Stage 2 Treatment Cost Model_Unit Costs Forecast.xls
Stage 2 Treatment Cost Model_HH Annual.xls

Exhibit K.3c
Description of Inputs to CreatInput1.sas

Name of Input File	Description of Input File
SDWIS Inventory.mdb	Access DB providing system and population inventory, size categories, sellers with linked populations, purchasers with largest end seller, and purchasers to link to sellers.
Common cost inputs_Percent Mixed Systems.xls	Provides percent of surface water systems that are primarily groundwater for the nine size categories, split out by CWS and NTNCWS.
Common cost inputs_Other cost inputs.xls	Provides value, source, and spreadsheet source for labor rates, projection period, bounds on capital and O&M costs, people per household, and discount rates.
Common cost inputs_Plants per System Treatment.xls	Provides LT2 and Stage 2 plants per system for filtered and unfiltered CWS, TNCWS, and NTNCWS for the nine system categories.
Common cost inputs_Percent Disinfecting.xls	Provides percent of groundwater and surface water CWS and NTNCWSs that disinfect, split out by the nine size categories.
Common cost inputs_Common Household Numbers.xls	Provides public and private discount rates, and household usage rates for CWSs in the nine size size categories.

Exhibit K.4a Flowchart of TreatmentCostModel.sas

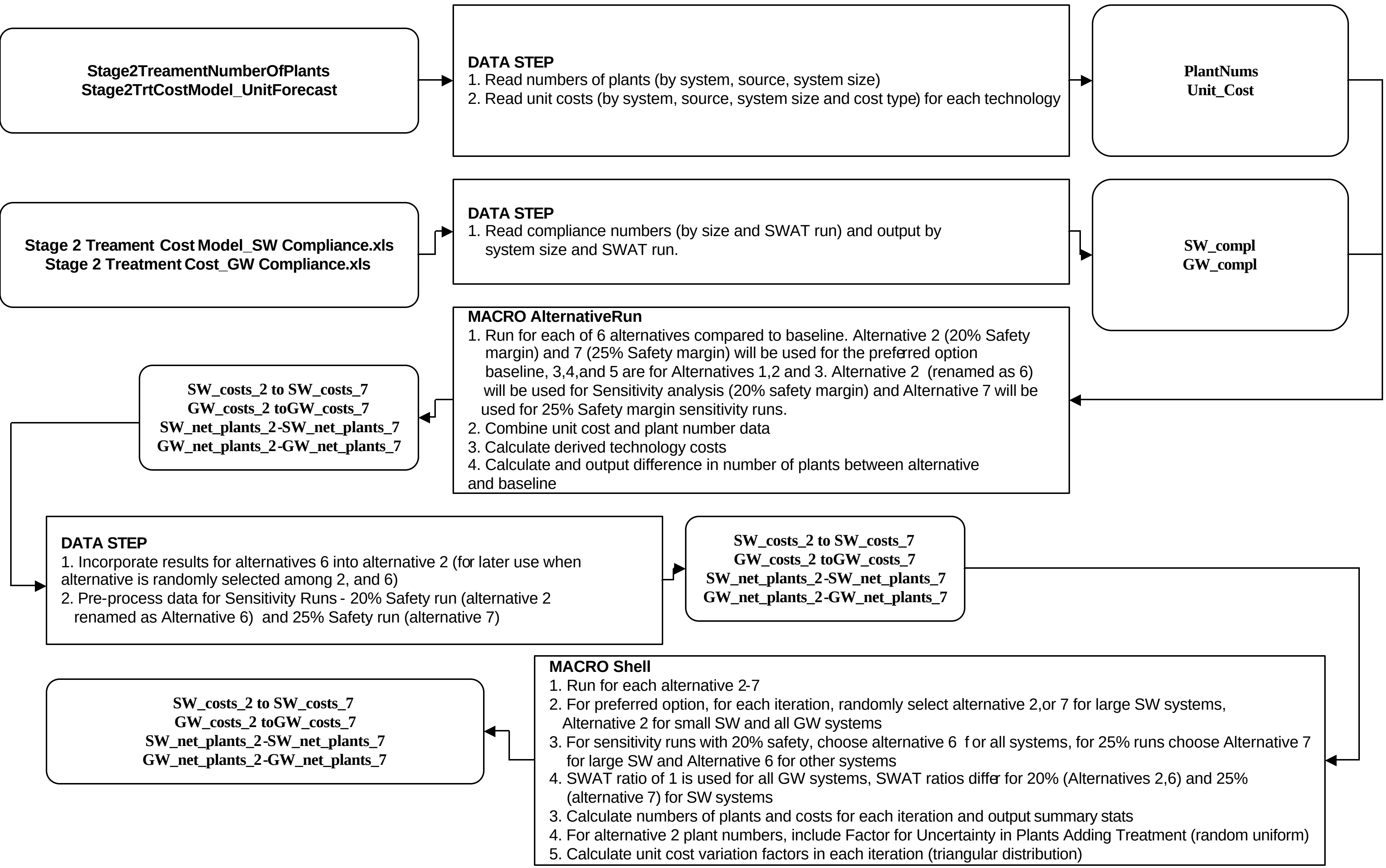


Exhibit K.4b Input/Output Files for TreatmentCostModel.sas

INPUT

Stage 2 Treatment Cost Model_SW Compliance.xls
Stage 2 Treatment Cost Model_GW Compliance.xls
Stage 2 Treatment Cost Model_Unit Cost Forecast.xls
Stage 2 Treatment_Numbers of Plants.xls

(see Exhibit K-4c for a description of input files to TreatmentCostModel.sas)

TreatmentCostModel.sas

This program uses various inputs, including those created by CreateInput1.sas to generate the following for each alternative:

• unit costs for technologies used for Stage 2 compliance, and
• net number of plants using each technology.

OUTPUT *[Description of files to be provided]*

Cost Uncertainty Results_(##MONYR)_Totals-Alternative 1.xls
Cost Uncertainty Results_(##MONYR)_Totals-Alternative 2.xls
Cost Uncertainty Results_(##MONYR)_Totals-Alternative 3.xls
Cost Uncertainty Results_(##MONYR)_Totals-Preferred Option.xls
Cost Uncertainty Results_(##MONYR)_Sensitivity Run- 20-Alternative 4.xls
Cost Uncertainty Results_(##MONYR)_Sensitivity Run- 25-Alternative 5.xls
Number Uncertainty Results_(##MONYR)_Totals-Alternative 1
Number Uncertainty Results_(##MONYR)_Totals-Alternative 2
Number Uncertainty Results_(##MONYR)_Totals-Alternative 3
Number Uncertainty Results_(##MONYR)_Totals-Preferred Option
Number Uncertainty Results_(##MONYR)_Sensitivity Run- 20 Alternative 4.xls
Number Uncertainty Results_(##MONYR)_Sensitivity Run- 25 Alternative 5.xks

Exhibit K.5a Flowchart of CreateInput2.sas

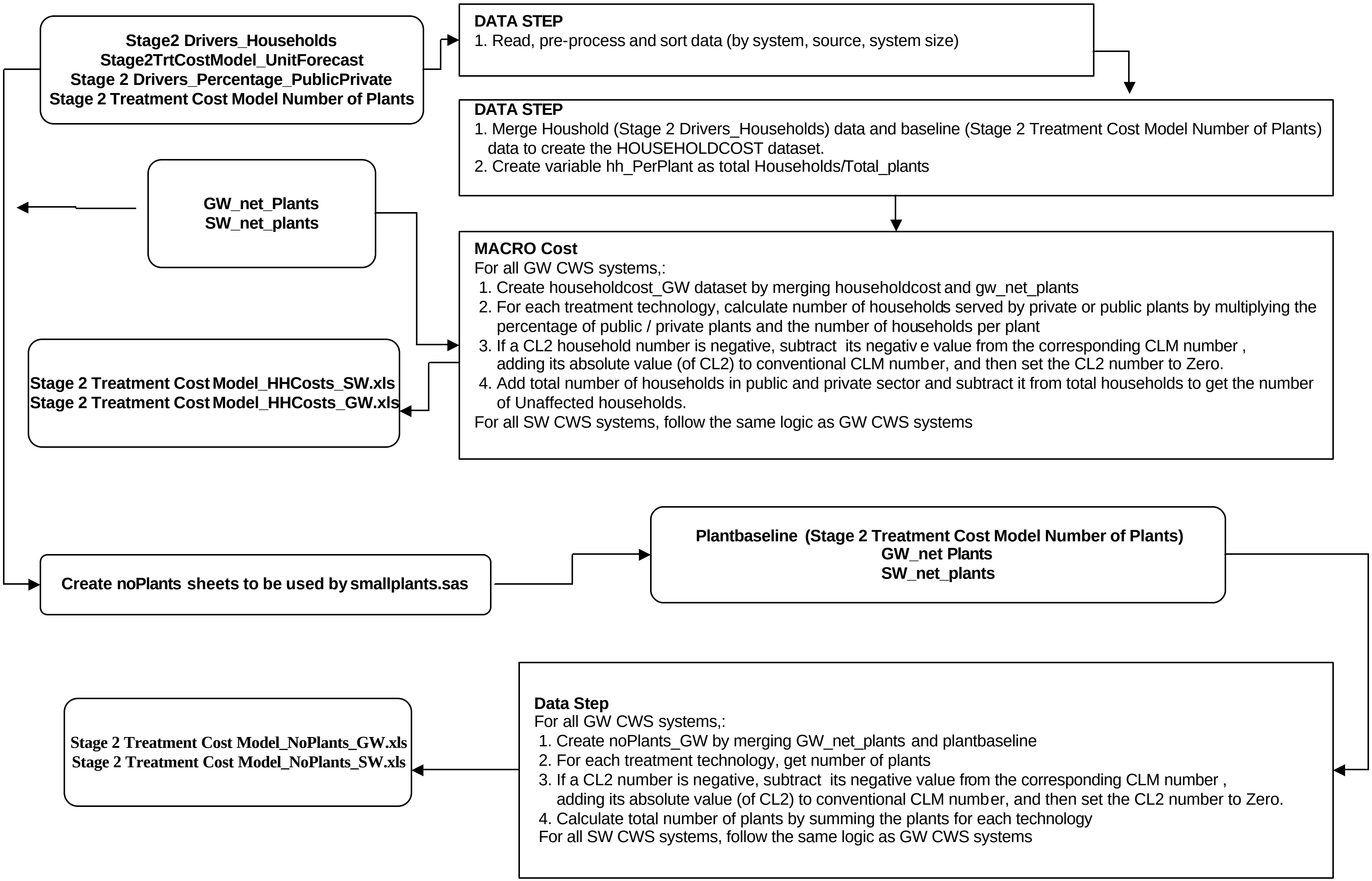


Exhibit K.5a Flowchart of CreateInput2.sas (cont'd)

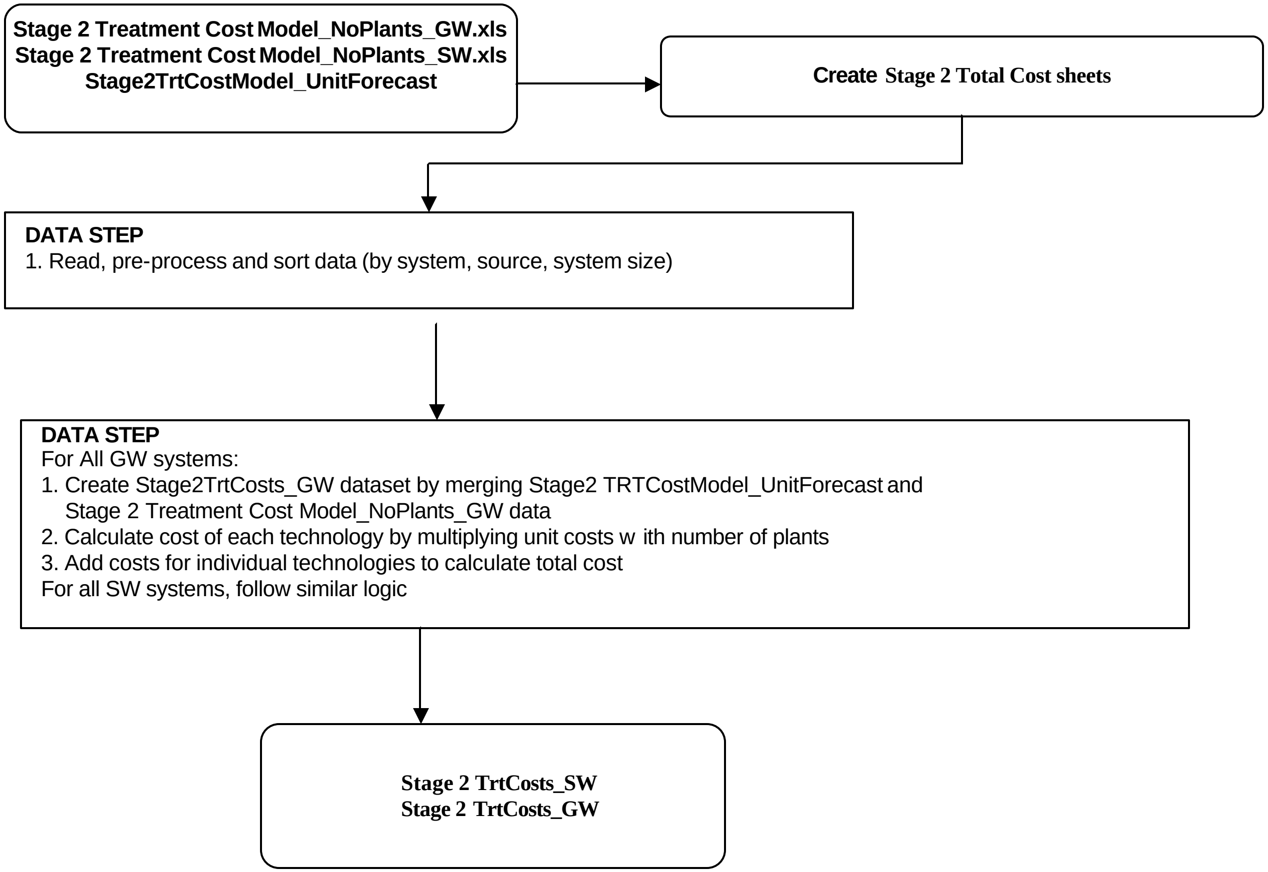


Exhibit K.5b Input/Output Files for CreateInput2.sas

INPUT

Stage 2 Drivers_Households.xls
Stage 2 Drivers_Percentage_PublicPrivate.xls
Stage 2 Treatment Cost Model_Numbers of Plants.xls
Stage 2 Treatment Cost Model_Unit Cost Forecast.xls

(see Exhibit K-5c for a description of input files to CreateInput2.sas)

CreateInput2.sas

This program uses various inputs, including those created by the Treatment Cost Model to generate the number of households and the number plants making treatment changes. Results of provided for SW and GW systems, sorted by system type.

OUTPUT *[Description of files to be provided]*

Stage 2 Treatment Cost Model_HHCosts_SW.xls
Stage 2 Treatment Cost Model_HHCosts_GW.xls
Stage 2 Treatment Cost Model_NOPlants_GW.xls
Stage 2 Treatment Cost Model_NOPlants_SW.xls

Exhibit K.6a Flowchart of HH.sas
(Household Model)

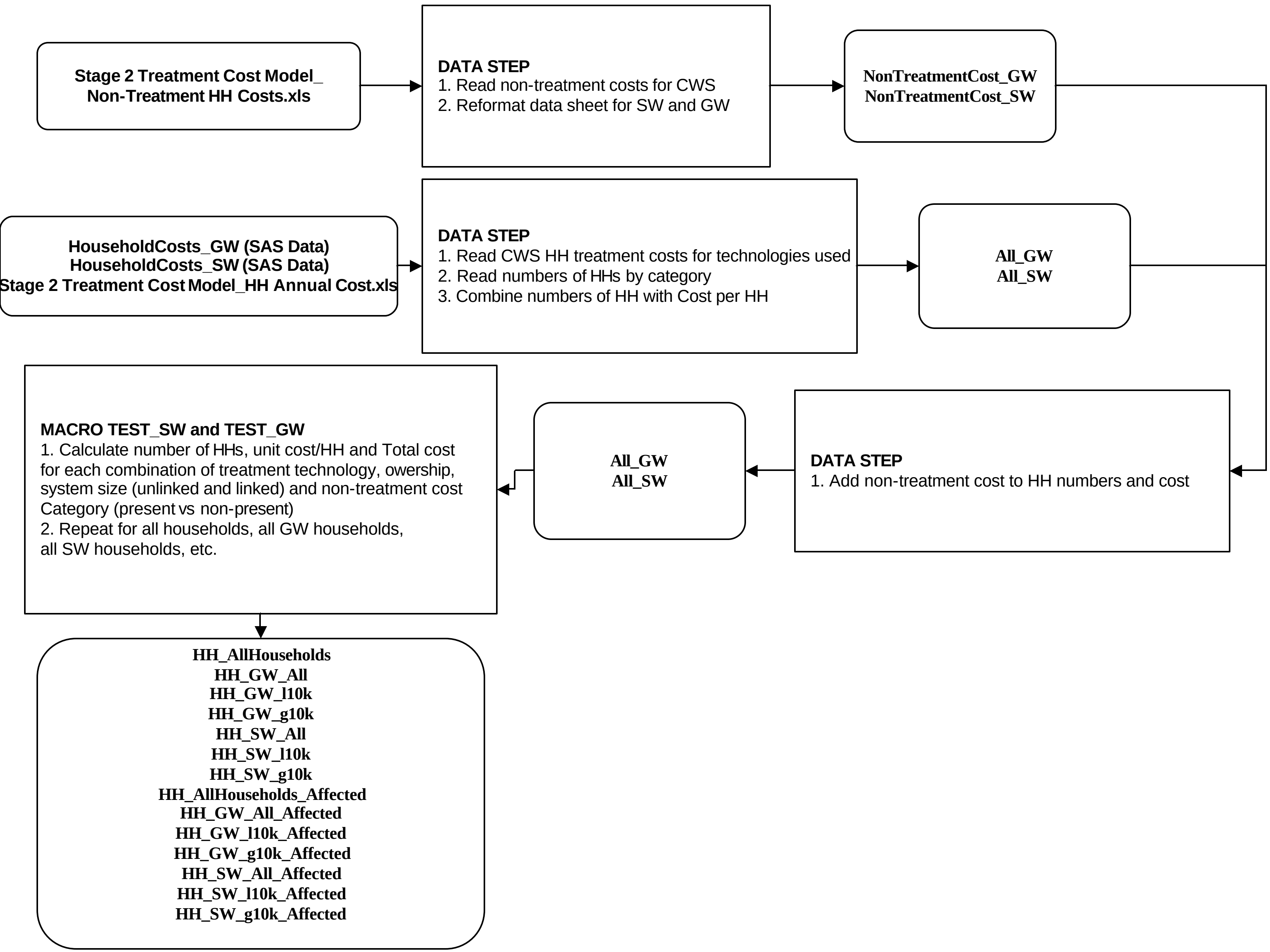


Exhibit K.6b Input/Output Files for HH.sas (Household Model)

INPUT

Stage 2 Treatment Cost Model_HH Costs_GW_CWS.xls
Stage 2 Treatment Cost Model_HH Annual Cost.xls
Stage 2 Treatment Cost Model_HHCosts_SW.xls
Stage 2 Treatment Cost Model_Non-Treatment HH Costs.xls

(see Exhibit K-6c for a description of input files to HH.sas)

HH.sas

This program uses various input files, including those created by CreateInput2.sas and TreatmentCostModel.sas to generate unit costs and total costs for small and large systems sorted by ownership (public/private), source water (SW/GW), system type (CWS/NTNCWS), and size category (small/large). Costs are separately reported for households that are part of systems making treatment changes (affected households).

OUTPUT *[Description of files to be provided]*

HH Results_(##MONYR)HH_AllHouseholds_Affectedxls
HH Results_(##MONYR)HH_AllHouseholdsxls
HH Results_(##MONYR)HH_GW_All_Affectedxls
HH Results_(##MONYR)HH_GW_Allxls
HH Results_(##MONYR)HH_GW_g10K_Affectedxls
HH Results_(##MONYR)HH_GW_g10Kxls
HH Results_(##MONYR)HH_GW_l10K_Affectedxls
HH Results_(##MONYR)HH_GW_l10Kxls
HH Results_(##MONYR)HH_SW_All_Affectedxls
HH Results_(##MONYR)HH_SW_Allxls
HH Results_(##MONYR)HH_SW_g10K_Affectedxls
HH Results_(##MONYR)HH_SW_g10Kxls
HH Results_(##MONYR)HH_SW_l10K_Affectedxls
HH Results_(##MONYR)HH_SW_l10Kxls

Exhibit K.7a Flowchart of SmallPlants.sas

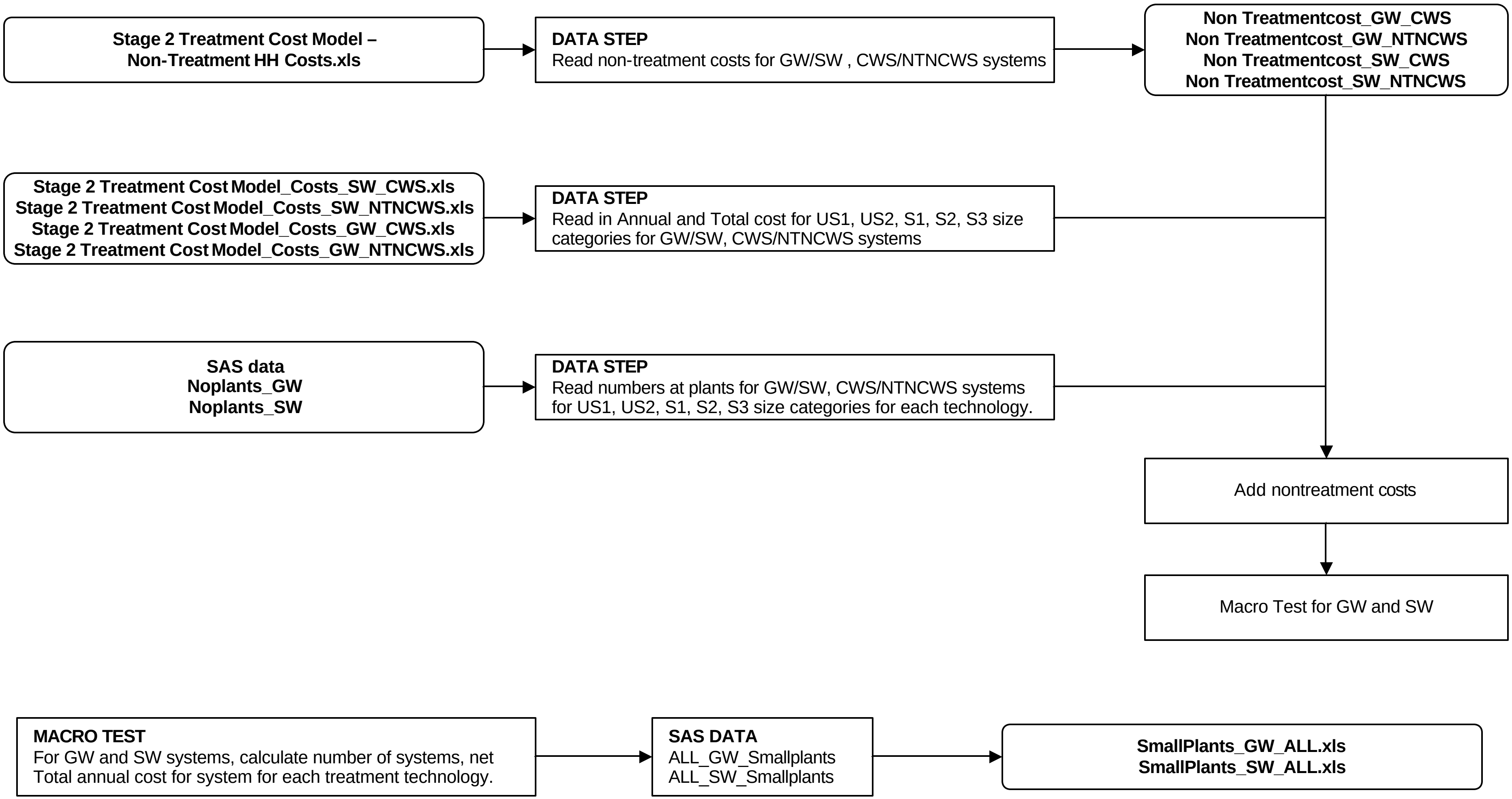


Exhibit K.7b Input/Output Files for SmallPlants.sas

INPUT

Stage 2 Treatment Cost Model_Non-Treatment HH Costs.xls
Stage 2 Treatment Cost Model_Costs_&srce._sys..xls
Stage 2 Treatment Cost Model_NOPlants&srce._sys..xls

(see Exhibit K-6c for a description of input files to SmallPlants.sas)

↓

SmallPlants.sas

This program uses data from various inputs, including those created by CreateInputs2.sas and the non-treatment cost model to calculate the total annual costs for small plants by technology and source water.

↓

OUTPUT *[Description of files to be provided]*

SmallPlants_GW_All_(##MONYR).xls
SmallPlants_SW_All_(##MONYR).xls

Exhibit K.8a Flowchart of Discounting.sas

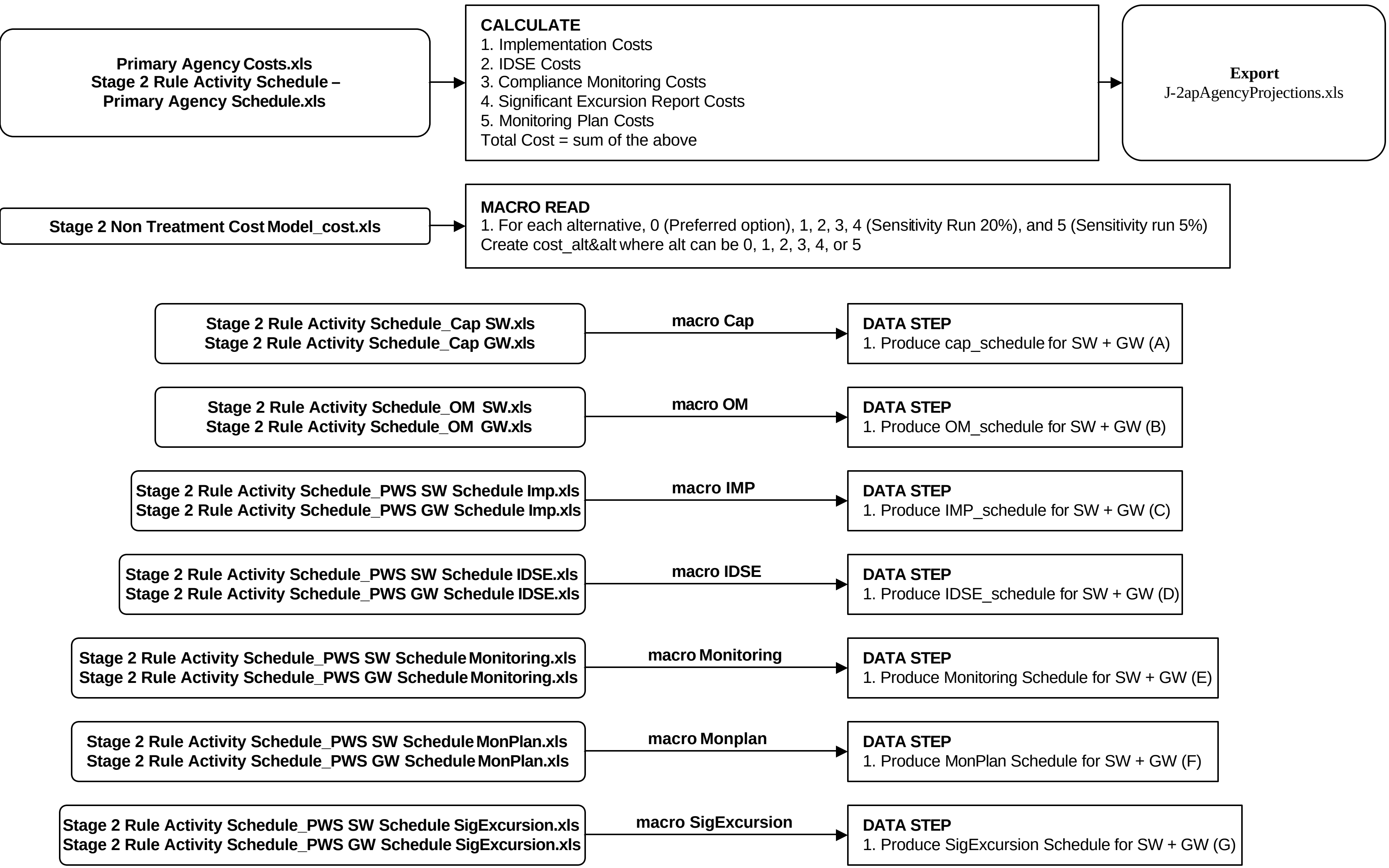


Exhibit K.8a Flowchart of Discounting.sas (cont'd)

MACRO RESULT
1. Run for each alternative 0 (Preferred), 1, 2, 3, 4, and 5

MACRO RESULT
2. Produces the following spreadsheets by merging (A), (B), (C), (D), (E), (F), and (G)

Projections of Stage 2 DBPR PWS Costs, for SW CWS, SW NTNCWS, GW CWS, GW NTNCWS Systems for each of the 9 population categories

Projections of the Stage 2 DBPR PWS costs for ALL SW CWS, ALL SW NTNCWS, ALL GW CWS, ALL GW_NTNCWS

Projections of Stage 2 DBPR PWS Costs for ALL SW, ALL GW

Produces GRAND TOTAL Present Value Spreadsheets for 3% and 7% discount rates for GW and SW systems as
Alt&alt.J.2as_Grandtotal_PV_3.xls
and **Alt&alt.J.2aw_Grandtotal_PV_7.xls**
where &alt can be 0, 1, 2, or 3

Produces Present Value Spreadsheets for CAPITAL and O&M costs us ing discount rates of 3% and 7% for GW and SW systems as
Alt&alt.J.2at_Grandtotal_Capital_PV_3.xls
Alt&alt.J.2ax_Grandtotal_Capital_PV_7.xls
Alt&alt.J.2aw_Grandtotal_OM_PV_3.xls
Alt&alt.J.2ay_Grandtotal_OM_PV_7.xls

Produces, using discount rates of 3% and 7% present value spreadsheets for non-treatment costs as
Alt&alt.J.2av_Grandtotal_Non-Treat_3.xls
Alt&alt.J.2az_Grandtotal_Non-Treat_7.xls

Produces Present Value Spreadsheets using discount rates of 3% and 7% for SW CWS, SW NTNCWS, GW CWS, and GW NTNCWS options as
Alt&alt.J.2ba_SW_CWS_PV_bysize_3.xls
Alt&alt.J.2be_SW_NTNCWS_PV_bysize_3.xls
Alt&alt.J.2bi_GW_CWS_PV_bysize_3.xls
Alt&alt.J.2bmGW_NTNCWS_PV_bysize_3.xls
Alt&alt.J.2bqSW_CWS_PV_bysize_7.xls
Alt&alt.J.2buSW_NTNCWS_PV_bysize_7.xls
Alt&alt.J.2by_GW_CWS_PV_bysize_7.xls
Alt&alt.J.2cc_GW_NTNCWS_PV_bysize_7.xls

Generate Present value spreadsheets for ALL systems for Total/Capital/O&M/Non-treatment costs, using discounted rates of 3% and 7%. Spreadsheets are:
Alt&alt.J.41_All_PV_bysize_3.xls
Alt&alt.J.42_All_PV_bysize_7.xls
Alt&alt.J.4k_All_PV_bysize_capital_3.xls
Alt&alt.J.4k_All_PV_bysize_capital_7.xls
Alt&alt.J4k_All_PV_bysize_OM_3.xls
Alt&alt.J4k_All_PV_bysize_OM_7.xls
Alt&alt.J4k_All_PV_bysize_Non-Trt_3.xls
Alt&alt.J4k_All_PV_bysize_Non-Trt_7.xls

Create SW/GW CWS/NTNCWS Capital/O&M cost present value spreadsheets using 3% and 7% discount rates as
Alt&alt.J.2bb_SW_CWS_PV_Cap_3.xls
Alt&alt.J.2bf_SW_NTNCWS_PV_Cap_3.xls
Alt&alt.J.2bj_GW_CWS_PV_Cap_3.xls
Alt&alt.J.2bn_GW_NTNCWS_PV_Cap_3.xls
Alt&alt.J.2bp_SW_CWS_PV_Cap_7.xls
Alt&alt.J.2bv_SW_NTNCWS_PV_Cap_7.xls
Alt&alt.J.2bz_GW_CWS_PV_Cap_7.xls
Alt&alt.J.2cd_GW_NTNCWS_PV_Cap_7.xls
Alt&alt.J.2bc_SW_CWS_PV_OM_3.xls
Alt&alt.J.2bg_SW_NTNCWS_PV_OM_3.xls
Alt&alt.J.2bk_GW_CWS_PV_OM_3.xls
Alt&alt.J.2bo_GW_NTNCWS_PV_OM_3.xls
Alt&alt.J.2bs_SW_CWS_PV_OM_7.xls
Alt&alt.J.2bw_SW_NTNCWS_PV_OM_7.xls
Alt&alt.J.2ca.GW_CWS_PV_OM_7.xls
Alt&alt.J.2.ce.GW_NTNCWS_PV_OM_7.xls

Exhibit K.8b Input/Output Files for Discounting.sas

INPUT

Primary Agency Costs.xls
Stage 2 Rule Activity Schedule_Primary Agency Schedule.xls
Stage2 Non-Treatment Cost Model_cost.xls
Cost Uncertainty Results_(##MONYR)_totals-Preferred Option.xls
Cost Uncertainty Results_(##MONYR)_Totals-Alternative 1.xls
Cost Uncertainty Results_(##MONYR)_Totals-Alternative 2.xls
Cost Uncertainty Results_(##MONYR)_Totals-Alternative 3.xls
Stage 2 Rule Activity Schedule_Cap SW Schedule.xls
Stage 2 Rule Activity Schedule_Cap GW Schedule.xls
Stage 2 Rule Activity Schedule_OM SW Schedule.xls
Stage 2 Rule Activity Schedule_OM GW Schedule.xls

Stage 2 Rule Activity Schedule_PWS SW Schedule.xls
Stage 2 Rule Activity Schedule_PWS GW Schedule.xls
Stage 2 Rule Activity Schedule_PWS SW Schedule IDSE.xls
Stage 2 Rule Activity Schedule_PWS GW Schedule IDSE.xls
Stage 2 Rule Activity Schedule_PWS SW Schedule Monitoring.xls
Stage 2 Rule Activity Schedule_PWS GW Schedule Monitoring.xls
Stage 2 Rule Activity Schedule_PWS SW Schedule Mon Plan.xls
Stage 2 Rule Activity Schedule_PWS GW Schedule Mon Plan.xls
Stage 2 Rule Activity Schedule_PWS SW Schedule Sig Excursion.xls
Stage 2 Rule Activity Schedule_PWS GW Schedule Sig Excursion.xls

(see Exhibit K-8c for a description of input files to Discounting.sas)

Discounting.sas

This program uses results from the non-treatment cost model, the rule activity schedule, and the treatment cost model to generate system and primacy agency costs. Cost summaries and projections are sorted by source water (SW/GW), system type (CWS/NTNCWS), size category, and discount rate (3% and 7%).

OUTPUT *[Description of files to be provided]*

Exhibit K.9a Flowchart of TreatmentCostModelEndingTechnology.sas

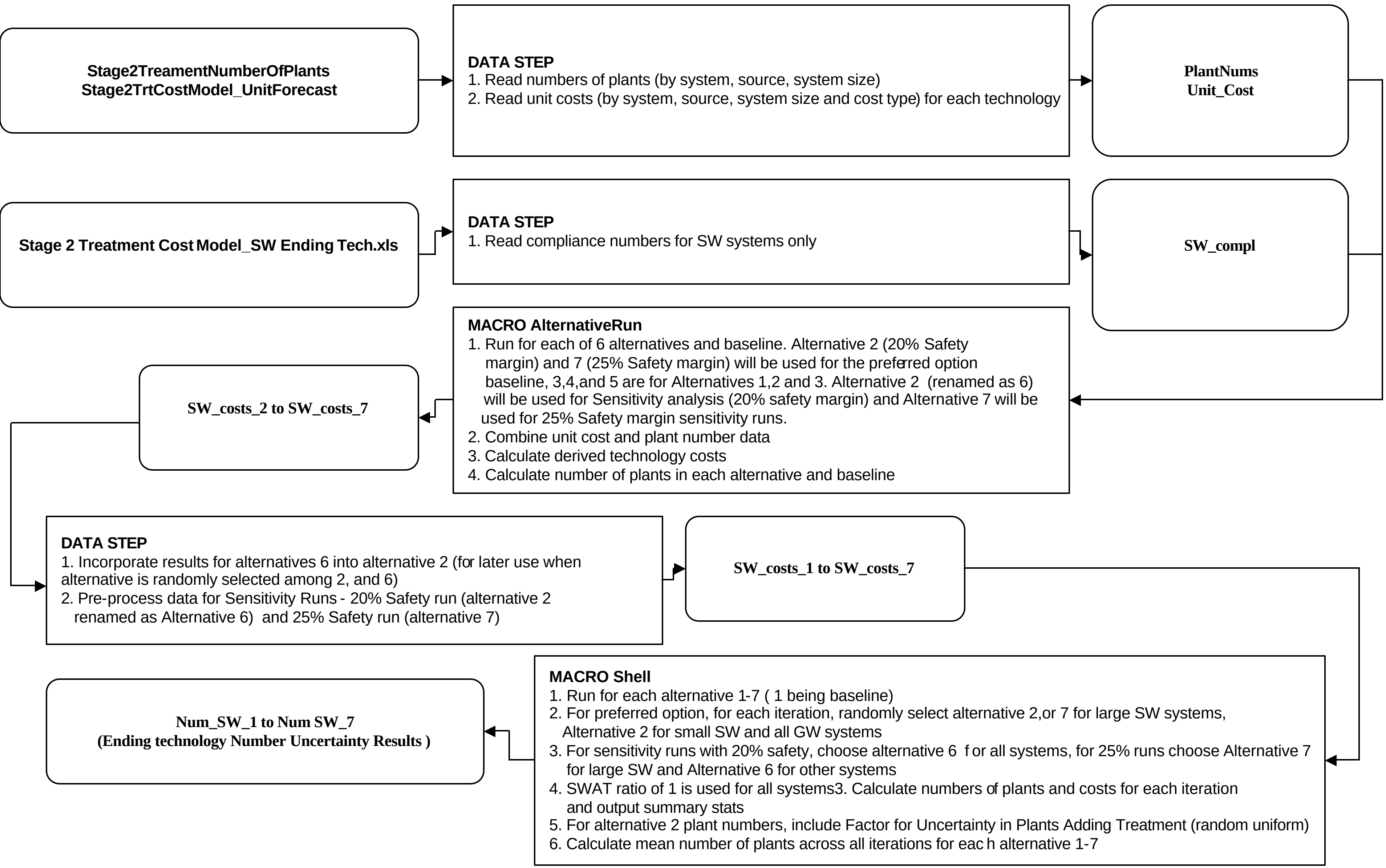


Exhibit K.9b Input/Output Files for TreatmentCostModelEndingTechnology.sas

INPUT

Stage 2 Treatment Cost Model_Unit Cost Forecast.xls
Stage 2 Treatment_Numbers of Plants.xls
Stage 2 Treatment Cost Model_SW Ending Tech.xls

(see Exhibit K-9c for a description of input files to TreatmentCostModelEndingTechology.sas)

↓

TreatmentCostModelEndingTechology.sas

This program uses results from SWAT to show which technologies will be in place for large systems once Stage 2 is implemented.

↓

OUTPUT *[Description of files to be provided]*

Ending Technology Number Uncertainty Results_(##MONYR)_Totals-Alternative 1.xls
Ending Technology Number Uncertainty Results_(##MONYR)_Totals-Alternative 2.xls
Ending Technology Number Uncertainty Results_(##MONYR)_Totals-Alternative 3.xls
Ending Technology Number Uncertainty Results_(##MONYR)_Totals-Preferred Option.xls
Ending Technology Number Uncertainty Results_(##MONYR)_Sensitivity Run- 20-Alternative 4.xls
Ending Technology Number Uncertainty Results_(##MONYR)_Sensitivity Run- 25-Alternative 5.xls
Ending Technology Number Uncertainty Results_(##MONYR)_Baseline.xls

Exhibit K.10a Flowchart of CreateInput1Afford.sas

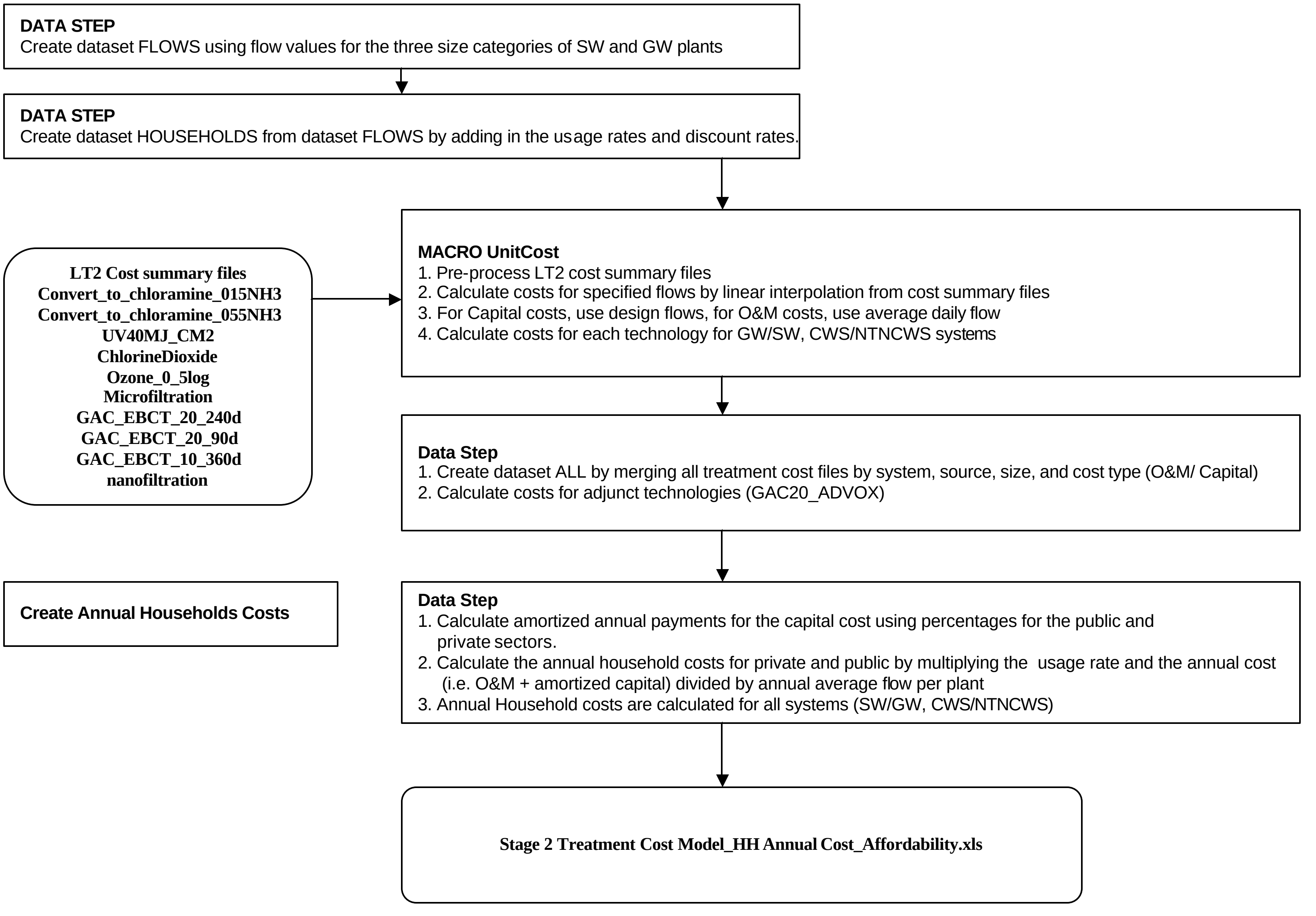


Exhibit K.10b Input/Output Files for CreateInput1Afford.sas

INPUT

Stage 2 Treatment Cost Model_Non-Treatment HH Costs.xls
Stage 2 Treatment Cost Model_Costs_&srce._sys..xls
Stage 2 Treatment Cost Model_NOPlants&srce._sys..xls

(see Exhibit K-10c for a description of input files to CreateInput1Afford.sas)

↓

CreateInput1Afford.sas

This program uses inputs from prog1.sas and generates annual and total treatment costs for each technology used for small SW and GW plants, by system type.

↓

OUTPUT *[Description of files to be provided]*

SmallPlants_GW_All_Afford_(##MONYR).xls
SmallPlants_SW_All_Afford_(##MONYR).xls

Exhibit K.11 Flow Chart of Stage2Benefits_CasesAvoided.sas

Bladder Cancer Cases Avoided Inputs.txt

Population Data by Age Groups
(Populations data by 101 Ages.xls)

Parameters for Pareto and Weibul distributions
1. Params_pareto_bladder
2. Params_pareto_lung
3. Params_weibul_bladder
4. Params_weibul_lung

DBP Occurrence Inputs
for baseline, Alternatives 1, 2, 3,
and Sensitivity Runs (20% and 25%)

DATA STEP
1. Create dataset slopes
2. For each iteration, calculate par-slope

SQL STEP
1. Create dataset Params 1 for Bladder

SQL STEP
1. Import lung parameters into Params1.
2. Create dataset Params 2

Macro Begin process
1. Separate runs for baseline, Alternatives 1, 2, 3, and sensitivity runs 20% and 25%.
2. Alt = 0 indicates baseline
   = 1, 2, 3 indicates Alternatives 1, 2, 3
   = 4, 5
3. Reads in dbp reduction data, preprocesses it.
4. Creates a permanent dataset for each option (i.e., Alt = 0, 1, 2, 3, 4, 5)
   a) Param_set_runs_0
   b) Param_set_runs_1
   c) Param_set_runs_2
   d) Param_set_runs_3
   e) Param_set_runs_4
   f) Param_set_runs_5
5. Modifies permanent dataset for each option to calculate the following:
   a) Background_cases = [multiply population by age groups WITH Incidence Rates]
   b) oddsratio = [exp (par_slope * age)]
   c) PAR = [(ePE*(or-1))/(1+(ePE*(or-1)) where PE = population exposed]
   d) Cases Attributed (CAtt_Age) = [background _cases*par]
   e) CAVSIMax_Age_tthm = [Att_age*s1_tthm where s1_tthm – State 1 reduction for TTHM]
   e2) CAVSIMax_Age_HAA5 = [Att_age*s1_haa5 where s1_haa5 – State 1 reduction for HAA5]
   f) Choose randomly between 20% and 25% safety runs for Alt = 0,
      For Alternative 4, always use 20%
      For Alternative 5, always use 25%
      For Alternatives 1, 2, 3, 20% and 25% are same.
   g) Calculate Stage 2 reductions using appropriate values from min, max at a uniform distribution
   h) Invoke macro Cesslag.
   i) Cesslag has 3 runs for each option:
      Run = 1 for Smoking lung
      Run = 2 for Smoking bladder
      Run = 3 for Arsenic bladder
   j) Cesslag calculates Cases Avoided for years after rule (1 to 100) for TTHM and HAA5.
   k) Process outputs and transposes them, apportions the cases avoided between SW/GW, <10K/$\geq$10K

Smoking_Lung_Cases_0.xls
Smoking_Lung_Cases_1.xls
Smoking_Lung_Cases_2.xls
Smoking_Lung_Cases_3.xls
Smoking_Lung_Cases_4.xls
Smoking_Lung_Cases_5.xls

Smoking_Bladder_Cases_0.xls
Smoking_Bladder_Cases_1.xls
Smoking_Bladder_Cases_2.xls
Smoking_Bladder_Cases_3.xls
Smoking_Bladder_Cases_4.xls
Smoking_Bladder_Cases_5.xls

Arsenic_Bladder_Cases_0.xls
Arsenic_Bladder_Cases_1.xls
Arsenic_Bladder_Cases_2.xls
Arsenic_Bladder_Cases_3.xls
Arsenic_Bladder_Cases_4.xls
Arsenic_Bladder_Cases_5.xls

Appendix L
Quality Assurance Supplemental Information

Appendix L
Quality Assurance Supplemental Information

Existing Data Source	Use for the Stage 2 DBPR Regulatory Development Effort	Level [1]	QA Plan? [2]	Peer Reviewed? [2]
1. Information Collection Rule (ICR)	Used to characterize occurrence of disinfectants, disinfection byproducts (DBPs), and DBP precursors (e.g., total organic carbon [TOC]) in large surface water (SW) and ground water (GW) systems. Used as input to SWAT and the ICR Ground Water Delphi process.	2	Yes	Yes
2. ICR Supplemental Survey	Used to compare TOC occurrence in small, medium and large SW systems.	1	Yes	Yes
3. National Rural Water Association (NRWA) Survey	Used to characterize operational characteristics, disinfection practices, DBP occurrence and occurrence of DBP precursors (e.g., TOC) for small SW systems. DBP and DBP precursor data were compared to that of large systems. Used to assess variability in TTHM and HAA5 occurrence in distribution systems of small SW systems.	1	Yes	No
4. Water Utility Survey (WATER:\STATS database)	Used to compare operational characteristics, disinfection practices, DBP occurrence, and DBP precursor occurrence of medium and large SW systems and medium and large ground water GW systems	1	Yes	Yes
5. Ground Water Supply Survey	Used to compare TOC occurrence between small, medium, and large GW systems	1	Yes	No
6. State Data	Used to compare TTHM occurrence on small GW systems to occurrence in large GW systems.	1	No	No

Notes:
1.Level 1 data are those data that provide background information or context for a particular assessment or discussion, but are not deemed to be influential in EPA's decision-making process. Level 2 data are those data that are deemed to be highly important or influential in EPA's decision-making process.
2. See Sections 1.4 and 1.5 in the Stage 2 DBPR Occurrence Document (USEPA 2005k) for a description of QA plans and/or peer review processes for each existing data source shown.

Appendix M

Ground Water Systems Adding Disinfection Under the Ground Water Rule

Appendix M
Ground Water Systems adding Disinfection under the Ground Water Rule

M.1 Introduction

This appendix presents an analysis of the potential increased risks caused by ground water systems that are adding disinfection under the Ground Water Rule (GWR). When a system moves from no disinfection to performing disinfection including chlorination or chloramination, there will be an increase in chlorination disinfection byproducts (DBPs). Based on analyses in this EA, this increase in DBPs may lead to a small increase in bladder cancer incidence. Exhibit M.1 shows the number of ground water systems estimated to be adding disinfection under the GWR that are being considered in this analysis and Exhibit M.2 presents the population who have the potential to be newly exposed to DBPs as the system adds disinfection.

Exhibit M.1 Ground Water Systems Increasing Disinfection under the GWR

System Size	Baseline Number of Systems	Percent Disinfecting Prior to GWR	Entry Points Increasing Disinfection Dose for the GWR	Entry Points Adding Disinfection for the GWR	Entry Points Per System	Systems Increasing Disinfectant Dose for GWR	Systems Adding Disinfectant for GWR
	A	**B**	**C**	**D**	**E**	**F = C/E**	**G = D/E**
Community Water Systems (CWSs)							
<100	11,900	53%	250	590	1.3	190	450
100-499	14,728	78%	475	560	1.6	291	343
500-999	4,836	84%	155	167	2.0	79	86
1,000-3,299	5,869	80%	213	259	2.4	88	107
3,300-9,999	2,661	87%	124	143	3.2	39	44
10,000-49,999	1,280	97%	128	48	5.6	23	8
50,000-99,999	142	86%	14	25	11.3	1	2
100,000-999,999	65	96%	27	22	12.4	2	2
1,000,000+	3	100%	0	0	11.4	0	0
Total	41,484		1,385	1,814		713	1,042
Nontransient Noncommunity Water Systems (NTNCWSs)							
<100	8,596	29%	192	579	1	192	579
100-499	7,341	29%	137	662	1	137	662
500-999	2,032	29%	38	191	1	38	191
1,000-3,299	852	29%	14	69	1	14	69
3,300-9,999	74	29%	1	7	1	1	7
10,000-49,999	11	29%	0	1	1	0	1
50,000-99,999	1	29%	0	0	1	0	0
100,000-999,999	1	29%	0	0	1	0	0
1,000,000+	0	29%	0	0	1	0	0
Total	18,908		383	1,510		383	1,510

Exhibit M.2 Population exposed to DBPs from Increased Disinfection under the GWR

System Size	Baseline Population	Disinfecting Population (Pre-GWR)	Population per Entry Point	Population Increasing Dose for GWR	Population Adding Disinfection for GWR
	A	**B**	**C**	**D**	**E**
Community Water Systems (CWSs)					
<100	694,081	367,234	44	11,106	26,229
100-499	3,464,186	2,717,762	144	68,488	80,733
500-999	3,443,379	2,892,438	364	56,421	61,039
1,000-3,299	10,792,045	8,729,622	758	161,520	195,878
3,300-9,999	14,986,715	13,807,155	1,750	217,099	250,290
10,000-49,999	26,328,792	27,997,663	3,662	467,547	174,774
50,000-99,999	9,234,271	9,593,384	5,758	82,900	146,697
100,000-999,999	13,471,072	23,627,588	16,727	444,645	369,287
1,000,000+	3,933,533	3,933,533	115,450	0	0
Total	86,348,074	93,666,379		1,509,726	1,304,927
Nontransient Noncommunity Water Systems (NTNCWSs)					
<100	433,616	125,749	50	9,669	29,220
100-499	1,659,474	481,247	226	30,967	149,610
500-999	1,366,981	396,424	673	25,827	128,546
1,000-3,299	1,322,365	383,486	1,552	22,495	107,486
3,300-9,999	381,348	110,591	5,153	7,626	37,145
10,000-49,999	228,408	66,238	20,764	4,209	25,495
50,000-99,999	66,000	19,140	66,000	1,338	5,258
100,000-999,999	110,000	31,900	110,000	2,230	13,033
1,000,000+	0	0	0	0	0
Total	5,568,192	1,614,776		104,360	495,793

M.2 Current Risk per lifetime per µg DBPs

In order to quantify the potential increase in bladder cancer incidence from the addition of disinfection from the GWR, it is necessary to quantify the current risk of bladder cancer per unit of DBPs in the drinking water. Based on the primary analysis in this EA, the estimated annual Pre-Stage 1 bladder cancer cases from all sources is 56,506, the cases attributable to DBPs are 10,159, and the cases attributable to other sources are 46,347 (by subtraction). The cases attributable to DBPs reflect the Pre-Stage 1 average Population Attributable Risk (PAR) value of 18% obtained from the Monte Carlo simulation of the Odds Ratios (ORs) from the Villanueva et al. (2003) study. As described in Chapter 6 and Appendix E, the average 18% PAR value is derived from the fixed OR value of 1.2.

Two annual bladder cancer risk factors are computed using the Pre-Stage 1 bladder cancer cases information and the total population served by disinfecting systems. The annual risk from DBPs is:

10,159 / 263,024,518 = $\mathbf{3.86 \times 10^{-5}}$ annual cases per person.

The annual risk from all other sources is:

46,347/ 263,024,518 = **1.76×10^{-4}** annual cases per person.

The DBP risk factor can be expressed in terms of DBP concentration (represented by TTHMs) by dividing by the Pre-Stage 1 average TTHM concentration (38.04 μg/L) to arrive at value expressed in the units of annual cases per person per μg/L.

3.86×10^{-5} / 38.04 = **1.02×10^{-6}** annual cases per person per μg/L.

This value can be interpreted as the Pre-Stage 1 unit risk from exposure to DBPs. Since there is no specific factor to relate to the unit risk from all causes, for this group, the risk is expressed in only cases per person (1.76×10^{-4}).

M.3 Additional risk for GW populations adding disinfection

To estimate the potential added risk, the unit risk calculated in Section M.2 can applied to the population newly exposed from the addition of disinfection from the GWR. The number of people potentially newly exposed is 1,304,927 (in CWSs only) and the estimated Post Stage 2 DBP concentration (as represented by TTHM) is 13.75 μg/L. The annual cases of bladder cancer from DBPs can be calculated as follows:

$1.02 \times 10^{-6} \times 13.75 \times 1{,}304{,}927$ = **18.22** cases.

The annual cases of bladder cancer from other causes can be calculated as follows:

$1.76 \times 10^{-4} \times 1{,}304{,}927$ = **230** cases.

The total number of estimated cases in the newly exposed group at a steady-state is the sum of these two (248.22 cases). This total sum of cases from DBPs and from other causes is necessary in order to calculate a PAR for this newly exposed group. PAR is calculated as the number of cases attributable to DBPs divided by the total number of cases:

18.22 / 248.22 = 7.34%

Without consideration of latency, the annual cancer cases attributable to DBPs from ground water systems adding disinfection under the GWR is 18.22. This would to be the "steady-state" annual value, achieved once those individuals served by these systems have spent their entire lives consuming water with these DBP levels present..

M.4 Accounting for latency

To account for latency, and the lower number of attributable cases per year in the period after disinfection begins, it is necessary to use exposure duration information from Villanueva et al. (2003) together with the PAR calculated in Section M.3. EPA assumes that the PAR for this group is the value attained at steady state, which in this analysis is assumed to be 100 years after rule promulgation. In order to calculate the rate at which risk increases with exposure duration, the following equation was used:

$$PAR_i = \frac{P_e(e^{slope \times year} - 1)}{[P_e(e^{slope \times year} - 1)] + 1} \qquad \text{(Equation M.1)}$$

P_e is equal to 1, since this equation is now being applied to a subpopulation, all who will be drinking the newly disinfected drinking water. Using the PAR of 7.34 % at 100 years from Section M.3 and $P_e = 1$, the slope is calculated as 7.62×10^{-4}, by rearranging Equation M.1 as:

$$slope = \frac{\ln\left(\frac{1}{1-0.0734}\right)}{100}$$

Using this slope, the cases attributable to DBPs and the year-based PARs can be calculated using Equation M.1. As shown in Exhibit M.3, after consideration of latency, for the first 25 years following rule promulgation, the cases per year range from 0.18 to 4.43, for an average of approximately 2 cases per year.

M.5 Conclusions

EPA believes that though there is a potential for increased risk from these systems, this risk is not significant. The addition of 2 cases per year will not have a significant effect on the benefits analysis performed in this economic analysis. This is less than half a percent of the pre-Stage 1 baseline of approximately 10,000 cases attributable to DBPs, and falls well within the 90% confidence interval of cases potentially avoided by the Stage 2 DBPR. For these reasons, EPA does not quantify this additional risk as part of the Stage 2 economic analysis.

Exhibit M.3 Total Annual Bladder Cancer Cases

Years after Rule Promulgation	Total Cases	Cases from DBPs	PAR	Years after Rule Promulgation	Total Cases	Cases from DBPs	PAR
0	229.94	0.00	0.00%	51	239.06	9.12	3.81%
1	230.11	0.18	0.08%	52	239.24	9.30	3.89%
2	230.29	0.35	0.15%	53	239.42	9.48	3.96%
3	230.46	0.53	0.23%	54	239.60	9.67	4.03%
4	230.64	0.70	0.30%	55	239.79	9.85	4.11%
5	230.82	0.88	0.38%	56	239.97	10.03	4.18%
6	230.99	1.05	0.46%	57	240.15	10.21	4.25%
7	231.17	1.23	0.53%	58	240.34	10.40	4.33%
8	231.35	1.41	0.61%	59	240.52	10.58	4.40%
9	231.52	1.58	0.68%	60	240.70	10.76	4.47%
10	231.70	1.76	0.76%	61	240.89	10.95	4.54%
11	231.87	1.94	0.84%	62	241.07	11.13	4.62%
12	232.05	2.11	0.91%	63	241.25	11.31	4.69%
13	232.23	2.29	0.99%	64	241.44	11.50	4.76%
14	232.41	2.47	1.06%	65	241.62	11.68	4.84%
15	232.58	2.64	1.14%	66	241.81	11.87	4.91%
16	232.76	2.82	1.21%	67	241.99	12.05	4.98%
17	232.94	3.00	1.29%	68	242.17	12.24	5.05%
18	233.12	3.18	1.36%	69	242.36	12.42	5.13%
19	233.29	3.36	1.44%	70	242.54	12.61	5.20%
20	233.47	3.53	1.51%	71	242.73	12.79	5.27%
21	233.65	3.71	1.59%	72	242.91	12.98	5.34%
22	233.83	3.89	1.66%	73	243.10	13.16	5.41%
23	234.01	4.07	1.74%	74	243.29	13.35	5.49%
24	234.18	4.25	1.81%	75	243.47	13.53	5.56%
25	234.36	4.43	1.89%	76	243.66	13.72	5.63%
26	234.54	4.60	1.96%	77	243.84	13.90	5.70%
27	234.72	4.78	2.04%	78	244.03	14.09	5.77%
28	234.90	4.96	2.11%	79	244.21	14.28	5.85%
29	235.08	5.14	2.19%	80	244.40	14.46	5.92%
30	235.26	5.32	2.26%	81	244.59	14.65	5.99%
31	235.44	5.50	2.34%	82	244.77	14.84	6.06%
32	235.62	5.68	2.41%	83	244.96	15.02	6.13%
33	235.80	5.86	2.48%	84	245.15	15.21	6.20%
34	235.98	6.04	2.56%	85	245.33	15.40	6.28%
35	236.16	6.22	2.63%	86	245.52	15.58	6.35%
36	236.34	6.40	2.71%	87	245.71	15.77	6.42%
37	236.52	6.58	2.78%	88	245.90	15.96	6.49%
38	236.70	6.76	2.86%	89	246.08	16.15	6.56%
39	236.88	6.94	2.93%	90	246.27	16.33	6.63%
40	237.06	7.12	3.00%	91	246.46	16.52	6.70%
41	237.24	7.30	3.08%	92	246.65	16.71	6.77%
42	237.42	7.48	3.15%	93	246.84	16.90	6.85%
43	237.60	7.66	3.23%	94	247.02	17.09	6.92%
44	237.78	7.85	3.30%	95	247.21	17.27	6.99%
45	237.96	8.03	3.37%	96	247.40	17.46	7.06%
46	238.15	8.21	3.45%	97	247.59	17.65	7.13%
47	238.33	8.39	3.52%	98	247.78	17.84	7.20%
48	238.51	8.57	3.59%	99	247.97	18.03	7.27%
49	238.69	8.75	3.67%	100	248.16	18.22	7.34%
50	238.87	8.94	3.74%	**Steady State**	**248.16**	**18.22**	**7.34%**