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SECRETARY OF THE AIR FORCE

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Aerospace Medicine

SAFE DRINKING WATER SURVEILLANCE PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This Air Force Instruction (AFI) implements Environmental Protection Agency (EPA) regulations promulgated under the authority of the Safe Drinking Water Act (SDWA) and provides guidance for managing the Air Force (AF) safe drinking water surveillance program. This standard is intended for use at fixed installations within the United States and its territories, in conjunction with the Code of Federal Regulations (CFR) and applicable state and local regulations. Installations in the United States and its territories are required to comply with the most stringent applicable standards (AF, Federal, State or Local). This instruction applies to Air Force, Air National Guard and Air Force Reserve installations.

Installations outside the United States and its territories must implement this standard in compliance with Department of Defense Instruction (DODI) 4715.5, DODI 6230.1, the Overseas Environmental Baseline Guidance Document (OEBGD), and applicable Department of Defense (DoD) Final Governing Standards (FGS) or Environmental Governing Standards (EGS). At installations outside the United States and its territories, i.e. overseas, Air Force unique criteria listed in this standard and not included in the OEBGD or applicable FGS/EGS should be followed when feasible. Major Commands (MAJCOM) may issue supplementary criteria that are more protective of human health than that required by the DoD FGS/EGS/OEBGD provided they obtain the concurrence of the DoD Executive Agent (or equivalent authority), consider the impact upon host nation relations with other DoD components, and clearly identify variances from the FGS/EGS/OEBGD. Overseas installations will coordinate all requests for reduced monitoring under the FGS/EGS with the MAJCOM Surgeon prior to submission to the Executive Agent or equivalent authority. AFI 32-7006, *Environmental Program in Foreign Countries*, details the requirements unique to Air Force environmental programs in foreign countries. Functional responsibilities identified in this standard apply to overseas installations implementing DoD FGS/EGS. **The reporting requirements in this instruction are exempt from licensing in accordance with AFI 33-324, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections.***

This publication implements AFPD 48-1, *Aerospace Medicine Program* (22 July 1993). AFPD 48-1 directly supports AFPD 90-8 *Environment, Safety, and Occupational Health* (1 January 1999). Additionally, AFPD 48-1 supports “environment, safety, and occupational health and readiness support” program

policy matters as described in AFPD 90-1, *Strategic Planning and Policy Formulation*, (1 September 1998), paragraph 5.

1. Responsibilities:

1.1. **The Air Force Surgeon General (HQ USAF/SG).**

1.1.1. Ensures surveillance of AF drinking water supplies; establishes sampling, analysis, and monitoring requirements consistent with the Safe Drinking Water Act (SDWA); Office of Primary Responsibility for implementation of SDWA.

1.1.2. Establishes and advocates AF policy protecting public health and ensuring regulatory compliance.

1.2. **The Air Force Civil Engineer (HQ USAF/ILE).**

1.2.1. Ensures AF drinking water systems are properly designed, constructed, operated and maintained to provide adequate supplies of safe drinking water to AF personnel and ensure compliance with applicable regulatory requirements or standards.

1.2.2. Establishes a planning, programming and budgeting mechanism available to medical personnel to advocate for and receive funds to conduct the safe drinking water surveillance program.

1.3. **The Air Force Medical Operations Agency (HQ AFMOA).**

1.3.1. Develops AF and joint service policy for drinking water surveillance and establishes AF-unique drinking water standards to protect the health of AF personnel.

1.3.2. Validates Major Command (MAJCOM) SG budget submittals for conducting the safe drinking water program and, in conjunction with HQ USAF/ILE, oversees programming and execution of safe drinking water surveillance programs throughout the AF.

1.4. **The Air Force Civil Engineering Support Agency (HQ AFCESA).**

1.4.1. Issues drinking water system design and operations and maintenance guidance; provides technical assistance to MAJCOMs and installations.

1.4.2. Provides a contracting mechanism for: engineering studies, design of water distribution systems and treatment plants, and Operations, Maintenance, and Training Assistance Programs (OMTAP).

1.5. **The Air Force Center for Environmental Excellence Regional Environmental Offices (HQ AFCEE/CCR-A/D/S).**

1.5.1. Assists MAJCOMs and installations in resolving regulatory issues. Coordinates with MAJCOM prior to base visits and provides summary of activities to parent MAJCOM following visits.

1.5.2. Provides Air Force representation to Federal, state and local regulators, and, where appropriate and in consultation with MAJCOM, to state and local regulators.

1.5.3. Provides Air Force comments on proposed Federal, regional EPA, State and local drinking water regulations.

1.5.4. Maintains Air Force database of all environmental regulatory Open Enforcement Actions (OEAs) and their status. Upon completion of required corrective actions, confirms closure with appropriate regulators.

1.6. **Major Commands (MAJCOMs).**

1.6.1. MAJCOM Bioenvironmental Engineer (BEE)

1.6.1.1. Develops programs to support safe drinking water and gives administrative and technical support to help installations comply with regulatory requirements, standards, and AF policies.

1.6.1.2. Reviews and validates installation programming and budget needs for conducting the safe drinking water surveillance program and forwards budget needs to AFMOA.

1.6.1.3. Conducts audits of installation level safe drinking water programs periodically to ensure compliance and adequacy of resources to conduct the surveillance program.

1.6.2. MAJCOM Civil Engineer

1.6.2.1. Ensures installation drinking water systems are properly designed, constructed, operated, and maintained to provide adequate supplies of safe drinking water to base personnel and ensure compliance with applicable regulatory requirements or standards. Assists installations in resolving regulatory issues with assistance from Regional Environmental Office (REO) technical and regulatory expertise.

1.6.2.2. Ensures installations use the established planning, programming and budgeting mechanism to secure funds to execute safe drinking water projects and conduct necessary surveillance related to safe drinking water.

1.6.2.3. Validates installation Civil Engineering (CE) programming and budget submittals and transmits to HQ USAF/ILE.

1.7. **AF Institute for Environmental, Safety and Occupational Health Risk Analysis (AFIERA).**

1.7.1. Provides technical consultations regarding safe drinking water quality and provides a contracting mechanism to execute projects related to drinking water monitoring and compliance. As a minimum, annually reviews and, updates as necessary, guidance documents to assist installations in interpretation and execution of safe drinking water surveillance programs including this instruction.

1.7.2. Provides specialized field surveys and studies to assist installations with drinking water quality issues.

1.7.3. Offers in-house or contract laboratory analytical services to installations for all federally promulgated analytical requirements. Ensures analyses are performed by a laboratory that is certified by the appropriate regulatory authority for the installation submitting the sample and reports results in accordance with regulatory requirements. Coordinates with AF installations using AFIERA's analytical capability on the scheduling of their drinking water sample submissions.

1.7.4. Provides guidance to installations on collection and preservation of drinking water samples, sampling equipment, instruments, methods, calibration, and interpretation of results concerning drinking water.

1.7.5. Upon request, reviews commercial laboratory quality assurance and quality control programs.

1.7.6. Completes prior coordination with MAJCOMs on base visits or MAJCOM data calls and provides summary of activities of base support to parent MAJCOM following visits.

1.8. **USAF School of Aerospace Medicine (USAFSAM).** The USAF School of Aerospace Medicine (USAFSAM) develops and teaches curriculum on requirements of the Safe Drinking Water Act and this instruction to Bioenvironmental Engineers and Bioenvironmental Engineering technicians.

1.9. **The Installation Commander.** The Installation Commander is responsible for compliance with applicable regulations and standards implementing the Safe Drinking Water Act, and for overseas locations the FGS/EGS/OEBGD. The Safe Drinking Water Surveillance Program is implemented by members of the commander's staff (Bioenvironmental Engineering, Civil Engineering, Environmental Management, Judge Advocate, and Public Affairs) in coordination with federal, state, and local regulatory agencies, public and private purveyors of water, and the surrounding community.

1.9.1. Bioenvironmental Engineering (BE)

1.9.1.1. Performs drinking water surveillance for the protection of public health and regulatory compliance. Provides data and technical support to physicians and public health personnel investigating potential drinking water related illnesses. Maintains records of drinking water surveillance in accordance with primacy requirements. Ensures laboratories perform analyses using required analytical methods.

1.9.1.2. Ensures a sanitary survey is performed to satisfy the requirements of applicable regulations and standards, using guidance from AFIERA (see references) if appropriate, and recommends measures to be taken to maintain the sanitary quality of the base drinking water system. Ensures special surveys of the drinking water system are conducted as warranted in the event of contamination.

1.9.1.3. Ensures water vulnerability assessments are completed per guidance (as a minimum using AFIERA references).

1.9.1.4. Monitors and approves aircraft watering points as described in **Attachment 2**.

1.9.1.5. Interprets results of water analyses and reports through Civil Engineering or Environmental Management to the appropriate regulatory authority according to applicable regulations.

1.9.1.6. Immediately implements the public notification procedures described in **Table A3.1.** when drinking water analysis results indicate a potential public health threat or result in non-compliance with applicable regulations and standards.

1.9.1.7. If appropriate, initiates requests for waivers, exemptions and reduced monitoring involving the safe drinking water program following procedures discussed in paragraph **2.6.**

1.9.1.8. Assists the Public Affairs Office in the preparation of Public Notifications. Prepares and coordinates Consumer Confidence Reports as necessary to comply with National Primary Drinking Water Regulations (NPDWR) requirements and this instruction, and advises the installation commander on technical solutions to achieve compliance.

1.9.1.9. Conducts engineering reviews of repairs and modifications to drinking water systems, and determines and conducts sampling, analysis, and monitoring (SAM) as necessary. Reviews construction and modification plans and drawings to assess and avert potential health hazards that may result from construction or modification. Supports the cross connection and backflow prevention program by classifying health hazards of potential and actual drinking water cross connections.

1.9.1.10. Advises commanders on source water protection opportunities, physical modifications to enhance water treatment and distribution systems, and alternative management practices to meet compliance requirements and enhance water quality.

1.9.1.11. Deploys to contingency sites where potable water is of significant concern as determined by the MAJCOM Surgeon or designated representative. (Detailed deployment responsibilities of BE are outside the scope of this AFI.)

1.9.1.12. Confirms that the installation's drinking water systems are properly classified per guidance in **Figure A4.1.**

1.9.1.13. Monitors drinking water fluoride levels as described in paragraph **2.6.**

1.9.1.14. Reviews the CE distribution system flushing and maintenance program to ensure appropriate sampling locations and timing with CE distribution system maintenance activities.

1.9.1.15. Completes annual and long-range budget plans to support both peacetime and contingency drinking water monitoring and analytical requirements, including equipment, supplies, and analytical costs described in paragraph **2.3.** Submits drinking water surveillance program funding requirements through the Base Civil Engineer or environmental management offices.

1.9.1.16. Maintains drinking water analytical data records in electronic format (e.g. Command Core System) and, if applicable, paper form (e.g. DD Form 686 Fluoride/Bacteriological Examination of Water, AF Form 1460 *Water Utility Log Supplemental*).

1.9.2. Base Civil Engineer (BCE)

1.9.2.1. Designs, constructs, operates and maintains drinking water systems. Coordinates all modifications and repairs to the drinking water system with the installation BEE and appropriate regulatory authority if required.

1.9.2.2. Develops and maintains an adequate supply of safe drinking water for the base populace and protects supplies from unintentional contamination. Develops and implements the Wellhead Protection Plan (if applicable), Water Master Plan, and an Emergency Operations or Contingency Plan in coordination with BE using guidance in DoD Model Wellhead Protection Plan, or other local requirements.

1.9.2.3. Conducts drinking water treatment process control monitoring and records drinking water production rates, periodic disinfectant residual, fluoride (if applied), and pH measurements. Ensures a detectable disinfectant residual level, or higher level if required by regulatory authority, is maintained in all parts of the installation drinking water distribution system.

1.9.2.4. Reviews and programs funding for meeting drinking water surveillance program requirements identified by BE in section **1.9.1.15.** and assists the installation BEE in submitting budget requests for drinking water surveillance.

1.9.2.5. Conducts a cross connection control and backflow prevention program to identify, isolate, and correct cross connections and other potential sources of contamination to the water supply system.

1.9.2.6. Corrects distribution system deficiencies identified through internal assessment, monitoring, or inspection by regulatory agencies and keeps records of corrective actions.

1.9.2.7. Notifies BE of any unusual events affecting the water distribution system that could result in changes to water quality and potability including line breaks, new connections, distribution system maintenance (e.g., cleaning of reservoirs, storage tanks, hydrant flushing, etc.), water treatment plant repairs, and chlorine and fluoride application problems. Works closely with BE to bring the distribution system back on line.

1.9.2.8. Coordinates contingency support plans and base recovery actions pertaining to drinking water systems with BE and optimizes the use of BE and CE resources.

1.9.2.9. Assists BE in developing and maintaining an environmental sampling, analysis, and monitoring plan.

1.9.3. The Public Affairs Office develops (with the assistance of the BEE and the BCE) and disseminates Public Notices required by the NPDWRs (or equivalent overseas). Coordinates on and distributes the Consumer Confidence Report (or equivalent). As a minimum, coordination will include the Installation Commander, Civil Engineering Group Commander, Medical Group Commander, and Staff Judge Advocate. Refer to **Figure A3.1.** for general guidance to follow to comply with notification requirements. Installation personnel must notify their MAJCOM counterparts prior to public release of the information. Disseminates this information in accordance with the NPDWRs and responds to all inquiries related to non-compliance with NPDWR requirements.

1.9.4. The Staff Judge Advocate provides legal advice on regulatory requirements applicable to the AF under the SDWA.

1.9.5. Flight Chief, Family Member Programs works with BE to ensure requirements in paragraph 2.5.3. are met for the Child Development Centers (CDC) and School Age Programs (SAP).

2. Program Elements:

2.1. **Public Water Systems (PWS).** This paragraph applies to all AF owned or operated PWS.

2.1.1. PWSs are defined and regulated under the National Primary Drinking Water Regulations.

2.1.1.1. Determination of Primacy: The SDWA authorized the EPA to set regulations, conduct studies, and oversee implementation of the NPDWR. Most states have been granted responsibility for implementing and enforcing their safe drinking water programs and have primacy. BE, in coordination with CE, must determine whether their state or federal EPA has SDWA primacy for their installation and then develop a surveillance program to comply with all requirements of the office of primacy. Installations outside the United States and its territories must comply with the DoD FGS/EGS, or where no FGS/EGS exists, the DoD OEBGD.

2.1.1.2. Bacteriological Quality. BE will conduct or arrange for bacteriological analysis of the required number of water samples by a laboratory certified by the primacy, in accordance with (IAW) the FGS/EGS/OEBGD or by AFIERA (upon request of the MAJCOM/SG for bases outside the U.S. and its territories). The MAJCOM BEE is the approval authority for Air Force bacteriological analysis laboratories located outside of the US and US territories when authority is not established in the FGS/EGS/OEBGD. BE may develop and maintain a certified laboratory for bacteriological analysis, based upon a cost-benefit comparison with locally available commercial services. Even if a certified contract laboratory analyzes bacteriological samples, BE will maintain the capability to conduct bacteriological analysis for wartime and

contingency expertise. Chlorine residuals and pH readings must also be recorded during the collection of bacteriological samples.

2.1.1.3. Chemical and Radiological Quality. Compliance drinking water samples collected for chemical or radiological analysis will be analyzed by a laboratory certified by the primacy, IAW the FGS/EGS, or OEBGD.

2.1.1.4. National Secondary Drinking Water Regulations (NSDWR). NSDWR establish guidelines on contaminant levels in drinking water that primarily affect the aesthetic qualities of drinking water and palatability. The regulations are not federally enforceable, however some primacies have established primary standards for some of these contaminants. Unless regulated under primary drinking water regulations, routine monitoring to determine compliance with secondary drinking water contaminant levels is not required. Secondary contaminants should be tested for and compared to the NSDWR following taste and odor complaints. Installations must then determine if treatment to reduce or remove the contaminants from the water system is required.

2.1.1.5. Disinfectant Surveillance: Water surveillance personnel will ensure that adequate disinfectant residual monitoring is performed, both at the point of production, and at various points in the distribution system. Treated water should be tested by CE prior to entry into the distribution system at least daily; however, if the character and variability of the water supply so dictates, test more often and at several locations. BE should test at various points in the distribution system at the time of bacteriological sampling. BE and CE shall use primacy approved analytical methods.

2.1.1.6. Consecutive Public Water Systems: The monitoring requirements for a consecutive public water system may be relaxed by the primacy, however, BE must ensure that drinking water surveillance is comprehensive and NPDWR are met by either the water supplier or by the installation (e.g. surveillance requirements in MFH for Lead and Copper Rule). Any modified monitoring shall be conducted pursuant to a schedule specified by the primacy. Overseas installations will coordinate any request to relax monitoring requirements with the MAJCOM Surgeon and the applicable Executive Agent for approval and provide an information copy to AFMOA. As a minimum, the AF unique requirements in paragraph **2.4.** apply.

2.1.2. PWS not covered by the National Primary Drinking Water Regulations.

2.1.2.1. AF owned or operated PWS may not be regulated by a federal agency if the PWS consists only of distribution and storage facilities (and does not have any collection and treatment facilities), obtains all water from, but is not owned or operated by, a public water system to which the regulations apply and does not sell water to any person, and is not a carrier which conveys passengers in interstate commerce (40 CFR 141.3). However, several states have more stringent exemption criteria and will often publish regulations on system operation and maintenance. If the AF PWS meets all applicable exemptions, the bulk supplier, not the AF, will be regulated and must comply with the NPDWR. BE will verify that the bulk supplier is meeting the NPDWR and primacy requirements as they apply to the AF owned or operated PWS. In addition, BE and CE are required to follow the AF unique requirements in paragraph **2.4.**

2.2. **Non-PWS.** Air Force drinking water systems that are not PWS will comply with SDWA requirements established for Transient Non-Community Water Systems (TNCWS). The MAJCOM Surgeon

may waive any of these requirements based on site unique conditions if public health will not be adversely impacted. BE may obtain waivers as noted in paragraph **2.6.** Where appropriate, installations should consider use of alternative water supplies when sampling, monitoring, and analysis costs for these systems are prohibitive.

2.3. **Environmental Sampling, Analysis, and Monitoring (ESAM) Plan.** BE, in coordination with CE, shall create and annually update an ESAM Plan to include the following elements:

2.3.1. Identification of all drinking water sampling sites used to determine compliance with the SDWA. The BEE will maintain certification documents from the primacy on these sampling sites where appropriate (e.g., lead and copper sampling sites and bacteriological sites).

2.3.2. Annual and long-range sampling schedule.

2.3.3. Quality Assurance and Quality Control (QA/QC) Plan for bacteriological, chemical, and radiolological monitoring.

2.3.4. Description and classification (e.g., community/noncommunity, transient/nontransient, etc.) of each Public Water System and approval of the description by the primacy. Typically, BE responsibilities for PWS shall include recreational areas and geographically separated units supported by the parent Wing or Medical Group.

2.3.5. Identification of support laboratory for each contaminant and a confirmation annually that the laboratory holds the appropriate certification for the analyte(s) in question. Include procedures to verify the laboratory is using the appropriate QA/QC, achieving the prescribed detection limits, and reporting results in accordance with applicable regulatory requirements.

2.3.6. Locally developed procedures for conducting the drinking water surveillance program. These procedures should include a schedule for routine monitoring, monitoring of aircraft watering points, increased monitoring for nuclear, biological and chemical (NBC) agents during contingencies or heightened Force Protection Condition, and monitoring performed before placing new connections and repaired water mains or storage tanks into use.

2.3.7. A current map of each water distribution system showing the locations of bacteriological, chemical, lead and copper, and radiological monitoring points. If available, BE should request CE include this information as part of a Geographical Information System and track locations of water system maintenance locations and complaints.

2.3.8. Procedures to take when violations of Maximum Contaminant Levels (MCLs) occur. The base Environmental Protection Committee should approve procedures. **Table A3.1.** provides basic guidelines for developing local notification procedures.

2.4. **AF Unique Drinking Water Surveillance Requirements.** In addition to meeting primacy regulatory requirements, the following apply to all Air Force owned or operated PWS in the United States and its territories. The minimum requirement at overseas installations is the FGS/EGS/OEBGD, but the following requirements should be followed when feasible.

2.4.1. BE will ensure monthly bacteriological testing is being performed at representative points in the distribution system, based on population served. This testing may be performed by BE or by the municipal supplier of water, but the testing must be done at representative taps, and not just at the point of entry to the AF distribution system.

2.4.2. Aircraft Watering Points: The Food and Drug Administration has retained regulatory authority over the safety of water provided to aircraft crew members involved in interstate commerce. Military aircraft are not considered interstate carriers, however, established rules ensure a safe, potable water supply is supplied to personnel on military aircraft and will be complied with. **Attachment 2** provides guidance on conducting surveillance of aircraft watering points.

2.4.3. Child Development Centers (CDC), School Age Programs (SAP), and Department of Defense Dependant Schools (DODDS)

2.4.3.1. BE will collect or arrange for collection of a monthly drinking water sample for bacteriological analysis from each CDC, SAP, and DODDS it supports. BE may or may not include this sample as part of its compliance sampling requirements. Exclusion of these samples from compliance requirements must be coordinated with the primacy for approval.

2.4.3.2. The director of the CDC, SAP and DODDS will coordinate with BE prior to opening a new facility and when plumbing lines or fixtures are modified, added or replaced.

2.4.3.3. Civil Engineering will use only lead-free materials in the installation or repair of drinking water distribution systems. BE will ensure initial sampling is performed using the Lead Contamination Control Act (LCCA) protocols when metallic materials, including lead-free materials, are used in CDC, SAP and DODDS plumbing systems.

2.4.3.4. BE must investigate the source of lead, identify appropriate corrective actions (e.g. temporary flushing for new components or component replacement), and provide all necessary follow up surveillance whenever results exceed 20 parts per billion (ppb).

2.4.3.5. CDC and SAP directors, and DODDS officials will ensure that analytical results for drinking water lead concentrations from sampling performed under the LCCA (a.k.a. AF Lead Assessment Program) are on file in the CDC, SAP, or DODDS administrative office, respectively. Any corrective actions identified to remove sources of lead contamination must be accomplished or the facility closed or bottled water provided until corrective actions are accomplished.

2.4.3.6. BE will provide sampling results specific to the CDC, SAP, or DODDS at the request of the respective CDC, SAP, or DODDS official. Program directors or DODDS officials will also maintain a copy of the most current Consumer Confidence Report in the respective CDC, SAP and DODDS administrative office.

2.4.4. Cross Connection and Backflow Prevention Program. A program to identify, isolate, record, and correct cross-connections and other potential sources of distribution system contamination will be conducted in accordance with AFI 32-1066, *Plumbing Systems*. CE will maintain the inventory of cross connections and backflow prevention devices. At least every five years, the BEE reviews the inventory and assigns health hazard classifications for cross connections using guidance established in the latest edition of the Uniform Plumbing Code. In addition, during construction design reviews, the BEE will recommend appropriate backflow prevention devices where equipment plumbed to potable water supplies is being installed.

2.4.5. Analysis of Ice Samples. BE will perform bacteriological analysis of ice samples from ice machines plumbed to potable water systems at the request of the installation Public Health Officer for purposes of approving new equipment and to rule out possible bacteriological contamination.

2.4.6. Water Vulnerability Assessment. The BEE, in conjunction with CE, will perform or oversee (if performed under contract), the conduct of a comprehensive, baseline Water Vulnerability Assessment (WVA) of the installation water system. The WVA must be updated annually as part of the local vulnerability assessment. The BEE will conduct, or will oversee the conduct of these Water Vulnerability Assessments using guidance approved by HQ AFMOA. Deficiencies and recommendations found during the Water Vulnerability Assessment will be forwarded to the installation BCE and Antiterrorism/Force Protection Working Group for prioritization of corrective action(s). CE will assist in the development of the Water Vulnerability Assessment and incorporate appropriate procedures in the installation's emergency utilities plan (i.e. Installation Contingency Response Plan) to include appropriate annexes.

2.4.7. Drinking Water Sanitary Surveys. The BEE will perform, or oversee (if performed under contract or by the primacy), the conduct of a sanitary survey of the installation drinking water system in accordance with primacy requirements. The sanitary survey can be accomplished using guidance developed by AFIERA. Deficiencies found during the sanitary survey requiring infrastructure repair, redesign or construction will be forwarded to the BCE with recommendations for corrective actions to be taken.

2.4.8. Emergency Disinfection. CE and BE personnel shall follow primacy regulations for emergency disinfection of water mains, water storage tanks and water treatment facilities. If no primacy regulations exist, CE and BE will follow industry standards for disinfection (e.g., American Water Works Association, AWWA). All new water mains, and water mains taken out of service for inspection, repair, or other O&M activity, or which have had a loss of positive pressure (< 20 psi) within the main, shall be disinfected and tested for coliform bacteria before being placed in service. In some situations, where fire protection or sanitation concerns dictate, service may be restored provided that a precautionary boil water notice is issued until BE confirms drinking water safety based on bacteriological analysis results.

2.4.9. CE shall implement a distribution system-flushing program in accordance with MIL-HDBK-1164, Operations and Maintenance of Water Supply Systems, that employs unidirectional flushing and flushing to address dead-ends in the distribution system. CE shall also coordinate with BE on CE's distribution system flushing and maintenance program.

2.4.10. CE and BE shall review plans for new drinking water connections to ensure:

2.4.10.1. Plans include adequate backflow prevention devices.

2.4.10.2. Faucets and fixtures are lead free and comply with ANSI/NSF Standard 61, Section 9.

2.4.10.3. Lines are scheduled for and receive disinfection and bacteriological analysis prior to first use.

2.4.11. Results of all bacteriological analyses of drinking water performed by BEwill be maintained in an electronic format per paragraph **1.9.1.16.** Data may also be recorded on DD Form 686, Fluoride/Bacteriological Examination of Water, primacy reporting forms, locally produced forms, or bound logbooks that capture the information required on DD Form 686. Electronic format must be maintained in a way as to eliminate potential for modification of historical data entry. The Command Core System shall be utilized as the standardized drinking water database system. Other electronic systems may be used if approved by the MAJCOM SG in coordination with the

MAJCOM CE. BE will record monthly compliance bacteriological sampling results on the back of the AF Form 1460, *Water Utility Log Supplemental*, furnished by CE.

2.5. **Variances and Exemptions.** When an installation in the United States or its territories applies for (or is granted) a variance or exemption, an information copy of that application and the variance or exemption must be sent to the MAJCOM Surgeon and Civil Engineer. If the installation is outside the United States and its territories, and is applying for a variance or exemption to FGS/EGS or OEBGD, it must apply to the MAJCOM Surgeon and the applicable Executive Agent for such a variance or exemption and must send a copy of the request to the MAJCOM Civil Engineer. A copy of any granted exemptions or variances will also be provided to the MAJCOM Civil Engineer and AFMOA/SGZE.

2.6. **Fluoridation.** Fluoridation is an effective dental caries prevention measure. Installations with Air Force owned drinking water treatment plants should review the applicability of the addition of fluoride. Installations are strongly encouraged to add fluoride when the natural fluoride level is insufficient to prevent dental caries. **Table A5.1.** shows recommended fluoride levels, however, primacy requirements may take precedence over these recommendations. Overseas Installations are also encouraged to fluoridate if applicable, but must comply with FGS/OEBGD policy on drinking water.

2.6.1. Fluoridation Surveillance: When fluoride is added to drinking water, water treatment personnel must maintain a program of daily fluoride monitoring of product water at the treatment plant. BE will also perform weekly sampling for fluoride in the distribution system at one or more bacteriological sampling sites. The frequency of fluoride testing should be based on past history of fluoride application at the treatment plant, reliability of the fluoride feeder system, and past history of fluoride sampling performed by BE. The determination of the frequency of fluoride monitoring should be coordinated with the Chief of Dental Services (CDS). The method used to determine fluoride levels must be a method approved by the primacy. For consistency, BE and CE should use the same analytical method. These fluoride analyses are performed by BE to ensure quality control and do not require State-certified laboratory analysis, nor are they required to be reported to the regulatory primacy.

2.6.1.1. During initial operation of a new fluoride feeding system, BE shall test fluoride concentrations each day and have a comparative weekly sample sent to a State-certified laboratory for verification. BE will follow this procedure for at least two months, or until results indicate that the system is operating reliably. Initially, verification should also be completed by mass balance calculations.

2.6.2. Fluoridation Records. The following data are required when installations add fluoride to the drinking water:

2.6.2.1. Water Treatment Plant operators must record and report the quantity of fluoride added, and the average results of daily fluoride tests expressed in mg/l to the nearest tenth (0.1) and provide this data to BE and CDS monthly. Data may be recorded and reported in electronic format, on AF Form 1460, *Water Utility Log Supplemental*, or using forms/methods mandated by a state/local regulatory agency.

2.6.2.2. Results of any fluoride analysis performed by BE will be recorded and maintained in electronic format per paragraph **1.9.1.16.** In addition, BE may also record data on DD Form 686 or other format that captures the information required on DD Form 686. Periodic reports (at least quarterly) will be sent to the Chief of Dental Services (CDS) and CE. The report will

include the number of tests performed; minimum, maximum, and arithmetic average test results; and applicable maximum and recommended fluoride levels specified in **Table A5.1.**

2.7. **Consumer Confidence Reports (CCR):**

2.7.1. AF owned or operated PWS that are regulated as CWS are required to issue a CCR NLT 1 July annually.

2.7.2. AF owned or operated drinking water systems that serve at least 15 service connections used by year-round residents, or regularly serve at least 25 year-round residents, but that are not covered by the NPDWR per 40 CFR 141.3, are required by this instruction to also issue a CCR by 1 July annually. The BEE will develop the CCR in accordance with guidance from the primacy or the DoD CCR Guide if no primacy guidance exists. AF installations, including those with privatized drinking water systems that receive a CCR from a local water supplier will provide either the original or modified CCR to the base population, if not already providing their own CCR.

2.7.3. The CCR should be reviewed by the Environmental Protection Committee and will be disseminated to all consumers of the water through the support of the Public Affairs Office

2.7.4. Overseas installations with drinking water systems that serve at least 15 service connections used by year-round residents, or regularly serve at least 25 year-round residents, will provide a water quality report through appropriate means to inform base customers by 1 July annually. These water quality reports may be modeled after the CCR, and will follow a MAJCOM Bioenvironmental Engineer approved format.

2.8. **Bottled Drinking Water.** Bottled drinking water obtained from a supplier must be approved by the U.S. Army Veterinary Command or veterinary services personnel assigned to operational commands. A list of approved bottled water suppliers in the US and its territories and overseas is available at the Army Veterinary Command website: **http://vets.amedd.army.mil/vetsvcs/approved.nsf**. When no supplier information is available, the BEE may approve bottled water sources. Purchase of bottled drinking water is authorized only as per AFI 65-601 V1, *Budget Guidance and Procedures*.

3. Forms:

DD Form 686, *Fluoride/Bacteriological Examinations of Water*, may be used to document the collection and results of bacteriological, fluoride, pH, and chlorine residual tests. If DD Form 686 is not used, sampling information entered on the form must be included in locally developed paper or electronic format. AF Form 1460, *Water Utility Operating Log Supplemental,* is used to record daily water treatment plant operational data. The back of the forms has an area for BE to enter monthly summaries of bacteriological monitoring.

4. Forms Prescribed:

DD Form 686, *Fluoride/Bacteriological Examinations of Water.*

AF Form 1460, *Water Utility Operating Log Supplemental*.

5. Records Disposition: Ensure that all records created by this AFI are maintained and disposed of IAW AFMAN 37-139, "Records Disposition Schedule."

GEORGE PEACH TAYLOR, JR., Lt Gen, USAF, MC, CFS
Surgeon General

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

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40 CFR Parts 141, 142 and 143.

Safe Drinking Water Act Hotline	1-800-426-4791
National Well Water Association	1-614-761-1711
American Water Works Association (AWWA)	1-303-794-7711
AWWA Publications	1-800-926-7337

Abbreviations and Acronyms

AF—United States Air Force

AFCESA—Air Force Civil Engineering Support Agency

AFI—Air Force Instruction

AFIERA—Air Force Institute for Environmental, Safety and Occupational Health Risk Analysis

AFMOA—Air Force Medical Operations Agency

AWWA—American Water Works Association

BCE—Base Civil Engineer

BE—Bioenvironmental Engineer

BEE—Bioenvironmental Engineering

CCR—Consumer Confidence Report

CDC—Child Development Center

CDS—Chief of Dental Services

CE—Civil Engineering

CEV—Civil Engineering Environmental Division

CEO—Civil Engineering Operations

CFR—Code of Federal Regulations

CWS—Community Water System

DOD—Department of Defense

DODI—Department of Defense Instruction

DODDS—Department of Defense Dependant Schools

ESAM—Environmental Sampling, Analysis and Monitoring

EPA—Environmental Protection Agency

FDA—Food and Drug Administration

FGS/EGS—Final Governing Standard/Environmental Governing Standard

FMP—Family Member Programs

IAW—In Accordance With

LCCA—Lead Contamination Control Act

MAJCOM—Major Command

MCL—Maximum Contaminant Level

NBC—Nuclear, Biological, and Chemical

NPDWR—National Primary Drinking Water Regulations

NSDWR—National Secondary Drinking Water Regulations

NTNCWS—Non-Transient Non-Community Water System

OEBGD—Overseas Environmental Baseline Guidance Document

O&M—Operations and Maintenance

PWS—Public Water System

QA/QC—Quality Assurance/Quality Control

REO—Regional Environmental Office

SAM—Sampling, Analysis and Monitoring

SAP—School Age Program

SDWA—Safe Drinking Water Act

TB MED—Technical Bulletin Medical

THREATCON—Threat Condition

TNCWS—Transient Non-Community Water System

USAFSAM—United States Air Force School of Aerospace Medicine

WSVA—Water System Vulnerability Assessment

WVA—Water Vulnerability Assessment

Terms

Acute Violation—Certain violations such as nitrate and fecal coliform bacteria that pose acute (immediate) risks to human health. MCL violations are defined by regulation, and require additional notice by electronic media (only for community water systems). Currently, EPA defines only violations of the nitrate standard as an acute violation. However, States may define additional violations as acute violations.

Air Force Owned—Applies when the AF owns all the base drinking water infrastructure assets including treatment facilities, storage facilities, and distribution piping. However, AF ownership does not necessarily mean the AF performs the operations and maintenance on this same infrastructure; O&M may be performed by an Air Force contractor. For OVERSEAS BASES: if the Air Force has a long-term lease (only terminated by the host nation under extreme circumstances) of the base property and is considered the owner of all aspects of the system infrastructure, then this base would be considered an "AF owned" property. If the AF does not own the infrastructure, then the water system is considered “privatized” and the Air Force is not responsible for complying with the applicable drinking water requirements (see definition of “Privatized System”).

Approved Source—A source of water that has been inspected and approved by a primacy for use as a public water supply. Or, bottled water that has been procured from a supplier approved by the National Sanitation Foundation, the US Army Veterinary Corps, or the Air Force Public Health or Bioenvironmental Engineering Office.

Community Water System (CWS)—A public water system (PWS) covered under the NPDWR that provides water for human consumption to at least 15 service connections used by year-round residents, or one that regularly serves at least 25 year-round residents (e.g., municipality, subdivision, mobile home park, etc.). See definition of "year-round resident" and "human consumption".

Compliance—The status a facility may achieve when it meets all state and federal drinking water regulations (e.g. MCLs, treatment techniques, etc.). As used in this document, compliance is associated only with federal, State, and local regulations and does not include meeting all Air Force unique requirements (i.e. wartime field water monitoring, aircraft monitoring, etc.).

Consecutive Public Water System—A situation where one public water system (PWS) supplies water to one or more other PWS (40 CFR 141.29). The term "consecutive" applies only to PWS that are covered under the NPDWR. This type of water system may be a CWS or a non-CWS and typically either treat or sell the water provided by the bulk supplier. For consecutive systems, EPA allows the States to decide how each system will conduct monitoring. In some cases, monitoring may be done by only one of the systems "to the extent that the interconnection of the systems justifies treating them as a single system for monitoring purposes". This flexibility allows States considerable discretion to avoid unnecessary compliance activities.

Consumer Confidence Report (CCR)—An annual report required by the SDWA, which provides consumers information about the quality of their drinking water. The CCR is due on 1 July of each year. Additional information on the CCR is available at **http://www.epa.gov/safewater/ccr.html** and in the DoD CCR Guidance Document.

Cross Connection—Any connection or arrangement, physical, or otherwise, between a potable water supply system and any plumbing fixture or any tank, receptor, equipment or device, through which it may be possible for non-potable, used, unclean, polluted and contaminated water, or other substances, to enter into any part of such potable water system under any condition.

Detectable Disinfectant Residual—A measurable level of disinfectant detected with colorimetric or other test methods. For colorimetric testing, an actual color change that signifies the presence of a disinfectant residual (e.g., a pink color when using the DPD (N,N-diethyl-p-phenylenediamine) method). For noncolorimetric methods, a level of disinfectant clearly above the level of detection for the device.

Disinfectant—A chemical added to water to inactivate bacteria. Examples include chlorine, chlorine dioxide, chloramines, or hypochlorite.

Disinfection—A process that inactivates pathogenic organisms in water by chemical oxidants or equivalent agents. Disinfection should not be confused with sterilization, because disinfection may not kill all microorganisms.

Executive Agent—A term used to indicate a delegation of authority by the Secretary of Defense to a subordinate to act on the Secretary's behalf. An agreement between equals does not create an executive agent. For example, a Service cannot become a Department of Defense executive agent for a particular matter with simply the agreement of the other Services; such authority must be delegated by the Secretary of Defense. Designation as executive agent, in and of itself, confers no authority. The exact nature and

scope of the authority delegated must be stated in the document designating the executive agent. An executive agent may be limited to providing only administration and support or coordinating common functions, or it may be delegated authority, direction, and control over specified resources for specified purposes.

Final Governing Standard—Country specific substantive provision concerning the environment, typically technical limitations on effluent, discharges, etc., or a specific management practice for DoD installations in specific countries.

Fixed Installation PWS—A PWS at a location with permanently constructed (non-mobile) facilities.

Human Consumption—Water that is ingested, or absorbed into the body by dermal contact or through inhalation. Human consumption includes such normal uses as bathing, showering, cooking, dishwashing, and oral hygiene. If a system provides water for these types of uses, then, it is providing water for human consumption under the SDWA. The law still applies even if a system maintains that they do not provide water for human consumption (e.g. through a consumer contract, etc.), but the actual consumer use demonstrates human consumption is prevalent within their system.

Lead Free—When used with respect to solders and flux refers to solders and flux containing not more than 0.2 percent lead; when used with respect to pipes and pipe fittings refers to pipes and pipe fittings containing not more than 8.0 percent lead; when used with respect to plumbing fittings and fixtures intended by the manufacturer to dispense water for human ingestion refers to fittings and fixtures that are in compliance with standards established in accordance with 42 U.S.C. 300g-6(e).

Maximum Contaminant Level (MCL)—The maximum permissible level of a contaminant in drinking water which is delivered to any user of a public water system. MCLs are established by the National Primary Drinking Water Regulations.

National Primary Drinking Water Regulations (NPDWR)—The standards promulgated by the Environmental Protection Agency to enforce the Safe Drinking Water Act.

National Secondary Drinking Water Regulations (NSDWR)—Non-enforceable guidelines primarily supporting taste and odor characteristic of finished drinking water. Although not enforced by the federal government, States or other primacies may enforce them as NPDWR.

Non-Community Water System (NCWS)—A public water system covered under the NPDWR that is not a CWS, i.e., a system that does not serve at least 15 service connections used by year-round residents or regularly service at least 25 year-round residents (40 CFR 141.2). NCWS can be classified as either Non-Transient or Transient systems and exclusively serve users in one or more of a variety of non-residential settings including schools, office buildings, campgrounds, restaurants and highway rest areas.

Non-Public Water System—A system that does not meet the minimum requirements for a Public Water System under the NPDWR. Usually, this type of system doesn't serve enough people each year or doesn't have enough service connections to be called a PWS.

Non-Transient, Non-Community Water System (NTNCWS)—A public water system (PWS) covered under the NPDWR that serves at least 25 of the same persons for over 6 months per year (40 CFR 141.2). A typical example of an NTNC is a school or an office building that has its own water source, such as a drinking water well. Many Air Force bombing ranges, gun ranges, radar sites, missile silos, communication towers, etc. that meet the definition of a Public Water System are classified as NTNCWS.

Overseas—DoD components at installations outside the United States, it territories and possessions.

Overseas Environmental Baseline Guidance Document (OEBGD)—A DoD developed set of procedures and minimum criteria for environmental compliance at DoD installations in overseas locations. It is used by the Environmental Executive Agent to establish the FGS, and in the case where no FGS exists, provides the compliance criteria.

Palatable Water—Water that is pleasing to the taste and free of objectionable color, turbidity, taste, or odor. Palatability does not imply potability.

Population Served—The number of people who are provided water by a public water system. Transient military and civilian personnel who live off-base will be counted by the community water distribution system where they reside. In-patient population at the hospital and alert flight crews will be counted at their permanent place of residence. To determine a fixed number for the population served by an AF installation, use the highest daily average population served during the year. Determine this number by counting the total number of *year-round residents* plus the average of the number of regular *consumers* served (*same persons*), per day, during a month plus the average of the number of *transient consumers* served per day, during a month. This formula may be superseded by the regulatory agency that has primacy under the SDWA.

Potable Water—Water that has been examined and treated to meet the proper standards and declared by the responsible authorities to be fit for drinking.

Primacy—The agency of the state or federal government that has primary enforcement responsibility (primacy) according to the Safe Drinking Water Act; for purposed of this instruction this includes local governments that have established drinking water criteria. Outside the United Stated and its territories, the Major Command Surgeon (MAJCOM/SG) acts as the primacy agent and is responsible for establishing a program to be consistent with the direction given in this regulation.

"Privatized" System—If the AF does not own the infrastructure, then the system is privatized. The new owner, not the AF, is responsible for complying with all the SDWA requirements and NPDWR.

Public Water System (PWS)—A system that provides piped water for human consumption if such system has at least 15 service connections or regularly serves an average of 25 individuals 60 or more days out of the year. Such a system includes: (1) any collection, treatment, storage, and distribution facilities under the control of the operator of such system and used primarily in connection with such system, and (2) any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. A public water system meeting all of the criteria in 40 CFR 141.3 is not covered under the NPDWR. PWS to which the NPDWR apply may be either a community water system or a non-community water system and can be publicly or privately owned.

Regular Consumers (Same Persons)—Terminology used in determining classification of a drinking water system. A regular drinking water system consumer who does not reside at a place served by the water system, but has a regular opportunity to consume water produced by the system (e.g. children at school, employees at workplace).

Safe Drinking Water Act (SDWA)—A Congressional Act that establishes standards for drinking water safety. Some of the regulations adopted to enforce the SDWA are codified in 40 CFR Parts 141 to 143.

Same Persons—See "Regular Consumers"

Sanitary Defects—Conditions that may permit the contamination of a potable water supply during or

after treatment. Examples include connections to water supplies that are not safe, and raw water bypasses in treatment plants, plumbing fixtures that are not properly designed and installed, or leaking water and sewer pipes in the same trench.

Sanitary Survey—An on-site review of the integrity, operation and maintenance of a drinking water source, treatment, storage and distribution system. The purpose is to evaluate the adequacy of the source and the capability of the facilities to consistently produce and distribute safe drinking water. A sanitary survey is done for the installation water system and for aircraft watering points.

Sell—AF PWSs "sell" drinking water when they charge non-federal consumers (e.g. public schools, state-operated prisons, private industry, banks and credit unions, non-AAFES operated/franchised restaurants, etc.) for water. However, for the purpose of complying with the SDWA, the exchange of funds between AF organizations or other federal agencies (i.e. federal consumers) is considered an internal allocation of funds within the executive branch of the government and not selling. If a federal facility rental agreement with a non-federal consumer bills separately for the water consumed, then it is "selling." However, if a federal facility rental agreement with a non-federal consumer includes water production/ consumption costs, then it is not "selling" water within the context of the SDWA. AF PWSs, that are exempt from the SDWA, and yet charge non-federal consumers for drinking water, should either modify current billing practices or comply with the SDWA as a non-exempt PWS. Some state laws may impose requirements beyond those of the SDWA, and because of the structure of the SWDA these requirements will apply to federal agencies. Accordingly, check with your local JA office before entering into any agreement to supply water to any non-federal customer.

Tier 1 Violations—More serious violations, including failure to comply with an MCL; failure to comply with prescribed treatment techniques; and failure to meet variance or exemption schedules.

Tier 2 Violations—Less serious violations, including failure to comply with monitoring requirements; failure to comply with a testing procedure prescribed by a NPDWR; and operating under a variance or exemption.

Transient Consumer—An individual who has the opportunity to consume water from a water system, but who does not fit the definition of a residential or regular consumer.

Transient Non-Community Water System (TNCWS)—A PWS covered under the NPDWR that provides water in a place such as a gas station or campground where people do not remain for long periods of time. These systems do not have to test or treat their water for contaminants that pose long-term health risks because fewer than 25 people drink the water and they drink it for 6 months or less per year. They still must test their water for microbes and several chemicals.

Treated Water—Water that has been processed to make it potable.

Total Trihalomethane (TTHM)—The sum of the concentrations in milligrams per liter of the trihalomethane compounds. Trihalomethanes are a group of organic chemicals formed in water when chlorine reacts with natural organic matter present in all natural water used as sources of drinking water. Total trihalomethanes (TTHM) are not a single chemical but a class of compounds that includes:

- chloroform (CHCl3)
- bromoform (CHBr3)
- dichlorobromomethane (CHCl2Br)
- dibromochloromethane (CHClBr2)

Unidirectional Flushing—Establishing velocities of at least 6 ft/sec within each pipe segment being flushed. This velocity promotes a scouring action within the pipe that helps remove sediments, biofilms, and loose deposits. Unidirectional flushing of the distribution system in a sequential manner at scouring velocity helps ensure that pipes sections are completely flushed (with dirty water being expelled from the system) and avoids simply moving debris from one part of the system to another (as in conventional flushing--i.e. simply opening hydrants in a specific area and flushing until specific parameters return to normal--Free Available Chlorine (FAC), turbidity, etc.) (See JOURNAL AWWA, Jul 1999, pg 62-71, and MIL-HDBK-1164, 3 Mar 1997, para. 7.3.2.2.)

Water System Vulnerability Assessment—A one-time assessment required by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002. This does not address the proposed actions to be taken to reduce vulnerabilities, and may become a public document once submitted to the EPA.

Water Vulnerability Assessment—An assessment of the vulnerability of a PWS to intentional (e.g. sabotage) or unintentional (e.g. natural disaster) contamination, an evaluation of the impact of water supply disruption on the mission, and proposed corrective actions to eliminate or minimize vulnerable components of the water treatment, storage, supply and distribution system.

Year-Round Resident—An individual whose primary residence is served by the water system. The individual need not live at the residence for 365 days a year for it to be considered a year-round residence.

Attachment 2

MONITORING OF AIRCRAFT WATERING POINTS

A2.1. Aircraft Watering Point. An aircraft watering point includes all of the equipment used to transfer potable water for human consumption to an aircraft. It does not include any part of the base distribution system or the aircraft's internal water storage and dispensing system. It may include water trucks; hoses and faucets not permanently plumbed to the distribution system; and jugs, cans, and other containers that deliver potable water to aircraft.

A2.2. Aircraft Watering Point Source Requirements: Potable water routinely provided to military aircraft must be supplied from an approved source. An approved source includes:

A2.2.1. A military installation potable water system managed in accordance with this instruction.

A2.2.2. Public water supplies approved by a primacy.

A2.2.3. International airport potable water supplies in countries known to have drinking water standards and sanitation requirements consistent with EPA and FDA interstate commerce carrier drinking water regulations.

A2.2.4. Bottled water obtained from a supplier approved by the U.S. Army Veterinary Command or veterinary services personnel assigned to operational commands. BE may approve suppliers when no information on suppliers is available. A list of approved bottled water suppliers in CONUS and OCONUS is available at the Army Veterinary Command website: **http://vets.amedd.army.mil/vetsvcs/approved.nsf**.

A2.2.5. If an approved water source is not available, alternative sources should be batch disinfected in accordance with recommendations of BE. Upon reaching a facility with an approved water source and necessary servicing/maintenance facilities, systems serviced with the water of questionable quality should be purged, disinfected and replenished with water from the approved source.

A2.3. Routine Monitoring of Aircraft Watering Points:

A2.3.1. As a minimum, BE will sample aircraft watering points monthly for bacteriological analysis. The frequency of monitoring will be dependent on the results of the sanitary survey.

A2.3.2. When trucks or tanks are used to transport water to aircraft, analyze a sample from one truck or tank at least once a month, and sample all trucks or tanks once each calendar quarter. Annotate the hose's condition on DD Form 686 (or equivalent form) at the time of sample collection.

A2.3.3. When containers (cans, jugs, etc.) are used to transport water to aircraft, the service connection(s) on the distribution system that provide water to the watering point should be designated as a routine (but not necessarily compliance) bacteriological sampling point. Exclusion of these samples from compliance requirements must be coordinated with the primacy for approval. Bacteriological samples from this location will be examined at least monthly. If coliform bacteria are detected, the service connection must be placarded to ensure that contaminated water is not inadvertently put on an aircraft. An alternate approved source of water should be used until the contamination is eliminated.

A2.4. Procedures For Conducting a Sanitary Survey of an Aircraft Watering Point:

A2.4.1. The BEE must perform a sanitary survey of the watering point at least annually. The survey shall consist of:

A2.4.1.1. An evaluation of procedures that protect the water from contamination during transport to the aircraft.

A2.4.1.2. A check of the watering point plumbing to ensure there are no cross connections that could contaminate the watering point, distribution system, or aircraft.

A2.4.1.3. A review of the maintenance and cleaning of the watering point, water containers, tanks and trucks since the last sanitary survey.

A2.4.1.4. Ensure any taps for nonpotable water have fittings that readily distinguish them from potable outlets and are clearly marked as carrying water unfit for human consumption.

A2.4.1.5. Inspect the sanitation of storage and handling for bulk ice and equipment used to cool water, beverages, and food (Not required if already evaluated by Public Health).

A2.4.1.6. A review of all bacteriological testing conducted at the site since the last survey.

A2.4.1.7. A review of aircraft water system maintenance and servicing programs.

A2.4.1.8. Observation of routine handling of potable water containers used on aircraft.

A2.4.1.9. A copy of the sanitary survey will be provided to the Chief of Services, the organization that services the aircraft and the Chief of Aerospace Medicine.

A2.5. Procedures For Monitoring Potable Water On Civilian Carriers Under Contract To The Air Force. Water samples should not be collected routinely from civilian carrier aircraft unless a problem is suspected, such as service from a questionable water source or complaint. If bacteriological sampling becomes necessary, BE will collect one sample from each of the aircraft's potable water systems and complete the DD Form 686 (or equivalent document). The following information should be included in the sampling information: the specific sampling point inside the aircraft, the civilian carrier's name, aircraft and flight number. If measurable chlorine residual is detected at the time of collection, and only the bacteriological quality is questioned, no bacteriological analysis is required, provided the water came from an approved source. BE will promptly report the results of the sampling to the chief of the Military Passenger Terminal so that follow-up action can be initiated with the contractor and Administrative Contracting Officer. Air Force contracts with civilian carriers require that all water and ice provided be potable and handled under sanitary conditions.

Attachment 3

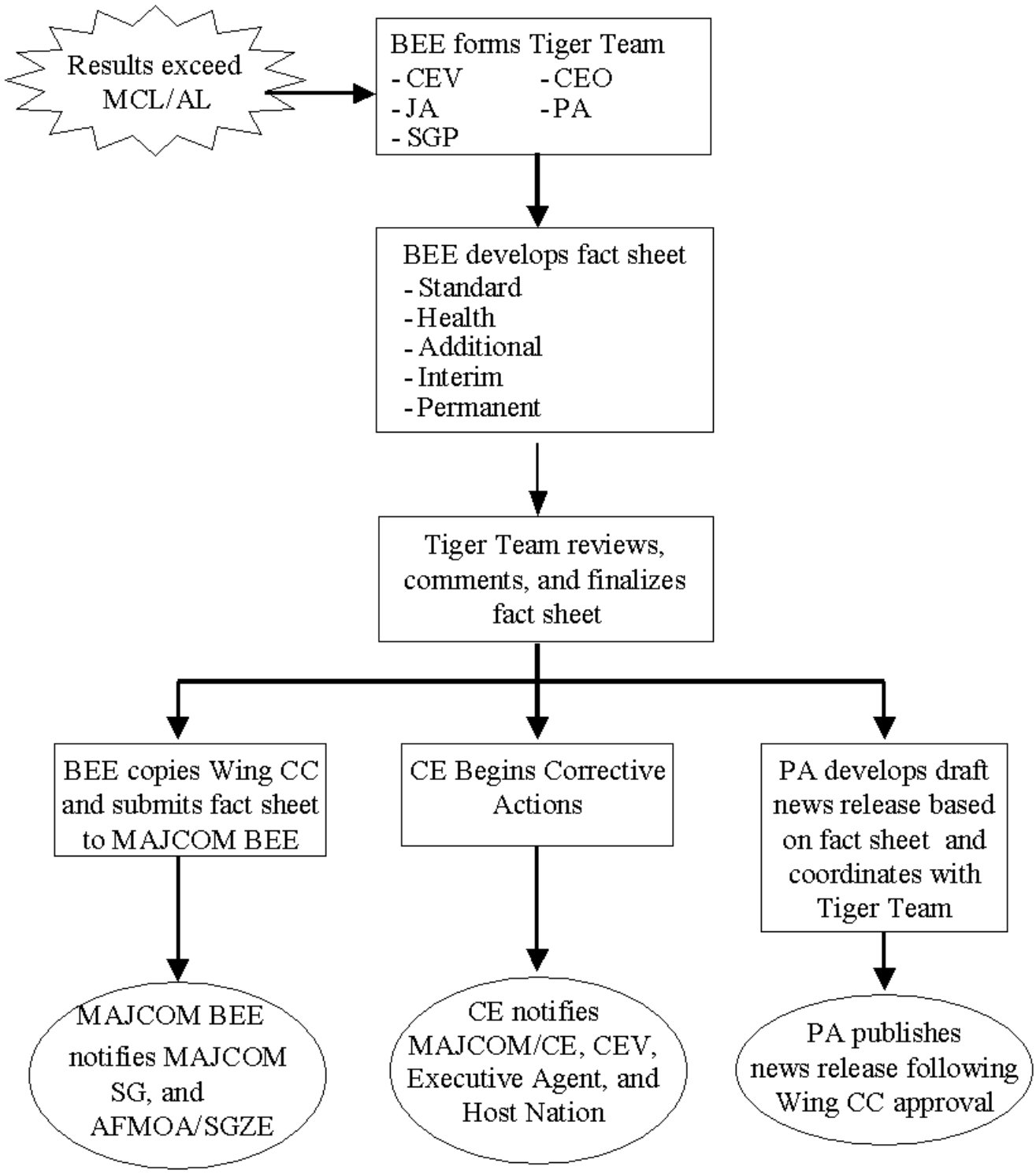
RESPONSE PROCEDURES FOR MCL VIOLATIONS.

A3.1. BEE will act as the lead in the installation response to any violations of MCLs that occur. This includes acute violations, or tier 1 and tier 2 violations, as those terms are used in this instruction and consistent with the SDWA. **Table A3.1.** is a list of actions BEE will consider when compliance sample results show an MCL has been violated. **Figure A3.1.** is a flowchart to assist in the public notification process.

Table A3.1. RESPONSE PROCEDURES FOR MCL VIOLATIONS.

Number	Action	Reason
1	Establish procedures to promptly review all compliance samples	Required to meet timeframes & verify data
2	Review the applicable regulatory authority citation and the sampling conditions	Compliance may be based on single sample, average, or some other calculation The sample may have been taken at the wrong place, etc.
3	Review historical data	Trend might be expected. Abnormal results might indicate laboratory error
4	Immediately call the analytical support laboratory	Verify QA/QC data for run, second column confirmation, etc. May be able to request the sample be re-analyzed if regulatory authority concurs
5	Consider consultation support	May be other compliance issues to consider
6	Advise the Aerospace Medicine Squadron, Civil Engineering Squadron, and Medical Group Commanders	Chain of Command must be informed
7	Coordinate with JA, CE, and Public Affairs	Involve all key players
8	Notify Wing Commander via SG	Chain of Command must be informed
9	Notify MAJCOM Counterparts	Chain of Command must be informed
10	Telephonically contact State regulatory office	Review data confirmation sampling, invalidation, and other alternatives Confirm written format, addresses, etc.
11	Notify State in writing	Typically required by law

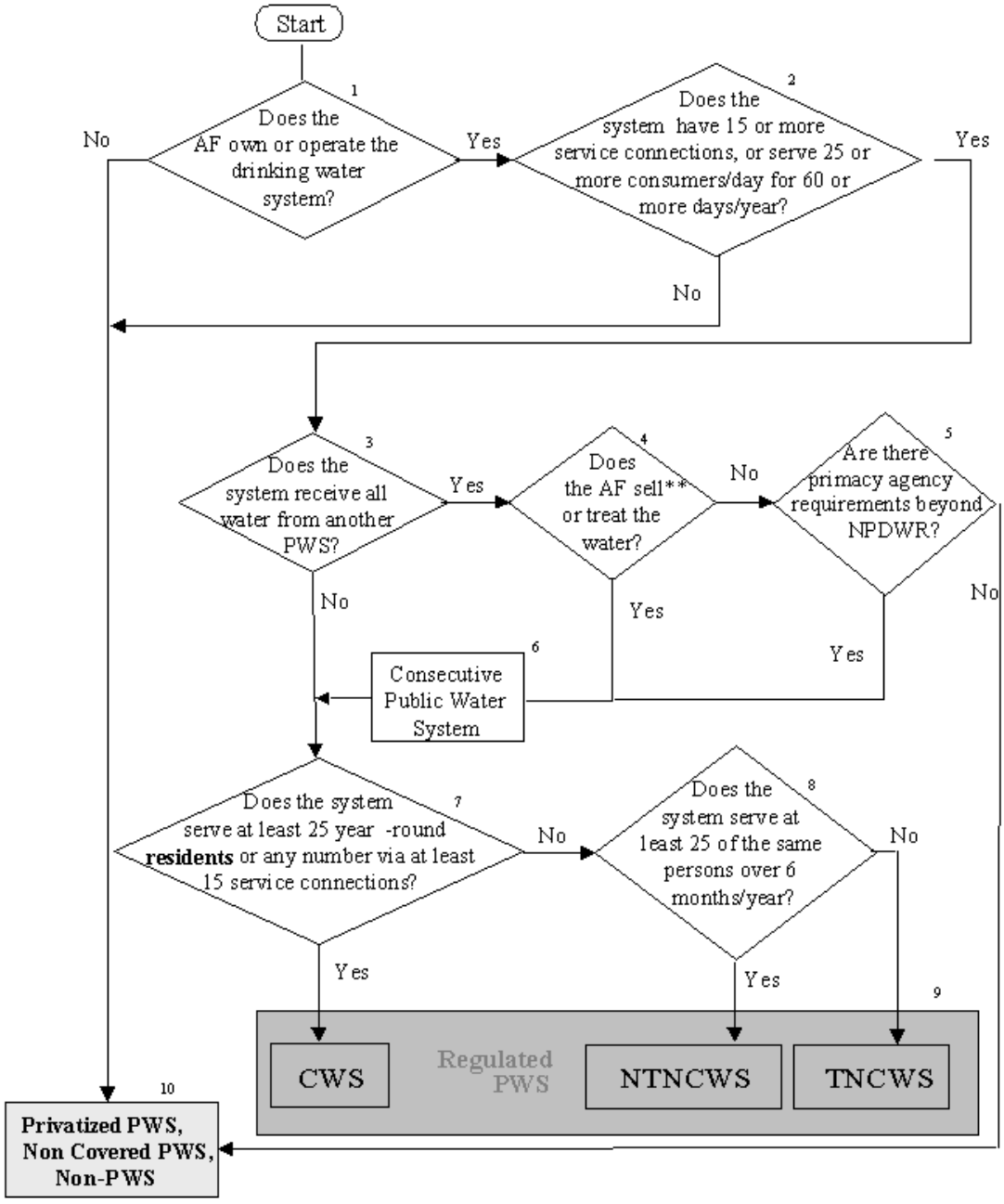
Figure A3.1. Drinking Water Contamination Notification Procedures.



Attachment 4

DETERMINATION OF DRINKING WATER SYSTEM TYPE

Figure A4.1. Decision Tree to Determine Drinking Water System Type*.



* Determine actual legal classification through primacy agency SDWA POC

** See definition for "Sell"

Attachment 5

RECOMMENDED FLUORIDE LIMITS

Table A5.1. RECOMMENDED FLUORIDE LIMITS IN DRINKING WATER.

Annual Average of Maximum Daily Air Temperature, °F	Maximum Fluoride Level in mg/l	Recommended Limits for Fluoridation in mg/l		
		Lower	Optimum	Upper
53.7 and Below	2.4	0.9	1.2	1.7
53.8 - 58.3	2.2	0.8	1.1	1.5
58.4 - 63.8	2.0	0.8	1.0	1.3
63.9 - 70.7	1.8	0.7	0.9	1.2
70.8 - 79.2	1.6	0.7	0.8	1.0
79.3 - 90.5	1.4	0.6	0.7	0.8