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| Version | Date | Description of Revisions |
| 1 | August 30, 2006 | Approved final document. |
| 2 | September 22,2009 | Review/update of the document “Related Sections” |
| 3 | March 15, 2011 | Minor changes from Legal |
| 4 | April 22, 2013 | Final Draft – Consolidated Comments Spec Update Project |
| 5 | June 17, 2013 | Finalized for Legal Review. Incorporation of new Commissioning and Computerized Maintenance Management System Data Requirements Specification cross references. |
| 6 | May 20, 2014 | Revised to incorporate Legal Services’ comments (AV) |
| 7 | July 15, 2014 | Amended to reflect changes related to commissioning specification and name change (AV) |
| 8 | September 24, 2014 | Updated, Finalized Specification – Reference eDOCS #1029454-v6 (AV) |
| **9** | **March 2, 2015** | **Updated, Finalized Specification – Legal Reference eDOCS #5043350 v13 (AV)** |
| 10 | March 1, 2017 | Updated for references to NSF 372. (AV) |

NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

**Notice:** This Document hardcopy must be used for reference purpose only.

**The on-line copy is the current version of the document.**

# GEneral

## Scope of Work

### This Section covers the supply and installation of chemical storage tanks and chemical day tanks.

## Related Sections

### *[Under "Related Sections", identify other Sections that are related to, and/or dependent on, the work results or information specified elsewhere. The list should be limited to Sections with specific information that the reader might expect to find in this Section, but is specified elsewhere. For example, if hardware for aluminum entrances is specified in the aluminum entrance Section, a cross-reference would be appropriate in the finish hardware Section. The purpose of this cross-referencing is for information only, to aid in finding those other requirements — not to define the scope of the Section.*

### *Cross-referencing here may also be used to coordinate assemblies or systems whose components may span multiple Sections and which must meet certain performance requirements as an assembly or system.*

### *This Section is to be completed/updated during the design development by the Consultant. If it is not applicable to the Section for the specific project it may be deleted.]*

### *[List Sections specifying installation of products supplied but not installed under this Section and indicate specific items.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: Execution requirements for [item] specified under this Section.

### *[List Sections specifying products installed but not supplied under this Section and indicate specific items.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: Product requirements for [item] to be installed under this Section.

### *[List Sections specifying related requirements.]*

#### Section 11010 – Equipment General Requirements.

#### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: [Optional short phrase indicating relationship].

#### Section 01025 – Measurement and Payment

#### Section 01300 – Submittals

#### Section 01425 - Computerized Maintenance Management System Data Requirements

#### Section 01430 – Operation and Maintenance Data

#### Section 01780 – Contract Closeout

#### Section 01810 – Equipment Testing and Facility Commissioning

#### Section 11010 – Equipment General Requirements

#### Product requirements for [item] for installation under this Section.

## Reference Standards

### Standards Summary

#### NSF International (NSF)

##### NSF/ANSI 61 Drinking Water System Components - Health Effects

##### NSF 372-2011: Drinking Water System Components – Lead Content

#### Ontario Ministry of the Environment and Climate Change (MOECC)

##### Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities

## Submittals

### The Contractor shall submit shop drawings in accordance with Section 01300 – Submittals.

### The Contractor shall submit NSF 61 and/or NSF 372 Certification where required for any chemical storage tank associated processes related to the treatment of drinking water.

## Confirmation

### The Contractor shall provide written confirmation from the tank supplier that the material used in the construction of the tanks is suitable for the specific conditions of service.

## Conditions of Service

### All equipment/materials used shall be compatible with the chemical service intended as described below:

#### Sodium Hypochlorite - 12% concentrated minimum and maximum temperatures will be 5°C and 30°C respectively.

#### [ ]

#### [ ] *[Project Designer to list chemicals and their respective strengths that are to be stored].*

## Maintenance Data

### The Contractor shall submit manuals and parts lists in accordance with Section 01780 – Contract Closeout.

### The Contractor shall submit equipment data in accordance with Section 01430 – Operation and Maintenance Data. The data shall be in a format suitable for uploading to the Region’s CMMS (Maximo). Refer to Section 01425 - Computerized Maintenance Management System Data Requirements.

## Measurement and Payment

*[Choose one of the following payment language provisions that best suits the individual project.*

*If this Section is not specifically referenced by an item in the Bid Form, please use the following language:*

.1 The work of this Section will not be measured separately for payment. All costs associated with the work of this Section shall be included in the Contract Price.

*OR If this Section is specifically referenced in the Bid Form, use the following language and identify the relevant item in the Bid Form:*

.1 All costs associated with the work of this Section shall be included in the price(s) for Item No(s). in the Bid Form.

*If the work of this Section is to be measured and paid for by several different methods, please amend the standard wording given above to reflect the different methods of measurement and payment.*]

# PRODUCTS

## Chemical Storage Tanks

### The Contractor shall provide chemical storage tank(s) as follows:

#### *[Consultant to provide schedule of tanks required indicating:*

##### *Conditions of service*

##### *Tag number*

##### *Quantity*

##### *Volume*

##### *Dimensions*

##### *Chemical Name*

##### *[All required data in electronic format to upload to the region’s CMMS (Maximo)]*

#### Construction Material Options:

##### FRP

##### Polyethylene

#### The Contractor shall provide clearly identified flanged connections to all chemical storage tanks.

#### The tank(s) shall be situated within an appropriately sized containment structure designed with a capacity to contain [130%] of a full storage tank volume. The sump shall be constructed to allow for pump-out of spilled chemicals retained in the containment area.

#### [The tank(s) shall be designed for the chemical mixing system specified in the Drawings.]

#### The Contractor shall provide drain isolation valve(s) at the discharge points of the chemical tank(s) as shown on the Drawings. The valve(s) shall be compatible with the conditions of service. The drain valve(s) shall be located or configured in such a manner so as to enable the emptying of the entire contents of the storage tank.

#### The Contractor shall provide a man-way with a removable lid. Access to the tank shall be engineered with safety and ease of entry considered.

#### A permanent placard system shall be affixed to the tank. This system shall allow for information to be added and erased and shall be capable of holding documentation (e.g. MSDS documentation, chemical data, etc.)

#### The Contractor shall provide flanged connections on the top of the tank for level monitoring. Flanged connections for ultrasonic level monitoring shall be suitably positioned in order to comply with device specifications with respect to distance from side walls for accurate level measurements (i.e. they shall be suitably distant from the side wall in order to prevent interfering echo beams).

#### The Contractor shall provide flanged connections for fill and vent lines as shown on the Drawings. All lines shall be clearly identified by name and with directional arrows. Vents shall have appropriate insect screens and, if necessary, solid/liquid protective systems in order to prevent contamination of the tank contents.

#### The Contractor shall provide a flexible, transparent PVC pipe level indicator on the exterior of the tank, complete with isolating valves and an indicator ball. All materials shall be compatible with the chemical employed.

#### The Contractor shall protect the tank outlet valve and sight tube from damage with a guard.

#### The Contractor shall provide plastic scales, graduated every 500 litres, and numbered from the bottom up with zero (0 litres) volume set at the invert of discharge line from storage tank.

### Acceptable Suppliers:

##### *[Consultant to provide additional list of acceptable manufacturers and Products].*

##### Approved Equivalent.

## Chemical Day Tanks

### The Contractor shall provide polyethylene day tanks as follows: *[Consultant to provide a schedule of day tanks indicating the following:*

#### *Conditions of Service*

#### *Tag Number*

#### *Quantity*

#### *Volume*

#### *Dimensions*

#### *Chemical name including appropriate MSDS.]*

### The Contractor shall provide removable reinforced polyethylene covers for each tank.

### The Contractor shall provide a flanged and gasketed rim on each tank to allow for bolting of the cover to the tank in order to obtain a gas tight seal.

### The Contractor shall provide, and secure to each tank, a plastic scale graduated in 100L increments numbered from the bottom up.

### The Contractor shall set all day tanks on a non-corrosive support stand that is resistant to the chemicals being stored. The support stand shall be at least 600 mm off floor level.

### Provide [flanged/bulkhead] connections as indicated on the Contract Drawings.

### Acceptable Suppliers:

#### *[Consultant to provide additional list of acceptable manufacturers and Products].*

#### Approved Equivalent.

# EXECUTION

## Installation

### Install chemical day tanks on top of the support stand as shown on the Contract Drawings.

### Chemical storage tanks shall be installed in accordance with the manufacturer’s recommendations.

### Thoroughly clean the inside of the tank to the satisfaction of the Consultant.

## Testing and Commissioning

### Perform the leakage tests described below on all chemical storage tanks:

#### Fill the tank with water after the tank has been cleaned and leave for 48 hours. Obtain approval from the Consultant and completely drain the tank before putting into service.

#### Spill containment area to be tested with the same water used for storage tank testing.

### Perform leakage test once all piping is complete and the day tank has been cleaned. Obtain approval from the Consultant before draining the tank.

### Fill tanks with chemicals necessary for testing and commissioning of overall system. Chemicals will be supplied by the Region.

### Comply with MOECC, York Region and Ministry of Labour Safety Regulations when working in the vicinity of chemicals.

### Comply with all applicable requirements of the MOECC’s Guidelines for Environmental Protection Measures at Chemical & Waste Storage Facilities.

### Clean and conduct final inspection for leaks prior to acceptance by the Region.

### Refer to Section 01810 – Equipment Testing and Facility Commissioning for additional requirements.

**END OF SECTION**