

## **Part 1           General**

### **1.1               REFERENCES**

- .1 Canadian Council of Ministers of the Environment (CCME).
  - .1 CCME-PN1326, Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products.
- .2 Department of Justice Canada (Jus).
  - .1 Canadian Environmental Protection Act, 1999 (CEPA).
    - .1 SOR/2008-197 – Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.
- .3 Canadian Standards Association (CSA)/CSA International.
  - .1 CAN/CSA-B139-15, Installation Code for Oil Burning Equipment.
- .4 National Research Council/Institute for Research in Construction.
  - .1 NRCC 38727, National Fire Code of Canada (NFCC)-2010.
- .5 Transport Canada (TC).
  - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .6 Underwriters' Laboratories of Canada (ULC).
  - .1 CAN/ULC-S601-14, Shop Fabricated Steel Aboveground Tanks for Flammable and Combustible Liquids.
  - .2 CAN/ULC-S602-07, Aboveground Steel Tanks for Fuel Oil and Lubricating Oil.
  - .3 CAN/ULC-S661-10, Overfill Protection Devices for Flammable and Combustible Liquid Storage Tanks.
  - .4 CAN/ULC-S663-11, Standard for Spill Containment Devices for Flammable Liquid and Combustible Liquid Aboveground Storage Tanks.

### **1.2               ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Indicate details of construction, appurtenances, installation, leakage detection system.
- .3 Shop drawings to detail and indicate following as applicable to project requirements. Submit manufacturers product data to supplement shop drawings.
  - .1 Decals, type size and location.
  - .2 Accessories: provide details and manufacturers product data.
  - .3 Electronic accessories: provide details and manufacturers product data.
  - .4 Piping, valves and fittings: type, materials, sizes, piping connection details, valve shut-off type and location.

- .5 Spill containment: provide description of methods and show sizes, materials and locations for collecting spills at connection point between storage tank system and delivery truck, rail car, or vessel.
  - .6 Anchors: description, material, size and locations.
  - .7 Size and location of site pads. Concrete: type, composition and strength.
  - .8 Level gauging: type and locations, include:
    - .1 Reporting systems, types of reports and report frequency.
    - .2 Maximum number of tanks to be monitored.
    - .3 Number of probes required and sizes.
    - .4 Provide details and manufacturer's product data.
    - .5 As per the fuel monitoring system requirements in Section 26 29 03 – Control Devices.
  - .9 Ancillary devices: provide details and manufacturer's product data.
  - .10 Leak detection system, type and locations, and alarm system.
  - .11 AST overflow-protection systems: provide details of design, type, materials and locations.
  - .12 Containment system for spills, overfills and storm runoff water: provide details, materials used, and locations.
- .4 Provide maintenance data for tank appurtenances and monitoring system for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

### **1.3 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal of paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
- .4 Separate for recycling and place in designated containers Steel, Metal, Plastic waste in accordance with Waste Management Plan.
- .5 Place materials defined as hazardous or toxic in designated containers.
- .6 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.
- .7 Clearly label location of salvaged material's storage areas and provide barriers and security devices.
- .8 Ensure emptied containers are sealed and stored safely.
- .9 Divert unused materials from landfill to metal recycling facility as approved by Departmental Representative.
- .10 Divert unused concrete materials from landfill to local quarry or facility as approved by Departmental Representative.

- .11 Dispose of unused paint or coating material at an official hazardous material collections site as approved by Departmental Representative.
- .12 Do not dispose unused paint or other similar materials into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.
- .13 Fold up metal banding, flatten and place in designated area for recycling.

## **Part 2 Products**

### **2.1 TANKS: CONVENTIONAL STEEL**

- .1 Provide one (1) temporary fuel oil tank installed outside in vicinity of the existing 9,400L main tank.
  - .1 Tank: to ULC-S601 or ULC-S602.
  - .2 Construction: Steel, double walled.
  - .3 Connections: 5 minimum (excluding applicable emergency vents). Sizes as indicated.
  - .4 Capacity: not less than 900L and not greater than 1,500L in capacity. Temporary tank system must be exempt from CEPA.
  - .5 Installed on non-combustible, solid foundation.
  - .6 Slope piping back towards outdoor temporary tank.
  - .7 No sags or traps are permitted in the overflow pipe for proper venting of the indoor day tanks.
  - .8 Equipped with the following components:
    - .1 ULC-certified spill container. Spill container shall be normally locked.
    - .2 Vent whistle alarm on NPS 2 vent pipe. Vent pipe shall extend a minimum of 1m above the top of the tank and be at least 1.5m from any building opening (doors, windows, etc). Vent shall be terminated with a ULC-certified weatherproof cap.
    - .3 UL-certified liquid level gauge.
- .2 Existing 9,400L outdoor main fuel oil storage tank.
  - .1 All labels to be bilingual.
  - .2 Labels:
    - .1 New lid of spill container to be equipped with label "WARNING: TANK TO BE TIGHT-FILLED ONLY / RACCORD DE REMPLISSAGE AU RÉSERVOIR DOIT ÊTRE ÉTANCHE". Black lettering, minimum 25mm in height, on white background.
  - .3 Tags:
    - .1 Install round, 65mm diameter, lamacoid tag on new vapor- and liquid-tight camlock fitting at tank fill connection inside spill container. Lamacoid tag shall have black lettering, minimum 13mm in height, on yellow background. Tag shall indicate tank contents and capacity on both sides: "FUEL OIL/ MAZOUT 9400L".

## **2.2 TANKS: STEEL DYKED**

- .1 Existing two (2) indoor 455L single wall steel ULC-S602 tanks in dykes.
  - .1 Apply 2-hour fire-resistance rated coating to entire steel cradle supports to both day tanks.
  - .2 Install new vacuum breaker device c/w bronze body and stainless steel spring, sized to suit overflow line for each day tank.

## **2.3 CONCRETE**

- .1 Pour a new concrete pad for the reinstated 9,400L main fuel oil tank in accordance with Section 03 30 00 - Cast-in-Place Concrete.

## **2.4 ANCHORAGE**

- .1 Fasten the reinstated 9,400L main fuel oil tank to the new concrete pad using expansion-type concrete anchors.

## **2.5 PIPING, VALVES AND FITTINGS**

- .1 In accordance with Section 23 11 13 - Facility Fuel Oil Piping.
- .2 Mechanical joints on buried primary piping is not permitted.
- .3 Piping located below product level equipped with either manual or automatic shut-off at storage tank.
- .4 Provide means for collecting spills at connection point between storage tank system and delivery truck, rail car, or vessel.

## **2.6 LEVEL GAUGING**

- .1 Main tank level gauging and indicator:
  - .1 UL-certified, mechanical, direct reading liquid level gauge, displayed in units of centimeters.
  - .2 Gauge and gauge openings: protected against liquid overflow and possible liquid and vapour release.
- .2 Fuel oil monitoring system console:
  - .1 Install in generator room on main floor of the building. Coordinate final console location with on-site Departmental Representative.
  - .2 As per requirements of 26 29 03 – Control Devices and the electrical drawing.
- .3 Remote audible and visual overflow alarm:
  - .1 Install on exterior side of the building facing and in the vicinity of the outdoor 9,400L main fuel oil tank where personnel care constantly on duty during transfer operation and can promptly stop or divert flow when detected levels are too high.
  - .2 As per requirements of 26 29 03 – Control Devices and the electrical drawing.

## **2.7 LEAKAGE DETECTION SYSTEM**

- .1 Temporary outdoor fuel tank used during construction shall be vacuum monitored and maintain a vacuum gauge reading not greater than -16" Hg.
- .2 Ensure the 9,400L main tank secondary containment is not compromised as a result of the works.

## **2.8 GROUNDING AND BONDING**

- .1 To Section 26 05 00 - Common Work Results Electrical.

## **2.9 OVERFILL AND SPILL CONTAINMENT**

- .1 Shop-fabricated AST overfill protection.
  - .1 Install ULC-approved, pressure-fill positive shut-off overfill protection device in each main tank fill pipe drop tube, built and certified to CAN/ULC-S661.
  - .2 Replacement of existing spill container lid:
    - .1 Install new steel, weatherproof, tamperproof lid to accommodate additional height of fill pipe due to installation of NPS 2 camlock fitting as required.
    - .2 Spill container lid shall be painted to match existing colour of tank.
    - .3 Contractor shall not modify the spill container attached directly to the tank.

## **2.10 PRODUCT TRANSFER**

- .1 ASTs with normal vent and separate emergency vent.
  - .1 Liquid- and vapour-tight NPS 2 aluminum camlock connection on fill pipe for flammable products.

## **2.11 SPILLS, OVERFILLS AND STORM RUNOFF WATER**

- .1 Contained, treated and disposed of in accordance with applicable federal and territorial regulations, guidelines and policies.
- .2 Contractor shall notify the Departmental Representative immediately of any spilled fuel oil as a result of the execution of the Work and provide all necessary information for Environment Canada reporting purposes.

## **Part 3 Execution**

### **3.1 OUTDOOR TEMPORARY FUEL OIL STORAGE TANK DURING CONSTRUCTION**

- .1 Contractor shall install one (1) temporary fuel oil storage tank outside the building, minimum capacity of 900L and a maximum capacity of 1,500L for exemption to CEPA SOR/2008-197 regulation.
- .2 Temporary piping arrangement shall be leak (pressure) tested with supporting documentation signed by the contractor before the temporary system is put into service.

Leak (pressure) test shall be conducted in accordance with 23 11 13 Facility Fuel-Oil Piping.

- .3 Contractor shall arrange and pay for fuel throughout the duration of construction to ensure a constant supply of fuel oil is provided to the temporary fuel system to permit the continuous operation of the indoor appliances.
- .4 Transfers between the permanent and temporary fuel oil systems shall be conducted during off-hours only. Off-hours are considered between 6pm to 6am local time on weekdays (Monday to Friday) and on weekends (all day Saturday and Sunday).
- .5 Contractor shall always confirm with Departmental Representative prior to disconnecting the fuel oil supply, both temporary and permanent systems.

### **3.2 OUT-OF-SERVICE 9,400L MAIN STORAGE TANK**

- .1 Once the temporary system is operating, drain the main storage tank of fuel and dispose of the remaining fuel off-site.
- .2 Temporarily withdraw the main storage tank from service in accordance with section 43 of the CEPA SOR/2008-197 regulation.
  - .1 Lock the existing spill container.
  - .2 Label or tag the spill container with "Temporarily Out-of-Service".
- .3 Under no circumstances will the main storage tank be relocated with any fuel in it.
- .4 Close all tank openings vapour- and liquid-tight, with the exception of the tank normal vent and emergency vent.
- .5 Temporarily relocate the 9,400L main tank once the tank has been withdrawn from service in accordance with section 43 of the CEPA SOR/2008-197 regulation to permit the installation of the new concrete pad foundation.
- .6 Store the empty tank on-site in a secured area until reinstatement on new concrete pad foundation.
- .7 Do not remove out-of-service tag/label until main tank is ready to be filled for system commissioning.

### **3.3 INSTALLATION**

- .1 Install tanks in accordance with CAN/CSA-B139-15, National Fire Code of Canada 2010, CEPA SOR/2008-197, CCME PN 1326, and manufacturer's recommendations.
- .2 Position tanks using lifting lugs and hooks, and where necessary use spreader bars. Do not use chains in contact with tank walls.
- .3 Install tanks using certified installers.
- .4 Provide certification of installation to Departmental Representative.
- .5 Once 9,400L main tank is placed on new concrete pad, conduct successful precision leak detection test in accordance with CEPA SOR/2009-197 section 21.

**3.4 FILLING OF THE OUTDOOR 9,400L MAIN TANK**

- .1 Arrange and pay for new fuel oil into the reinstated 9,400L outdoor main tank after successful precision leak test. Tank shall be filled to 85% of its maximum capacity prior to transfer of ownership back to Departmental Representative.

**3.5 FIELD QUALITY CONTROL**

- .1 Test tanks for leaks.
  - .1 Main tank: dip the tank interstice after reinstatement to confirm presence or absence of liquid.
  - .2 Day tanks: visual assessment of metal dykes.

**3.6 TOUCH-UP**

- .1 Where coating is damaged, touch-up with original coating material.

**3.7 LEVEL GAUGE SYSTEM**

- .1 Provide leak and vapour proof caulking at connections.
- .2 Calibrate system.

**3.8 LEAK DETECTION SYSTEM**

- .1 Inspect and dip the 9,400L main tank secondary containment to verify it has not been compromised as a result of the works.

**3.9 SPILLS OR DAMAGES TO SYSTEM**

- .1 Any fuel spills or damages caused by the execution of this work will be the sole responsibility of the Contractor to pay for and correct to the satisfaction of the Departmental Representative.
- .2 Contractor shall notify the Departmental Representative immediately of any spilled fuel oil as a result of the execution of the Work and provide all necessary information for Environment Canada reporting purposes.

**END OF SECTION**