

## Alternate Measures of Control (AMC) for Disk Filters (3) Confined Space Entries Medium Hazard Atmosphere

City of Penticton AWWTP  
January 18, 2016

### Alternate Measures Submission Elements:

1. The three confined spaces are rectangular concrete tanks that each houses a disk filter unit. Each tank is 2.6m wide x 4.4 m long x 3.9m deep. There are two adjacent concrete channels; the inlet (upstream) channel and the outlet (downstream) channel. The inlet channel is 1m wide x 3 m deep and is gravity fed from the secondary clarifiers containing secondary wastewater treatment plant effluent (Typical Water Level (TWL) 342.9 m). The outlet channel (downstream) is 1m wide x 3 m deep and is gravity fed from the disk filters that contain filtered (10 micron) secondary treatment plant effluent (TWL 342.3 m)
2. The space is isolated by:
  - a. The concrete inlet gravity feed channel has a Fontaine sluice gate constructed from 304L Stainless Steel for each tank (3), measuring 600mm x 600mm. They were installed in 2012, and are exercised at a minimum annually (no provision for double block and bleed or blanking) see attached drawing. The total head pressure of the water from upstream channel to bottom of disk filter is 2.9 m or 4.1 psi of head pressure
  - b. The outlet gravity feed channel has a concrete wall with a weir that the water has to overflow prior to entering the downstream channel. The weir elevation is 342.42m, and the downstream channel TWL is 342.30 allowing for 12 cm of free board (no provision for double block and bleed or blanking)
3. Glenn Robertson, CRSP the City's Safety Coordinator 250-490-2553 [glenn.roberston@penticton.ca](mailto:glenn.roberston@penticton.ca) administers the Confined Space program for the City of Penticton. Glenn Robertson and Randy Craig (AWWTP Supervisor) prepared the Alternate Measures and Hazard Identification/Risk Assessment (HIRA). This AMC includes information from Gary Marsden (Op III) and Gord Austrom (Op III), workers health and safety representatives at the AWWTP
4. For the hazards that need to be addressed see the attached HIRA. The characteristic of the water on both the upstream and downstream side of the filters is effluent from two secondary clarifiers within our tertiary AWWTP. No work will be performed that will contribute to the likelihood of material flowing into the space.
5. Alternate Measures;

- The analysis of valves as a control measure should assume that all valves leak. However, there is no expectation that a properly installed and maintained valve will fail catastrophically if no work is being performed on it. It is recognized that systems will often permit some leakage; a means of pumping out the fluid will be undertaken.
- Any potential leakage from the upstream gate will be visually checked every 20 minutes by the standby person, each tanks contain a 4" gravity drain that will be left in the open position while the tank is occupied. The water level in the upstream channel will be continuously monitored with a local audio/visual high level float set to 2.5 m while space is occupied. If the water level rises above 2.5 m the alarm will sounds and a light will flash (leaving 500mm of freeboard). The confined space will be evacuated and the issue will be addressed prior to re-entry.



- The water level in the downstream channel will be continuously monitored with a local audio/visual high level float set to 100 mm while space is occupied, if the water level rises above 100 mm the alarm will sounds and light will flash (leaving 840 mm of freeboard) and the confined space will be evacuated and the issue will be addressed prior to re-entry.
  - See medium hazard entry procedure for ventilation and atmospheric monitoring requirements
  - Communication will be verbal between worker and stand-by person. The stand-by person will have radio and cell phone contact
  - See attached emergency procedures
6. Workers will be orientated to this AMC and required to sign off on their orientation
  7. AMC will be supervised by AWWTP Supervisor and regular visits documented
  8. Time frame that the AMC is needed is 3 years, with annual engineering reviews

