

## ATTACHMENT 8

### TANK STORAGE

#### 8.A. TANK STORAGE

8.A.I. The Safety-Kleen Facility has a 15,000-gallon vertical tank for spent solvent. The 15,000-gallon spent solvent storage tank is 10' 6" in diameter and 23' 3" high and has an operating capacity of 13,986 gallons. It is constructed of 3/16" thick (1/4" thick in the lower third of the tank) carbon steel painted a light color to reflect sunlight. The tank is constructed in accordance with Underwriters Laboratories Standard 142 and it is located more than 20 feet from the property line in accordance with National Fire Protection buffer zone requirements. The secondary containment for the tanks consists of a monolithically poured slab and dike wall. The slab is six inches thick and the wall is eight-inch thick steel reinforced concrete. The words "Hazardous Waste" shall be marked on the spent solvent tank.

8.A.II. The tanks are equipped with an audible (siren) and visual (strobe light) high-level alarm system that will alert employees when a tank reaches 750 gallons from being full. There is an automatic feed cut-off in place in the dumpster/drum washer that shall be activated by the high level alarm to prevent further filling of the tank and possible overflow.

8.A.III. The return and fill station is a sheet steel structure as are the dumpster and drumwasher and the associated secondary containment. The dumpster unit is tight-piped to the tank and all piping is aboveground. The pump in the return and fill station pumps waste to the spent solvent storage tank.

#### 8.B. SECONDARY CONTAINMENT CALCULATIONS FOR TANK

##### DIKE VOLUME:

$$\text{Volume within the Dike walls} = L \times W \times H \times 7.48 \text{ gal/ft}^3$$
$$49.583 \text{ ft L} \times 18.5 \text{ ft W} \times 2.875 \text{ ft} \times 7.48 \text{ gal/ft}^3 = 19,726 \text{ gal}$$

$$\text{Volume of sump} = (\pi r^2 H) \times (7.48 \text{ gal/ft}^3) =$$
$$\pi \times (0.75 \text{ ft})^2 \times 1.5 \text{ ft} \times 7.48 \text{ gal/ft}^3 = \underline{20 \text{ gal}}$$

$$\text{Gross Containment} = 19,746 \text{ gal}$$

$$\text{VOLUME OF WASTE SOLVENT TANK:} <15,000> \text{ gal}$$

##### 25-YEAR 24-HOUR STORM VOLUME\*:

$$2.65 \text{ in/12 in/ft} \times 49.583 \text{ ft L} \times 18.5 \text{ ft W} \times 7.48 \text{ gal/ft}^3 = <1,515> \text{ gal}$$

TANK DISPLACEMENT:

$$\begin{aligned}(\pi r^2 H) \times (7.48 \text{ gal/ft}^3) &= \text{displacement (gals)} \\ r \text{ (Tank Radius)} &= 5.25 \text{ ft} \\ H \text{ (Dike Height)} &= 2.875 \text{ ft}\end{aligned}$$

$$\pi(5.25 \text{ ft})^2 \times 2.875 \text{ ft} \times (7.48 \text{ gal/ft}^3) = <1,861> \text{ gal}$$

CONCRETE PAD DISPLACEMENT:  $H \times L \times W \times 7.48 \text{ gal/ft}^3$

$$0.166 \text{ ft H} \times 43.583 \text{ ft L} \times 12.5 \text{ ft W} \times 7.48 \text{ gal/ft}^3 = <679> \text{ gal}$$

ANCILLARY EQUIPMENT DISPLACEMENT:

$$(\pi r^2 H \text{ or } L) \times (7.48 \text{ gal/ft}^3)$$

$$\text{Pump: } \pi(0.375 \text{ ft})^2 \times 1.666 \text{ ft} \times 7.48 \text{ gal/ft}^3 = <5.5> \text{ gal}$$

$$2 \text{ inch Pipe: } \pi(0.094 \text{ ft})^2 \times 25 \text{ ft} \times 7.48 \text{ gal/ft}^3 = <5.2> \text{ gal}$$

$$4 \text{ inch Pipe: } \pi(0.146 \text{ ft})^2 \times 57 \text{ ft} \times 7.48 \text{ gal/ft}^3 = <28.5> \text{ gal}$$

$$6 \text{ inch Pipe: } \pi(0.26 \text{ ft})^2 \times 29.4 \text{ ft} \times 7.48 \text{ gal/ft}^3 = <46.7> \text{ gal}$$

$$\text{Total Required Capacity} = <19,141> \text{ gal}$$

$$\text{EXCESS CAPACITY: } 19,746 - 19,141 = 605 \text{ gal}$$

\*Any rainwater that collects in the dike shall be pumped to the used solvent storage tank

**8.C. TANK EVALUATION AND REPAIR PLAN**

8.C.I. The waste to be stored in the hazardous waste tank at the Facility is petroleum based parts cleaning solvent, which is compatible with the carbon steel structure. If corrosion is noted, the waste shall be removed and the tank repaired. If corrosion is significant and localized, the tank shall be immediately taken out of service and repaired, (e.g., a patch welded over the corroded area). Should the corrosion of the vessel be extensive or irreparable, the vessel shall be immediately taken out of service and replaced. In the case of a tank that leaks outside of the dike, the service center's Contingency Plan shall be implemented.

Insert -

- 12K & 15K Gal 10'6" Vertical Tank Fabrication Details
- Tank Skid
- Used Solvent Storage Tank Installation Details
- High Level Alarm System Installation Details
- High Level Alarm System Installation Information
- Drum Washer Assembly
- Drum Washer Screens & Filters
- Typical Concrete Construction Details