7151.5400 SECONDARY CONTAINMENT.

Subpart 1. **Requirement.** All tanks regulated by this chapter must have secondary containment. If tanks containing more than one type of substance are stored within one secondary containment area, the substances must be compatible with each other.

Subp. 2. **Volume.** A secondary containment area must be able to contain at least 100 percent of the design capacity of the largest tank in the secondary containment area plus displacement from additional tanks within the containment area, with an additional ten percent capacity where secondary containment areas are exposed to precipitation.

Subp. 3. **Materials.** A secondary containment area must be constructed with materials that are impermeable to and compatible with the substance being stored and that will prevent a release to the environment. Materials for secondary containment include:

A. compacted clay as defined in subpart 5;

B. geosynthetic clay liner;

C. concrete for Type B and Type C substances. Concrete for Type A substances must be treated with a material that is impermeable to the substance being stored;

D. synthetic membrane;

E. the outer shell of a double-walled tank;

F. the lower bottom of a double-bottomed tank;

G. fabricated steel;

H. fiberglass; or

I. any other approved material having an impermeability equivalent to the stored substance's primary container, pursuant to the alternative design or operating practice procedure of part 7151.9400.

Owners and operators shall install and maintain secondary containment areas constructed of synthetic or manufactured materials according to the manufacturer's recommendations.

Subp. 4. **Design.** The area of secondary containment which is directly under a tank must be designed and constructed to provide for the detection of a release of a substance. Methods of leak detection are as follows:

A. visual monitoring of:

(1) elevated tanks;

(2) tanks on continuous concrete slabs for Type B and Type C substances;

(3) tanks on a continuous concrete slab treated with material that is impermeable to the substance being stored for Type A substances;

(4) tanks on containment constructed of fabricated steel; or

(5) tanks on containment constructed of fiberglass;

B. interstitial monitoring between the tank's inner and outer shell or the tank's shell and the containment area; or

C. vapor monitoring in the soil directly under the tank bottom or perimeter and above the water table.

Subp. 5. **Clay.** A secondary containment area constructed of clay must:

A. be used as an integral part of a geosynthetic clay liner; or

B. meet the following standards:

(1) consist of a minimum of 12 inches of compacted imported clay or native clay soil;

(2) be protected with cover material to prevent drying and erosion;

(3) be designed, inspected, and certified by a registered professional engineer to prevent a release from the primary tank from extending outside the containment; and

(4) show, through postinstallation testing, that the compacted clay has a permeability rate to water equal to or less than 1×10^{-7} centimeters per second.

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