



AEM Tier 2 Worksheet

Petroleum Products Storage

Glossary

Carcinogen: A substance or agent that produces or incites cancer.

Cathodic Protection: Corrosion protection for an underground metal tank or pipe produced by causing a continuous electric current to flow from one or more electrodes or a sacrificial anode to the protected structure.

Corrosive Soils: Soil which can induce a chemical reaction that dissolves or weakens uncoated steel. The rate of corrosion is related to such factors as soil moisture, acidity and electrical conductivity of the soil. Information on the risk of corrosion posed by a particular soil type can be found in your County Soil Survey Report.

Inventory Control: Measuring and comparing the volume of tank contents regularly with product delivery and withdrawal records to help detect leaks before major problems develop.

Low Permeability Soils: Permeability refers to a soil's ability to transmit water. Fine-textured, clay-rich soils generally have low permeability.

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Background

According to the U.S. Environmental Protection Agency, nearly one out of four underground storage tanks in the United States may be leaking. Both above and below-ground storage of petroleum products have the potential to damage public health and the environment, should leaks occur. Older underground petroleum tanks, especially those 10 years old or more, are more likely to leak.

Minor petroleum leaks can have major environmental impacts. For example, a few quarts of gasoline can contaminate an entire farmstead's drinking water supply. Human health is threatened with even low levels of petroleum contamination that are undetectable by taste or smell. Petroleum products contain numerous potentially toxic compounds, as well as carcinogens.

New York State's Petroleum Bulk Storage (PBS) regulations took effect December 27, 1985 and are contained in 6 NYCRR Parts 612-614. New York State regulations apply to farms that have above-ground and underground petroleum storage tanks with a combined storage capacity greater than eleven hundred (1,100) gallons. This worksheet addresses combined storage of less than 1,100 gallons. Heating oil tanks are no longer regulated under State Petroleum Bulk Storage regulations and should not be included when determining the combined capacity at a site.

Liquid propane (LP) is not addressed in this worksheet, because leaks vaporize and do not threaten surface or ground water supplies.

Agricultural Water Quality Principle:

Care should be exercised in the storage of petroleum products on the farm in order to prevent contamination of surface or groundwater resources.

Glossary Continued...

Sacrificial Anodes: Pieces of metal attached directly to an underground tank that are more electrically active than the steel tank. Because the anodes are more active, electric current runs from the anodes rather than from the tank. The tank becomes the cathode (positive electrode) and is protected from corrosion. The attached anode (negative electrode) is “sacrificed” or consumed in the corrosion process.

Secondary Containment: Containment which prevents any materials spilled or leaked from reaching the land or water outside the containment area before cleanup occurs.

Synthetic Tank: Fiberglass-reinforced plastic tank that is chemically compatible with petroleum products, product additives and corrosive soils.

Tightness Test: A test which will detect a tank or piping leak as small as five hundredths (0.05) of a gallon in one hour, which is approximately one gallon per day.

Wellhead Area: The pumping of a well draws down (lowers) the water table around the well, creating a “cone of depression.” The land surface area over the cone of depression is often termed the “area of influence.” All of the water which is recharged through the land surface within this area eventually reaches the well.

AEM Tier 2 Worksheet: Petroleum Product Storage		Potential Concern			
Factors Needing Assessment:	Lower 1	2	3	Higher 4	
How far is petroleum stored from surface water sources?	More than 500 ft.	Between 200 and 500 ft.	Between 100 and 199 ft.	Less than 100 ft.	
How far is the tank from a drinking water well?	Tank is outside wellhead area.	Tank is downslope more than 100 ft. from a well.	Tank is upslope more than 100 ft. from a well.	Tank is at grade or upslope less than 100 ft. from a well.	
What type of material is the tank constructed from, and is there corrosion protection?	Synthetic tank or tank protected from rust by cathodic protection.	Steel tank newer than 15 years coated with paint or asphalt.	Painted steel tank older than 15 years old, or bare steel tank less than 15 years old.	Bare steel tank older than 15 years old.	
What type of tank overflow protection exists?	Automatic shutoff and impermeable overflow spill catchment basin installed around fill port.	Overflow alarm and impermeable overflow spill catchment basin installed around fill port.	Impermeable overflow spill catchment basin installed around fill port.	No protection.	
How do you monitor for leaks?	In-tank leak monitoring system AND Tank tightness testing every 5 years.	Daily inventory control. AND Tank tightness testing every 15 years		No inventory, monitoring or testing.	

AEM Tier 2 Worksheet: Petroleum Product Storage Continued:		Potential Concern		
Factors Needing Assessment:	Lower 1	2	3	Higher 4
Above-Ground Storage Tanks:				
What type of secondary containment do you have?	Single-walled tank placed within concrete or synthetic dike with pad able to hold 110% of tank capacity AND Roof over tank and pad to exclude rainwater and snow. OR Double-walled tank at least 10 gauge steel with outer jacket covering at least bottom 80% of tank.	Tank is placed within dike and on a pad made of low-permeability soils. Dike is able to hold 100% of tank capacity	Tank is placed on pad.	No secondary containment.
Underground Storage Tanks:				
What is the soil type and the depth of the water table?	Well-drained soils. AND Water table is below tank.	Moderately well-drained soils AND Water table rarely high.	Medium-textured soils (silt loams and loams) AND Seasonally high water table.	Fine-textured soils (clay loam and silty clay). OR Soils are often saturated.
If there is an unused underground tank, what has been done to prevent possible future leaks?	Tank taken from ground and excavation was checked for evidence of contamination.	Tank completely emptied, rendered free of petroleum vapors, and filled with inert material.	Tank was removed or filled with inert material. Excavation was not checked for contamination.	Tank was left untouched in the ground.

Other

1. What is the total capacity of petroleum storage tanks on the farm?
2. Do you have a written emergency spill response plan that shows action to be taken in case of spill, leak, fire or explosion?
3. Is cleanup equipment available at the site?
4. If tank is located in a floodplain, is the tank anchored to avoid flotation or lateral movement?
5. Are fill ports painted with the proper paint code: red -- gasoline, yellow -- diesel, and brown -- kerosene?
6. Is all piping and connections made to tanks at the top centerline of the tank to prevent leaks?
7. Are records kept of dates and types of inspections performed, as well as leaks detected?
8. Do you recycle paints and solvents?

Additional Comments