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Repository Citation

Williams, Mike; Taraba, Joseph L.; and Shearer, Scott, "Underground Farm Petroleum Storage Tanks" (1992). *Agricultural Engineering Extension Updates*. 23.

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UNDERGROUND FARM PETROLEUM STORAGE TANKS

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Protection of farmstead water supplies is a topic which should be a prime concern of every rural landowner. Contamination of underground and surface water supplies by pesticides, fertilizers and petroleum products is a real and present hazard of modern agricultural operations. Contaminated soil and water sources can result in immediate, obvious losses such as unhealthy livestock and the need to develop alternative water sources, and long term losses such as reduced land values.

Proper storage of these chemicals is important for their proper use as well as elimination of unnecessary and undesirable environmental hazards. The following is a broad outline which details the hazards of on farm storage of petroleum products and the present status of Federal and State regulations.

Stored energy in any form is a potential source of danger to either man or his environment. Storage of energy in the chemical form (diesel fuel, gasoline, home heating fuels) is of particular concern due to the volatility, the potential for fires and explosions, or leakage into the soil and groundwater. According to the USEPA (1988) "Leaks and spills can have serious consequences. Petroleum can contaminate soil, drinking

water supplies, and air. Petroleum and its resulting vapors can also accumulate in nearby confined spaces, such as septic tanks, sewers, and the basements of homes. These vapors are poisonous and can cause a fire or explosion."

Federal (40 CFR 280) and State (401KAR48 and 401KAR42) regulations prescribe methods of design, installation, operation and leak detection for Underground Storage Tanks (UST). Directions for UST registration and site closure in the event a tank system is removed are also specified. All owners of UST systems must register their tanks by submitting a Notification for Underground Storage Tank Form (DEP5024/11/90) to the Kentucky Division of Waste Management* (DWM). In the event a tank system is taken out of service, a notice of Intent to Permanently Close Underground Storage Tanks (DEP5025/11/90), and after closure a closure Assessment Report (DEP58/11/90) must be submitted to the DWM.

The following are not presently defined as UST's and are excluded from regulatory requirements.

1. Farm tanks of 1100 gal. or less capacity used for storing motor fuel for noncommercial purposes (not for resale).
2. A tank used for storing heating oil for consumptive use on the premises where stored.

Presently Fayette county has regulations much more stringent than Federal or State regulations and do regulate the farm storage tanks.

Exclusion from regulation does not mean exclusion from legal liability due to damage resulting from leakage or spillage from farm fuel tanks. Typical liability insurance policies usually do not provide coverage for damages resulting from continuous and repeated leaks or spills from storage tanks.

Pollution of area water sources from leaking UST's is a real possibility particularly in the karst (limestone) areas of Kentucky. Kentucky Law (KRS224) prohibits the discharge of pollutants into the waters of the Commonwealth. "No person shall directly or indirectly throw, drain, run or otherwise discharge (pollutants) into the waters of the Commonwealth."

According to the USEPA (1988) as many as 25 percent of all UST systems may now be leaking. If the tank system is over ten years old and especially if it is not protected against corrosion (cathodic protection or non-metallic tanks), the potential for leaking increases dramatically. Farm fuel storage systems are no exception. Commercial leak detection

*Division of Waste Management is a division of the Kentucky Natural Resources and Environmental Protection Cabinet, Department for Environmental Protection located at 18 Reilly Road, Frankfort, KY 40601 (502) 564-6716.

techniques can be costly and time consuming. Leak detection methods range from daily tank measurements and record keeping to installation of monitoring wells with continuous petroleum sensing devices.

Since the leak detection methods may not be practical or appropriate for a small farm tank, observation of the area surrounding the tank can be helpful in detecting leaks. The following may be indications of leaks from petroleum tanks:

- A petroleum odor coming from soil or water near a tank system.
- Neighbors complaining of petroleum odors.
- A petroleum sheen on the surface of nearby ponds or streams.
- Complaints of a strange taste in drinking water.
- Water in petroleum tank, if water can leak in, petroleum may be able to leak out.
- Questionable tank inventories, since tank inventors are difficult to maintain (calculation errors, theft, short deliveries) a tank tightness test may be in order.
- Pump working abnormally, holes in piping systems may cause irregular pump operation.

In addition to the above observations, a risk assessment may assist in determining drinking water contamination risks. A risk assessment method published by Farm.A.Syst (1992) has cited additional keys to determining the potential risk of leakage from a UST.

1. The tank is not made of synthetic materials or protected from rust by cathodic protection.*
2. The piping system is not protected from rust by cathodic protection, not insulated from the tank and not sloped back to the tank.
3. The tank was not installed by an experienced installer.
4. The tank has not had regular leak monitoring, daily inventory control or tank tightness testing.

*Galvanized (zinc coated) steel is the classic example of cathodic protection of steel. The zinc coating is put on the steel, not because it is corrosion resistant, but because it is not. The zinc corrodes preferentially and protects the steel (Fontana and Greene, 1967).

Tanks no longer in use can cause problems similar to those in active service and may actually constitute a greater hazard, since they are likely to be older and their inventories are not likely to be monitored. These tanks should be removed from the ground and disposed of in a landfill or other suitable depository. DWM can provide a list of suitable disposal sites for petroleum contaminated materials. Contaminated soil should be placed in a proper landfill or treated on site. Be careful when handling discarded tanks and contaminated soil. According to the American Petroleum Institute, (1989) "Petroleum contaminated soil may be flammable or combustible and can be a source of potentially explosive vapors."

The local fire department should be consulted for local regulations and precautions for handling potentially combustible materials.

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