

Electric Service Requirements Manual (ESR) White Paper
for INTERNAL and EXTERNAL use
By Ken Shortt, Director, Rocky Mountain Power Field Engineering
May 2015

Subject: Clearance from Flammable Liquids and Associated Storage Vessels
Section 4

Some jurisdictions may have codes or requirements, including limits on storage tank capacity, which are more restrictive than those of the Power Company. Tank location shall comply with all federal, state, and local distance requirements from buildings, roadways, property lines, other tanks, and overhead and underground electrical lines.

Electrical clearances from flammable liquids and associated storage vessels shall meet NESC Rule 127 *Classified Locations* which leans heavily on the following codes:

Classified Location	Codes Specifically Mentioned in Rule 127							
	NEC 500-517	NEC 500	NEC 501	NFPA 30-2000	NFPA 30A-2000	NFPA 58-2001	NFPA 59-001	NFPA 59A-1990
Coal Handling Areas	X	X						
Flammable and combustible liquids	X			X				
Flammable Liquid Storage Area	X							
Loading and Unloading facilities for flammable and combustible material	X			X				
Gasoline Dispensing Stations	X				X			
Boilers	X			X				
Gaseous hydrogen systems for supply equipment	X							
Liquid hydrogen systems	X		X					
Sulfur	X							
Liquefied Petroleum Gas (LPG)	X					X	X	
Natural Gas (methane)	X							X

The Power Company prefers clearances of at least 25 feet in all directions between fuel storage tanks up to 2,000 gallons and electrical equipment or energized lines. This clearance is required for all combustible and non-combustible liquefied petroleum gas and propane stored in DOT or ASME type containers.

If 25 feet of clearance is not possible, the minimum clearances described in this section shall be followed.

Clearances from electrical lines are detailed below.

Surface-Mounted Tanks

1. Surface-mounted fuel storage tanks shall not be located beneath overhead electrical lines. The following minimum horizontal clearances are required between surface-mounted tanks and electrical lines:
 - 15 feet from overhead primary lines (601 V – 22,000 V line to ground)
 - 10 feet from overhead secondary lines. (0 V – 600 V line to ground)
2. Underground cables or conduits shall not be buried under a surface-mounted fuel storage tank. All cables, conduits, and pad mounted equipment shall be 10 feet from the perimeter of the surface-mounted tank.
3. The slope beneath the oil-filled pad mounted equipment shall direct the flow of oil away from the fuel storage tank.
4. With small tanks (125 gallons or less), a clearance of five feet from the meter base to the relief valve of a tank is allowed as long as 10 feet of clearance is kept from the meter to the gauge, vent, or fill connection on the tank.
5. Fuel tanks with permanently mounted generators shall be treated as surface-mounted tanks.

Underground Fuel Storage Tanks

1. Fuel tanks shall not be located above underground electrical lines. Any parts of underground fuel storage tanks must be at least 10 feet from underground electrical lines. The minimum distance may be reduced to five feet if cables are installed in approved conduit.
2. All primary underground cables and pad mounted equipment shall be located at least 10 feet horizontally from the fill opening of underground fuel storage tanks.
3. Electrical equipment shall not be located above an underground fuel storage tank or within five feet of the perimeter of a fuel tank.
4. The slope beneath the oil-filled pad mounted equipment shall direct the flow of oil away from the fuel storage tank.
5. Overhead conductors of 22,000 V line to ground and below shall not be located within:
 - 7.5 horizontal feet, and 13.5 vertical feet of underground fuel storage tanks when conductors are under extreme loading and weather conditions for all states except California.
 - 15 horizontal feet and 15 vertical feet of underground fuel storage tanks when conductors are under extreme loading and weather conditions for California.