

42—Flammable and Combustible Liquids

monoxide, benzene, hydrogen sulfide, and tetraethyl lead hazards (This last instrument is available from suppliers of tetraethyl lead.)

Loading and Unloading Tank Cars

Only trained employees should load or unload tank cars containing flammable liquids. These men should understand the danger of possible fire and explosion and of asphyxiation from breathing flammable vapors. As an added precaution, unloading and pumping operations should be discontinued during electrical storms.

Invoices and shipping papers on incoming tank cars should be checked closely for correspondence with actual tank car numbers and, in doubtful cases, contents should be tested in order to prevent accidental mixture of flammable liquids in plant tanks. See Fig 42-7 for typical tank car construction details.

Spotting cars

A car mover should be used, if it is necessary to hand spot a car. The worker should stand with the handle of the bar to one side of the track rail and face the car with his feet well apart so that he cannot be overbalanced easily.

After the car is spotted, with the dome outlet opposite the loading or unloading line, the brakes should be set and the car wheels blocked. The "blue flag" stop sign (at least 12 by 15 in., with words such as STOP—TANK CAR CONNECTED or STOP—MEN AT WORK) should be set before loading lines are connected or work is done on the car. The sign should be located about 25 ft ahead of the car toward the main line, so train crews cannot come onto the track without seeing it. (Full details are given in Chapter 28, "Elevators and Plant Railways.")

The siding should be bonded and grounded for protection from stray electrical currents (Fig 42-8). Usually, the spur track installation would be made or supervised by the serving railroad. For applicable specifications, the reader is referred to the Association of American Railroads *Signal Manual of Recommended Practice* (See "References").

The relative location of electric power lines to the tank car unloading position is an important matter discussed in the AAR Bureau

of Explosives Circular No 17-E, *Recommended Practice for the Prevention of Electric Sparks That May Cause Fires in Tanks or Tank Cars Containing Flammable Liquids or Flammable Compressed Gases, Due to Proximity of Wire Lines*. Its pertinent provisions include the following:

(A) GENERAL

- 1 Where any electric power line is within 20 ft of the tank opening, the use of a metallic gaging rod is prohibited.

(B) LOCATION OF TANKS OR TANK CARS

- 1 Wherever possible, stationary tanks shall not be located under or near any electric power lines.
- 2 When the contents are being gaged or transferred, tank cars, wherever possible, shall not be located under or near any electric power lines.
- 3 Where tanks or tank cars (the contents of which are being gaged or transferred) are necessarily located under or near power lines having a span length of 150 ft or less and operating at a voltage not exceeding 550 volts between conductors, the following rules shall be observed:
 - a Where power lines pass overhead, there shall be a minimum vertical clearance of 8 ft at 60 F between the wires and the tank.
 - b Where power lines pass nearby and do not have the minimum vertical clearance specified in paragraph 3-a, there shall be a minimum horizontal clearance of 8 ft between the wire lines and the tank.
 - c Openings in tanks shall be at least 6 ft distant, measured horizontally from any overhead power lines.
- 4 Where tanks or tank cars (the contents of which are being gaged or transferred) are located under or near power lines having a span length in excess of 150 ft or operating at a voltage in excess of 550 volts between conductors, it is recommended that special studies be made by qualified persons and such additional clearance provided as is necessary to give adequate protection.