Petroleum, Oil, and Lubricant Operations

FM 10-69, FM 10-71, and AR 385-55 provide guidance in POL operations. In addition, use the procedures below to manage the risks associated with such operations.

1. Unit personnel will know:
   a. A flammable liquid has a flash point below 100°F, and a combustible liquid has a flash point at or above 100°F;
   b. Vapors from petroleum products that are mixed with the proper amount of air will form explosive mixtures and ignite on contact with a spark or flame;
   c. There may be an explosion if the explosive mixture ignites in a closed space;
   d. All fires connected with flammable products result from ignition of vapors;
   e. There is little danger in a closed container that holds a flammable product unless it is exposed to heat (The hazard arises from ignition of vapors produced in transfer, use, spills, or leaks).

2. To prevent petroleum fires, personnel will control ignition sources by-
   a. Not smoking and having no matches or cigarette lighters within 50 feet of vehicle refueling points;
   b. Grounding and bonding;
   c. Prohibiting the use of open flames, heating stoves, and electrical tools in refueling/storage areas;
   d. Placing flame and spark arrestors on all equipment;
   e. Not wearing nylon clothing.

3. Personnel will control vapor formation by-
   a. Avoiding spills and cleaning up spills;
   b. Using drip pans and catch basins;
   c. Inspecting frequently for leaks and cracks in fuel, oil, and exhaust lines;
   d. Inspecting hoses, hose reels, and nozzles for bulges, tears, and cuts;
   e. Keeping containers of flammable liquids closed;
   f. Prohibiting the use of gasoline for cleaning and using only authorized solvents.

4. The most common causes of fires are smoking and matches. Signs will be posted at all petroleum handling, storing, and displaying areas indicating "No Smoking within 50 Feet". All personnel will carefully control sources of friction sparks, such as tools and grinding wheels, to prevent igniting combustibles such as rubbish, paper, and oily rags.

5. Portable lights, power tools, and extension cords become a fire hazard when overloaded by the heat generated and the short-circuits that result from worn insulation. Another possible ignition source is static electricity which is caused by friction; flow of flammable liquids; flow of steam, air, or gas through pipe, hose, or tank opening; and movement of vehicles with nonconductive tires over non-conductive road surfaces. Thus, personnel will
   a. bond and ground tanker vehicles being loaded or unloaded to permit the safe transfer of static that may build up within the tank;
   b. ground storage tanks and pods;
c. Prohibit AMVs from operation unless entirely free of fuel leaks.

6. The following controls will be practiced when refueling:
   a. One person mans a portable fire extinguisher having a 10C rating or greater.
   b. The engine is shut off and master switch in off position.
   c. Smoking is prohibited; signs posted.
   d. Vehicles are grounded and bonded.
   e. Correct fuel placed in vehicle.
   f. Fuel personnel will wear gloves, safety goggles, and other PPE to prevent skin and eye contamination.

7. Lock and latch opening devices on automatic petroleum dispersing nozzles are prohibited. Portable CO2 fire extinguishers shall be placed at refueling and fuel-storage points.

8. Before welding and cutting, storage tanks, tank cars, tank vehicles, drums, and vehicle fuel tanks will be thoroughly cleaned and free of vapor and certified by the fire department.

9. Aircraft refueling will be accomplished in accordance with FM 10-68.

10. Personnel shall be familiar with the health hazards inherent in petroleum products as listed in FM 10-69:
    a. Dust: Solid particles result from grinding, scraping, buffing, riveting, rivet cutting, drilling, sanding, or sandblasting and/or from evaporating or burning liquids and residues that contain finely divided substances that injure organs and tissues when inhaled or ingested.
    b. Gases and vapors: A gas exists as a gas at ordinary temperature and pressure; a vapor is a gas-like form of a solid or liquid. Poison, asphyxiants, anesthetics, and irritant gases and vapors may injure or destroy the eyes, blood-forming system, tissues, or bones or keep the lungs from getting oxygen, have a narcotic affect, or inflame the lungs and respiratory track.
    c. Flammable liquids: Flammable liquids (gasoline, jet fuel, solvents, paints, lacquers, varnishes) are dangerous inside the mouth, eyes, and body. They also cause skin contamination.
    d. Fumes and mists: A solid substance that can turn directly into a vapor without first becoming a liquid and can later return to the same solid state.
    e. Oxygen deficiency: The air lacks the normal amount of oxygen due to flammable vapors.

11. Petroleum samples will be taken by an approved sampler only, not by a hose-and-mouth suction.

12. Showers and eyewash facilities shall be available to fuel personnel. Remove POL-soaked clothing only under showers to prevent ignition by static electricity.

13. Loading and unloading of tank cars or trucks will be accomplished in accordance with appropriate regulations.