

3.14 Storage Tanks

3.14.1 General Description of Source Category

LANL maintains and operates underground and aboveground storage tanks that are located throughout the Laboratory site. All of the tanks at LANL are fixed-roof horizontal or vertical tanks. These tanks store gasoline, diesel fuel oil (No. 2), mineral oil, dielectric oil and scintillation oil. All of the storage tanks at LANL have been evaluated for applicability under NMED AQB List of Insignificant Activities dated September 29, 1995 and also have been evaluated to determine the applicability of the New Source Performance Standards (NSPS) contained within 40 CFR 60, Subparts K, Ka, and Kb.

The 150,000 gallon No. 2 Fuel Oil tank at TA-3-26 is a grandfathered source since it was installed in 1950. Furthermore, it would fall under insignificant activity #1(a) because emissions are below 1 ton/yr (<0.03 ton/yr). There are several hundred storage tanks at LANL that have tank capacities less than 500 gallons. Since No. 2 fuel oil, mineral oil, and dielectric oil have vapor pressures below 10 millimeters of mercury (mm Hg), storage and handling of these materials in quantities less than 500 gallons is defined as insignificant activity #5. All remaining tanks not identified in this section, or exempted under insignificant activity #5, have been included under insignificant activity #1(a) because emissions will not exceed 1 ton per year. The storage tanks that qualify as insignificant emission units are not discussed further in this section.

Tanks that are subject to the provisions of 40 CFR 60 do not qualify as insignificant emission units and must be included in the permit application. The applicability criteria of the standards under 40 CFR 60, Subparts K, Ka, and Kb are summarized in Table 3.14-1.

Table 3.14-1. 40 CFR 60 Subparts K, Ka, and Kb Storage Vessel Applicability Criteria

NSPS	Tank Size (gallons)	Constructed, Reconstructed or Modified Dates	Liquid Stored
Subpart K	> 65,000	Between June 12, 1973	Petroleum Liquids (except No.2-6 fuel

NSPS	Tank Size (gallons)	Constructed, Reconstructed or Modified Dates	Liquid Stored
		and May 18, 1978	oils, diesel oils, and gas turbine oils).
Subpart K	40,000 – 65,000	Between March 9, 1974 and May 18, 1978	Petroleum Liquids (except No.2-6 fuel oils, diesel oils, and gas turbine oils).
Subpart Ka	> 40,000	Between May 19, 1978 and July 22, 1984	Petroleum Liquids (except No.2-6 fuel oils, diesel oils, and gas turbine oils).
Subpart Kb	> 10,500	July 24, 1984 to Present	Volatile Organic Liquids (except gasoline at service stations and bulk plants).

There are no tanks at the Laboratory that are subject to Subparts K and Ka because LANL tanks of this size were either constructed before the effective date of the regulation or the tanks store materials that do not fall under the applicable criteria. However, there are 15 storage tanks that currently fall under Subpart Kb. The tanks that are subject to 40 CFR 60 Subpart Kb are listed in Table 3.14-2. This table shows tank location, installation date, capacity, dimensions, and type of liquid stored.

Table 3.14-2. Non-Exempt Aboveground Storage Tanks Subject to 40 CFR 60 Subpart Kb

Location	Date Installed	Capacity (gallons)	Diameter (ft)	Length (ft)	Liquid Stored
TA-15-435	1990	12,000	12	15	Mineral Oil
TA-15-436	1990	12,000	12	15	Mineral Oil
TA-36-141	1986	24,500	10	41.5	Dielectric Oil
TA-36-142	1986	24,500	10	41.5	Dielectric Oil
TA-53-640	1992	60,000	22.33	22.33	Mineral Oil
TA-53-1058	1989	20,000	11.33	37	Scintillation Oil
TA-53-1071-C	1992	12,000	10	20.83	Scintillation Oil
TA-53-1071-A	1992	20,000	11	28.33	Scintillation Oil
TA-53-1071-B	1992	20,000	11	28.33	Scintillation Oil
TA-15-461	1998	12,000	12	15	Mineral Oil
TA-15-462	1998	12,000	12	15	Mineral Oil
TA-15-473	1997	21,000	10	36.5	Mineral Oil
TA-15-474	1997	21,000	10	36.5	Mineral Oil
TA-35-197	1999	40,000	12.5	49	Dielectric Oil
TA-3-779	1999	228,000	35	31.8	No. 2 Fuel Oil (Diesel)

(a) Scintillation oil is mineral oil mixed with a scintillating compound (butyl-PBD)

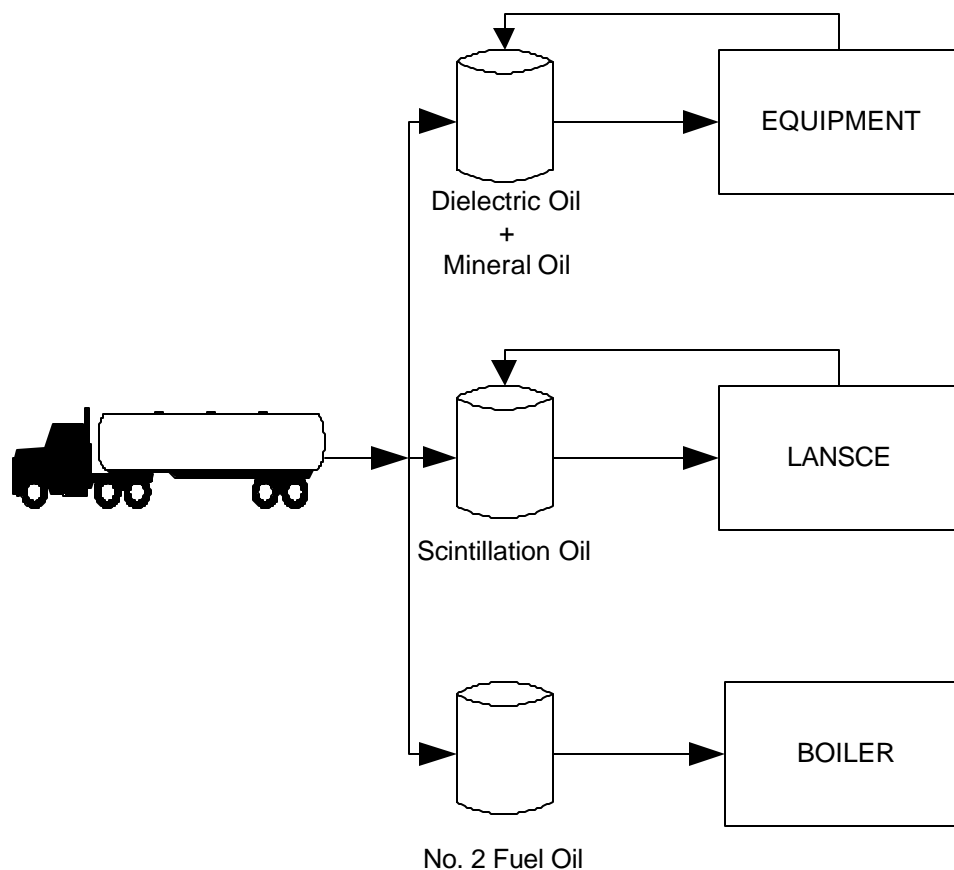
3.14.2 Operating Schedule

Each of the listed tanks shown in Table 3-14.2 is in operation year-round. The tanks containing mineral oil, dielectric oil, and scintillation oil are expected to have approximately one turn over per year. The No. 2 fuel oil tank at TA-3-779 may have up to 2 tank turnovers per year based on allowable annual fuel use for the power plant.

3.14.3 Process Flow Diagram

A general process flow diagram for storage tanks is provided in Figure 3.14-1.

Figure 3.14-1. Process Flow Diagram for Storage Tanks



3.14.4 Emissions

Since mineral oil and dielectric oil have extremely low vapor pressures (<0.01 mm Hg) and because the turnover rate for these tanks is expected to be less than one exchange per year, the emissions from these storage tanks are insignificant. Furthermore, scintillation oil is assumed to have the same vapor pressure as mineral oil since scintillation oil is mineral oil with the addition of butyl-PBD, an organic scintillating compound (powder) that enhances the production of scintillation light in fluid used for particle identification and tracking.

Emissions were estimated from the No.2 fuel oil tank (TA-3-779) using the EPA approved TANKS Program (Version 4.0). The calculations performed with this program are based on equations presented in AP-42 Section 7.1, Organic Liquid Storage Tanks, dated September 1997. Based on this analysis and conservative input parameters such as 2 tank turnovers per year, emissions from this No. 2 fuel oil tank are very small, approximately 0.03 tons/yr. Based on this conservative estimate, the remaining tanks listed in Table 3.14-2 are expected to have much smaller emissions when compared to the No.2 fuel oil tank at TA-3.

3.14.5 Emissions Control Equipment

Under Subpart Kb Section 60.112b, the requirements for installing control equipment is based on design capacity of storage tank and vapor pressure of the *volatile organic liquid*. None of the tanks listed in Table 3.14-2 meet the criteria of 60.112b, for when control equipment is required. No emissions control equipment is required or present on any of LANL's storage tanks.

3.14.6 Applicable Requirements

Applicable operating requirements for tanks that fall under 40 CFR 60 Subpart Kb are dependent on the installation of control equipment. Since the vapor pressure of the materials stored in these storage vessels is low, there are no requirements for the installation of control equipment. Therefore, at this time there are no applicable operating requirements for the storage tanks at LANL. See Table 3.14-3.

Table 3.14-3. Applicable Requirements for Storage Tanks

Source Category	Applicable Requirements
Storage Tanks	<p><i>Operating Requirements:</i></p> <ul style="list-style-type: none"> • There are no operating requirements.

3.14.7 Proposed Monitoring, Recordkeeping, and Reporting

Based on the low volatility of the contents stored (<10 mmHg), these tanks would normally be considered as insignificant emission units. However, the tanks with capacities greater than or equal to 40 m³ (>10,500 gallons) with contents considered to be *volatile organic liquids* are subject to 40 CFR 60 Subpart Kb. Under this Subpart, the only monitoring, recordkeeping, or reporting requirements which apply to the tanks listed in Table 3.14-2 are those listed in Section 60.116b (b). This section specifies that records be kept showing the tank dimensions and capacity. LANL will also maintain records of the vapor pressure of the *volatile organic liquid* stored in tanks greater than or equal to 75 m³ (19,813 gallons) to demonstrate that the requirements of 60.112b do not apply. Table 3.14-4 summarizes applicable monitoring, recordkeeping, and reporting for the tanks listed in Table 3.14-2.

Table 3.14-4. Proposed Monitoring, Recordkeeping, and Reporting Requirements for Storage Tanks

Source Category	Monitoring, Recordkeeping, and Reporting
Subpart Kb Storage Tanks	<p>Monitoring/Recordkeeping:</p> <ul style="list-style-type: none"> • Records of tank dimensions and capacity must be maintained. (40 CFR 60.116b (a)-(b)) • Maintain records of the vapor pressure of the material stored. (LANL proposed condition) <p>Reporting:</p> <ul style="list-style-type: none"> • Report criteria pollutant and HAP emissions on a semiannual basis for those sources that do not qualify as an insignificant emission unit. (20.2.73.300 NMAC for criteria pollutants and LANL proposed condition for HAPs and semiannual basis) • Submit semiannual report of any required monitoring within 45 days from the end of each reporting period. The reporting periods are January to June and July to December. (20.2.70.302(E)(1) NMAC)