LANL Hazardous Waste Permit

Fact Sheet Attachment listing new SWMUs and AOCs

Listed in this Attachment to the LANL Permit Fact Sheet are units requiring corrective action but are not currently included on the LANL Permit. This Attachment contains listings for three types of units; Areas of Concern (AOCs), newly identified Solid Waste Management Units (SWMUs), and Canyons. All Canyons at the Laboratory have been identified as AOCs by the Permittees on Table B-1 in their *Installation Work Plan for Environmental Restoration, Revision 7,* dated November 1998. Each unit's listing includes a background discussion addressing the type of release and the Department's justification for requiring corrective action at the unit. The draft Permit list all units requiring corrective action, including new units included in this Attachment and existing units, at Attachment P (*Listing of SWMUs and AOCs*), Table P-1 (*SWMUS and AOCs Requiring Corrective Action*).

0-001 - Surface Impoundments

Background: SWMU Report: This site consists of three surface impoundments near the laboratory boundary with the Pueblo of San Ildefonso in Mortandad Canyon. The impoundments are aligned down the canyon, and the capacities are (in the downstream direction) 1 million, 200,000, and 500,000 gallons, respectively. They were first constructed at this location in the 1970s. The purpose of the impoundments is to prevent outfall water and sediment originating in Upper Mortandad Canyon from moving down canyon and outside of the laboratory boundaries.

According to the Mortandad Canyon Work Plan, SWMU 00-001 comprises the area of the old and current sediment traps in Mortandad Canyon. The site is approximately 900 ft. long and a maximum of 200 ft. wide along the Mortandad Canyon stream channel downstream from the confluence of Mortandad and Ten Site Canyon. The sediment traps are located approximately 1.75 miles downstream from the TA-50 RLWTF outfall and approximately 1.4 miles upstream from the Pueblo of San Ildefonso. There have been several small surface releases of water from the impoundments. Sometimes the flow extended below the impoundments.

Type of Release: The waste consists of outfall water from laboratory operations and sediments. These include sorbed contaminants, which are primarily radionuclides (including plutonium, americium, cobalt, and cesium), non-sorbed contaminants (including uranium and strontium), and possibly other chemicals (LANL 1997, Pages 3-31 – 3-32).

Justification: Sediment transport past the sediment traps has occurred since their construction in 1976, including twice in 1991. Sampling of the canyon sediments revealed radionuclides well above background. Furthermore, the Permittees requested a "contained-in" determination for this site on July 7, 2000. Thus, the Permittees recognize that there are RCRA constituents present at this site. In addition, the Permittees have not demonstrated that this was not a routine and systematic release. This site is a SWMU and requires further investigation to determine whether it poses a threat to human health and the environment. For these reasons it must be included in the permit.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1997. Los Alamos National Laboratory. *Work Plan for Mortandad Canyon.* Environmental Restoration Program. September 1997. Pages 2-5 through 2-8 and 3-31 through 3-32.
3) NMED 2000. New Mexico Environment Department (NMED). *Letter: "Contained-In" Determination for Potential Release Site (PRS) 00-001, Mortandad Canyon Sediment Traps.* July 20, 200

0-015 – Active Firing Range

Background: 1990 SWMU Report: An active firing range (Sportsmen's Club firing range) is located in Rendija Canyon at structure number TA-0-1078.

Type of Release: spent lead bullets and metal cases (LANL 1990)

Justification: No investigation has been done at this site because it is an active firing range. There are potentially RCRA constituents present at this site. It is listed in the 1990 SWMU Report, but no other information is available for this site. Due to the lack of information regarding this site, it requires an investigation to determine if it poses a threat to human health and the environment.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.

0-018(b) – Sludge Bed Wastewater Treatment Plant, Bayo Canyon

Background: 1990 SWMU Report: The Bayo Canyon plant has been operating since the early 1970s. This plant historically received waste from the laboratory and is located in Bayo Canyon. The plant is now county-owned and operated. The plant currently receives waste liquids from businesses and residences. The waste treatment plant serves some office space leased by the Laboratory. This plant also received effluent from TA-43.

RFI Work Plan: Since the Bayo Canyon Plant also served the townwsite, it may have received residual contamination left in drains from operations in TA-1.

Pueblo Canyon Aggregate Area Work Plan: Contamination at 0-018(b) resulting from historical laboratory operations would have originated from the oldest sludge drying beds at the site as water-soluble components infiltrated the underlying filter media. The 1996 RFI focused on the older sludge beds, because the sludge beds may have received Laboratory wastes; recent sludges have been subject to permit restrictions and analysis and are not expected to have contributed to contamination at 0-018(b).

Type of Release: Potentially, radionuclides (uranium-234, -235, cesium-137), VOCs, SVOCs, TAL metals, and PCBs (LANL 1992, pages 5-68).

Justification: Sampling at the oldest sludge beds at the Bayo Plant indicated that no metals were detected above BVs, however, the reporting limits for antimony, cadmium, mercury, and silver were above BV in all samples. Therefore, extent has not been defined at this site and the Permittees have not demonstrated that this was not a routine and systematic release. There are RCRA constituents present at this site. In addition, this site is included in the Pueblo Canyon Aggregate Area Work Plan for additional sampling. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pages 5-54 through 5-68.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Pueblo Canyon Aggregate Area Investigation Work Plan.* May 2005. Pages 8-10.

0-027 – Storage Area (DP Road)

Background: 1990 SWMU Report: An engineering drawing (2-252, 1948) indicated that an area north of DP Road, in the vicinity of the present Knights of Columbus Hall, was used for drum storage. The drum storage area consisted of 6 compartments, each about 38 ft wide, separated by a 2-ft high earthen dike. The floors of the compartments were covered by 2 inches of gravel and were sloped to the northwest. An iron drain pipe was present below each compartment. It is unknown whether the drain pipe was removed. In 1947, eight aboveground oil storage tanks were located in this same area. The tanks are shown on a 1947 engineering drawing and are visible on a 1947 aerial photograph. Engineering drawing 2-252 (1948) indicated the presence of fill stations along the north side of the drum storage area. These fill stations were presumably associated with the oil storage tanks, which had been removed prior to construction of the drum storage area.

RFI Work Plan: The former DP Road storage area (SWMU 0-027), located at the intersection of Trinity Drive and DP Road, was used as a tank farm and storage area for drums. Engineering drawings indicated that the tank storage area was converted to a drum-staging area in 1948 and was used as such for an unknown period of time. Metal drums containing lubricants were staged in this area for redistribution to job sites and craft shops. The oil storage tanks, which were probably used in conjunction with the fill stations, were decommissioned and removed before 1948 and before the construction of the drum-staging area.

Type of Release: Potentially, fuel oil (LANL 1990) and barium (up to 212 ppm), lead (up to 123 ppm), ethylbenzene (up to 469 ppm), benzene (up to 2.76 ppm), toluene (up to 189 ppm), TPH-DRO (up to 28,400 ppm), TPH-GRO (up to 16,900 ppm), and xylenes (up to 775 ppm) (LANL 2005, page 31-34).

Justification: According to the Addendum to the VCA Report, sampling at the DP Road storage area indicated a release of several contaminants. Even though a considerable amount of benzene (the primary COPC) was extracted from the subsurface, other contaminants were still present well above background and some above SSLs for an industrial worker. Therefore, extent has not been defined at this site and the Permittees have not demonstrated that this was not a routine and systematic release. There are RCRA constituents present at this site. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pages 5-69 through 5-77.

3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *AOC 0-027 Addendum to the VCA Report* (LA-UR-05-0583). June 2005. Pages 31-34.

0-030(d) – Septic System

Background: The SWMU Report identifies this as Septic Tank #2. It was installed in either 1943 or 1944 and it served McKee houses, apartments, and dormitories west of Canyon Road on streets currently known as Piñon Loop, Opal Street, Nugget Street, and Myrtle Street. It lies partially on private property at 686 Pine Street (cul-de-sac) and partially on Los Alamos County property that is currently used as a playground. Information on the dimensions of the septic tank and overflow is unavailable. The septic systems presumably handled sanitary waste, although other potentially hazardous materials may also have been discharged to these systems.

Type of Release: Antimony, calcium, copper, iron, lead, mercury, selenium, silver, zinc, neptunium-237, plutonium-239/240, uranium-235, and organics (LANL 1997, pages 17, 19, and 21)

Justification: The VCA was never approved by NMED. There are RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pages 5-94 through 5-114.
3) LANL 1997. Los Alamos National Laboratory. *VCA Report for PRSs 0-030(d,k) and C-0-043 Activities.* September 1997. Pages 5-31.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

0-030(eN) – Septic System

Background: This SWMU consists of two tanks, known collectively as Septic Tank #4 (located north of Canyon Road at the old Boy Scout Lodge). These septic tanks served residences and may have been connected to TA-1. They are located on private property. Phase 1 investigations took place in 1994. The Phase 1 RFI investigations included Geodetic surveys, geophysical surveys, and surface and subsurface sampling. Based on field investigations, it appears that the tanks were removed, but the concrete floor remained.

Type of Release: Lead, mercury, silver, zinc, plutonium-238, -239, -240, and organics (LANL 1996, pages 36-38)

Justification: According to the RFI Report, the outlet pipe could not be located during a field inspection therefore no surface soil samples were collected beneath the outlet pipe. Also, based on the subsurface and excavation activities, it appears that the tanks have been removed. However, there was not sufficient sampling to determine nature and extent at this site. There are RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Finally, they are listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pages 5-94 through 5-114.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 0-030(eN, eS,f), Septic Systems.* Field Unit 1. Environmental Restoration Project. June 1996. Pages i-ii and 22-43.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

0-030(eS) – Septic System

Background: Septic tank #4A is located on private property south of Canyon Road at the Chapel Apartments. This septic tank served residences and may have been connected to TA-1. According to the RFI Report, a 1943 engineering drawing did not illustrate the 0-030(e) South septic tank. A conversation with a Los Alamos County Utilities employee suggested that this septic tank was located in front of the two northern apartments near the intersection of 22nd Street and Union, and was removed when the Chapel Apartments were built. Phase 1 investigations took place in 1994. The Phase 1 RFI investigations included Geodetic surveys, geophysical surveys, and surface and subsurface sampling.

Type of Release: Lead, mercury, silver, zinc, plutonium-238, -239, -240, and organics (LANL 1996, pages 36-38)

Justification: Based on the subsurface and excavation activities, it appears that the tank has been removed. However, there was not sufficient sampling to determine nature and extent at this site. There are RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pages 5-94 through 5-114.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 0-030(eN, eS,f), Septic Systems.* Field Unit 1. Environmental Restoration Project. June 1996. Pages i-ii and 22-43.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

0-030(f) – Septic System

Background: Identified as Septic Tank #5, it consists of two tanks located south of Canyon Road and north of Rose Street near the United Church. These tanks, labeled collectively as "Septic Tank #2" on a 1943 engineering drawing, serviced a school, a post exchange, and a few of the original Ranch School buildings; consequently, there is very little chance, according to LANL, that any radioactive material or RCRA material exists at this site.

Type of Release: mercury, plutonium-238, -239/240, and organics (LANL 1996, pages 53-54).

Justification: It is unclear whether the septic tanks were removed or actually encountered during the RFI activities at this site. NMED does not believe enough samples were obtained to define nature and extent of contamination. There are RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pages 5-94 through 5-114.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 0-030(eN, eS,f), Septic Systems.* Field Unit 1. Environmental Restoration Project. June 1996. Pages 43-57.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

0-030(h) – Septic System (near new Catholic Church)

Background: This tank is located in the west parking lot of the new Catholic Church located at 3700 Canyon Road. The tank was in use from 1945 to late 1947. Engineering drawings showing the facilities or residential housing connected to the septic tank are not available; however, a 1947 Zia Post Plan Map lists this as Septic Tank #7. The 1947 report, *Survey of Los Alamos and Pueblo Canyon for Radioactive Contamination and Radioassay Tests Run on Sewer-Water Samples and Soil Samples Taken from Los Alamos and Pueblo Canyons*, describes locations served by various septic tanks and lists septic tank #7 as serving the Special Engineering Detachment (SED) area. Buildings listed as being in the SED area from the 1947 Post Map included: West Mess Hall, apartments, dormitories, barracks, a supply room, a gymnasium, a post office, and recreation buildings. Based on the buildings the tank serviced, it has been determined that septic tank #7 was a residential tank. The septic tank and the outfall drainage leading into upper Acid Canyon are visible in a field north of Canyon Road in aerial photos taken in 1946.

Type of Release: Chromium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc, neptunium-237, plutoniu-239/240, uranium-235, and organics (LANL 1996, pages 20, 23-25, & 27)

Justification: A Mobile Radiological Analytical Laboratory (MRAL) was used to analyze samples collected during the VCA. The Permittees have documented in several instances (*e.g.*, VCA Report for 35-014(f), LA-UR-96-3341, pg. 19) that analytical data obtained from the MRAL are unreliable and may only be used as screening level data. Additionally, the Permittees left a portion of the west wall footing in place and completed only an internal (LANL Health Physics Operations) analysis of the concrete tank (75 yds^3). There are RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pages 5-94 through 5-114.
3) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for Potential Release Sites 0-030(h,i,n,o,p), Group 0-3, Septic Tanks.* Field Unit 1. Environmental Restoration Project. September 1996. Pages 4-34.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

0-030(j) – Septic System

Background: 0-030(j) is located north of East Road and west of the former Central Wastewater Treatment Plant on Los Alamos County property. At the time of the 1992 RFI Work Plan, information on the dimensions of the septic tank, the buildings it served, and overflow was unavailable. This SWMU handled sanitary waste from the original townsite and from early laboratory operations. Old memoranda (Tribby 1946, 050119 and 05-0120) raised questions about possible radionuclide contamination in the sanitary systems and outfalls, in this case, into Los Alamos Canyon.

Type of Release: Uranium-234, -236, plutonium-238, -239/240, americium-241, VOCs, SVOCs, TAL metals, and PCBs (LANL 1996, page 3)

Justification: A VCA was proposed for this site; however, this site was not included in the VCA Report dated September 1996 (LA-UR-96-3351). There are RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pages 5-94 through 5-114.
3) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Plan for Potential Release Sites 0-030(d,h,i,j,k,l,n,o,p), Town Site Septic Tank Systems.* Field Unit 1. Environmental Restoration Project. March 1996. Pages 2-3.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

0-030(k) - Septic System

Background: This septic tank is located on private property north of the former Zia Warehouse area, north of East Road, and east of what is now the Dog Obedience Club building. No information exists concerning the dimensions of the tank or the buildings it served, however, it is likely that this septic tank serviced the Zia Company Warehouse complex. The Warehouse complex contained building materials, electrical supplies, plumbing supplies, nails, cement, and machinery warehouses. The Warehouse complex also stored sheet lead and small quantities of pesticides and herbicides, resulting in a potential for RCRA contamination in the septic tank.

Type of Release: Uranium-234, -236, plutonium-238, -239/240, americium-241, VOCs, SVOCs, TAL metals, and PCBs (LANL 1997, page B-10)

Justification: A sufficient effort was made to find this septic tank, and NMED agrees that it most likely has been removed. However, based on the analytical results from the characterization and confirmation sampling in the VCA Report (radionuclides, inorganics, and organics above background) 0-030(k) must remain on the permit and further investigation must be conducted. There are RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

* Section 3.3 in the VCA Report states that no confirmatory samples were collected, however, Appendix B may list those analytical results? Appendix B, page B-1 says that the analytical results for C-0-043 are presented in Table B-5 through B-7, however, Tables B-5 – B-7 are referencing 0-030(k)?

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pages 5-94 through 5-114.
3) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Plan for Potential Release Sites 0-030(d,h,I,j,k,I,n,o,p), Town Site Septic Tank Systems.* Field Unit 1. Environmental Restoration Project. March 1996. Page 2-3.
4) LANL 1997. Los Alamos National Laboratory. *VCA Report for Potential Release Sites 0-030(d, k) and C-0-043.* Field Unit 1. Environmental Restoration Project. August 1997. Pages 31-39 and Appendix B.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

0-030(n) – Septic System

Background: RFI Work Plan: This site is located on Los Alamos County property west of 15th Street between Canyon Road and Pueblo Canyon. Information on the dimensions of the septic tank, the buildings it served, and overflow from the system is unknown; however, the location of the tank suggests that it served residences.

VCA Report: Due to the small size of the tank (6.5 ft long x 5.5 ft wide x 4.7 ft deep) and its location, it was believed that the septic tank serviced residential housing in the area of 15th Street. The septic tank was visible at the end of 15th Street in aerial photos taken in the 1940s. The septic tank and outfall pipe were located during the initial field reconnaissance survey. The tank was intact (except for a missing top) and was located along and partially in an active stormwater drainage channel. The 6-in diameter steel outfall drain line entered Pueblo Canyon approximately 25 ft north of the septic tank.

Type of Release: Plutonium-239, 240, polonium, copper, iron, lead, sodium, zinc, DDD, DDT, Benzo(a)pyrene, and Pentachlorophenol (LANL 1996b, pages 67, 69-71)

Justification: Several constituents were detected above background UTLs and SALs (*e.g., DDD, DDT)* at this site; however, the extent of contamination have not been defined. According to the VCA Report, a Mobile Chemical Analytical Lab (MCAL) and a Mobile Radiological Analytical Lab (MRAL) were used to analyze samples collected during the VCA. The Permittees have documented in several instances (*e.g.,* VCA Report for 35-014(f), LA-UR-96-3341, pg. 19) that analytical data obtained from the MCAL/MRAL are unreliable and may only be used as screening level data. There are RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, neither the VCA Plan nor the VCA Report has been approved by NMED. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pgs: 5-94 through 5-114.
2) LANL 1996a. Los Alamos National Laboratory. *Final Voluntary Corrective Action Plan for Remediation Activities at Technical Area (TA) 0 for Potential Release Sites (PRSs) 0-030(h,i,j,n,o) and 0-030(d,k,p), Town Site Septic Systems.* Field Unit 1. Environmental Restoration Project. March 1996. Pg: 2
3) LANL 1996b. Los Alamos National Laboratory. *Voluntary Corrective Action (VCA) Completion Report for Potential Release Sites 0-030(h,i,n,o,p), Group 0-3, Septic Tanks.* Field Unit 1. Environmental Restoration Project. September 1996. Pgs: 60-82.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

0-030(o) – Septic System

Background: RFI Work Plan: This site is located between Canyon Road and Pueblo Canyon according to a map prepared in 1947. The septic tank, designated as #3 on the map, is located on private property. A 1943 engineering drawing shows that the septic system served residences.

VCA Report: This is an inactive septic tank located on private property between Canyon Road and Pueblo Canyon. The septic tank was not removed because it is situated partially under the foundation of a house, and the landowner did not want to risk property damage that might occur during excavation and removal of the tank. Data from characterization samples collected at PRS 0-030(o) indicated that there were no chemicals present in concentrations that pose a risk to human health.

Type of Release: Calcium, chromium, lead, mercury, silver, thallium, zinc, plutonium-239, 240, acetone, bis(2-ethylhexyl)phthalate, DDD, DDT, DDE, p-Isopropyltoluene, toluene, xylene (LANL 1996b, pages 91, 93-94)

Justification: Several constituents were detected above background UTLs (*e.g.*, chromium, lead) at this site. However, extent of contamination has not been defined. According to the VCA Report, a Mobile Radiological Analytical Lab (MRAL) was used to analyze samples collected during the VCA. The Permittees have documented in several instances (*e.g.*, VCA Report for 35-014(f), LA-UR-96-3341, pg. 19) that analytical data obtained from the MRAL are unreliable and may only be used as screening level data. There are RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, neither the VCA Plan nor the VCA Report has been approved by NMED. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pgs: 5-94 through 5-114.
2) LANL 1996a. Los Alamos National Laboratory. *Final Voluntary Corrective Action Plan for Remediation Activities at Technical Area (TA) 0 for Potential Release Sites (PRSs) 0-030(h,i,j,n,o) and 0-030(d,k,p), Town Site Septic Systems.* Field Unit 1. Environmental Restoration Project. March 1996. Pg: 2
3) LANL 1996b. Los Alamos National Laboratory. *Voluntary Corrective Action (VCA) Completion Report for Potential Release Sites 0-030(h,i,n,o,p), Group 0-3, Septic Tanks.* Field Unit 1. Environmental Restoration Project. September 1996. Pgs: 82-98.

4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

0-030(p) – Septic System

Background: RFI Work Plan: This site is located on private property at the eastern end of the Rim Road cul-de-sac. Information on the dimensions of the septic tank, the buildings it served, and overflow is unknown; however, the location of the tank suggest that it served residences.

VCA Report: The septic tank was located on private property behind the residence at 99 Rim Road. Engineering drawings showing the facilities or residential housing connected to this septic tank are not available. However, it is believed that the septic tank serviced the Rim Road and Quartz Street residential areas. A review of aerial photos taken in the mid 1940s shows residential housing foundations under construction. The septic tank is not visible. During the initial field reconnaissance survey, the tank and associated piping were not located; however, it was noted that approximately 1 ft of backfill soil had been brought in to level the lot.

Type of Release: Calcium, lead, cesium-137, benzo(a)pyrene (exceeded SAL) (LANL 1996b, pages 106, 108-109)

Justification: Several constituents were detected above background UTLs (*e.g.*, calcium, lead) and one, benzo(a)pyrene, exceeded its SAL at this site; however, extent of contamination has not been defined. According to the VCA Report, a Mobile Radiological Analytical Lab (MRAL) was used to analyze radionuclide samples collected during the VCA. The Permittees have documented in several instances (*e.g.*, VCA Report for 35-014(f), LA-UR-96-3341, pg. 19) that analytical data obtained from the MRAL are unreliable and may only be used as screening level data. Additionally, confirmatory sampling was not conducted inside the outfall pipe trench and neither the VCA Plan nor the VCA Report has been approved by NMED. There are RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071*. Environmental Restoration Program. May 1992. Pgs: 5-94 through 5-114.
2) LANL 1996a. Los Alamos National Laboratory. *Final Voluntary Corrective Action Plan for Remediation Activities at Technical Area (TA) 0 for Potential Release Sites (PRSs) 0-030(h,i,j,n,o) and 0-030(d,k,p), Town Site Septic Systems.* Field Unit 1. Environmental Restoration Project. March 1996. Pg: 2
3) LANL 1996b. Los Alamos National Laboratory. *Voluntary Corrective Action (VCA) Completion Report for Potential Release Sites 0-030(h,i,n,o,p), Group 0-3, Septic Tanks.* Field Unit 1. Environmental Restoration Project. September 1996. Pgs: 98-115.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

0-031(a) – Soil Contamination Beneath former Service Station

Background: According to the SWMU Report, this was a service station located on Trinity Drive near its intersection with 4th Street. It was operated by the Zia Company on land owned by the Atomic Energy Commission. This service station had at least two 10,000-gallon underground storage tanks to store gasoline, according to a Zia employee. It is not known whether oil sumps were also present. The date and details of decommissioning are not available, although the building is shown on a 1962 engineering drawing (Z-424). The underground storage tanks were removed during decommissioning. The Hilltop House Motel is now located at the site of the former service station.

Contrary to the SWMU Report, the OU 1071 Work Plan states that the current owner of the site thinks three 25,000-gallon tanks are still in the ground in the area immediately to the north of the motel lobby. Historically, the gas pumps were located east of what is now the motel lobby.

A letter was sent from the EPA to the Permittees on December 6, 1995 asking for clarification of DOE's position regarding this SWMU. It was unclear from the original letter whether the Permittees were indicating that they were not responsible for this SWMU and that another owner is responsible. EPA instructed the Permittees to address this issue with NMED UST Bureau. NMED does not have a copy of the original letter sent by the Permittees to EPA.

Type of Release: hydrocarbons (leaded gasoline and oil), solvents (LANL 1992, page 5-115).

Justification: There is not enough information to rule out residual contamination at this site. There are potentially RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pages 5-115 through 5-122.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release 4)
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) USEPA. United States Environmental Protection Agency (USEPA). Letter Re: *Operable Unit 1071, SWMU 0-031(a).*

0-031(b) – Soil Contamination beneath former Motorpool

Background: This service station was located on Trinity Drive near 9th Street. According to the SWMU Report, it was built in 1959 adjacent to the police station, as shown on engineering drawing Z-1676. A 10,000-gallon underground storage tank (UST) and two fuel pumps were installed for this service station.

OU 1071 RFI Work Plan: Neither an aerial photograph taken in 1960 nor a topographic map dated 1963 shows a service station next to the police station. It is inferred that Building 3 is the service station in question because the date of construction (1959) is close to the dates on the photograph and map and the building is near the former police station. Building 3 has three USTs, located east of the service station, which are no longer in use.

Type of Release: Hydrocarbons (leaded gasoline and oil), solvents (LANL 1992, page 5-125).

Justification: There is not enough information to rule out residual contamination at this site. There are potentially RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. This site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071.* Environmental Restoration Program. May 1992. Pages 5-123 through 5-132.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

0-034(a) – Landfill-Eastern Area (Nambe Place trench)

Background: RFI Work Plan: A 1946 aerial photo identified 00-034(a) as a trench located between Nambe Place and Pueblo Canyon now on Los Alamos County property.

NFA Report: In 1946, 00-034(a) was the location of a concrete block manufacturing plant and a small-scale concrete batching plant. Concrete block manufacturing included mixing aggregate, cement, and water, and then filling molds and curing the blocks. The concrete batching plant used a one-half to three-quarter yard capacity concrete mixer, and the mix was dumped into small dump trucks for hauling to construction sites. An aerial photo taken in October 1961 shows that 00-034(a) was replaced by a warehouse yard.

Type of Release: Unknown

Justification: The NFA Report used site history to substantiate that a site investigation was not necessary at the Nambe Place trench. However, according to the NMED DOE Oversight Bureau, the site history was not sufficient to make that determination. Nature and extent of contamination has not been defined at this site. There are potentially RCRA constituents present at this site. Therefore, this site requires characterization to determine whether it poses a threat to human health and the environment. Additionally, this site is on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071*. Environmental Restoration Program. May 1992. Pgs: 5-133 through 5-141.
2) LANL 1997. Los Alamos National Laboratory. *NFA Report for Potential Release Sites 0-034(a), 0-034(b), 73-001(b), 73-001(c), 73-001(d).* Field Unit 1. Environmental Restoration Project. September 1997. Pgs: 1-6.
3) NMED-DOE 1998. NMED-DOE OB. Letter: Comments on NFA Report for PRSs 0-034(a), 0-034(b), 73-001(b), 73-001(c), 73-001(d) in OU 1071. January 6, 1998.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

0-034(b) – Landfill, Western Area

Background: RFI Work Plan: A 1946 aerial photo identified 00-034(b) as a pit located between Trinity Drive and Fairway Drive to the east of 43rd Street on privately owned property.

NFA Report: Although the pit image in the aerial photos resembles a shallow borrow pit, the site was also apparently used for temporary storage of spoils piles used as the sources of fill material during construction of the Western Housing Area in Los Alamos. Photographs from this time period show that all of the vegetation was removed from the Western Housing Area before housing was constructed, and that cutting and filling to obtain the needed topographic contours would have been extensive. According to this report, the pit identified in the 1946 aerial photo was a staging area for soil or tuff fill material needed for roads or home sites, and not a waste disposal area.

Type of Release: Unknown

Justification: The NFA Report used site history to substantiate that a site investigation was not necessary at the western area pit (00-034(b)). However, according to the DOE Oversight Bureau, the site history was not sufficient to make that determination. Nature and extent of contamination has not been defined at this site. There are potentially RCRA constituents present at this site. Therefore, this site requires an investigation to determine whether it poses a threat to human health and the environment. Additionally, this site is on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1071*. Environmental Restoration Program. May 1992. Pgs: 5-133 through 5-141.
2) LANL 1997. Los Alamos National Laboratory. *NFA Report for Potential Release Sites 0-034(a), 0-034(b), 73-001(b), 73-001(c), 73-001(d).* Field Unit 1. Environmental Restoration Project. September 1997. Pgs: 1, 7-9.
3) NMED-DOE 1998. NMED-DOE OB. Letter: Comments on NFA Report for PRSs 0-034(a), 0-034(b), 73-001(b), 73-001(c), 73-001(d) in OU 1071. January 6, 1998.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

01-003(b) – Surface Disposal Site (east of Bailey's Canyon)

Background: SWMU Report: This is a canyon debris disposal area, located on the north rim of Los Alamos Canyon, just east of Bailey's Canyon.

RFI Work Plan: There was no record that any radioactive debris was ever discarded on this hillside. Several attempts were made to locate the site, but all that was observed were items in the bottom of Bailey Bridge Canyon, which was sampled as Aggregate B, and a few objects scattered over more than an acre. Also, portable beta/gamma detectors used to screen each object only registered background radiation.

Type of Release: Construction debris with low levels of uranium (LANL 1992, page 2-14).

Justification: Although, this area could not be located and radiological field-screening had no detects, the Permittees did not conduct any sampling for RCRA constituents. There are potentially RCRA constituents present at this site. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine whether it poses a threat to human health and the environment.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1078.* Environmental Restoration Program. May 1992. Pages 2-14 and 2-20.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

01-003(c) – Surface Disposal Site (west of Bailey's Canyon)

Background: SWMU Report: This is a canyon debris disposal area, located on the north rim of Los Alamos Canyon, just west of Bailey's Canyon. It is south of the outfall for Septic Tank 140 and northwest of the outfall for Septic Tank 135.

RFI Work Plan: There was no record that any radioactive debris was ever discarded on this hillside. Weston did not observe any debris in this area during a 1988 site visit. An EM-8 on-site inspection of the area also found no debris.

Type of Release: Construction debris with low levels of uranium (LANL 1992, page 2-14).

Justification: The Permittees did not conduct any sampling for RCRA constituents at this site. There are potentially RCRA constituents present at this site. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine whether it poses a threat to human health and the environment.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1078.* Environmental Restoration Program. May 1992. Pages 2-14 and 2-20.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

01-006(e) – Drain lines and Outfall

Background: RFI Work Plan: The drain lines and outfalls to Ashley Pond SWMU aggregate consisted of two outfalls, jointly identified as SWMU 01-006(e). One drain line originated at P Building; the other drain line served the cleaning plant. This aggregate has only one mesa-top component. P Building was used for personnel offices and no radioactive materials were used in the building. An H-Division progress report, however, indicted that toluene was used in P Building. Two drain lines, SWMU 01-006(e), emptied into Ashley Pond. One 4-in-diameter drain line served P Building (TA-1-46) and extended northeast for approximately 100 ft where it emptied into Ashley Pond. The second drain line (a blowoff line) served the cleaning plant about which little is known other than it was replaced early in the project by a parking lot. The types of materials used in this building are unknown, but because it was a cleaning plant, it is possible that solvents were used there. The drain line originated at the northwest corner of the cleaning plant and extended underground to Ashley Pond.

Type of Release: Toluene, solvents, barium, beryllium, chromium, lead, silver, plutonium-238, 239/240, butanone[2-], trimethyl-benzene[1,2,4-] (LANL 1996, pages 113, 115-116)

Justification: According to the RFI Report, several constituents were detected above background UTLs. Therefore, nature and extent of contamination has not been determined. There are potentially RCRA constituents present at this site. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine whether it poses a threat to human health and the environment.

References:

1) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1078.* Environmental Restoration Program. May 1992. Pg: 6-46.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 1-007(d,e,j), 1-001(a,e,m,o), 1-003(a,e,d), 1-006(e,o), Aggregates A, B, H, I, J, former Operable Unit 1078.* Field Unit 1. Environmental Restoration Project. March 1996. Pgs: 108-122.
3) LANL 1997. Los Alamos National Laboratory. *Letter: Response to Request for Supplemental Information for RFI Report for TA-1, Aggregates A, B, H, I, and J (Former OU 1078).* December 19, 1997.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

01-006(g) – Drain lines and Outfall

Background: RFI Work Plan: The storm drainage system (01-006(g)) serving Buildings X, ML, Q, D, D-4, and D-7 was constructed of varying diameter cast iron pipe that emptied into an open main drain. The open north-south main drain discharged approximately 20 ft. south of the east side of Building X.

RFI Report: SWMU 01-006(g) was a storm drain system that consisted of three buried conduits at the east ends, and then open ditches that merged to form a single outfall channel. The 1974-1976 radiological surveys of TA-1 collected samples where radiological screening instruments indicated elevated radioactivity, but no sampling sites were located in the storm ditches.

Type of Release: antimony, arsenic, lead, mercury, nickel, silver, uranium, plutonium-238, -239 (LANL 1996, pages 40, 43).

Justification: According to the RFI Report, several constituents were detected above background UTLs. The RFI Report also states that samples were not obtained from storm ditches. Therefore, nature and extent of contamination has not been determined. There are potentially RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine whether it poses a threat to human health and the environment.

References:

1) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1078.* Environmental Restoration Program. May 1992. Pg: 6-46.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Solid Waste Management Units 1-001(c,g), 1-003(b), 1-006(a,c,d,g,n), 1-007(a,b,c,j), TA-1, Aggregates E, G.* Field Unit 1. Environmental Restoration Project. March 1996. Pgs: 31-49.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

01-007(k) – Soil Contamination Area

Background: RFI Work Plan: This is the former site of U and W Buildings and is located entirely on the mesa top. The Van de Graaff generator, located in W Building, was a primarily research instrument used for studying atomic nuclei, including Pu-239, U-235, U-238, Po-210, and H-3. U and W Buildings contained physics laboratories and Z Building housed the two Cockcroft-Walton accelerators and was also used for nuclear physics research on the same radionuclides mentioned above. A small fire involving tritiated uranium hydride occurred between U and W Buildings. The area where U and W Buildings were formerly located has largely been paved over (the Los Alamos Inn and associated parking lots). For this reason, no samples were taken in this area during the 1975-1976 Ahlquist study. The boundaries of this SWMU simply follow the outline of the W, U, and Z Buildings because of the lack of better data to define potential contamination.

Type of Release: Plutonium-239, Uranium-235, Uranium-238, Polonium-210, tritium, and other unknowns (LANL 1992, page 6-61)

Justification: In a letter dated November 18, 1997, NMED rejected the RFI Report for 01-007(k) for the following reasons; 1) the Permittees failed to provide a comprehensive data summary which included detectable concentrations, 2) the Permittees failed to include detection limits as part of the RFI Report, 3) the analytical laboratory failed to achieve detection limits less than screening action levels (SALs), 4) the Permittees vertically composited samples within boreholes, 5) the Permittees failed to determine the extent of contamination (samples were not analyzed for SVOCs, 6) and finally, the Permittees failed to adhere to the approved RFI Work Plan. There are potentially RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. For the above-mentioned reasons, further investigation is required to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1078.* Environmental Restoration Program. May 1992. Pg: 6-61.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 1-002, 1-001(t), 1-007(k), TA-1, Aggregates K, L, M, and O.* Field Unit 1. Environmental Restoration Project. April 1996. Pgs: 57-63.
3) NMED 1997. New Mexico Environment Department. *Letter: Rejection of RCRA Facility Investigation Work Report for Potential Release Sites 1-002, 1-001(t), & 1-007(k), Technical Area 1, Aggregates K, L, M, & O.* November 18, 1997.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

02-003(a) – Reactor Facility

Background: SWMU Report: A reactor was constructed in 1944, and subsequently underwent systems modifications. This modified reactor, the "Water Boiler", was in operation for a number of years. It was a liquid uranyl compound fueled reactor. The stack gas valve house (TA-2-19 also 02-003(a)) and a 3-in. stainless steel gaseous effluent line (part of line 119) under TA-2-19 were used for off-gas handling. In 1986, the pipe and building were decommissioned. They were contaminated with radioactivity, but according to the SWMU Report, the soil beneath them was clean.

RFI Work Plan: The stack gas valve house (TA-2-19) and a 4-in. cast-iron pipe, through which three smaller lines passed from TA-2-1 to TA-2-19 (line 117), were decommissioned in 1986. Line 117 was part of the filtered gaseous effluent line that ran from the Water Boiler to the stack on top of the mesa south of TA-2. The stack gas valve house was a heavy, reinforced concrete structure mostly above ground, with dimensions of 11-ft by 9-ft by 10-ft high, and 18-in. thick walls. Its purpose was to provide valves, pumps, and a shielded tank where condensate from the gaseous effluent line could be collected and handled. When they were removed, line 117 and building TA-2-19 showed a contact reading of 35 mR/h, but the soil beneath them was reported to be clean.

Type of Release: Cesium-137, strontium-90, technicium-99, total uranium, isotopic plutonium, cobalt-60, tritium, total chromium, and mercury (LANL 1993, Page 7.4-4)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1986. Los Alamos National Laboratory. *TA-2 Water Boiler Reactor Decommissioning (Phase 1).* Elder & Knoell 1986, 6670).
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
3) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.4-1 through 7.4-7.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 5, 21, and 42-43.

02-003(b) – Condensate Trap

Background: SWMU Report: 205 feet of transport line 119 and condensing trap TA-2-48 (02-003(b)) were removed in 1986.

RFI Work Plan: 02-003(b) consisted of a concrete manhole superstructure and a small-diameter standpipe that intersected the gaseous effluent line (line 119) at its low point between TA-2-19 and its junction with the Omega West Reactor (OWR) vent line. About 4 times a year until 1961, materials with an average activity of μCi of cesium-137 and iodine-131 were cleaned from the trap of the stack and dumped on the alluvium in the canyon. Soil was excavated around the site to expedite the removal of both structures, and cesium-137 contamination of the soil was found.

Type of Release: Cesium-137, strontium-90, technicium-99, total uranium, isotopic plutonium, cobalt-60, tritium, total chromium, and mercury (LANL 1993, Page 7.4-4). The final radioactivity concentration in the soil at 02-003(b) was 1000 pCi/g left at a depth greater than 5 feet (much of the area was left under 7 feet of clean fill).

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1986. Los Alamos National Laboratory. *TA-2 Water Boiler Reactor Decommissioning (Phase 1).* Elder & Knoell 1986, 6670).
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
3) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.4-1 through 7.4-7.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 5-6, 21-22, and 43.

02-003(c) – Delay System

Background: It consisted of two stainless steel tanks in series (each 1-ft diameter and 20-ft long). No radioactivity was detected beneath the delay system when it was removed in 1986. The delay tanks lay parallel to each other and provided extra volume to the effluent line to allow greater decay time for the short-lived radionuclides in the gas. The tanks were not a source of large amounts radiation (8mR/h maximum at contact). No radioactivity was detected beneath the delay system when it was removed in 1986.

Type of Release: Cesium-137, strontium-90, technicium-99, total uranium, isotopic plutonium, cobalt-60, tritium, total chromium, and mercury (LANL 1993, Page 7.4-4).

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1986. Los Alamos National Laboratory. *TA-2 Water Boiler Reactor Decommissioning (Phase 1).* Elder & Knoell 1986, 6670).
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
3) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.4-1 through 7.4-7.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 6, 22, and 43-44.

02-003(d) – Gaseous Effluent Line

Background: SWMU Report: A gaseous effluent transport line to the mesa top to the south. Consisted of one section of 2-in. diameter pipe and another section of pipe that was 0.5-in. diameter. There are low levels of residual activity where these lines used to be.

RFI Work Plan: The SWMU Report indicates that a line was removed sometime in the past, and low levels of residual activity were found where the line was located. However, a supervisor of TA-2 operations indicated that there has been only one gaseous effluent lien leading up to the stack on the mesa top. He did state that before the stack to the mesa top was built, gaseous effluents from the Water Boiler were discharged via a "garden hose" that was tied to a nearby tree. The residual contamination to which the SWMU report is alluding could have originated from this pre-mesa-top stack gaseous effluent line.

Type of Release: Cesium-137, strontium-90, technicium-99, total uranium, isotopic plutonium, cobalt-60, tritium, total chromium, and mercury (LANL 1993, Page 7.4-4).

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1986. Los Alamos National Laboratory. *TA-2 Water Boiler Reactor Decommissioning (Phase 1).* Elder & Knoell 1986, 6670).
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
3) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.4-1 through 7.4-7.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 6-7, 22-23, and 45-46.

02-003(e) – Holding Tank (near reactor water boiler)

Background: SWMU Report: A holding tank, TA-2-62 was located near the "Water Boiler" for holding any reactor fluid if necessary. All waste handling equipment for the "Water Boiler has been removed, with the exception of 40 feet of line which remains inside TA-2-1. When removed in 1986, holding tank TA-2-62 was uncontaminated, but soil beneath it was slightly contaminated. The soil was removed to establish de minimum surface levels (less than 25 pCi/g).

RFI Work Plan: The tank was stainless steel (800-L capacity) and was placed adjacent to TA-2-19 to collect the reactor cooling water in case the water became contaminated through a breach in one of the cooling coils inside the reactor sphere. The tank was housed inside a 6-ft by 4-ft by 3-ft wooden shed. Before the tank and associated piping and valves were removed, the radiation levels were not above background. Water found in the tank was sampled and found to be uncontaminated. The tank was drained and removed as a unit, with the exception of 40 feet of line remaining inside building TA-2-1. Soil samples taken from beneath the tank showed low activity level (63 pCi/g). This soil was removed to establish surface levels that were derived at the time to be de minimus (less than 25 pCi/g) (Elder and Knoell 1986, 14-0014). The report does not specify whether these radioactivity levels are due to alpha, beta, or gamma emitters.

Type of Release: Cesium-137, strontium-90, technicium-99, total uranium, isotopic plutonium, cobalt-60, tritium, total chromium, and mercury (LANL 1993, Page 7.4-4).

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1986. Los Alamos National Laboratory. *TA-2 Water Boiler Reactor Decommissioning (Phase 1).* Elder & Knoell 1986, 6670).
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
3) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.4-1 through 7.4-7.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 7, 23, and 44.

02-004(a) – Omega West Reactor Facility

Background: SWMU Report: The Omega West Reactor (OWR) is housed in the main building, TA-2-1. It is an enriched uranium plate type reactor contained in an 8-ft diameter closed vessel. There are two spent fuel rod holders also contained in the OWR vessel where spent fuel rods are held in 4-in. square holders for decay. The holders are constructed in two sets one on either side of the vessel. A total of 53 fuel rods can be held in the two sets of spent fuel rod holders. The spent fuel elements are 42-ft 5/8-in. long each. A concrete tank filled with water is used to hold "hot" fuel rods when the operator transfers rods between containers. The transfer pool has inner dimensions of approximately 6-ft x 10-ft x 8-ft deep with an offset (3-ft x 6-ft x 4-ft deep). The transfer pool is operated as a closed system. In the event of necessary discharge, the liquid passes through a filter. The off-gas system includes a small, stainless steel tank. Off gases are routed through the tank and vapor condenses in the tank before the gases are discharged to the line running from TA-2 to the discharge stack or "mast" (TA-2-9) on the mesa top to the south of TA-2. The liquid from the tank is periodically pumped into a bottle and transferred to the main TA-2 liquid waste holding tank prior to the transfer to TA-50 for treatment. There are two ion exchange systems for the removal of contaminants from the OWR cooling water. Each system consists of resin beads housed in a column approximately 30-in. in diameter and 6-ft tall.

Type of Release: SWMU Report: Water that stored spent fuel rods, activation products, radionuclides sorbed on the resins, and off-gases contained radionuclides (LANL 1990).

RFI Work Plan: a sample from the primary coolant water contained antimony-122, 124, manganese-54, cobalt-60, chromium-51, sodium-24, and tritium (LANL 1993, Page 7.5-3).

RFI Report: Tritium, cesium-137, strontium-90, and cobalt-60, uranium, plutonium, technicium-99m and mercury (LANL 1996, page 5-1).

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.5-1 – 7.5-8.

3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 2-004(a through f), 2-008(b), and 2-012, (Located in former Operable Unit 1098).* Field Unit 4. Environmental Restoration Project. September 1996. Pages 5-1 through 5-10.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 7-8, 23-24, and 47-48.

02-004(b) – Reactor Facility Effluent Storage Tank (TA-2-54)

Background: One of three 1200-gallon, stainless steel underground storage tanks (tank TA-2-54), used to store flushed effluents from the ion exchange system. Primary reactor cooling water is not stored in this tank. A site operator kept logs from 1970 to 1976 on the activity of contaminated water in these tanks. His logs show that, on average, the activity of the water in contact with the tank was around 1 mR/h. However, there were at least six incidents recorded in these logs in which the water in the tank had activity higher than 50 mR/h. Total gamma activity within the tank was typically around 10^5 pCi/L, mostly due to the cobalt-60 isotope.

Type of Release: SWMU Report: Water that stored spent fuel rods, activation products, radionuclides sorbed on the resins, and off-gases contained radionuclides (LANL 1990).

RFI Work Plan: manganese-54, chromium-51, scadium-46, and antimony-124 (LANL 1993, Page 7.5-3).

RFI Report: Cobalt-60, cesium-137, strontium-90, and tritium (LANL 1996, page 5-1)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.5-1 – 7.5-8.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 2-004(a through f), 2-008(b), and 2-012, (Located in former Operable Unit 1098).* Field Unit 4. Environmental Restoration Project. September 1996. Pages 5-1 through 5-10.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 8-9, 24, and 52.

02-004(c) – Reactor Facility Effluent Storage Tank (TA-2-55)

Background: One of three 1200-gallon, stainless steel underground storage tanks (tank TA-2-55), used to store flushed effluents from the ion exchange system. Primary reactor cooling water is not stored in this tank. A site operator kept logs from 1970 to 1976 on the activity of contaminated water in these tanks. His logs show that, on average, the activity of the water in contact with the tank was around 1 mR/h. However, there were at least six incidents recorded in these logs in which the water in the tank had activity higher than 50 mR/h. Total gamma activity within the tank was typically around 10^5 pCi/L, mostly due to the cobalt-60 isotope.

Type of Release: SWMU Report: Water that stored spent fuel rods, activation products, radionuclides sorbed on the resins, and off-gases contained radionuclides (LANL 1990).

RFI Work Plan: manganese-54, chromium-51, scadium-46, and antimony-124 (LANL 1993, Page 7.5-3).

RFI Report: Cobalt-60, cesium-137, strontium-90, and tritium (LANL 1996, page 5-1)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.5-1 – 7.5-8.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 2-004(a through f), 2-008(b), and 2-012, (Located in former Operable Unit 1098).* Field Unit 4. Environmental Restoration Project. September 1996. Pages 5-1 through 5-10.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 7-8, 24, and 52.

02-004(d) – Reactor Facility Effluent Storage Tank (TA-2-56)

Background: One of three 1200-gallon, stainless steel underground storage tanks (tank TA-2-56), used to store flushed effluents from the ion exchange system. Primary reactor cooling water is not stored in this tank. A site operator kept logs from 1970 to 1976 on the activity of contaminated water in these tanks. His logs show that, on average, the activity of the water in contact with the tank was around 1 mR/h. However, there were at least six incidents recorded in these logs in which the water in the tank had activity higher than 50 mR/h. Total gamma activity within the tank was typically around 10^5 pCi/L, mostly due to the cobalt-60 isotope.

Type of Release: SWMU Report: Water that stored spent fuel rods, activation products, radionuclides sorbed on the resins, and off-gases contained radionuclides (LANL 1990).

RFI Work Plan: manganese-54, chromium-51, scadium-46, and antimony-124 (LANL 1993, Page 7.5-3).

RFI Report: Cobalt-60, cesium-137, strontium-90, and tritium (LANL 1996, page 5-1), arsenic, calcium, cadmium, chromium, copper, mercury, lead, and zinc (LANL 1996, page 5-7)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.5-1 – 7.5-8.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 2-004(a through f), 2-008(b), and 2-012, (Located in former Operable Unit 1098).* Field Unit 4. Environmental Restoration Project. September 1996. Pages 5-1 through 5-10.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 7-8, 24, and 52.

02-004(e) – Reactor Facility acid pit (TA-2-53)

Background: The acid pit, TA-2-53, is constructed of reinforced concrete and is 7-ft x 11-ft x 7-ft deep. It contains the pump and valve system by which the effluents are transferred from the three storage tanks to the acid waste lines. Neely stated that small spills of regenerated water were common within the acid pit, as well as on soils surrounding the pit.

Type of Release: Arsenic, calcium, cadmium, chromium, copper, mercury, lead, and zinc (LANL 1996, page 5-7), cobalt-60, cesium-137, plutonium-238, -239, strontium-90, and uranium-234, -235, -238 (LANL 1996, pages 5-9 – 5-10)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.5-1 – 7.5-8.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 2-004(a through f), 2-008(b), and 2-012, (Located in former Operable Unit 1098).* Field Unit 4. Environmental Restoration Project. September 1996. Pages 5-1 through 5-10.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 9, 24, and 52-53.

02-004(f) – Reactor Facility Equipment Building (TA-2-44)

Background: The equipment building, TA-2-44, contains the main circulating pump for the reactor cooling water, several other pumps, the Buffalo chiller, and tanks for the ion exchange system. Neely stated that small spills of primary coolant water as well as regenerated water from the ion exchange system were common. The water emptied through a floor drain in the building. In addition, the equipment building was commonly cleaned by employees who hosed down the walls and floors when contamination was noted. This water was discharged through the front door of the building and directly to the creek.

Type of Release: Arsenic, calcium, cadmium, chromium, copper, mercury, lead, and zinc (LANL 1996, page 5-7), cobalt-60, cesium-137, plutonium-238, -239, strontium-90, and uranium-234, -235, -238 (LANL 1996, pages 5-9 – 5-10)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.5-1 – 7.5-8.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 2-004(a through f), 2-008(b), and 2-012, (Located in former Operable Unit 1098).* Field Unit 4. Environmental Restoration Project. September 1996. Pages 5-1 through 5-10.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 9-10, 24-25, and 53.

02-004(g) – Aboveground Tank

Background: RFI Work Plan: This is a 300-gallon portable tank that was located on a platform near the guard station (TA-2-12). The tank was inactive for 3 years before it was removed (date of removal unknown). However, when in use, the tank was used to store liquids from the other tanks in an emergency. A hoist lifted the platform and tank onto a truck for transport to TA-50.

Type of Release: Water that stored spent fuel rods, activation products, radionuclides sorbed on the resins, and off-gases contained radionuclides (LANL 1990).

RFI Work Plan: cesium-137, strontium-90, technetium-99, total uranium, isotopic plutonium, cobalt-60, tritium, total chromium, and mercury (LANL 1993, Page 7.5-5).

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.5-1 – 7.5-8.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 10, 25, and 53.

02-006(c) – Drainline

Background: SWMU Report: Building drains from the chemical room and several laboratories in TA-21 discharge to the creek via a combined drain line. This drain system is currently active and has been active since building TA-2-1 has been in use.

RFI Work Plan: According to engineering drawing C-1750, these lines do not drain to the creek, but into a disposal unit. It is likely this disposal unit was the septic tank, TA-2-43, since the location of these lines coincide with sanitary sewer lines shown on Engineering Drawing 4-C-701. Additionally, these lines are shown to receive sanitary wastes, and it is doubtful sanitary wastes would be discharged directly to the creek outside of building TA-2-1. The work plan stated that 02-006(c) would not be sampled because its only outfall had been through the septic tank TA-2-43, which is addressed in SWMU 02-007.

Type of Release: Building drains from the chemical room and laboratories discharge chemical waste and sanitary waste.

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.7-1 – 7.7-7.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 11, 27, and 56-57.

02-006(e) – Waste Line

Background: SWMU Report: The TA-2-1 reactor room floor drains and mezzanine discharge to a sump (02-006(e)) that overflows to the creek.

RFI Work Plan: There have been several small spills of primary coolant water from the OWP in the reactor room in the past. This drain discharges to a sump, also called a salvage basin (TA-2-26), that overflows to the creek. These spills occurred when hatches to the reactor tank were opened and condensed reactor water spilled onto the top of the reactor tank and through the 02-006(e) drain. Thus, it is likely this drain and the related sump are radioactively contaminated with long-lived fission products to a small degree.

Type of Release: RFI Work Plan: cesium-137, strontium-90, technetium-99, total uranium, isotopic plutonium, cobalt-60, tritium, total chromium, and mercury (LANL 1993, Page 7.7-5).

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.7-1 – 7.7-7.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 12, 27, and 48.

02-008(c) – Outfall

Background: This is an outfall that discharges directly to the stream a few feet downstream from the concrete debris catcher (TA-2-39) east of building TA-2-1. During the Phase 1 decommissioning effort at TA-2 in 1985 and 1986, a 6-in. clay pipe from the basement of building TA-2-1 was disconnected from the septic tank being removed (TA-2-43) and joined to a 6-in. PVC pipe that discharged to the creek. The SWMU Report indicates this PVC pipe was connected to a sump; however, this structure is not found on engineering drawings. This line became plugged in 1988 and was abandoned in place. A new line was installed, possibly from the sump, just to the west of the East Bridge. Spring water that infiltrated the basement of building TA-2-1 was reportedly discharged through this outfall. There is no indication that there have been any additional wastes included in the discharge through this outfall. A NPDES permit application was issued for the outfall when the new line was installed to the west of the East Bridge.

Type of Release: Tritium, fission products (gross alpha/beta, and cobalt-60) from OWR operations, chromium, cesium-137, strontium-90, technetium-99, and total uranium (LANL 1993, Page 7.9-3).

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.9-1 – 7.9-6.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 13, 28, and 44.

02-009(d) – Operational Release

Background: 02-009(d) is reported to be an additional area of known radioactive contamination located near the east end of building TA-2-1. It is unclear whether this contamination is associated with TA-2-3, the chemical shack (02-010), a previous storage area consisting of drums containing kerosene, acetone, and trichloroethylene, or some other source. Vegetation from a tree in this area was analyzed and found to be radioactive.

Type of Release: Kerosene, acetone, trichloroethylene, cesium-137, strontium-90, technetium-99, total uranium, isotopic plutonium, cobalt-60, total chromium, and mercury (LANL 1993, 7.10-4 – 7.10-5)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.10-4 – 7.10-8.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 14, 30, and 59-60.

02-009(e) – Non-intentional Release

Background: AOC 02-009(e) is a duplicate of SWMU 02-009(c). All potential releases associated with AOC 02-009(e) are addressed under SWMU 02-009(c) (LANL 2005, page 14).

Type of Release: Unknown

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation (under SWMU 02-009(c)), which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 14.

02-010 – Former Chemical Shack

Background: A small chemical shack, building TA-2-3 (02-010), was located to the east of the main reactor building (TA-2-1) at the site now occupied by the boiler house TA-2-63. The chemical shack was removed in 1971 after portions of the structure were found to be radioactively contaminated. The SWMU report describes two areas of residual contamination, which may be associated with the chemical waste shack. One area, located east of the former septic tank (TA-2-43), is described in detail in SWMU 02-009(c)ii. The other area is at the former site of the shack. The chemical shack was constructed in 1944-1945 and contained hot cell measuring 6-ft by 7-ft by 20-ft in height, 4-ft 9-in. of which was below ground. The walls were 18-in. thick. The hot cell was used for reprocessing the uranyl nitrate reactor solution for the Water Boiler Reactor and for chemical studies on irradiated uranium-235. Before the shack was removed in 1971, the floor of the hot cell read 75 mR/h beta and gamma combined. A swipe indicating 5 mR/h was analyzed and cesium-137 was found. Contamination of 7500 counts/minute (c/m) alpha radiation was also found on the floor of the hot cell and more alpha contamination was expected in the plumbing inside of the hot cell. Outside the hot cell but within the chemical shack, a radiation survey was conducted. Walls and floors had been painted and the paint was thought to be shielding some alpha contamination. A chemical hood contained alpha, beta, and gamma, contaminated items (a test tube holder showed 1500 c/m alpha). Lead bricks inside the hood showed 2000 c/m alpha and 20 mR/h beta and gamma. A sink in the chemical shack had 5 mR/hr beta, gamma contact with a drain under the sink. The contaminant was thought to be secium-137 or other fission products. Because the drain was contaminated, the sewer was also expected to be contaminated. Perchloric acid had been used in the hood system and other acids (not specified) were stored in the building.

A sewer line ran from TA-2-3 to the main sewer line from TA-2-1. When the shack and sewer line were removed in 1971, the line read 20 mR/h beta/gamma (from cesium-137) and approximately 500 c/m alpha. The line was disconnected from the main sewer line and placed in wooden crates for contaminant disposal. A metal plaque was mounted on the main sewer line at the point where the sewer line from TA-2-3 had tied into it. The plaque noted the radiation level (10 mR/h), isotope, and date.

A pipe trench (TA-2-33), which ran from TA-2-3 to TA-2-1, was abandoned in 1973. The SWMU Report indicated that this pipe trench was found to be contaminated when the chemical shack was removed. However, according to the report by Neely, which describes in detail the removal of the shack, no alpha, beta, or gamma contamination was found. It is suspected that the SWMU Report is referring to the sewer pipe running from TA-2-3 and not to the pipe trench (TA-2-33).

Type of Release: This site will be investigated in conjunction with 02-009(d); cesium-137, strontium-90, technetium-99, total uranium, isotopic plutonium, cobalt-60, total chromium, organics, and mercury (LANL 1993, 7.11-3 and 7.10-4 – 7.10-5)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.10-4 – 7.10-5, 7.11-1 – 7.11-3.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 14, 30-31, and 60.

02-011(a) – Storm Drain and Outfall

Background: SWMU Report: The 1987 CEARP indicated that salvage basin TA-2-26 (02-011(a)) was abandoned in 1953. The CEARP text is unclear as to whether the salvage basin is contaminated. One of the concrete drains of 02-011(a) was reportedly used to carry cooling water between the fuel handling pit of the Omega West Reactor and the stream when the pit needed to be drained. The pit was decontaminated in 1970 or before. In 1987, a tiny amount of radioactivity of unknown origin was discovered near the outlet of this drain. The drain was again decontaminated.

RFI Work Plan: 02-011(a) consists of 11 drains associated with building TA-2-1:
i. A concrete storm drain northwest of TA-2-1 that drains into TA-2-36 (drop inlet), approximately 50-ft in length. There is no information that this drain handled anything but storm water.
ii. A 24-in. underground corrugated metal pipe (CMP) between TA-2-36 and TA-2-27 (drop inlet), approximately 8-ft in length. There is no information that this drain handled anything but storm water.
iii. A concrete storm drain northwest of TA-2-1 that drains into TA-2-27 (drop inlet), approximately 85-ft in length. Water from the fuel transfer pit was periodically emptied into this trench. Contaminated aluminum shards were commonly discharged with the water and settled into the drain. This drain was cleaned out in 1970. Before these efforts, contamination as high as 30 mR/h was measured in the trench.
iv. A 15-in. concrete storm drain west of TA-2-1 that drains into TA-2-28 (surface inlet), approximately 15 ft in length. There is no information that this drain handled anything but storm water.
v. A 24-in. concrete storm drain between TA-2-17 and TA-2-28, approximately 10-ft in length. It is possible that this drain handled the fuel pit water coming from the concrete flume (02-011(a-iii), with associated contaminated aluminum shards. Otherwise there is no information that this structure is contaminated.
vi. A 30-in. corrugated metal pipe (CMP) between TA-2-28 and the creek, approximately 30-ft in length. It is possible that this drain handled the fuel pit water coming from the concrete flume (02-011(a-iii), with associated contaminated aluminum shards. Otherwise there is no information that this structure is contaminated.
vii. A 6-in. pipe between TA-2-1 and TA-2-26 (the salvage basin), and the creek, approximately 18-ft in length. This structure is also addressed as SWMU 02-006(e), which is a drain in the floor and mezzanine of the OWR reactor room.
viii. An 18-in. CMP between the TA-2-1 catch basin and the creek, approximately 18-ft in length. There is no information that this drain handled anything but storm water.
ix. A 3-in. pipe between TA-2-1 and the creek, approximately 25-ft in length. There is no information that this drain handled anything but storm water.
x. A 12-in. concrete drain northeast of TA-2-1 and discharging east of TA-2-1, approximately 12-ft in length. There is no information that this drain handled anything but storm water.
xi. A 4-in. pipe between TA-2-1 and the creek, approximately 13-ft in length. This pipe is likely an acid waste line, which was abandoned 25 years ago. This pipe is addressed as SWMU 02-006(b).

Type of Release: Cesium-137, strontium-90, technetium-99, cobalt-60, tritium, uranium, isotopic plutonium, mercury, and chromium (LANL 1993, Pages 7.12-4 – 7.12-5)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.12-1 – 7.12-7.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 14, 31-34, 49-50, 54, and 60-61.

02-011(b) – Storm Drain and Outfall

Background: RFI Work Plan: 02-011(b) consists of two drains associated with structure TA-2-19, the stack gas valve house.
i. A 15-in. CMP between TA-2-19 and TA-2-35 (a drainage basin), approximately 9-ft in length.
ii. A 24-in. CMP from TA-2-35 that drains outside the of the east fence, approximately 9-ft in length.

Type of Release: Cesium-137, strontium-90, technetium-99, cobalt-60, tritium, uranium, isotopic plutonium, mercury, and chromium (LANL 1993, Pages 7.12-4 – 7.12-5)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.12-1 – 7.12-7.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 15-16, 34, and 44.

02-011(c) – Storm Drain and Outfall

Background: RFI Work Plan: 02-011(c) consists of one drain associated with building TA-2-44 (SWMU 02-004(f)). It is a 4-in. vitrified clay pipe (VCP) from TA-2-44 that drains outside of the west fence, approximately 12-ft in length. The outfall to this pipe is SWMU 02-011(d).

Type of Release: Cesium-137, strontium-90, technetium-99, cobalt-60, tritium, uranium, isotopic plutonium, mercury, and chromium (LANL 1993, Pages 7.12-4 – 7.12-5)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.12-1 – 7.12-7.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 16, 34, and 54.

02-011(d) –Outfall

Background: SWMU Report: 02-011(d) is an outfall from TA-2-44 (02-011(c)). The NPDES permit number is 019. It discharges treated cooling water to the creek. The pipe and outfall are likely the route through which liquid effluent from an ion exchange system in TA-2-44 was discharged. Primary cooling water would circulate through this exchange system to remove contaminants. Periodically, these ion exchangers would be regenerated by flushing clean city water through them. This flushed effluent water was discharged directly to the creek prior to 1963, most likely through this drain and outfall. After 1963, the effluent was held in three, 1200-gallon tanks (02-004(b-d)). During the 6-year period from 1957 to 1963, a maximum rate of about 15 Ci/yr was released through effluent water discharging directly to the creek. Periodic sampling during this time of the ground and creek water at monitoring points below the site showed no detectable increase in activity levels. The SWMU Report indicates that this site is an NPDES permitted outfall. However, this outfall does not currently discharge any controlled effluent, and is not currently NPDES permitted.

Type of Release: Cesium-137, strontium-90, technetium-99, cobalt-60, tritium, uranium, isotopic plutonium, mercury, and chromium (LANL 1993, Pages 7.12-4 – 7.12-5)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.12-1 – 7.12-7.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 16, 34-35, and 54-55.

02-012 – Underground Tanks

Background: SWMU Report: The 1987 CEARP indicates that a 1,000-gallon fuel oil tank, TA-2-29, was removed in 1959 and that TA-2-67, also an underground fuel tank, was removed in 1950. The locations are unknown, and there is no information available regarding the removal efforts.

RFI Work Plan: Potential soil contamination below two USTs, TA-2-29 and TA-2-67. Storage tank TA-2-29 was a 1000-gallon fuel oil tank located on the south side of building TA-2-1 approximately 40-ft north of Los Alamos Creek. Although it was removed in 1950, removal efforts were not formally documented. This site is currently an asphalt parking area. Storage tank TA-2-67 was installed in approximately 1982 and is located on the north side of the building TA-2-1. The 517-gallon underground tank stores diesel fuel for an auxiliary generator in building TA-2-1. This tank was scheduled for removal as a VCA in the RFI. It was believed that several diesel fuel tanks have been sited in the same location as TA-2-67.

RFI Report: A telephone conversation with the TA-2 facility manager on August 19, 1996, confirmed that tank TA-2-1 is the one currently in use. TA-2-1 is a 560-gallon underground diesel fuel storage tank for an auxiliary generator in building TA-2-1. Tank TA-2-1 was installed in 1986 at the site of former tank TA-2-67.

Type of Release: VOCs, SVOCs, TPH, and inorganics (LANL 1993, Page 7.13-1)/Uranium (LANL 1996, Page 5-19)

Justification: This AOC is being addressed under the Middle Los Alamos Canyon Aggregate Area Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1098.* Environmental Restoration Program. June 1993. Pages 7.13-1 – 7.13-4.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 2-004(a through f), 2-008(b), 2-012. Field Unit 4.* Environmental Restoration Project. September 1996. Pages 5-15 – 5-20.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area.* LA-UR-05-7819/ER2005-0738. December 2005. Pages 16, 35, and 51.

03-001(e) – Less than 90 Day Storage Area

Background: SWMU Report: This less than 90-day storage area is located at building TA-3-30 on the west side.

CEARP: According to the CEARP, this was a vacuum pump repair shop (TA-3-30). In the 1950s it was the practice to take contaminated vacuum pump oil and dispose of it over a bank at the back of the building. Later, a pipe draining to this same location was installed. The area on the west end of the building was paved in 1985. It is unknown what happened to the drain line.

RFI Addendum: Former waste oil storage area approximately 15-ft long x 4-ft wide. The area served the vacuum pump repair shop, located on the west side of TA-3-30, the main Laboratory warehouse. From approximately 1950 to 1957 waste oil contaminated with radionuclides, rinse solvents, and waste mercury from vacuum pumps repaired at the shop was discharged via a pipe to an area immediately west of the TA-3-30 identified as SWMU 03-010(a). After 1957 the vacuum pump waste oil was emptied into a stainless steel sink enclosed in a Plexiglas hood, located within the vacuum pump repair shop. Discharge from the sink flowed outside into barrels located in an unpaved area on the west side of TA-3-30; this storage area is the former waste oil storage area (SWMU 03-001(e). Interviews with past site workers indicate that barrels often overflowed prior to being hauled off site for disposal.

Type of Release: Solvents, radioactive oil (LANL 1990), mercury (DOE 1987, Page TA0-5/LANL 2005, Page 2). Other contaminants could include beryllium, tritium, transuranics, plutonium-238, 239, uranium, cesium-137, TPH, VOCs, and metals (LANL 1995, page 5-17-3).

Justification: The Permittees submitted a sampling notification on May 3, 2005. An Investigation Report (IR) was submitted for SWMUs 3-010(a) and 3-001(e) in August of 2005. According to the IR, "[p]rior to installation of a 100- to 200-gal holding tank within a concrete berm, waste oil drums periodically overflowed." The Report also stated that 03-001(e) contained mercury. The sampling results have not been completely reviewed. The above statement is evidence that there was a routine and systematic release at this site. It also provides evidence that hazardous constituents exist at this site. Furthermore, nature and extent of contamination has not been defined. Additionally, this site is listed in the 1990 SWMU Report and the “Under Investigation” lists in the 1998 and 2000 Installation Work Plans.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages EX-36 and TA0-5.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.

3) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1114 – Addendum 1.* Environmental Restoration Project. July 1995. Pages 5-17-1 through 5-17-7.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2005. Los Alamos National Laboratory. *Investigation Report for SWMU 3-010(a) and SWMU 3-001(e), at TA-3.* August 2005. Page 2.

03-001(i) – Satellite Accumulation Area (Corrective Action Complete w/ Controls)

Background: SWMU Report: Associated with building TA-3-70.

ACA Work Plan: This site consists of two inactive material and equipment storage areas (Storage Areas #1 & #2) located near the Parks and Refuse Office building (Building 70) within TA-3. Storage Area #1 was not investigated under this ACA. Storage Area #2 is a 50-ft by 150-ft level, unpaved area located directly northeast of Building 70. It was used as a staging area for old transformers and containers of roofing compound, tars, and adhesives. Dumpsters within the area were used for storage of bagged and labeled asbestos materials before disposal at the Los Alamos County landfill. Storage Area #2 was in use from the 1970s to 1989.

Type of Release: The building stored kerosene, waste oil, capacitors, and other unknowns (LANL 1990). PCBs, SVOCs, VOCs, and TAL metals (LANL 2004, Page 11)

Justification: Because an ACA is being conducted at this site, there is reason to believe that contamination is present. The field activities for the ACA were scheduled to begin on June 23, 2005. The sampling results have not been reviewed. Therefore, nature and extent of contamination has not been defined. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages EX-36 and TA 0-5.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Accelerated Corrective Action Work Plan for the Investigation and Remediation of Area of Concern 03-001(i) and Solid Waste Management Units 03-029 and 61-002.* November 2004. Pages 2 and 10-12.

03-003(d) – Storage Area, Transformers

Background: SWMU Report: Area of stained soil associated with equipment storage area TA-3-141. Transformers were stored here southeast of the building.

RFI Work Plan: This site is described as an area of potential soil contamination from two PCB-containing transformers, TA-3-146 and TA-3-176, which were located on a concrete pad east of the Rolling Mill Building, TA-3-141. The transformers, PCB ID#s 5008 and 5009, contained PCB concentrations greater than 500 ppm and were removed in 1992 and 1991 respectively. Because no stains were present on the concrete pad when the transformers were removed, no cleanup action was taken prior to siting the new, non-PCB transformers on the same pad. Additional concrete was added to extend the existing pad in 1993.

Type of Release: capacitors, transformers and other electrical equipment contained oil, some containing PCBs (LANL 1990).

Justification: The transformers have been replaced with non-PCB transformers. According to the RFI Work Plan, there were no stains found to indicate any releases of PCB-containing oil. Also, archival research revealed no record of releases at this SWMU. However, no investigation of the soil beneath this site was conducted. Therefore, the Permittees cannot prove that there is no soil contamination at this site. Additionally, the SWMU Report indicates that there was visible soil contamination from leaks and spills at the site. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1*. Environmental Restoration Project. July 1995. Pages 6-63 – 6-64.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-003(e) – Storage Area, Transformers

Background: SWMU Report: Area of stained soil associated with 10 transformers in the basement of building TA-3-29.

RFI Work Plan: An area of potential contamination from 10 transformers that were located in the basement of TA-3-29. The transformers were removed in 1989 and 1990 and contained PCB concentrations greater that 500,000 ppm. Inspection revealed no oil stains on the concrete in the former location of the transformers. Archival research indicated no record of releases.

Type of Release: capacitors, transformers and other electrical equipment contained oil, some containing PCBs (LANL 1990).

Justification: The transformers have been replaced with non-PCB transformers. According to the RFI Work Plan, there were no stains found to indicate any releases of PCB-containing oil. Also, archival research revealed no record of releases at this SWMU. However, no investigation of the soil beneath this site was conducted. Therefore, the Permittees cannot prove that there is no soil contamination at this site. Additionally, the SWMU Report indicates that there was visible soil contamination from leaks and spills at the site. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1*. Environmental Restoration Project. July 1995. Pages 6-63 - 6-65.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-003(f) – Storage Area, Transformers

Background: Area of stained soil associated with 9 transformers in the basement of building TA-3-66. Visible soil contamination from leaks and spills is apparent at all the sites, with the exception of the storage area south of TA-3-40.

RFI Work Plan: This site consists of areas of potential soil contamination from nine greater than 500,000 ppm PCB-containing transformers that were removed from the basement of the Sigma Building, TA-3-66, in 1991. For all but one of the PCB-containing transformers, sample results indicate that the PCB contamination was remediated to levels acceptable under 40 CFR 761 after one cleanup operation. Stained concrete slabs for all of the transformers were removed in 1992 and taken to TA-54, Area G. Soil and gravel sampling from beneath the excavated concrete pads in TA-3-66 indicated PCB concentrations less than 1.6 ppm, below the 10 ppm cleanup standards required by TSCA under40 CFR 761. New concrete pads were poured at these sites and non-PCB transformers were installed in 1992.

There was a spill of approximately 1 quart of dielectric fluid onto the basement floor, but no further action was taken because swipes of the floor indicated concentrations below 2.5 $\mu g/100\ cm^2$, which were below the TSCA requirement of $10\mu g/100\ cm^2$.

Type of Release: capacitors, transformers and other electrical equipment contained oil, some containing PCBs (LANL 1990).

Justification: The Permittees did not determine whether the PCB-contaminated fluid was absorbed into the concrete floor. Therefore, the contamination is immobile (due to the use of pigmented epoxy to encapsulate the floor), but has not been removed. Additionally, the SWMU Report indicates that there was visible soil contamination from leaks and spills at the site. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1*. Environmental Restoration Project. July 1995. Pages 6-64 – 6-66.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-003(g) – One-Time Spill, Transformer

Background: SWMU Report: PCB oil spilled from transformer in the basement of building TA-3-35. Spill occurred in 1984.

RFI Work Plan: This is a PCB-containing transformer in the basement of the Press Building (TA-3-35). The transformer contained a PCB concentration greater than 500 ppm and was replaced with a non-PCB transformer in 1984. No stains on the concrete were present upon removal of the transformer. Archival research revealed no record of releases.

Type of Release: Capacitors, transformers and other electrical equipment contained oil, some containing PCBs (LANL 1990).

Justification: Investigations were not completed and therefore did not eliminate the possibility of residual contamination being present at this site. Additionally, the SWMU Report indicates that there was visible soil contamination from leaks and spills at the site. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1*. Environmental Restoration Project. July 1995. Pages 6-64 – 6-65.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-003(h) – Storage Area, Transformers

Background: Four (4) PCB transformers at building TA-3-39.

RFI Work Plan: The transformers in the mezzanine of the shops, TA-3-39, were replaced in 1984 without incident. The transformers contained a PCB concentration greater than 500,000 ppm. No stains were noted upon removal of the transformers. Archival research revealed no history of releases and the mezzanine area had no pathway to the environment.

Type of Release: capacitors, transformers and other electrical equipment contained oil, some containing PCBs (LANL 1990).

Justification: The RFI Work Plan indicates that there were concentrations of greater than 500,000 ppm. Therefore, there must have been a PCB release from somewhere. There has been no further investigation at this site to determine whether residual contamination is present. Additionally, the SWMU Report indicates that there was visible soil contamination from leaks and spills at the site. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1.* Environmental Restoration Project. July 1995. Page 6-64 - 6-65.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-003(i) – Storage Area, Transformers

Background: SWMU Report: PCB transformers stored in the vault at building TA-3-32.

RFI Work Plan: A greater than 500,000 ppm PCB-containing transformer was removed from a vault beneath the Cryogenics Building, TA-3-32, September 12 and 19, 1992. October 19, 1992, three large concrete slabs and three 55-gal. Drums of soil and debris were also removed from the vault at TA-3-32 and taken to TA-54; Area G. EM-8 swipes of the concrete revealed PCB concentrations of 94 $\mu g/cm^2$ but a soil sample prior to removal of the concrete revealed PCB concentrations of 0.27 ppm PCBs by volume.

Type of Release: capacitors, transformers and other electrical equipment contained oil, some containing PCBs (LANL 1990)

Justification: The RFI Work Plan indicates that soil was removed from the vault area. Therefore, there must have been a PCB release from somewhere. There has been no further investigation at this site to determine whether residual contamination is present. Additionally, the SWMU Report indicates that there was visible soil contamination from leaks and spills at the site. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1*. Environmental Restoration Project. July 1995. Page 6-66 & 6-68.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-003(j) – Storage Area, Transformers

Background: drum and capacitor storage, south of building TA-3-40.

RFI Work Plan: consists of 4 transformers located in three equipment rooms in the basement of TA-3-40, the Physics Building. Each transformer has a PCB concentration in excess of 500,000 ppm. In 1991 the dielectric fluid was drained from the transformers into 55-gallon drums, the transformers were removed, and the concrete pads were cut and removed. Soil beneath the concrete pads was sampled and found to have a PCB concentration of 49 ppm. Following this analysis, concrete was placed over the soil with no further samples having been taken.

Type of Release: capacitors, transformers and other electrical equipment contained oil, some containing PCBs (LANL 1990)

Justification: The Permittees proposed this site for NFA because it is completely sealed under concrete in a utility closet in building TA-3-40. Also, due to the immobility of PCBs in soil under concrete, the Permittees felt there was no threat to the environment or human health. However, the Permittees have done no further investigations at this site and have no way to ensure that the PCBs at this site have not migrated. The integrity of the concrete has not been evaluated and there is no way of knowing without further investigation. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1*. Environmental Restoration Project. July 1995. Page 6-68.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-003(k) – Storage Area, Transformers

Background: RFI Work Plan: An area of potential soil contamination from a transformer stored on the east side of TA-3-316. According to the Pan Am (the laboratory maintenance contractor from July 1986 to May 1991) Non-PCB Transformer Inventory List, the transformer contained less than 50 ppm PCBs. As a non-PCB transformer, it is not regulated by TSCA, 40 CFR 761.120(a). In addition, a leak from a stored transformer with les then 50 ppm PCBs could not have involved a significant amount of contamination, and the soil has been graded and asphalted since the leak was discovered.

Type of Release: capacitors, transformers and other electrical equipment contained oil, some containing PCBs (LANL 1990)

Justification: The Permittees proposed this site for NFA because it contained only non-PCB mineral oil as defined in 40 CFR 761 and there were no other COPCs for this site. However, the Permittees have done no further investigations at this site and have no way to ensure that the PCBs at this site have not migrated. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1*. Environmental Restoration Project. July 1995. Page 6-69.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-003(l) – Storage Area

Background: SWMU Report: 2 PCB transformers in the basement of building TA-3-16. They have been inactive since 1988.

RFI Work Plan: Listed as an area of potential contamination from two transformers previously located in the basement of the Van de Graaff Building, TA-3-16. Both transformers became inactive in 1988. The transformers were removed in 1989 without incident and taken to TA-21-61 where they were drained. While Weston reported that the transformers had a history of leaks, all were contained within the building. No oil could have entered the floor drains located 30 ft. from the transformers; furthermore, no stains were noted on the floor at the time of removal. Staining was subsequently noted in a 1994 visit. Confirmatory swipes revealed PCB levels between 2,870 $\mu g/100m^2$. ESH-19 immediately initiated a double wash/double rinse cleanup and conducted post-cleanup sampling, which yielded PCB concentrations between 3,760 $\mu g/100m^2$ and 352 $\mu g/100m^2$. Based on these results, additional cleanup work at TA-3-16 was required.

Type of Release: capacitors, transformers and other electrical equipment contained oil, some containing PCBs (LANL 1990)

Justification: The RFI Work Plan states that additional cleanup work was required at 03-003(l), however, no additional work has been completed at this site. Due to a lack of information, no evidence of any cleanup activities being conducted at this site, and documented hazardous concentrations of PCBs, further investigation of this site is required. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1*. Environmental Restoration Project. July 1995. Page 6-81.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-003(n) – Storage Area

Background: SWMU Report: PCB transformer storage area near building TA-3-271. In 1977, a large spill occurred during the removal of a transformer from the TA-3-271 salvage yard.

RFI Work Plan: A 50 ft x 50 ft unpaved area located along the west side of TA-3-271, near the northwest corner of the building. Aerial photographs indicate that transformers were stored in the area that composes SWMU 03-003(n) from at least 1977 to 1986. The area was affected by an oil spill from a transformer that occurred in 1977; the spill area is located approximately 20 ft south of the northwest corner of TA-3-271. The ruptured transformer had a yellow label indicating that it contained between 50 and 500 ppm PCBs. The dimensions of the transformer that ruptured were approximately 3 ft long x 4 ft wide x 8 ft high, so the spill was likely less than 10 gallons in volume. There are conflicting reports as to whether the spill was cleaned up, or if confirmatory sampling was conducted. During an ER Program site reconnaissance visit in 1988, stained soil was observed at the storage area and the 1977 spill location; this staining was not observed in the 1991 aerial photographs. In 1991, the drainage pattern west of TA-3-271 was altered by regrading the parking lot and applying base course. The entire area has received additional base course at least once since that time.

Type of Release: transformers, some containing PCBs (LANL 1990)

Justification: An Investigation Report was not submitted for this SWMU and the Work Plan states that mobile chemistry labs were to be used for sample analyses. NMED has determined that data obtained in mobile chemistry labs can't be used instead of off-site fixed laboratories. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1.* Environmental Restoration Project. July 1995. Page 5-19-1 through 5-19-11.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-003(o) – Storage Area – Capacitor Banks

Background: SWMU Report: Capacitor storage and maintenance area in building TA-3-287.

RFI Work Plan: 03-003(o) was a 60 kV capacitor bank used as part of an experiment for the magnetic fusion energy project, Scyllac. The capacitor bank was housed in TA-3-287 and contained approximately 3300 capacitors, each with a 60 kV spark-gap switch. The sealed capacitor units contained a non-PCB castor oil and the spark-gap switches each used approximately two quarts of non-PCB mineral oil for electrical insulation. The mineral oil was also used in power supplies and in high voltage junction containers. Prior to decommissioning the Scyllac experiment in the mid-1980s, oil samples from the spark-gap switches and swipes from surfaces within the room were analyzed and found to have a PCB concentration less than 2 ppm. During the decommissioning phase, the capacitors were temporarily stored south of TA-3-287. Swipes from the pavement were tested and found free of PCB contamination.

Type of Release: capacitors, transformers and other electrical equipment contained oil, some containing PCBs (LANL 1990)

Justification: If only non-PCB castor and mineral oils were used in the capacitor bank, why were PCBs detected at this site? Also, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1*. Environmental Restoration Project. July 1995. Page 6-69.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-003(p) – Storage Area

Background: SWMU Report: PCB containing transformer and capacitor storage near building TA-3-142. It was active from approximately 1979 to 1986.

RFI Work Plan: 03-003(p) was a storage area east of the warehouse building TA-3-142, which was built in 1960. From the 1960s to 1994, SWMU 03-003(p) was used for storage of drums and miscellaneous equipment, including electrical capacitors and transformers that may have contained insulating oils containing PCBs. Site visits document unlabeled drums apparent stains on the soil from spills and/or leaks from the drums and equipment. The storage area is currently covered with asphalt and slopes gently southward from the warehouse. The VCA area is unpaved and is transected by a drainage channel that was rerouted when the area was paved. There are also two large trees located within the VCA area.

Type of Release: antimony, lead, PCBs (LANL 1996, Page 2). Capacitors, transformers and other electrical equipment contained oil, some containing PCBs (LANL 1990)

Justification: The VCA Report was not approved by NMED and EPA issued a Notice of Deficiency (NOD) on December 12, 1997. A list of deficiencies was included with the NOD letter. No additional investigations have been completed for this site. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1.* Environmental Restoration Project. July 1995. Page 6-81 - 6-82.
3) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for Potential Release Sites 03-003(p), 03-047(d), 03-051(c), Revision 1.* Field Unit 1. Environmental Restoration Project. February 26, 1996. Pages 1-5.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-004(c) – Storage Area

Background: SWMU Report: SWMU 03-004(c) consists of two dumpsters in the CMR Service Area that received boxed Multiple Energy Gamma Assay Spectrometer (MEGAS) waste (waste with greater than 50 nCi/g TRU but less than 100 nCi/g TRU) from TA-3-29. One dumpster received the compactable waste and one received the non-compactable waste.

RFI Work Plan: This SWMU is a level, asphalted area approximately 85ft long x 50 ft wide, occupied by two dumpsters; this loading dock area has been an active site since TA-3-29 opened in 1952. Both dumpsters received boxed waste measured by the multiple energy gamma assay system (MEGAS). MEGAS has an assay range from 0 to 100 nCi/g; waste within this range is referred to as low-level waste (LLW). Only boxed waste assayed between 0 to 99 nCi/g, a dose rate below 0.5 mR/hr per box, and weighing no more than 15 kilograms is allowed into these dumpsters. Runoff from this dumpster area drains to a storm drain inlet grate located approximately 50 ft southwest of SWMU 03-004(c).

Type of Release: Barium, calcium, cobalt, lead, selenium, plutonium-239, uranium-234, -235, -238, PAHs (LANL 1997, pages 39-41)

Justification: SWMU Report stated that hazardous metal and solvent waste was not common but possible at this site. Also, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1*. Environmental Restoration Project. July 1995. Page 5-23-1 - 5-23-7.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for TA-3 for Potential Release Sites 3-004(c,d), 3-007, 3-014(k,l,o), 3-021, 3-049(a), 3-052(b), 3-056(k), and C-3-014.* Field Unit 1. Environmental Restoration Project. September 1997. Pages 33-49.
4) USEPA 1998. United States Environmental Protection Agency. Letter from EPA to NMED Re: *TA-3 Potential Release Sites RFI Report.* February 10, 1998.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-004(d) – Storage Area

Background: SWMU Report: A dumpster used to accumulate contact-handled waste from the operations of Wing 9 hot cells in TA-3-29.

RFI Work Plan: This SWMU is a level, gravel-covered area, approximately 75 ft long x 20 ft wide, that is located south of the steps at the west end of wing 9 of TA-3-29. One dumpster formerly occupied this area, but it is now housed within wing 9. This dumpster has always been considered part of a contaminated facility used to accumulate contact-handled waste from the operations of wing 9 hot cells. When the dumpster was located at SWMU 03-004(d), it typically received waste that consisted of rags, small hardware, paper, machine shop waste, and cleaning materials, with an occasional decontaminated hot cell item. All waste was bagged and boxed prior to being placed into the dumpster. Runoff from this area flows to a storm drain inlet grate located approximately 100 ft west of SWMU 03-004(d). The storm drain eventually discharges into upper Mortandad Canyon at outfall location SWMU 03-054(e).

Type of Release: calcium, chromium, lead, silver, zinc, and organics (LANL 1997, pages 43-45)

Justification: According to the RFI Work Plan, this SWMU received machine shop waste as well as cleaning materials. This is fairly vague and non-specific, but could include hazardous waste. EPA issued an NOD for the RFI Report on February 10, 1998. In the letter, EPA stated, "contamination had been adequately characterized and does not pose an unacceptable risk to human health". However, EPA was concerned that there were several deviations from the original work plan, which had not been approved by NMED. There has been no correspondence regarding these sites since that time. Also, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1*. Environmental Restoration Project. July 1995. Page 5-23-3.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for TA-3 for Potential Release Sites 3-004(c,d), 3-007, 3-014(k,l,o), 3-021, 3-049(a), 3-052(b), 3-056(k), and C-3-014.* Field Unit 1. Environmental Restoration Project. September 1997. Pages 33-49.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) USEPA 1998. United States Environmental Protection Agency. Letter from EPA to NMED Re: *TA-3 Potential Release Sites RFI Report.* February 10, 1998.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-007 – Firing Site

Background: SWMU Report: Building TA-3-160 was used as the firing chamber for Building TA-3-159 experiments. Chamber TA-3-160 is no longer in use as a firing chamber. This unit was completed in 1964 and is constructed of prefabricated concrete wall sections consisting of two 8' high x 4' x 6" think sections set on 8' x 7' x 6" thick concrete slab. A magazine used to store the explosives for the TA-3-160 firing chamber was located southeast of TA-3-141.

RFI Work Plan: a decommissioned firing site, located southwest of TA-3-141, and includes structures TA-3-159, a contaminated building for explosives experiments, and TA-3-160, a personnel safety barrier. Both structures were constructed using prefab concrete slabs. Ta-3-159 is situated on an 8-ft. square slab and has 6-in thick by 8ft high walls and an opening on one side serving as an entrance. TA-3-160 is situated on a slab and has two 8-ft-high by 4-ft-wide by 6-in-thick walls that are set at a 90 degree angle. From 1970 to 1975, approximately 50 to 75 explosive shot experiments were detonated within TA-3-159 to bond or form metals (copper, silver, iron, etc.). During the experiments, the energy of the detonation forced the metal into a concrete mold. Plastic blasting caps were used to initiate/detonate explosive shots consisting of approximately two pounds of high explosive (HE) mixtures such as Composition C (TNT and RDX) or Topex (TNT, aluminum, and RDX). After an explosive shot, TA-3-159 was often rinsed with water that was allowed to drain outside the building through a gap between the floor and wall. The firing site was cleaned up in the late 1970s with no HE contamination detected in the area. No formal documentation of past usage, cleanup criteria, or modifications to TA-3-160 or TA-3-159 has been found. By 1983 TA-3-159 was no longer used as the containment building for explosive experiments and was modified to serve as a storage building; a fiberglass roof and a doorway were installed. From the late 1980s to the present, TA-3-159 has been used to store thoria (oxide) and thorium (metal).

Type of Release: Copper, bismuth-211, -212, -214, cesium-137, lead-212, -214, radium-224, thallium-228, organics, thorium, and HE (LANL 1997, pages 54-55 and LANL 1995, page 5-22-1)

Justification: EPA issued an NOD for the RFI Report on February 10, 1998. In the letter, EPA stated, "Further information was required on acetone and benzoic acid concentrations." EPA was also concerned that there were several deviations from the original work plan, which had not been approved by NMED. The last correspondence regarding this site was a sampling notification on April 4, 2002. Also, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.

2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1*. Environmental Restoration Project. July 1995. Page 5-22-1 through 5-22-6.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for TA-3 for Potential Release Sites 3-004(c,d), 3-007, 3-014(k,l,o), 3-021, 3-049(a), 3-052(b), 3-056(k), and C-3-014.* Field Unit 1. Environmental Restoration Project. September 1997. Pages 49-57.
4) USEPA 1998. United States Environmental Protection Agency. Letter: *TA-3 Potential Release Sites RFI Report.* February 10, 1998.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-008(a) – Firing Site

Background: SWMU Report: This site consisted of the main building, TA-3-1; a production shop, TA-3-2; a storage building, TA-3-3; four hutments, TA-3-4, 5, 6, and 7; and four magazines, TA-3-8, 9, 10, and 11. This area was used to manufacture and test detonators. Less than a half pound of HE was involved in any one firing. Memos in the CEARP files document what appears to be several firing areas on South Mesa that were in use in 1943. The memos indicate that other units besides the detonators were fired. The facilities were abandoned and removed in 1949 after the detonator development program was moved to the new detonator lab on Two-Mile Mesa.

RFI Work Plan: After reviewing engineering drawings and aerial photographs, the old South Mesa Site would have been located near the current intersection of Diamond Drive and Jemez Road. The site is no longer discernible.

Type of Release: Explosives included PETN and azide. PETN was tested under various temperature conditions (LANL 1990).

Justification: The CEARP stated that a Phase 1 supplemental study would be conducted to determine whether environmental residuals were associated with explosives manufacturing, testing, and firing at this site. There has been no investigation at this site or a subsequent report indicating that contamination was no longer present. Due to a lack of information, this site must remain on the permit. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages TA3-15 & 16.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
3) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum1.* Environmental Restoration Project. July 1995. Page 6-38.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-013(b) – Operational Release

Background: Floor drains located in Building TA-3-38. During the 1960s and 1970s spent paint solvents may have been poured into these drains. These floor drains are also connected to the storm drain (03-013(a)). According to the CEARP, steps were taken to discontinue these practices.

RFI Work Plan: Floor drains in the basement of the NTS shop in TA-3-38. Engineering Drawings show floor drains in the plasma burning machine area, metals-cutting room, and the pipe-fabrication shop. A notation on the drawings indicated that this floor drain empties into the storm drain system, SWMU 03-013(a). The floor drain piping in the basement of TA-3-38 was rerouted in 1987; it now drains into the sanitary sewer system. The entire TA-3 sanitary sewer system is considered a PRS.

Type of Release: Copper, lead, mercury, zinc, pyrene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and PCBs (LANL 1996, Pages 78-81).

Justification: The extent of possible contamination from TA-3-38 is not known. On May 23, 2005, steam condensate from building TA-3-22 was released and potentially discharged onto 03-013(b)-00. The sampling completed for the RFI Report was not sufficient to define nature and extent at this site (only 5 samples were obtained). Also, this site has not been approved for a NFA. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages TA3-8 & 9.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
3) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114.* Environmental Restoration Project. June 1993. Page 5-92 through 5-98.
4) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, and TA-61.* Field Unit 1. Environmental Restoration Project. February 1996. Pages 20 and 73-82.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2005. Los Alamos National Laboratory. Fax from LANL (Mark Haagenstad): *Release/Discharge: Notification (Release ID Number: 144).* May 23, 2005.

03-014(a2) – Wastewater Treatment Facility

Background: SWMU Report: Equipment shop in TA-3-316.

RFI Report: A floor drain in building TA-3-316 built in 1969, which drained to the sewer.

Type of Release: Unknown quantities of industrial liquids (LANL 1990).

Justification: There is not enough information regarding this specific SWMU to make a determination as to whether it should be on the permit. The RFI Work Plan and RFI Report are extremely vague in regards to this particular site. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114.* Environmental Restoration Project. June 1993. Page 5-45 through 5-62.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, and TA-61.* Field Unit 1. Environmental Restoration Project. February 1996. Pages 21 and 83-94.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-014(b2) – Outfall

Background: SWMU Report: The treatment plant managed sanitary waste from TA-3 and TA-43. At times the liquids removed from Laboratory septic tanks were taken to TA-3. Unknown quantities of industrial liquids may have been included in the waste in previous years. In a 1985 memo, it was noted that 167,000 gal/day of non-sanitary waste was being diverted to the sewage treatment plant. This non-sanitary waste apparently included plating rinse water from TA-3-66, laser cooling water commingled with administratively controlled radioactive/toxic contaminated process water from TA-43-1, and cooling water from TA-41 and TA-3-29. 03-014(b2) is the former outfall for the WWTP.

RFI Report: the outfall from the WWTP, discharged to a small tributary of Sandia Canyon south of TA-3-22 (the Power Plant). The NPDES permit number of the outfall is EPASSS01S. The outfall discharged at a rocky outcrop on the canyon's edge and flows down a steep, rocky channel to a wetlands area on the canyon floor. Effluent at the outfall point was monitored three times a month in compliance the NPDES permit.

Type of Release: Chromium, cyanide, lead, mercury, silver, cesium-137, bis(2-ethtlhexyl)phthalate, isopropyltoluene[4-], and toluene (LANL 1996, pages 99-100)

Justification: The RFI Report states that this site is recommended for NFA under criterion 4. However, neither an ecological or human health risk assessment was performed, so the Permittees have no basis on which to request a NFA. Based on the limited amount of information for this site it requires further investigation. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages TA3-12 & 13.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
3) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114.* Environmental Restoration Project. June 1993. Page 5-48 through 5-62.
4) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, and TA-61.* Field Unit 1. Environmental Restoration Project. February 1996. Pages 22-24 and 94-102.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-014(c2) - Outfall

Background: RFI Work Plan: An abandoned outfall area associated with the WWTP and located north of TA-3-166, the pump building. Effluent flowed from TA-3-166 into an erosion channel, which also serves a storm drain, about 50 ft before passing under a gravel road, then drained downslope into the canyon. Frequently, the erosion channel was cleaned out with a backhoe to prevent sediments from clogging the channel. The removed soil was piled uphill onto the channel bank. Because analytical results of the Phase 1 site investigation revealed several constituents in soil at concentrations exceeding SALs, 03-014(c2) was recommended for a Phase II investigation.

RFI Report: The WWTP was decommissioned in the autumn of 1992 when the Sanitary Waste Consolidation System (SWSC) came on line at TA-46. However, the treated effluent is still routed from the SWSC plant to the TA-3 WWTP's outfall because of NPDES permit issues. The overflow outfall pipe discharged as sheet flow onto a steep slope that contains an erosion channel from storm water runoff. The channel eventually trends northeast toward Sandia Canyon. On occasion, soils in the storm water channel were cleaned out with a backhoe and the removed soil was piled onto the upslope channel bank.

Type of Release: cadmium, calcium, chromium, copper, cyanide, lead, mercury, nickel, silver, zinc, Plutonium-238, 239, Uranium-234, 235, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene (LANL 1996, pages 107-110).

Justification: A Phase II investigation was proposed for this site as a result of finding constituents above SALs and not fully defining extent of contamination. The RFI Report was included on the list of documents, which the Permittees requested be removed from the NMED review cycle in a letter dated August 24, 1998. Therefore, at the request of the Permittees, NMED has not reviewed this document. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages TA3-12 & 13.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
3) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114.* Environmental Restoration Project. June 1993. Page 5-48 through 5-49.
4) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, and TA-61.* Field Unit 1. Environmental Restoration Project. February 1996. Pages 102-121.
5) LANL 1998a. Los Alamos National Laboratory. *Letter: Temporary Cessation of Document Review.* EM/ER:98-289. August 24, 1998.

6) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-014(v) – Wastewater Treatment Plant (Floor Drain)

Background: Building TA-3-36 is a garage area where Stoddard solvent was used. It was possible that solvent was washed down the floor drains (03-014(v)).

RFI Work Plan: This site is described as a floor drain within a technical area of the WWTP. This drain was installed in 1953 and was connected to the sanitary sewer system.

RFI Report: Each component of the WWTP was considered a PRS in the SWMU Report; however, the piping, lift stations, drains leading to the WWTP, and concrete structures associated with the WWTP were not sampled in the 1994 RFI activities. Instead, four PRSs were sampled because they were believed to be the areas most likely to have received and retained any COPCs associated with the WWTP.

Type of Release: Chromium, cyanide, lead, mercury, silver, cesium-137, bis(2-ethtlhexyl)phthalate, isopropyltoluene[4-], and toluene (LANL 1996, pages 99-100)

Justification: Only 12 soil samples at 5 locations were taken to define nature and extent of contamination at 22 separate SWMUs (03-014(a,e), 03-014(b-d, f-j, p-z, a2). The sampling for these sites is severely deficient for the purposes of characterization or defining extent. No human health or ecological risk assessments were conducted at these sites, therefore, the Permittees cannot assume there is no unacceptable risk. Also, there is very little information regarding the individual SWMUs to make a determination as to whether they can be on the permit. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114.* Environmental Restoration Project. July 1993. Page 5-49.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, and TA-61.* Field Unit 1. Environmental Restoration Project. February 1996. Pages 84-113.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-014(w) – Wastewater Treatment Plant (Floor Drain)

Background: Building TA-3-29 is a photo processing area in the WWTP where solvents, photographic wastes, acetic acids, silver, and hydroquinone may have been spilled down floor drains (03-014(w)).

RFI Work Plan: This site is described as a floor drain within a technical area of the WWTP. This drain was installed in 1953 and was connected to the sanitary sewer system. It became inactive in 1991.

RFI Report: Each component of the WWTP was considered a PRS in the SWMU Report; however, the piping, lift stations, drains leading to the WWTP, and concrete structures associated with the WWTP were not sampled in the 1994 RFI activities. Instead, four PRSs were sampled because they were believed to be the areas most likely to have received and retained any COPCs associated with the WWTP.

Type of Release: Chromium, cyanide, lead, mercury, silver, cesium-137, bis(2-ethtlhexyl)phthalate, isopropyltoluene[4-], and toluene (LANL 1996, pages 99-100)

Justification: Only 12 soil samples at 5 locations were taken to define nature and extent of contamination at 22 separate SWMUs (03-014(a,e), 03-014(b-d, f-j, p-z, a2). The sampling for these sites is severely deficient for the purposes of characterization or defining extent. No human health or ecological risk assessments were conducted at these sites, therefore, the Permittees cannot assume there is no unacceptable risk. Also, there is very little information regarding the individual SWMUs to make a determination as to whether they can be removed from the permit. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114.* Environmental Restoration Project. July 1993. Page 5-46 and 5-49.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, and TA-61.* Field Unit 1. Environmental Restoration Project. February 1996. Pages 94-102.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-014(x) – Wastewater Treatment Plant (Floor Drain)

Background: Building TA-3-66 is a photo processing area in the WWTP where solvents, photographic wastes, acetic acids, silver, and hydroquinone may have been spilled down floor drains (03-014(x)).

RFI Work Plan: This site is described as a floor drain within a technical area of the WWTP. This drain was installed in 1959 and was connected to the sanitary sewer system.

RFI Report: Each component of the WWTP was considered a PRS in the SWMU Report; however, the piping, lift stations, drains leading to the WWTP, and concrete structures associated with the WWTP were not sampled in the 1994 RFI activities. Instead, four PRSs were sampled because they were believed to be the areas most likely to have received and retained any COPCs associated with the WWTP.

Type of Release: Chromium, cyanide, lead, mercury, silver, cesium-137, bis(2-ethtlhexyl)phthalate, isopropyltoluene[4-], and toluene (LANL 1996, pages 99-100)

Justification: Only 12 soil samples at 5 locations were taken to define nature and extent of contamination at 22 separate SWMUs (03-014(a,e), 03-014(b-d, f-j, p-z, a2). The sampling for these sites is severely deficient for the purposes of characterization or defining extent. No human health or ecological risk assessments were conducted at these sites, therefore, the Permittees cannot assume there is no unacceptable risk. Also, there is very little information regarding the individual SWMUs to make a determination as to whether they can be removed from the permit. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114.* Environmental Restoration Project. July 1993. Page 5-46 and 5-49.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, and TA-61.* Field Unit 1. Environmental Restoration Project. February 1996. Pages 94-102.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-014(y) – Wastewater Treatment Plant (Floor Drain)

Background: Building TA-3-35 is a technical area in the WWTP where it is known that a drum of Freon was spilled in the basement, entered the floor drains (03-014(y)), and eventually entered the sanitary sewer system.

RFI Work Plan: This site is described as a floor drain within a technical area of the WWTP. This drain was installed in 1954 and was connected to the sanitary sewer system. It became inactive in 1981.

RFI Report: Each component of the WWTP was considered a PRS in the SWMU Report; however, the piping, lift stations, drains leading to the WWTP, and concrete structures associated with the WWTP were not sampled in the 1994 RFI activities. Instead, four PRSs were sampled because they were believed to be the areas most likely to have received and retained any COPCs associated with the WWTP.

Type of Release: Chromium, cyanide, lead, mercury, silver, cesium-137, bis(2-ethtlhexyl)phthalate, isopropyltoluene[4-], and toluene (LANL 1996, pages 99-100)

Justification: Only 12 soil samples at 5 locations were taken to define nature and extent of contamination at 22 separate SWMUs (03-014(a,e), 03-014(b-d, f-j, p-z, a2). The sampling for these sites is severely deficient for the purposes of characterization or defining extent. No human health or ecological risk assessments were conducted at these sites, therefore, the Permittees cannot assume there is no unacceptable risk. Also, there is very little information regarding the individual SWMUs to make a determination as to whether they can be on the permit. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114.* Environmental Restoration Project. July 1993. Page 5-46 and 5-49.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, and TA-61.* Field Unit 1. Environmental Restoration Project. February 1996. Pages 94-102.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-014(z) – Wastewater Treatment Plant (Floor Drain)

Background: Building TA-3-40 was the printed circuit board shop in the WWTP where there was evidence of significant spills. This building managed various plating operation chemicals and acids. The concrete floor and steel grate covering the drain (03-014(z)) were heavily stained and corroded from acid stains. The piping is visible in a crawl space below the floor of the shop. The pipes are corroded, causing large spills on the soils in the crawl space. Occasional historical releases of untreated effluent to Sandia Canyon occurred prior to 1988, when a holding tank with a chlorinator station (TA-3-1901) was built.

RFI Work Plan: This site is described as a floor drain within a technical area of the WWTP. This drain was installed in 1954 and was connected to the sanitary sewer system. It became inactive in 1981.

RFI Report: Each component of the WWTP was considered a PRS in the SWMU Report; however, the piping, lift stations, drains leading to the WWTP, and concrete structures associated with the WWTP were not sampled in the 1994 RFI activities. Instead, four PRSs were sampled because they were believed to be the areas most likely to have received and retained any COPCs associated with the WWTP.

Type of Release: Chromium, cyanide, lead, mercury, silver, cesium-137, bis(2-ethtlhexyl)phthalate, isopropyltoluene[4-], and toluene (LANL 1996, pages 99-100)

Justification: Only 12 soil samples at 5 locations were taken to define nature and extent of contamination at 22 separate SWMUs (03-014(a,e), 03-014(b-d, f-j, p-z, a2). The sampling for these sites is severely deficient for the purposes of characterization or defining extent. No human health or ecological risk assessments were conducted at these sites, therefore, the Permittees cannot assume there is no unacceptable risk. Also, there is very little information regarding the individual SWMUs to make a determination as to whether they can be on the permit. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114.* Environmental Restoration Project. July1993. Page 5-46 and 5-49.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, and TA-61.* Field Unit 1. Environmental Restoration Project. February 1996. Pages 94-102.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-022 – Sump

Background: SWMU Report: Since the high voltage test facility TA-3-316 uses a Marx generator, oil storage for the machine is necessary. The oil is stored in two 20,000-gal. siege tanks south of the facility. A large underground sump, TA-3-550, is located under the tanks. According to engineering records the tanks are 84' x 17', although a field inspection indicated the tanks are less than 17' wide. Oily water was observed in the sump during a November 1988 survey. Additionally, oil spills near the sump were noted. The sump is concrete, open to the atmosphere, and covered with a metal screen. The sump is pumped, if necessary, although pumping is an infrequent occurrence, according to LANL staff.

RFI Work Plan: includes a concrete sump and a steel beam support structure that were part of an aboveground mineral oil storage and pumping system. The system supported the operation of a generator in TA-3-316. Two aboveground steel storage tanks that were part of the storage system were removed in early 1995. The electrical supply, pumps, and aboveground piping associated with the tanks have been removed.

VCA Report: A secondary containment for dielectric oil tanks located within TA-3, southwest of the Pajarito Road and Diamond Drive intersection, 200 ft south of building TA-3-316.

Type of Release: TPH (LANL 1996, page 1)

Justification: EPA issued an NOD for the VCA Report on January 5, 1998. The NOD stated that a TPH clean-up level of 100 ppm would be used, not 2600 ppm. EPA also stated that they did not believe that the VCA of this site was complete based on the facts stated in the report. NMED concurs with EPA that the VCA of this site is not complete based on information provided in the VCA Report. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Page 6-82 to 6-83.
3) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for Potential Release Site 3-022, Dielectric Oil Containment Sump, Revision 1.* Field Unit 1. Environmental Restoration Program. February 1996.
4) USEPA 1998. United States Environmental Protection Agency. *Letter from EPA to NMED: Review of LANL VCA Completion Report for PRS 3-022, EPA I.D. No. NM0890010515.* January 5, 1998.

5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-025(c) – Tank and/or Associated Equipment

Background: SWMU Report: A sump that receives waste from the steam cleaning room in the south end of TA-3-39. The sump is no longer used. This sump feeds into the sump in TA-3-102.

RFI Work Plan: A concrete oil/water separator installed in 1963 outside the south side of the steam cleaning room at the TA-3-39 tech shops. Liquid waste from steam cleaning oil, grease, and solvents from newly machined pieces drained directly to the radioactive liquid waste collection system before the oil/water separator was installed. Steam cleaning liquid discharge was stopped in 1991-1992, however the operation could be utilized at any time in the future. The SWMU Report states that this oil/water separator overflowed in the past; this statement is incorrect. The oil/water separator has a bypass pipe that goes directly to the radioactive liquid waste collection system installed in 1989. If oil in the separator is at capacity, an alarm light is activated. Then, if the oil is not manually suctioned off into barrels, the wastewater goes directly into the radioactive liquid waste collection system. This has never been known to happen. The oil is collected by CST-7. There were no observable leaks in the piping inside the separator. Even if there were leaks, the concrete separator would act as secondary containment.

Type of Release: Radionuclide-contaminated oil and grease (LANL 1990).

Justification: This SWMU was recommended for NFA in the RFI Work Plan, but has not been formally requested through a permit modification. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pages 6-42 to 6-43.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-026(a) – Sump

Background: SWMU Report: A sump pump located in the secondary containment area adjacent to two storage tanks in TA-3-66. The purpose of the sump is to collect liquids in the event of pump failure. The pumps are used to pump the liquid in the tanks for the TA-50 wastewater treatment plant.

Type of Release: unknown

Justification: There is little to no information regarding this site. A Sampling and Analysis Plan (SAP) was submitted to EPA on March 15, 1994 for this SWMU, however, NMED does not have a copy of the plan. Furthermore, EPA issued an NOD for this SAP on March 6, 1996. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) USEPA 1996. United States Environmental Protection Agency (USEPA). *Letter: Additional Sampling Plans for Operable Unit 1114.* March 6, 1996.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-027 – Separation Site

Background: SWMU Report: The motor vehicle station at TA-3, TA-3-36 has two lift wells in the floor. When the floors are washed down, the water and oil drain into the lift wells, which have cinderblock walls located below the hydraulic lift units. The motor vehicle station does not use oil/water separators. In 1976, this building was used for a bottle-washing operation involving acid wash followed by deionized water rinse. All liquids discharged directly to the floor drains in the vehicle maintenance bay. The floor drains discharged to the TA-3 wastewater treatment plant.

RFI Work Plan: The lift wells do not drain directly to a sanitary system or an outfall, but are manually pumped to 55-gal. drums that are taken to the motor pool and emptied into the oil/water separator before the water is discharged to the sanitary sewer. The operation has been active since 1952. The bottle-washing operation from 1976-1980 involved cleaning new sample vials. The vials were immersed in a 35% concentration nitric acid bath, then triple rinsed in deionized water. The rinse water was discharged to floor drains. The acid bath wash water was reused many times before it was discharged into the drain system. Consequently, a small volume of acidic wastewater was produced.

Type of Release: nitric acid, PCBs, VOCs, TAL metals, TPH (LANL 1999)

Justification: The Permittees sent a sampling notification, dated June 3, 1999, to NMED for surface and near surface sampling at 03-027. The results of that sampling have not been submitted to NMED for review. Without the analytical results, NMED cannot determine if nature and extent of contamination have been defined. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-54-6-55.
3) LANL 1999. Los Alamos National Laboratory. *Sampling Notification: Sample Notification at TA-3, PRSs 3-027 and 3-014(v).* June 3, 1999.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-036(b) – Aboveground Tanks

Background: SWMU Report: These are kerosene storage tanks south of TA-3-73.

RFI Work Plan: This site consists of two, small #2 diesel fuel aboveground storage tanks (25 to 50 gallon capacity) surrounded by a 3 ft. soil berm located 100 ft west of TA-3-73. Diesel fuel from the small tanks is applied to dump truck beds prior to asphalt loading to prevent sticking. An aboveground metal catch basin located adjacent to the east side of the berm collects residual diesel fuel from the truck beds. Before 1989, kerosene was stored in these tanks and applied in the same fashion to truck beds to prevent asphalt from sticking. Historical aerial photographs reveal no visible staining in the area. Minor, periodic drips and splashes from the tanks create dark stains just under the top layer of loose gravel.

Type of Release: kerosene, gasoline (LANL 1990). metals, SVOCs, VOCs, TPH-DRO, and TPH-GRO for analyses (LANL 2003).

Justification: The Permittees sent a sampling notification, dated August 29, 2003, to NMED for subsurface soil sampling at 03-036(b). The results of that sampling have not been submitted to NMED for review. Without the analytical results, NMED cannot determine if nature and extent of contamination have been defined. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-27.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2003. Los Alamos National Laboratory. *Sampling Notification.* August 29, 2003.

03-038(c) – Waste Lines

Background: SWMU Report: The industrial waste line (03-038(c)), which tied into TA-3-28 was removed. However, it is not known whether a section of drain line, which connected an electroplating bath in Room 46 with the industrial line, was also removed. Rinse solution from the 230-liter copper electroplating bath had flowed into the industrial waste system for transport to TA-50, and that particular section of line may still be in place.

RFI Work Plan: This is the two-inch cast iron drain line that piped rinse solution from a copper electroplating bath in TA-3-28, room 46, to the industrial waste line. The electroplating bath initially operated on contract in the 1960s. It was used to plate very small parts of printed circuit boards. E-2, Electronic Manufacturing and Technician Resource Group, took over the operation in June 1971, and by September of that year the operation was terminated and moved to TA-3-40. According to the former group leader of E-2, water was sprayed through rows of holes in a manifold on either side of the rinse sink. Miniscule amounts of plating and acid solutions were washed off the circuit boards and down the drain. In the early 1970s room 46 was completely renovated and remodeled into an office and is now the Computing, Information, and Communications (CIC-1) group office. The drainpipe was cut and capped inside the wall to make it inaccessible and there is no basement from which to access the drainpipe.

Type of Release: cyanide, chromic sulfuric acid, and hydrochloric acid (LANL 1990)

Justification: This site requires an investigation to determine whether it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-72.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-038(d) – Waste Lines

Background: SWMU Report: SWMU 03-038(d) are the industrial drains associated with buildings TA-3-32 and TA-3-34, which were connected to the old industrial waste line. The old waste line was replaced with a new line, which connected TA-3-34 to TA-50, while the drains in TA-3-32 were connected to the sanitary sewer.

RFI Work Plan: This is an industrial waste line that is associated with the liquid waste treatment system. Between the 1950s and 1970s, the industrial drains from TA-3-32 and TA-3-34 connected the two buildings to the old industrial waste line, which was replaced with the new line in 1986. The new line connected TA-3-34 to TA-3-50, while the drains in TA-3-32 were connected to the sanitary sewer.

Type of Release: unknown

Justification: This site requires an investigation to determine whether it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-45.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-038(f) – Waste Lines

Background: SWMU Report: A drain line that connected the shower, sink, and toilet drains of trailer TA-3-1502 to the industrial waste line. The trailer was used as a change out location for individuals involved in removal of the old industrial waste line. Trailer TA-3-1502 was later removed, but the drain lines remained in place.

RFI Work Plan: TA-3-1502 was a transportable (trailer) used as a hot change house for the industrial waste line removal workers. The transportable was hooked into the old industrial waste line via a manhole, TA-3-728. When the removal project reached the lines that serviced TA-3-1502, new lines were installed to connect the transportables to the new industrial waste line via manhole TA-3-759. Manhole TA-3-728 was removed along with the old lines. The industrial waste line removal project ended in 1986 and the workers vacated TA-3-1502. In 1987 the transportable was removed leaving the line connecting it to manhole TA-3-759 in the ground. Weston reported that the trailer was monitored by HSE-1 and removed to TA-54. They also stated that the main drain line that connected the shower, sink, and toilet drains to the industrial waste line were still present.

Type of Release: radionuclides, other unknowns (LANL 1990)

Justification: According to the RFI Work Plan Addendum 1, this site was recommended for deferred action (DA) due to the fact that the waste line was still active. Due to the DA recommendation, this site has not been investigated. Therefore, nature and extent of contamination has not been defined. This site requires an investigation to determine whether it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-84-6-85.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-042 – Sump

Background: A sump/containment area located below tanks TA-3-63 and TA-3-64. The tanks were removed in 1967. During several field surveys between 1986 and 1988, oil was noted to remain in the sump. The sump was removed in the fall of 1988. Sampling was not completed to determine whether hazardous constituents were present.

RFI Work Plan: SWMU 03-042 is a former containment sump located west of TA-3-218 used for secondary containment of a wooden surge tank that contained dielectric mineral oil used as insulation in experiments. The containment sump consisted of a 43 ft long x 27 ft wide concrete pad surrounded by an 18-in. to 20-in. high cement curb. The wooden surge tank was erected on the containment sump in approximately 1965. When heavy rains occurred, water filled the containment area. At times, the water had an oily film (possibly from leaks in the pumps and or piping) that would occasionally overflow to surrounding soil and gravel. The area surrounding the containment sump was enclosed by a chainlink fence and served as a storage yard for old electrical equipment for approximately 20 years. Most stored capacitors were labeled as non-PCB; i.e., equipment containing PCBs in quantities less than 50 ppm. In 1985 the surge tank, chainlink fence, and curbing around the cement pad were removed. The curb of the containment sump, the concrete pad, and many of the transformers and capacitors were removed in 1988. While there were no known releases other than occasional overflow from the containment sump, sampling was not done to determine if hazardous constituents were present.

Type of Release: mercury, zinc, PCBs, other unknowns (LANL 1996, Page 53)

Justification: According to the RFI Report, there were constituents detected above background UTLs. Therefore, extent of contamination has not been defined for this site. According to the RFI Report, a Mobile Radiological Analytical Laboratory (MRAL) was used to analyze samples collected during the RFI. The Permittees have documented in several instances (*e.g.*, VCA Report for 35-014(f), LA-UR-96-3341, pg. 19) that analytical data obtained from the MRAL are unreliable and may only be used as screening level data. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 5-26-1.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, and TA-61.* Field Unit 1. Environmental Restoration Project. February 1996. Pgs.: 48-55.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-043(a) – Underground Tank

Background: SWMU Report: This was a 20,000 gallon capacity tank (TA-3-74). It was used to store asphalt emulsion and was removed in 1963.

RFI Work Plan: 03-043(a) was a 20,000-gal. underground tank, TA-3-74, installed in 1948 for the storage of asphalt emulsion (85-100 oil). The tank was removed in May 1963, cut apart, and taken to the Los Alamos municipal landfill for disposal. The tank was subsequently replaced by another storage tank, TA-3-178 (SWMU 03-043(f) of this aggregate), in 1963. The area is currently used for aggregate (sand and gravel) storage and mixing for feed to the asphalt plant.

Type of Release: asphalt emulsion, other unknowns (LANL 1990)

Justification: EPA issued a second NOD for the RFI Work Plan Addendum I on July 26, 1996. The NOD stated that; 1) 20% of the VOC samples must be submitted for fixed laboratory analysis because the Permittees had identified problems with their mobile laboratories and 2) investigations were required at 03-043(a) and the Work Plan must be revised to reflect the investigation requirements. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-18, 6-20.
3) LANL 1996. Los Alamos National Laboratory. *Letter: 2nd NOD for RFI Work Plan Addendum I OU 1114.* July 26, 1996.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-043(b) – Underground Tank

Background: SWMU Report: This was a 10,000-gallon capacity tank (TA-3-77). It was used to store asphalt emulsion and was removed in 1980.

RFI Work Plan: 03-043(b) was a 10,000-gallon storage tank, TA-3-77, installed in 1948 and was partially buried with sand and gravel packed around the tank. In 1980 the tank was cleaned out, removed, cut apart, and taken to the Los Alamos municipal sanitary landfill for disposal. Any stained soils beneath and around the tank from routine spills were also excavated and taken to the landfill. The area is still actively used for aggregate storage and mixing for feed to the asphalt plant.

Type of Release: asphalt emulsion, other unknowns (LANL 1990)

Justification: EPA issued a second NOD for the RFI Work Plan Addendum I on July 26, 1996. The NOD stated that; 1) 20% of the VOC samples must be submitted for fixed laboratory analysis because the Permittees had identified problems with their mobile laboratories and 2) investigations were required at 03-043(b) and the Work Plan must be revised to reflect the investigation requirements. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-18, 6-20.
3) LANL 1996. Los Alamos National Laboratory. *Letter: 2nd NOD for RFI Work Plan Addendum I OU 1114.* July 26, 1996.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-043(d) – Aboveground Storage Tank

Background: SWMU Report: This was a 20,000-gallon capacity tank (TA-3-76). It was used to store asphalt emulsion and was removed in 1988.

RFI Work Plan: This is a decommissioned product tank, TA-3-76, located at the Asphalt Batch Plant. This is a duplicate of SWMU 03-036(a) addressed in the 1993 RFI Work Plan. TA-3-76 was formerly a large, circular storage tank located within a soil-bermed secondary containment area about 225 ft southwest of TA-3-70. The tank was used to store asphalt emulsion. From examination of an aerial photograph taken in 1974 and a photograph, taken in 1984, it appears that the tank was 25-30 ft in diameter and 8 to 12 ft high. Engineering records cite a capacity of 20,000 gallons. The tank was within a bermed containment area approximately 50 ft in diameter. The tank was in place as early as 1974. Operations resulted in some small spills from this tank; however, these spills were contained within the berm. In October 1988 the tank was removed, cut up, and deposited in the Los Alamos municipal landfill. All soil around and under the tank was removed, mixed with sand, hardened, and also deposited at the Los Alamos municipal landfill. The area is currently used for storage and preparation of crack-sealing machines.

Type of Release: asphalt emulsion, other unknowns (LANL 1990)

Justification: EPA issued a second NOD for the RFI Work Plan Addendum I on July 26, 1996. The NOD stated that; 1) 20% of the VOC samples must be submitted for fixed laboratory analysis because the Permittees had identified problems with their mobile laboratories and 2) investigations were required at 03-043(d) and the Work Plan must be revised to reflect the investigation requirements. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-19, 6-20.
3) LANL 1996. Los Alamos National Laboratory. *Letter: 2nd NOD for RFI Work Plan Addendum I OU 1114.* July 26, 1996.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-043(f) – Aboveground Storage Tank

Background: SWMU Report: This was a 30,000-gallon capacity tank (TA-3-178). It was used to store asphalt emulsion and was removed in 1989.

RFI Work Plan: This tank was installed in 1963 to replace the underground asphalt emulsion storage tank TA-3-74 (SWMU 03-043(a)). TA-3-178 was relocated from TA-49. This tank was partially buried with sand and gravel packed around it. The tank was removed in 1989, cut apart, and removed to the Los Alamos municipal landfill. Inspection revealed that they had never leaked. The area is still actively used for aggregate storage and mixing for feed to the asphalt plant.

Type of Release: asphalt emulsion, other unknowns (LANL 1990)

Justification: EPA issued a second NOD for the RFI Work Plan Addendum I on July 26, 1996. The NOD stated that; 1) 20% of the VOC samples must be submitted for fixed laboratory analysis because the Permittees had identified problems with their mobile laboratories and 2) investigations were required at 03-043(f) and the Work Plan must be revised to reflect the investigation requirements. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-19, 6-20.
3) LANL 1996. Los Alamos National Laboratory. *Letter: 2nd NOD for RFI Work Plan Addendum I OU 1114.* July 26, 1996.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-043(g) – Underground Storage Tank

Background: SWMU Report: This was a 10,000-gallon capacity tank (TA-3-335). It was used to store asphalt emulsion (85-100 oil) and was removed in 1989.

RFI Work Plan: 03-043(g) and its duplicate, SWMU 03-036(d) were a 10,000-gallon underground steel tank, TA-3-335, installed in 1967 for the storage of asphalt emulsion (85-100 oil). The 8-ft. diameter and 28-ft. long tank was located approximately 12 ft. north of the asphalt emulsion tank, TA-3-178. In 1989 the tank was cleaned out, removed, cut apart, and taken to the Los Alamos municipal landfill for disposal. Inspection revealed that they had never leaked.

Type of Release: asphalt emulsion (85-100 oil), other unknowns (LANL 1990)

Justification: EPA issued a second NOD for the RFI Work Plan Addendum I on July 26, 1996. The NOD stated that; 1) 20% of the VOC samples must be submitted for fixed laboratory analysis because the Permittees had identified problems with their mobile laboratories and 2) investigations were required at 03-043(g) and the Work Plan must be revised to reflect the investigation requirements. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-19, 6-20.
3) LANL 1996. Los Alamos National Laboratory. *Letter: 2nd NOD for RFI Work Plan Addendum I OU 1114.* July 26, 1996.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-043(h) – Aboveground Storage Tank

Background: SWMU Report: This was a 20,000-gallon capacity tank (TA-3-75). It was used to store asphalt emulsion and was removed in 1989.

RFI Work Plan: This is a decommissioned product tank, TA-3-75, located at the Asphalt Batch Plant. This is a duplicate of SWMU 03-036(a) addressed in the 1993 RFI Work Plan. TA-3-75 was formerly a large, circular storage tank located within a soil-bermed secondary containment area about 225 ft southwest of TA-3-70. The tank was used to store asphalt emulsion. From examination of an aerial photograph taken in 1974 and a photograph, taken in 1984, it appears that the tank was 25-30 ft in diameter and 8 to 12 ft high. Engineering records cite a capacity of 20,000 gallons. The tank was within a bermed containment area approximately 50 ft in diameter. The tank was in place as early as 1974. Operations resulted in some small spills from this tank; however, these spills were contained within the berm. One large spill of 1,500-gallons was attributed to the reclamite tanks, SWMU 03-036(e), but was actually the result of a rupture near the base of tank TA-3-75. The spill was contained within the bermed area, mixed with sand, and deposited in the Los Alamos municipal landfill. In April 1989 the tank was removed, cut up, and deposited in the Los Alamos municipal landfill. All soil around and under the tank was removed, mixed with sand, hardened, and also deposited at the Los Alamos municipal landfill. The area is currently used for storage and preparation of crack-sealing machines.

Type of Release: asphalt emulsion, other unknowns (LANL 1990)

Justification: EPA issued a second NOD for the RFI Work Plan Addendum I on July 26, 1996. The NOD stated that; 1) 20% of the VOC samples must be submitted for fixed laboratory analysis because the Permittees had identified problems with their mobile laboratories and 2) investigations were required at 03-043(h) and the Work Plan must be revised to reflect the investigation requirements. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-19 - 6-20.
3) LANL 1996. Los Alamos National Laboratory. *Letter: 2nd NOD for RFI Work Plan Addendum I OU 1114.* July 26, 1996.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-047(d) – Storage Area

Background: SWMU Report: This is a concrete containment area south of TA-3-22. Evidence of leaks or spills onto the surrounding soil has been observed near this supply storage area.

RFI Work Plan: This is a former drum storage area for TA-3-22. TA-3-22, the steam plant, consisted of an area occupied by a 6-ft. x 15-ft. asphalt pad located adjacent to the east side of TA-3-22. Various materials such as 30-weight motor oil, Stoddard solvent, and waste oil were stored in drums at SWMU 03-047(d) from approximately 1954 to 1989. In 1987, a 6-in. asphalt berm was added to the asphalt pad to provide secondary containment. The drums within the storage area were stored horizontally on metal stands. Spigots, with collection pans underneath, were used to dispense the contents. There were no documented spills or releases of product in this area. However, accidental spills may have discharged unknown quantities of drum contents to the environment over the years. In 1989, a new location was selected for an upgraded materials storage area. The original drum storage area's asphalt pad was removed and disposed of at the Los Alamos County landfill. The potential contaminated area is on the eastern edge of the former storage pad. The soils that lay under the pad also may be contaminated if product penetrated the asphalt. Although this not a high use area, contaminants could have been spread to the east by foot traffic or rain runoff. All excavated areas will be backfilled with clean soil/tuff and seeded with appropriate materials. Removed soil will be considered hazardous waste until confirmed otherwise.

Type of Release: Beryllium, lead, benzo(a)pyrene, and VOCs (chloroform, carbon tetrachloride, benzene, 1,2-dibromoethane, 1,2-dichloroethane, and vinyl chloride) (LANL 1996, Page 4)

Justification: EPA issued a NOD for the VCA Report on December 12, 1997. The NOD stated that; 1) the Permittees must submit all field screening results, including detection levels, and sample depths, 2) the Permittees must explain why the background UTLs for lead and beryllium were 70 % higher than those found in other LANL RFI Reports, and 3) the Permittees were required to discuss the composition and properties of stoddard solvent. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-83.
3) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for Potential Release Sites 03-003(p), 03-047(d), 03-051(c), Revision 1.* Field Unit 1. Environmental Restoration Project. February 26, 1996. Pages 7-12.

4) USEPA 1997. United States Environmental Protection Agency. *Letter: Review of LANL VCA Completion Report for the PRSs in TA-3.* December 12, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-047(g) – Drum Storage

Background: SWMU Report: This is a drum storage area north of Building TA-3-141. Evidence of leaks or spills onto the surrounding soil has been observed near this supply storage area.

RFI Work Plan: 03-047(g) was identified by Weston as a product drum storage area consisting of three drums of acetone, one drum of vacuum pump oil, and one five-gallon can of ethylene glycol located under a canopy on the north side of TA-3-141. During the 1989 site reconnaissance survey, staining was found on the cement. During a site visit in September 1993, the building manager stated that the storage area had been used for approximately 20 years for product oil and occasionally for solvents. The 1993 site visit revealed only one drum of mineral oil stored on the pad. The mineral oil, used for vacuum pumps, is stored in drums with a hand pump inserted into the drum bung hole. As oil was dispensed, spills did occur. The stains were evident on the concrete around the barrel; however, the staining did not continue off the concrete suggesting that the small oil spills had not migrated off the concrete pad.

Type of Release: acetone, vacuum pump oil, and ethylene glycol (LANL 1990); possibly mercury.

Justification: According to the RFI Work Plan Addendum 1, this site was recommended for NFA because stains on the concrete pad were believed to be from dispensing mineral oil. Due to the NFA recommendation, this site has not been investigated. Therefore, nature and extent of contamination has not been defined. This site requires an investigation to determine whether it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-46.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-051(a) – Soil Contamination

Background: SWMU Report: This is a compressor housed in a metal shed on the southeast end of TA-3-39. Oil stains were observed within the housing sheds, on the soil, and on asphalt in the surrounding area near the compressor.

RFI Work Plan: 03-051(a) was noted to be leaking during the RFA investigation in 1987. Oil stains were observed inside the shed and on the asphalt two feet from the shed. PCB tests on the compressor in 1994 revealed a PCB concentration of less than 2.5 $\mu g/100cm^2$.

Type of Release: PCBs, other unknowns (LANL 1995, Page 6-70)

Justification: According to the RFI Work Plan Addendum 1, this site was recommended for NFA because it was not used for the management of hazardous waste. PCBs are a hazardous substance and due to the NFA recommendation, this site was not fully investigated. Therefore, nature and extent of contamination has not been defined. This site requires an investigation to determine whether it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-70.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-051(b) – Soil Contamination

Background: SWMU Report: Two compressors housed in a metal shed on the southwest corner of TA-3-102. Oil stains were observed within the housing sheds, on the soil, and on asphalt in the surrounding area near the compressor.

RFI Work Plan: 03-051(b) is possible contamination from two active air compressors used to pump air into TA-3-102. The air compressors currently in use were installed in 1987 and are housed in two metal sheds. Weston reported that the compressors were leaking oil at the time of the RFA investigation. Stains from the oil extended 15 ft. south of the shed. The oil used in these air compressors was synthetic oil, Mobil-926. The lightweight mineral oil historically used in the compressors escaped by leaching through gaskets, making the leaking oil relatively clean because the gasket acts as a filter. The possibility of PCB contamination from the old mineral oil was investigated by ESH-19. Swipes taken in August 1994 from one shed yielded PCB levels of 9.4 $\mu g/100cm^2$; samples from the other shed yielded 17 $\mu g/100cm^2$.

Type of Release: PCBs, other unknowns (LANL 1995, Page 6-70)

Justification: According to the RFI Work Plan Addendum 1, this site was recommended for NFA because it does not pose a threat to the environment. PCBs are a hazardous substance and due to the NFA recommendation, this site was not fully investigated. Therefore, nature and extent of contamination has not been defined. This site requires an investigation to determine whether it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-70-6-71.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-051(c) – Soil Contamination

Background: SWMU Report: Oil stains from a leaking hydraulic compressor on the northeast side of TA-3-41. Drums located in the same area contained oil-soaked absorball.

RFI Work Plan: 03-051(c) represented three distinct three to five-foot diameter stains of vacuum pump oil and/or exhaust, located on the east side of TA-3-141. Vacuum pump oil may contain contaminants associated with the processes the vacuum pump was used for, including small amounts of heavy metals from equipment wear. The potential contaminated area was not a high use area but contamination could have been spread by foot traffic and rain runoff to the east. The site was proposed for VCA.

Type of Release: Beryllium, lead, benzo(a)pyrene, and VOCs (chloroform, carbon tetrachloride, benzene, 1,2-dibromoethane, 1,2-dichloroethane, and vinyl chloride) (LANL 1996, Page 16), possibly mercury.

Justification: EPA issued a NOD for the VCA Report on December 12, 1997. The NOD stated that; 1) the Permittees must submit all previously-obtained site characterization data including verification screening results, CST-12 mobile laboratory results, and VCA data along with their detection limits and sampling depths for review and, 2) the verification screening results shall be used to characterize the release and not to determine if the site requires remediation. Additionally, a Mobile Radiological Analytical Laboratory (MRAL) and a Mobile Chemical Analytical Laboratory (MCAL) were used to analyze samples collected during the VCA. The Permittees have documented in several instances (*e.g.,* VCA Report for 35-014(f), LA-UR-96-3341, pg. 19) that analytical data obtained from the MRAL/MCAL are unreliable and may only be used as screening level data. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-84.
3) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for Potential Release Sites 03-003(p), 03-047(d), and 03-051(c) Revision 1.* Field Unit 1. Environmental Restoration Project. February 26, 1996. Pgs.: 14-22.
4) USEPA 1997. United States Environmental Protection Agency. *Letter: Review of LANL VCA Completion Report for the PRSs in TA-3.* December 12, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-052(b) – Storm Drainage

Background: SWMU Report: This is a storm drain located northeast of TA-3-66 and receives runoff from the north side of the building. Runoff from construction in the area added other materials to the drainage channels.

RFI Work Plan: 03-052(b) consists of surface runoff flows across the surrounding area into the storm drain system at two locations. This storm drain system is located approximately 20 ft. north and west of TA-3-66. The storm drain system is three sections of pipe (two sections are corrugate metal and one is vitrified clay), which can be accessed at five locations. The single storm drain located on the northwest side of TA-3-66 discharges to a low-lying grassy area. The storm drain system on the northeast side of TA-3-66 discharges to a storm drain outlet located just north of Eniwetok Drive.

Type of Release: Cobalt, manganese, lead, nickel, and zinc (LANL 1997, Page 105)

Justification: EPA completed a technical review of the RFI Report and provided their comments in a letter dated February 10, 1998. The letter stated that; 1) neither the *Risk-Based Corrective Action* Process nor the Multiple-Chemical Evaluation (MCE) had been approved by NMED and, 2) deviations in screening techniques and sampling strategies from the approved work plan were not approved by NMED. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 5-15-1- 5-15-7.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for TA-3 for Potential Release Sites 03-004(c,d), 03-007, 03-014(k,l,o), 03-021, 03-049(a), 03-052(b), 03-056(k), and C-03-014.* Field Unit 1. Environmental Restoration Project. September 1997. Pgs.: iv, 99-114.
4) USEPA 1998. United States Environmental Protection Agency. *Letter: TA-3 Potential Release Sites RFI Report.* February 10, 1998.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-053 – Operational Facility

Background: SWMU Report: This is an area of subsurface contamination at the Rolling Mill Building (TA-3-141).

RFI Work Plan: SWMU 03-053 is designated as the basement area of the Rolling Mill Building, TA-3-141. From 1962 to 1990, TA-3-141 housed electrochemical and depleted uranium processing facilities. In 1994-1995, powder characterization, plasma flame spray processing, beryllium processing, and depleted uranium processing are ongoing operations. The solid waste generated at TA-3-141 is classified as low-level radioactive waste. TA-3-141 is listed as a "contaminated facility currently in use" (i.e., a controlled facility) due to ongoing uranium usage, and is also listed as a moderate hazard category due to work with uranium metallurgy.

Type of Release: uranium-238, uranium-235, uranium-234, thorium-232, lead, mercury, silver, acenaphthene, anthracene, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,I]perylene, benzo[k]fluoranthene, chrysene, dibenzofuran, dibenzo[a,h]anthracene, fluoranthene, fluorine, indeno[1,2,3-cd]pyrene, naphthalene, phenanthrene, and pyrene (LANL 1996, Pages 125 & 127).

Justification: EPA issued a NOD for the RFI Report on May 28, 1997. The NOD stated that; 1) 03-053 required a Phase II RFI based on the data presented, 2) the conclusion recommending NFA due to roadway runoff is not supported by the Phase I RFI, because the highest concentrations of contaminants were indicated at the outfall which is uphill and on the inside curve of the ditch, and 3) the Phase II was required to adequately determine the vertical and horizontal extent of contamination. Additionally, a Mobile Radiological Analytical Laboratory (MRAL) was used to analyze samples collected during the RFI. The Permittees have documented in several instances (*e.g.,* VCA Report for 35-014(f), LA-UR-96-3341, pg. 19) that analytical data obtained from the MRAL are unreliable and may only be used as screening level data. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 5-24-1-5-24-2.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, and TA-61.* Field Unit 1. Environmental Restoration Project. February 1996. Pgs.: iii, 121-129.
4) USEPA 1997. United States Environmental Protection Agency. *Letter: Notice of Deficiency (NOD) Comments on the Resource Conservation and Recovery Act Facility Investigation (RFI) Report for Technical Areas (TA) 3, 59, 60, and 61.* May 28, 1997.

5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-056(h) – Transformer Storage Area

Background: SWMU Report: This is a container storage area associated with Buildings TA-3-105 and TA-3-287.

RFI Work Plan: 03-056(h) has several areas of potential contamination. TA-3-105 housed magnetic fusion energy experiments beginning in the mid-1950s. Prior to the 1992 cleanout by a salvage contractor, a number of swipes were taken on various surfaces throughout the building. Results revealed no PCB contamination. During the salvage cleanout of TA-3-105, some non-PCB oil was spilled north of the building. Swipes taken in this area at the time of the spill revealed no PCB contamination. A cable shed, TA-3-252, located west of TA-3-105 was also removed during the 1992 decommissioning. Swipe tests done on oil stains on the plywood floor, as well as soil samples taken underneath the floor yielded no PCBs. Another area of potential contamination is on the southeast side of TA-3-105 in a driveway area outside the large roll-up door. During the site reconnaissance visit in 1989 two transformers were observed inside a fenced area at this location. On the west side of TA-3-105, PCB spills were reported in September 1991 and March 1993. In the September 1991 leak, a double wash/double rinse cleanup with Viking Electric R-30 degreasing solvent was conducted and soil beneath a leaking spigot was excavated until non-stained soil was reached. In the March 1993 incident, an oil stain under a transformer was double washed/double rinsed with Chemsearch ND-165. On a site visit in 1994 only one stain was noted in the vicinity. Swipe tests at the location revealed no PCB concentrations above 2.8 $\mu g/100cm^2$.

Type of Release: oil, PCBs, other unknowns (LANL 1990)

Justification: According to the RFI Work Plan Addendum 1, this site was recommended for NFA because all documented releases were remediated. However, no confirmatory sampling was completed, therefore, this site was not fully investigated. Nature and extent of contamination has not been defined. This site requires an investigation to determine whether it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-67 through 6-68.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

03-056(k) – Container Storage Area

Background: SWMU Report: This is an outside drum storage area on the north side of Building TA-3-66.

RFI Work Plan: Items in the storage area east of the dock are drummed, spent graphite molds that were used to form depleted uranium components. A 1989 site visit by Weston personnel also noted drums containing oil mixed with vermiculite. Staining was observed on the asphalt where the oil/vermiculite drums were stored. A 1994 and 1995 interview with TA-3-66 site health and safety personnel revealed the oil was vacuum pump oil suspected of contamination from depleted uranium. The drums were staged outside the center doors on the east leg of the loading dock prior to transport to TA-54. The outside storage area also includes the loading dock located at the northwest corner of TA-3-66. During a 1993 site visit to SWMU 03-056(k), the following items were noted on the loading dock: a 55-gal. drum containing depleted uranium chips in diesel fuel covered by a tarp within secondary containment and two centrifugal separators and a bag separator system used to collect graphite and depleted uranium oxide dust into 30-gal. drums. One drum was sited under each shaker; however, the gate valve from the shaker was wrapped with plastic and taped shut. There have been four documented radiological material releases, which may have contributed to contamination at 03-056(k).

Type of Release: oil, solvents, radioactively contaminated graphite, copper, uranium-234, 235, 238 (LANL 1997, Pages 107-108)

Justification: EPA completed a technical review of the RFI Report and provided their comments in a letter dated February 10, 1998. The letter stated that; 1) neither the *Risk-Based Corrective Action* Process nor the Multiple-Chemical Evaluation (MCE) had been approved by NMED and, 2) deviations in screening techniques and sampling strategies from the approved work plan were not approved by NMED. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 5-15-1- 5-15-7.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for TA-3 for Potential Release Sites 03-004(c,d), 03-007, 03-014(k,l,o), 03-021, 03-049(a), 03-052(b), 03-056(k), and C-03-014.* Field Unit 1. Environmental Restoration Project. September 1997. Pgs.: iv, 99-114.
4) USEPA 1998. United States Environmental Protection Agency. *Letter: TA-3 Potential Release Sites RFI Report.* February 10, 1998.

5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-03-006 – One-Time Spill

Background: RFI Work Plan: This is an industrial waste line manhole that overflowed in 1974 to a TA-3 storm sewer and discharged to an outfall at SWMU 03-054(e). The manhole was located near the corner of Diamond Drive and Pajarito Road.

RFI Report: C-03-006 is a manhole that is part of the industrial waste line running from TA-3 to the TA-50 radioactive liquid waste facility. This manhole overflowed in a one-time release in 1974 to a TA-3 storm sewer that discharged to 03-054(e).

Type of Release: zinc, plutonium-238, PAHs (benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, Pyrene), alphachlordane, gammachlordane, diethylphthalate (LANL 1997, Pages 26, 28, 30)

Justification: EPA issued an NOD for the RFI Report on December 5, 1997. The letter stated that; 1) the Permittees had to provide the sampling locations for the 1991 sampling event in a revised report, 2) the Permittees had to provide all organic analytical results (detected and undetected) in a revised report, and 3) EPA could not agree on a NFA determination for this site until the requested information had been submitted. The Permittees have not submitted a revised RFI Report for review. Finally, this site is listed on the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 5-12-1.
2) LANL 1997. Los Alamos National Laboratory. *RFI Report for AOC C-03-006 and PRS 03-054(e), Manhole and Outfall.* Field Unit 1. Environmental Restoration Project. September 1997. Pgs.: i, 21-32.
3) USEPA 1997. United States Environmental Protection Agency. *Letter: NOD Comments on the RCRA Facility Investigation Report (RFI) for PRSs C-3-006 and 3-054(e).* December 5, 1997.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-03-014 – Storage Area

Background: RFI Work Plan: C-3-014 is an equipment storage area, approximately 125 ft. x 100 ft., located southwest of TA-3-35. Security fences bound this area to the north, south, and west and by TA-3-35 to the east. Most of this area is currently paved, except for a 15 ft. wide strip of grass along the southern security fence. The grassy area widens to approximately 30 ft. southwest of TA-3-35. Runoff from this storage area drains to the same low-lying areas as SWM 03-049(b). Various pieces of equipment and molds from TA-3-35 are stored outdoors, within the boundary of C-03-014 for salvage or because of space limitations within the building.

Type of Release: uranium-234, 235, 238 (LANL 1995, Page 119) and other unknowns

Justification: EPA completed a technical review of the RFI Report and provided their comments in a letter dated February 10, 1998. The letter stated that; 1) neither the *Risk-Based Corrective Action* Process nor the Multiple-Chemical Evaluation (MCE) had been approved by NMED and, 2) deviations in screening techniques and sampling strategies from the approved work plan were not approved by NMED. Additionally, samples collected at C-03-014 were not analyzed for organics or inorganics. Therefore, nature and extent of contaminated was not defined. Finally, this site is listed on the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 5-18-1-5-18-8.
2) LANL 1997. Los Alamos National Laboratory. *RFI Report for TA-3 for Potential Release Sites 03-004(c,d), 03-007, 03-014(k,l,o), 03-021, 03-049(a), 03-052(b), 03-056(k), and C-03-014.* Field Unit 1. Environmental Restoration Project. September 1997. Pgs.: iv-v, 114-120.
3) USEPA 1998. United States Environmental Protection Agency. *Letter: TA-3 Potential Release Sites RFI Report.* February 10, 1998.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-03-016 – Oil Metal Bin

Background: RFI Work Plan: C-03-016 is an oil distributor cleanout bin with a hinged lid. The metal bin measures approximately 4 ft. wide x 16 ft. long x 3 ft. deep, and is buried so that the top is flush with the ground surface. According to JCI Road and Grounds staff, the tank was installed in the mid-1970s. It contained used asphalt emulsion (85-100) oil, the oil applied to roads before application of asphalt. Aerial photographs from the 1970s and early 1980s and subsequent site visits by ER Project personnel show extensive staining in the immediate vicinity of C-03-016. This resulted from splashing of oil emulsion, kerosene, and diesel fuel #2 during cleaning of the oil applicator equipment, and the re-depositing of residual oil from asphalt paving operations into this bin for recycling. Since the late 1980s the area around the oil distributor tank was dug up and new fill was put in around the bin; however, staining still occurred because the asphalt distributor machine rollers, when sprayed off, dripped residue onto the gravel surrounding the tank as well as into the tank.

Type of Release: Metals, SVOCs, VOCs, TPH-DRO, TPH-GRO (LANL 2003)

Justification: The Permittees sent a sampling notification, dated August 29, 2003, to NMED for subsurface soil sampling at C-03-016. The results of that sampling have not been submitted to NMED for review. Without the analytical results, NMED cannot determine if nature and extent of contamination have been defined. Additionally, this site is listed on the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. July 1995. Pgs: 6-26.
2) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2003. Los Alamos National Laboratory. *Sampling Notification.* August 29, 2003.

C-03-022 – Kerosene Tanker Trailer

Background: RFI Work Plan: C-03-022 is the former location of a tanker trailer used to store and distribute kerosene for Asphalt Batch Plant operations. The tanker trailer was located in a bermed materials storage area on a hill directly north of the Asphalt Batch Plant. The tanker was in service for approximately 15 years and supplied kerosene through a gravity feed line that had a valve near the oil distributor tank, C-03-016, located about 12 ft south (directly below the hill) of the tanker. However, the area downslope where the kerosene was dispensed is adjacent to C-3-016.

Type of Release: kerosene, asphalt emulsion, other unknowns (LANL 1990)

Justification: EPA issued a second NOD for the RFI Work Plan Addendum I on July 26, 1996. The Permittees proposed C-03-022 for NFA because 1) the tank stored product rather than waste, 2) the tanks and contaminated soil had been removed, 3) the area is an active site, and 4) the area will be subject to a cleanup plan when the asphalt plant is decommissioned. The Permittees have no way of knowing if C-03-022 was a source of contamination or if it required remediation, because an investigation was never conducted at this site. Additionally, this site is listed on the "Under Investigation" lists in the 2000 Installation Work Plan.

References:

1) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1.* Environmental Restoration Project. June 1993. Pgs: 6-17.
2) LANL 1996. Los Alamos National Laboratory. *Letter: 2nd NOD for RFI Work Plan Addendum I OU 1114.* July 26, 1996.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

04-004 – Soil Contamination

Background: SWMU Report: Building TA-4-7 is the location from which two buildings from TA-20 were relocated in 1956 to make a 16-ft x 43-ft x 8-ft high hut. It is not clear what chemicals were handled here or what operations were involved. Photographic processing chemicals may have been disposed of through drainpipes in the darkroom. This site was not part of the 1985 LASCP cleanup effort. The outfall associated with the darkroom is part of SWMU 04-003.

RFI Work Plan: This SWMU consists of soil contamination beneath the darkroom and laboratory building (TA-4-7). TA-4-7 was used to develop film of firing tests performed at TA-4. Photo-processing chemicals may have been disposed of by pouring them through drainpipes in the darkroom or on the ground outside the building. Other laboratory processes conducted at TA-4-7 or chemicals handled at the facility are unknown. A 1953 radiation survey detected contamination on part of the darkroom floor. The contaminated portions of the floor were removed before the building was demolished in 1956. The work plan states that building debris was cleaned up during the 1985 LASCP activities, but the SWMU Report clearly states that this site was not included in the LASCP cleanup effort.

Type of Release: Photographic chemicals, radionuclides, beryllium, lead, aluminum, HE, terbium, terbium oxide, and unspecified laboratory chemicals (LANL 1990).

Justification: There are two discrepancies between the SWMU Report and the RFI Work Plan. The Work Plan states that building debris was cleaned up during the 1985 LASCP activities, but the SWMU Report clearly states that this site was not included in the LASCP cleanup effort. Also, the SWMU Report identifies the location of 04-004 to be within the boundaries of TA-63, but the Work Plan states that the site is within the boundaries of TA-52. A sampling Notification was submitted to NMED on May 23, 1995 for 04-004. Thirteen (13) boreholes were proposed to a depth of 3-ft and samples were submitted for gross alpha, beta, and gamma, gamma spectroscopy, SVOCs, alpha spectroscopy, and metals analysis. The results of the proposed sampling have not been submitted to NMED for review. Without the analytical results, NMED cannot make a determination whether the Permittees have defined nature and extent or if the site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for OU 1129.* Environmental Restoration Project. May 1992. Pg: 3-7.
3) LANL 1995. Los Alamos National Laboratory. *Letter: Notification of Field Unite 4 Sampling at Technical Areas (TAs) 4, 5, 52, and 63.* May 23, 1995.

4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

05-001(c) – Former Firing Site

Background: SWMU Report: This is a second firing point referenced on maps and memos and was located several hundred feet east of 05-001(b). No information was available on the period of use. During the 1985 LASCP decommissioning effort, a cable run to a far firing point was removed, but the location is not mentioned.

RFI Work Plan: Two tests involving large amounts (approximately 2,000 lbs each) of HE were conducted at this site in the spring of 1945 as final confirmatory tests before the Trinity test. No characterization or cleanup of non-radioactive constituents has been performed.

Type of Release: Possibly: radionuclides, beryllium, lead, cadmium, HE, natural and depleted uranium (LANL 1995)

Justification: A sampling Notification was submitted to NMED on May 23, 1995 for 05-001(c). 10 surface, hand auger samples were proposed and samples were submitted for gross alpha, beta, and gamma, gamma spectroscopy, SVOCs, alpha spectroscopy, metals, and HE analysis. The results of the proposed sampling have not been submitted to NMED for review. Without the analytical results, NMED cannot make a determination whether the Permittees have defined nature and extent or if the site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for OU 1129.* Environmental Restoration Project. May 1992. Pg: 3-16.
3) LANL 1995. Los Alamos National Laboratory. *Letter: Notification of Field Unit 4 Sampling at Technical Areas (TAs) 4, 5, 52, and 63.* May 23, 1995.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

06-008 – Underground Tank

Background: SWMU Report: This underground storage tank designated TA-6-47 was intended for storage of diesel fuel. At the time of decommissioning, the tank was thought to store diesel fuel for a back-up generator. The tank's capacity was 2,000-gallons. The tank was emptied and removed in 1987. The area was backfilled and the tank was disposed of at the county landfill. The former location of the tank is near TA-6-37 (SWMU 06-003(a)), a concrete, saucer-shaped firing site. At the time of decommissioning, the tank was approximately 1/3 full of a watery substance. A 1959 survey of vacated LASL structures reported that TA-6-47 was contaminated with HE. An undated inventory of TA-6 structures indicated that the tank received washdown water from firing site TA-6-37.

RFI Work Plan: 06-008 was an underground storage tank that received material washed out of TA-6-37 (SWMU 06-003(a)). It was removed in 1987.

Type of Release: HE, depleted uranium, barium, cesium-137 (LANL 1997, Pages 120, 122)

Justification: EPA issued an NOD for the RFI Report on April 24, 1996. The NOD stated that; 1) the Permittees had to provide field screening results (VOCs) and soil logging/descriptions for each PRS, 2) the Permittees were required to clarify whether the 21 sample ID's that were lost, were resampled and analyzed, 3) deeper samples were required at two locations, and 4) the Permittees were required to provide all inorganic and high explosives results in a revised report. The Permittees have not submitted a revised RFI Report or determined nature and extent at 06-008. Further investigation is required to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1111.* Environmental Restoration Project. August 1993. Pg: 5-43.
3) USEPA 1996. United States Environmental Protection Agency (EPA). *Letter: NOD Comments on the RCRA Facility Investigation Report (RFI) for TAs 6, 8, 22, and 40.* April 24, 1996.
4) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TAs-6, 8, 22, and 40 (located in former Operable Units 1157 and 1111.* Field Unit 5. Environmental Restoration Project. September 1997. Pgs.: 114-128.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-06-001 – Building

Background: RFI Work Plan: C-06-001 (TA-6-4) was an explosives storage magazine removed in 1972.

Type of Release: Cadmium and antimony (LANL 1998)

Justification: According to the RFI Work Plan, 6 soil samples were proposed for gross gamma, HE, and metals analysis at this site. However, the investigation of this site was not included in an RFI Report. Additionally, the Permittees sent a Sampling Notification on June 19, 1998 for this site. C-06-001 was only proposed for cadmium and antimony sampling. The results of the RFI investigation and 1998 sampling event have not been submitted to NMED for review. Therefore, nature and extent of contamination has not been defined. Finally, this site is listed on the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1111*. Environmental Restoration Project. August 1993. Pg: 5-90-5-94.
2) LANL 1998. Los Alamos National Laboratory. *Sampling Notification: Remedial Actions Focus Area Sampling Activities at TA-6*. June 19, 1998.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-06-005 – Building TA-6-13 (chemistry lab, assembly, and storage)

Background: RFI Work Plan: C-06-005 (TA-6-13) was a building used for detonator assembly, as a chemistry laboratory, and for storage. It was removed on January 16, 1960. Additionally it contained "a sink with a drain to daylight that was removed by burning".

RFI Report: This is the location of a former structure TA-6-13, a 16-ft by 16-ft by 9-ft high wood frame building used as a chemistry laboratory and detonator assembly building. The lab sink in this building discharged to a French drain adjacent to the east side of the building. A mass limit of two pounds of explosives was set for this building.

Type of Release: Explosives (PETN, tetryl, RDX, Composition A, baratol, and TNT) (LANL 1998, Page 15), barium, cadmium, copper, iron, lead, manganese, zinc, silver (LANL 1998, Page 35), and toluene (LANL 1998, Page 43)

Justification: EPA issued a request for supplemental information on February 26, 1999. In the letter EPA stated that they could not concur with No Further Action (NFA) determinations for the aggregates as whole parcels. Specifically, EPA did not concur with the proposed NFA for C-06-005 because it required a detailed ecological assessment. NMED approved the RFI Report in a letter dated March 14, 2000. In the letter, NMED stated that additional characterization was necessary at C-06-005 to support a NFA determination. The additional characterization activities have not been conducted to date. Therefore, nature and extent has not been defined. Finally, this site is listed on the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1111*. Environmental Restoration Project. August 1993. Pg: 5-90-5-94.
2) LANL 1998. Los Alamos National Laboratory. *RFI Report for Potential Release Sites in the Eastern and Western Aggregates at Technical Area 6.* Environmental Restoration Project. September 30, 1998. Pgs.: 15-90.
3) USEPA 1999. United States Environmental Protection Agency. *Letter: Request for Supplemental Information: RFI Report for Potential Release Sites in the Eastern and Western Aggregates at Technical Area 6.* February 26, 1999.
4) NMED 2000. NMED. *Letter: Approval of the RFI Report for Technical Area (TA) 6.* March 14, 2000.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-06-019 – Building

Background: RFI Work Plan: C-06-019 is the former site of a generator building that was removed by burning in 1960.

Type of Release: PCBs (LANL 1997, Page 115), barium, manganese, nickel, methylene chloride, and trichloro-1,2, 2-trifluoroethane[1,1,2-] (LANL 1997, Pages 120, 122, 124)

Justification: EPA issued an NOD for the RFI Report on April 24, 1996. The NOD stated that; 1) the Permittees had to provide field screening results (VOCs) and soil logging/descriptions for each PRS, 2) the Permittees were required to clarify whether the 21 sample ID's that were lost, were resampled and analyzed, 3) deeper samples were required at two locations, and 4) the Permittees were required to provide all inorganic and high explosives results in a revised report. The Permittees have not submitted a revised RFI Report or determined nature and extent at C-06-019. Further investigation is required to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1111*. Environmental Restoration Project. August 1993. Pg: 5-43.
2) USEPA 1996. United States Environmental Protection Agency (EPA). *Letter: NOD Comments on the RCRA Facility Investigation Report (RFI) for TAs 6, 8, 22, and 40.* April 24, 1996.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TAs-6, 8, 22, and 40 (located in former Operable Units 1157 and 1111*. Field Unit 5. Environmental Restoration Project. September 1997. Pgs.: 114-128.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

08-001(a) – Building TA-8-1

Background: SWMU Report: Building TA-8-1 was used as a laboratory for the development and storage of explosives at TA-8. The building was built prior to 1947 and currently remains in place. Various types of chemical operations including HE formulation and crystal growing were conducted at TA-8-1. These processes caused the off-gas ducts to become chemically contaminated.

RFI Work Plan: Building TA-8-1 was built in 1943 and, during the war, served as a control building for the Gun-Firing Site. After the war, it was used for explosives development until the new buildings at TA-9 became available in the 1950-53 period. In later years crystal growth experiments were also conducted in the building. These activities led to contamination of the duct work. A fire occurred in the building in the 1960s that may have eliminated any possible HE contamination.

Type of Release: HE, terphenyl, alpha nephthyl phenyl oxasole (LANL 1990), styrene, methyl chloroform, thallous iodide, cyanogens (LANL 1993, Page 5-23)

Justification: According to the RFI Work Plan, characterization activities were deferred for this site until D & D of the building (TA-8-1). The Permittees have not submitted a Sampling and Analysis plan for this site. Given that no investigation has been proposed or conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1157.* Environmental Restoration Project. July 1993. Pg: 5-23-5-25.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

08-001(b) – Building TA-8-2

Background: SWMU Report: TA-8-2, similar to TA-8-1, was also used in the production of HE, but the status of the off-gas system was unknown. Explosives contamination was identified at TA-8-2; it is possible that the contamination came from the ducts.

RFI Work Plan: TA-8-2 was built in 1943 and, during the war, served as a machine shop and storage area for the Gun-Firing Site. A memo from W.C. Courtright to S.E. Russo date September 7, 1971, indicated that the building was contaminated with HE. In a memo dated July 12, 1972, Courtright detailed remedial actions to be taken on Buildings TA-8-1, 2, and 3. Because Courtright made no explicit mention of contamination of the Building TA-8-2 duct work, it seems unlikely that any action was taken, and the possibility of residual HE contamination remains. There are warning signs on TA-8-2 but none on TA-8-1 or TA-8-3. The external ducts are still in place.

Type of Release: HE, terphenyl, alpha nephthyl phenyl oxasole, styrene, methyl chloroform (LANL 1990)

Justification: According to the RFI Work Plan, characterization activities were deferred for this site until D & D of the building (TA-8-2). The Permittees have not submitted a Sampling and Analysis plan for this site. Given that no investigation has been proposed or conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1157.* Environmental Restoration Project. July 1993. Pg: 5-25.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

08-009(c) – Storm Drain and Outfall

Background: SWMU Report: This is a storm sewer and outfall from the TA-8-23 parking lot, which discharges to the north.

RFI Work Plan: Building TA-8-23, the betatron building, was built in 1950 and houses a 20 million electron volt (Mev) betatron. It was used to radiograph large items such as nuclear fuel elements, waste barrels, and weapon assemblies. Floor drain BFD2 is located in the basement of Building TA-8-23 next to several step-up voltage regulators that feed the transformers to provide power to the betatron. About 1 pint of oil containing an unknown amount of PCBs was reported to have spilled from these transformers in 1990. The PCB spill was cleaned up and trough and an absorbent boom were installed to intercept future leaks. All of the old transformers have been replaced, and recommendations were made to plug the drains in order to eliminate future contamination. The drains were not plugged because of the possibility of flooding the transformers. Two other floor drains in the basement of Building TA-8-23, BFD1 and BFD3, receive storm water directly and also from a French drain that surrounds the building. The storm water run-off and drain BFD2 are discharged through a non-permitted outfall, TA-8-23-OPN-2, located about 350 ft. northeast of the parking lot.

Type of Release: PCBs (LANL 1993, Page 5-8)

Justification: According to the RFI Work Plan, characterization activities were proposed for this site. The Permittees have not submitted an RFI Report or any kind of sampling results for this site. Given that no investigation has been conducted, nature and extent of contamination has not been defined. Additionally, in a letter dated April 19, 2001, the Permittees identify 08-009(c) as a site where sample concentrations (Aroclor-1260) were equal to or greater than 1 mg/kg. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1157.* Environmental Restoration Project. July 1993. Pg: 5-8 – 5-9.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2001. Los Alamos National Laboratory. *Letter: Data and Site Status Information for Potential Release Sites (PRSs) with Known Polychlorinated Biphenyls (PCBs).* April, 19, 2001.

08-009(f) – Outfall

Background: RFI Work Plan: Fluorescent penetration experiments were performed in laboratories at TA-8-22 and are the source of potential contamination at a non-permitted outfall at the southeast end of the building. The components of the fluorescent penetrant are kerosene, carbon dioxide, and naphthalene. The developer contains 1,1,1-trichloroethane, chlorodifluoro methane, methyl, and 2-methyl-2-propanol. They are used to detect cracks in the parts being prepared for installation into a weapons assembly. In the past, fluorescent penetrant, developer, and emulsifiers have been discharged to the outfall through drains 1FD12 and 1FD13.

Type of Release: Kerosene, carbon dioxide, naphthalene, 1,1,1-trichloroethane, chlorodifluoromethane, methyl, 2-methyl-2-propanol, fluoroanthene, sodium nitrite, naphthalene, isopropyl amine, petroleum distillate, and organic solvents (LANL 1993, Page 5-10)

Justification: According to the RFI Work Plan, characterization activities were proposed for this site. The Permittees have not submitted an RFI Report or any kind of sampling results for this site. Given that no investigation has been conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1157.* Environmental Restoration Project. July 1993. Pg: 5-10-5-11.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-08-014 – Laboratory (TA-8-21)

Background: This AOC is in a laboratory and administrative building that was associated with the TA-8 radiography facilities. These facilities were used for studies of HE, plutonium, uranium, and other materials, including arsenic, lithium hydride, and titanium oxide. Decaborane, diborane, pentaborane, and other boron compounds, along with fluorine and hydrazoic acid, were used in a bench hood at TA-8-21 in Room 117, which was removed and sent to TA-54 in Ocotber 1979. Because this building is in active use, sampling at this AOC will be deferred until the building is decommissioned.

Type of Release: HE, plutonium, uranium, arsenic, lithium hydride, and titanium oxide, decaborane, diborane, pentaborane, fluorine, and hydrazoic acid (LANL 1993, Page 5-86)

Justification: According to the RFI Work Plan, characterization activities were deferred for this site until D & D of the building (TA-8-2). The Permittees have not submitted a Sampling and Analysis plan for this site. Given that no investigation has been proposed or conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1157.* Environmental Restoration Project. July 1993. Pg: 5-86 – 5-87.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

09-010(a) – Storage Area

Background: SWMU Report: SWMU 09-010(a), structure TA-9-48, was built in 1961 and is described as a waste can shelter. The structure has a steel frame construction with corrugated steel siding; it measures 2-ft 6-in. x 11-ft x 6-ft 6-in. (average height). The wastes stored in TA-9-48 consist of HE-contaminated rags that were burned at TA-16. Waste solvents also may have been stored here. Stained ground has been identified around a chemical and explosive storage bin on the northeast side of TA-9-48.

RFI Work Plan: 09-010(a) (Structure TA-9-207) is an inactive waste can shelter that was scheduled to be removed. It was used to store HE-contaminated solid waste from Building TA-9-48, the HE machining building. High explosive waste, in the form of chips and chunks from machining operations, and solvent-contaminated kimwipes from cleaning machinery and equipment, were collected in heavy plastic bags and kept in metal containers until they were ready to be transferred to the open shelter outside. As a precaution, they were double-packaged in another heavy-duty plastic bag. The contaminated waste was then picked up and disposed of by Group WX-3, Group-M-1, or Group EM-7. The structure is made of corrugated steel, 2-ft 6in. wide by 11-ft 6-in. long by 6-ft 6-in. high.

Type of Release: HE (TNT, RDX, HMX, PETN, Tetryl, 2,4-dinitrotoluene, 1,3,5-trinitrobenzene, explosive D), VOCs, SVOCs (LANL 1993, Page 6-60)

Justification: The Permittees submitted a VCA Completion Report for SWMU 09-010(a) on September 12, 1995. However, the VCA Report was missing the sections pertaining to VCA activities at 09-010(a & b). Therefore, EPA and NMED rejected the Report on February 5, 1998 and May 26, 1998, respectively. The Permittees submitted a revised VCA Report on February 26, 1996; however, the revised VCA Report is severely deficient of any information that would aid in determining if the VCA was successful. Given that no sampling results were provided in the revised VCA Report, and no additional confirmatory sampling was completed, nature and extent of contamination has not been determined. Confirmatory sampling (if completed) results must be submitted for NMED review before an approval can be issued for this Report. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1157.* Environmental Restoration Project. July 1993. Pg: 5-46-5-50, 6-60.
3) LANL 1995. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report (VCA) for Potential Release Sites Group 1 C-00-036(a), C-00-036(b), C-00-036(c), C-00-036(d), 09-010(a), and 09-010(b).* Field Unit 1. Environmental Restoration Project. September 1995.

4) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report (VCA) for Potential Release Sites 09-010(a) and 09-010(b) Revision 1.* Field Unit 5. Environmental Restoration Project. February 26, 1996. Pgs.: 1-2.
5) USEPA 1998. United States Environmental Protection Agency. *Letter to NMED: Review of LANL VCA Completion Report for PRSs in Group 1.* February 5, 1998.
6) NMED 1998. NMED. *Letter to LANL: Rejection of VCA Completion Report, C-00-036(a-d) & 09-010(a-b).* May 26, 1998.
7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

09-010(b) – Storage Area

Background: SWMU Report: This is a waste can shelter (TA-9-206), located northeast of the TA-9-142.

RFI Work Plan: Structure TA-9-206 was a waste can shelter built on January 6, 1961. It was a steel-framed structure with corrugated steel sides 2-ft 6-in. wide by 11-ft long by 6-ft 6-in. high. It was located northeast of Building TA-9-42. Building TA-9-42 was used for nuclear compatibility aging studies, and the waste can shelter was possibly associated with the activities in Building TA-9-42. The waste can shelter has been removed.

Type of Release: HE (TNT, RDX, HMX, PETN, Tetryl, 2,4-dinitrotoluene, 1,3,5-trinitrobenzene, explosive D), VOCs, SVOCs (LANL 1993, Page 6-60)

Justification: The Permittees submitted a VCA Completion Report for SWMU 09-010(b) on September 12, 1995. However, the VCA Report was missing the sections pertaining to VCA activities at 09-010(a & b). Therefore, EPA and NMED rejected the Report on February 5, 1998 and May 26, 1998, respectively. The Permittees submitted a revised VCA Report on February 26, 1996; however, the revised VCA Report is severely deficient of any information that would aid in determining if the VCA was successful. Given that no sampling results were provided in the revised VCA Report, and no additional confirmatory sampling was completed, nature and extent of contamination has not been determined. Confirmatory sampling (if completed) results must be submitted for NMED review before an approval can be issued for this Report. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1157.* Environmental Restoration Project. July 1993. Pg: 5-46-5-50, 6-60.
3) LANL 1995. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report (VCA) for Potential Release Sites Group 1 C-00-036(a), C-00-036(b), C-00-036(c), C-00-036(d), 09-010(a), and 09-010(b).* Field Unit 1. Environmental Restoration Project. September 1995.
4) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report (VCA) for Potential Release Sites 09-010(a) and 09-010(b) Revision 1.* Field Unit 5. Environmental Restoration Project. February 26, 1996. Pgs.: 1-2.
5) USEPA 1998. United States Environmental Protection Agency. *Letter to NMED: Review of LANL VCA Completion Report for PRSs in Group 1.* February 5, 1998.
6) NMED 1998. NMED. *Letter to LANL: Rejection of VCA Completion Report, C-00-036(a-d) & 09-010(a-b).* May 26, 1998.

7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

09-011(b) – Storage Area

Background: SWMU Report: An active satellite storage area west of Building TA-9-39.

RFI Work Plan: This satellite storage area was in the corner of an asphalt-paved parking lot south of Magazine TA-9-39. It housed HE-contaminated equipment until the equipment could be cleaned, flashed, and properly disposed. There was no structure associated with this storage area. It is about 10 feet square and was once fenced with wire and had signs posted. This is now an active area and the wire has been removed.

Type of Release: HE (TNT, RDX, HMX, PETN, Tetryl, 2,4-dinitrotoluene, 1,3,5-trinitrobenzene, explosive D) (LANL 1993, Page 6-60)

Justification: NMED issued a request for supplemental information on April 28, 1999. In the letter NMED stated, "due to limited site history, radionuclide and organic chemical analyses should have been conducted at 09-011(b)." Although NMED recommended 09-011(b) for NFA in the same letter, NMED has reevaluated the RFI Report and believes that additional investigation is necessary to determine the nature and extent of contamination. Samples must be submitted for radionuclide and organic analyses. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1157.* Environmental Restoration Project. July 1993. Pg: 5-47-5-50, 6-60.
3) LANL 1998a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 09-002 and 09-011(b).* Environmental Restoration Project. LA-UR-98-3493. August 1998. Pgs.: 14-22.
4) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) NMED 1999. NMED. *Letter to LANL: Request for Supplemental Information, 09-002 and 09-011(b) RFI Report.* April 28, 1999.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

09-011(c) – Storage Area

Background: SWMU Report: An active satellite storage area on the south side of TA-9-38, which contained 2 drums. It was identified in a November 1988 field survey. This storage was known to store isobutyl acetate and methyl sub-oxide.

RFI Work Plan: This is the site of a solvent storage rack and a storage and washdown area for HE-contaminated equipment. The storage rack has been removed but was located at the south entrance to Building TA-9-38. Building TA-9-38 was used for HE process and development operations. The solvent storage rack once housed dimethylsulfoxide and isobutyl acetate in support of the activities in Building TA-9-38.

Type of Release: HE (TNT, RDX, HMX, PETN, Tetryl, 2,4-dinitrotoluene, 1,3,5-trinitrobenzene, explosive B), VOCs, SVOCs (LANL 1993, Page 6-60), isobutyl acetate, methyl sub-oxide, and dimethylsulfoxide (LANL 1993, Page 5-47).

Justification: According to the RFI Work Plan, 09-011(c) was proposed for a Phase I investigation. The Permittees have not submitted an RFI Report or any kind of sampling results for this site. Given that no investigation has been conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1157.* Environmental Restoration Project. July 1993. Pg: 5-47-5-50, 6-60.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

09-012 – Disposal Pit

Background: SWMU Report: An Engineering file (1757) indicated a possible waste pit in TA-9. It was unknown whether the pit was located in the old TA-9 or the new TA-9, or if the disposal area existed.

RFI Work Plan: Very little is known about the location and/or wastes in this pit. The Permittees assumed that the waste pit was located within the vicinity of TA-9. One possible location was an area where 15 circular, unvegetated sites have been found. The circles are each about 6-ft in diameter and 5-ft apart. They begin about 100 yards north of Building TA-9-29 and continue north, in a straight line, ending in the TA-9 decommissioned area. Because these circles may be related to the waste pit or to other waste disposal practices or explosives testing activities in Old Anchor East, they were supposed to be investigated under this SWMU (09-012).

Type of Release: Unknown

Justification: According to the RFI Work Plan, 09-012 was proposed for a Phase I investigation. The Permittees have not submitted an RFI Report or any kind of sampling results for this site. Given that no investigation has been conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1157.* Environmental Restoration Project. July 1993. Pg: 5-62-5-64.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

09-014 – Firing Site

Background: SWMU Report: Engineering Records indicate that the TA-23 firing area, renumbered TA-9-176, was constructed of reinforced concrete, 15-ft x 15-ft x 8-ft, with an earth barricade on 3 sides. It included an irregularly shaped reinforced concrete structure consisting of two firing pits in a concrete apron measuring 3-ft 6-in. x 12-ft x 12-in. thick. The pits were used for the testing of lens charges of up to 135 lbs. of HE. The site was used actively during the ear, but was decommissioned in 1952.

RFI Work Plan: Structure TA-9-176 is a camera mount associated with the TA-23 (Nu Site) firing site. This firing area is north of the present road running through TA-9 and is between Buildings TA-9-43 and TA-9-48. The camera mount was removed August 19, 1952. The actual SWMU is listed as a camera mount 15-ft wide by 15-ft long by 8-ft high with an earth barricade on three sides and a roof.

Type of Release: HE, depleted uranium, lead, mercury, and beryllium (LANL 1993, Page 5-69)

Justification: According to the RFI Work Plan, 09-014 was proposed for a Phase I investigation. The Permittees have not submitted an RFI Report or any kind of sampling results for this site. Given that no investigation has been conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of IV, TA-00 - TA-9.* Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1157.* Environmental Restoration Project. July 1993. Pg: 5-69-5-71.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-10-001 – Surface Soil Contamination

Background: VCA Work Plan: This AOC is comprised of two small areas of radioactively contaminated soil within a larger area of disturbed soil in Bayo Canyon. This area is near a location where materials and soil associated with the firing sites at TA-10, SWMUs 10-001 (a-d), were apparently bulldozed and left remaining even after decontamination and decommissioning (D & D) activities were conducted in 1963. The site was discovered during routine shrapnel removal operations in the summer and fall of 1994. Since then, the site has been formally designated as AOC C-10-001. For each of the contaminated areas, the area on the ground surface with elevated radioactivity, as determined with hand-held radiation screening instruments, comprises approximately 2-ft by 2-ft.

Type of Release: Strontium-90, perchlorate, cyanide (LANL 1995b, Page 1)

Justification: The Permittees submitted a VCA Completion Report for AOC C-10-001 on August 30, 1995. The VCA only completed confirmatory sampling for strontium-90 and excluded RCRA constituents. However, the Permittees proposed sampling of this AOC as part of the Bayo Canyon Aggregate Area Investigation Work Plan. Given that the Permittees included this AOC in the Bayo Canyon Aggregate Work Plan, nature and extent of contamination has not been determined. Additionally, this site is listed on the "Under Investigation" list in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1995a. Los Alamos National Laboratory. *Voluntary Corrective Action Plan for AOC C-10-001.* August 2, 1995. Pg.: 1.
2) LANL 1995b. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report (VCA) for Potential Release Sites C-10-001, Radioactive Soil Contamination, Bayo Canyon.* Field Unit 1. Environmental Restoration Project. LA-UR-96-402. August 30, 1995. Pgs.: 1-2.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for the Bayo Canyon Aggregate Area.* LA-UR-05-4761. July 2005. Pg: 13.

11-003(b) – Firing Range

Background: SWMU Report: An air-gun building (TA-11-24) was constructed, and using compressed gases, projectiles were shot from the air gun toward concrete blocks (the target area), SWMU 11-003(b) is located to the south of the gun. Apparently, no detonations of explosives occurred in the acceleration and impact tests. The projectiles may have been inert. Some of the targets for the air gun remain at the site and were observed to be in a state of disrepair during the 1986 CEARP field survey.

RFI Work Plan: 11-003(b), a mortar impact area, was the target area associated with the decommissioned air-gun facility, TA-11-24. The air gun facility was completed in 1956. The gun itself had a 24-in. bore and an overall length of 96 ft. The purpose of the gun was twofold: 1) to launch experimental packages into the targets located to the south of building TA-11-24 or, 2) in what was known as the closed barrel mode, to first accelerate packages down the barrel and then decelerate them against the compressed cushion of air at the closed end of the tube. The targets, located 150 to 250 ft. south of TA-11-24, were 12 ft x 12 ft x 12-in. thick poured concrete slabs set in line with the bore of the gun. Various weapons packages, designed to withstand extremes of acceleration and deceleration, were tested by firing them into the targets. Some devices contained HE and depleted uranium. On a single occasion in 1972, a steel target was erected approximately 250 ft from the gun muzzle for an impact test of an inert mock-up of a radioactive thermal generator power supply. The device was a 12-in. diameter, hollow-steel sphere filled with steel of lead ball bearings suspended in a graphite matrix. The sphere fractured upon impact.

Type of Release: Metals (LANL 1990), lead (LANL 1993, page 5-244)

Justification: According to the RFI Work Plan, 11-003(b) was proposed for a Phase I investigation. The Permittees have not submitted an RFI Report or any kind of sampling results for this site. Given that no investigation has been conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1082.* July 1993. LA-UR-93-1196. Pgs.: 5-244-5-247
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

11-004(f) – Drop Pad

Background: SWMU Report: 11-004(f) is a drop pad with structure number TA-11-42.

RFI Work Plan: In 1956, TA-11 was modified to conduct explosives and weapons safety studies. Modification involved construction of a 160-ft. high drop tower surrounded by a 130-ft. diameter concrete pad. SWMU 11-004(a-f) consists of components (hoists, pads, the tower itself, and the underlying concrete and asphalt aprons) of this drop tower complex located 180 ft. east of TA-11-2 and TA-11-3. The components are well maintained. The drop tower was used for conducting drop and skid sensitivity tests and continues as an active test firing facility. Cased warheads and bare explosives charges were dropped from the tower to measure impact sensitivity. The maximum amount of explosive in cased experiment devices was 6000 lb. For cased experiments, the HE does not detonate, but fragments of undetonated HE and metal components of the warheads may be scattered by break up upon impact. Bare high explosive skid sensitivity tests, however, routinely detonate. In incomplete detonations, high explosive debris may also be distributed beyond the drop tower complex. The arrangement of the pads on the concrete apron is such that debris is thrown primarily to the south and east. Therefore, possible contamination associated with the drop tower complex includes the surrounding area affected by the explosive tests debris.

Type of Release: HE, depleted uranium, beryllium, and barium (LANL 1993, Page 5-247)

Justification: According to the RFI Work Plan, 11-003(b) was proposed for a Phase I investigation. The Permittees have not submitted an RFI Report or any kind of sampling results for this site. Given that no investigation has been conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1082.* July 1993. LA-UR-93-1196. Pgs.: 5-247-5-248.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

11-012(a) – Storage Magazine

Background: SWMU Report: 11-012(a) (TA-11-7) is a storage magazine formerly located near buildings TA-16-360 and TA-16-370. Soil contamination may have occurred beneath the buildings. These structures were destroyed as a result of a fire in the area in 1960.

RFI Work Plan: 11-012(a), located approximately 225 ft. north of TA-16-370, is an area of potential soil contamination. This SWMU is associated with former HE storage magazine TA-11-7, a 9' x 11' wooden structure with earth berms on three sides. The structure was built in 1944 and destroyed by intentional burning in 1960.

Type of Release: HE, metals, organics (LANL 1993, Page 5-272)

Justification: EPA sent a letter to NMED dated December 11, 1997, stating that EPA did not concur with a No Further Action (NFA) determination for this site because; 1) deviations from the work plan were not approved by the Administrative Authority and 2) constituents were found at significant levels above background, therefore, further sampling and analyses may be required. The Permittees did not submit a revised RFI Report. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1082.* July 1993. LA-UR-93-1196. Pgs.: 5-271-5-282.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16, 11-012(a,b), 13-003(a), 16-006(c,d), 16-010(a), 16-021(a), 16-026(c,d,v), 16-028(a), 16-030(g).* Field Unit 3. Environmental Restoration Project. LA-UR-97-3072. September 1997. Pgs.: 33-39
4) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: TA-16 Potential Release Sites RFI Report.* December 12, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

11-012(b) – Storage Magazine

Background: SWMU Report: 11-012(b) (TA-11-8) is a storage magazine formerly located near buildings TA-16-360 and TA-16-370. Soil contamination may have occurred beneath the buildings. These structures were destroyed as a result of a fire in the area in 1960.

RFI Work Plan: 11-012(b), located approximately 225 ft. north of TA-16-370, is an area of potential soil contamination. This SWMU is associated with former HE storage magazine TA-11-8, a 9' x 11' wooden structure with earth berms on three sides. The structure was built in 1945 and destroyed by intentional burning in 1960.

Type of Release: HE, metals, organics (LANL 1993, Page 5-272)

Justification: EPA sent a letter to NMED dated December 11, 1997, stating that EPA did not concur with a No Further Action (NFA) determination for this site because; 1) deviations from the work plan were not approved by the Administrative Authority and 2) constituents were found at significant levels above background, therefore, further sampling and analyses may be required. The Permittees did not submit a revised RFI Report. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1082.* July 1993. LA-UR-93-1196. Pgs.: 5-271-5-282.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16, 11-012(a,b), 13-003(a), 16-006(c,d), 16-010(a), 16-021(a), 16-026(c,d,v), 16-028(a), 16-030(g).* Field Unit 3. Environmental Restoration Project. LA-UR-97-3072. September 1997. Pgs.: 33-39
4) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: TA-16 Potential Release Sites RFI Report.* December 12, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

11-012(c) – Storage Building

Background: SWMU Report: 11-012(c) (TA-11-9) is a storage magazine formerly located southwest of building TA-11-4. Soil contamination may have occurred beneath the buildings. These structures were destroyed as a result of a fire in the area in 1960.

RFI Work Plan: 11-012(c), located at the top of a small knoll approximately 500 ft. west of TA-11-4 is an area of potential soil contamination. This SWMU is the site of a former storage building (TA-11-9), a 16' x 16' wooden structure. The structure was built in 1945 and destroyed by intentional burning in 1960.

Type of Release: HE, metals, organics (LANL 1993, Page 5-272)

Justification: According to the RFI Work Plan, 11-012(c) was proposed for a Phase I investigation. The Permittees have not submitted an RFI Report or any kind of sampling results for this site. Given that no investigation has been conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1082.* July 1993. LA-UR-93-1196. Pgs.: 5-271-5-282.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

11-012(d) – Personnel Shelter

Background: SWMU Report: 11-012(d) (TA-11-10) is a personnel shelter formerly located south of building TA-11-4. Soil contamination may have occurred beneath the buildings. These structures were destroyed as a result of a fire in the area in 1960.

RFI Work Plan: 11-012(d), located approximately 75 ft. south-southeast of TA-11-4 is an area of potential soil contamination. This SWMU is associated with former personnel shelter (TA-11-10), a 6' x 6' wooden structure. The personnel shelter was built in 1945 and destroyed by intentional burning in 1960. The exact use of this building is unknown. However, an informal conversation with a former site worker indicated that it might have been an emergency retreat. Prior to the construction of TA-11-36, it may have been used to store small amounts of HE scraps until enough accumulated for disposal. Several concrete blocks presently cover this area and are approximately one foot thick.

Type of Release: HE, metals, organics (LANL 1993, Page 5-272)

Justification: According to the RFI Work Plan, 11-012(d) was proposed for a Phase I investigation. The Permittees have not submitted an RFI Report or any kind of sampling results for this site. Given that no investigation has been conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1082.* July 1993. LA-UR-93-1196. Pgs.: 5-271-5-282.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-11-001 – Laboratory

Background: RFI Work Plan: C-11-001 (TA-11-5) is also associated with the 1946-1956 photofission experiments. C-11-001 is the site of TA-11-5; a 6' x 32' wood frame building constructed after 1945 and removed some time prior to 1956. This building may have housed the laboratory used to prepare samples for the photofission experiments on uranium and plutonium. TA-11-5 might also have been used as a darkroom. This AOC is currently covered by the apron of the drop tower.

Type of Release: uranium, isotopic plutonium (LANL 1993, Page 5-244), and chemicals from photoprocessing activities (LANL 1993, Page 5-250).

Justification: According to the RFI Work Plan, C-11-001 was proposed for a Phase I investigation. The Permittees have not submitted an RFI Report or any kind of sampling results for this site. Given that no investigation has been conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1082.* July 1993. LA-UR-93-1196. Pgs.: 5-244, 5-246, 5-250.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-11-002 – Laboratory

Background: RFI Work Plan: C-11-002 (TA-11-12) is the site of a 7' x 9' wood frame building. No current visible signs of the building exist; however, scaling of Engineering drawing ENG-R 126 places it approximately 65 ft. east-northeast of the air gun target's earth berm. This building may have housed the laboratory used to prepare samples for the P Division photofission experiments on uranium and plutonium isotopes. TA-11-12 might also have been used as a darkroom. Surrounding soils may have been contaminated with HE, photoprocessing chemicals (silver and cyanide), and uranium and plutonium isotopes that may have resulted from the preparation of photofission experiments.

Type of Release: radionuclides (uranium & plutonium), HE, photographic materials (silver & cyanide), and metals (LANL 1993, 5-272)

Justification: According to the RFI Work Plan, C-11-002 was proposed for a Phase I investigation. The Permittees have not submitted an RFI Report or any kind of sampling results for this site. Given that no investigation has been conducted, nature and extent of contamination has not been defined. An investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1082.* July 1993. LA-UR-93-1196. Pgs.: 5-274-5-282.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

12-004(a) – Radiation Test Facility

Background: SWMU Report: In 1950, TA-12 was the site of a radiation experiment on animals. A radiation shelter, a telephone pole, and a lead pot (12-004(a)) were used for the tests. The radiation shelter and pole are still present at this site. The shelter has dimensions of 50-ft x 30-ft x 6-ft high.

RFI Work Plan: SWMU 12-004(a) is the area surrounding the radiation experiment site. It includes a bermed radiation shelter (TA-12-8) and three telephone poles. The shelter and three poles, which are still standing, were constructed in a line parallel to a drainage channel that flows southwest from Redondo Road to the edge of Threemile Canyon. The northernmost telephone pole lies 30-ft south of Redondo Road, and the second pole lies 58-ft south of the first. The radiation shelter and third pole are located 40-ft south of the second pole.

RFI Report: This site was constructed in March 1950 to conduct a radiation experiment with animals. This experiment was conducted over a three-week period under the direction of H-4. The experiment used a 1000-Ci source of radioactive lanthanum to test the effects of various radiation doses on animals. Operators deployed the source remotely from the bermed shelter (TA-12-8) by raising the source with a wire strung over the three telephone poles. The source was stored in a lead container at the base of the first pole and could be deployed at various heights by raising it inside of a Lucite guide tube attached to the pole.

Type of Release: HE, strontium-90, metals (mercury, zinc), uranium-235, 238 (LANL 1996a, Pages 5-22 - 5-23)

Justification: NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that; 1) additional information and/or further investigation was required for this site and 2) the Permittees must explain the variations in the two radiological surveys (1993 & 1996). The Permittees responded to the NOD in a letter dated October 15, 1996, and explained that the source of the high radiation screening values had been removed. EPA concurred with this explanation in a letter dated March 3, 1997. However, the Permittees have not submitted a Class 3 Permit Modification requesting No Further Action (NFA) for this site. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.2-1-5.2-12.
3) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-18-5-24.

4) LANL 1996b. Los Alamos National Laboratory. *Letter from LANL to NMED: Response to the NOD for TAs 12, 14, and 67, for RFI Report (Former Operable Unit 1085). EM/ER: 96-539.* October 15, 1996.
5) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
6) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

12-004(b) - Pipe

Background: SWMU Report: During the 1987 CEARP field survey, an aluminum pipe (12-004(b)), approximately 18 inches in diameter and unknown length, was observed at ground level. The pipe was filled with liquid.

RFI Work Plan: This is described as an aluminum pipe located on the edge of Redondo Road. It sits 78-ft north of the radiation shelter. The pipe protrudes 8-in. above ground and resembles a manhole outlet without a cover. The opening measures 25.5-in. outer diameter, and 20-in. inner diameter, with a visible depth of approximately 3-ft. The inside of the pipe is filled with soil, and it is not known how deep the pipe extends into the ground.

RFI Report: 12-004(b) was an aluminum pipe located on the edge of Redondo Road. Two soil samples were collected at the pipe. The samples were collected at the surface next to the aluminum pipe, and one at the soil/tuff interface (24-in. to 30-in.) next to the pipe.

Type of Release: Lead, mercury, uranium-235, 238 (LANL 1996a, Pages 5-27 – 5-28)

Justification: NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that; 1) additional information and/or further investigation was required for this site and 2) the Permittees must explain why samples were not obtained from inside the pipe. EPA issued comments on the RFI Report in a letter dated March 3, 1997. EPA's comments stated that; 1) additional information and/or further investigation was required for this site and 2) the Permittees must re-sample the soil-tuff interface according to the Work Plan and remove the pipe. The Permittees have not submitted a revised RFI Report or any kind of additional sampling and analysis results. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.2-1-5.2-12.
3) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-24-5-29.
4) LANL 1996b. Los Alamos National Laboratory. *Letter from LANL to NMED: Response to the NOD for TAs 12, 14, and 67, for RFI Report (Former Operable Unit 1085). EM/ER: 96-539.* October 15, 1996.
5) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.

6) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-12-001 – Trim Building

Background: RFI Work Plan: C-12-001 (TA-12-1) was the trim building for the firing site. The building was of wood-frame construction, measuring 16-ft long by 16-ft wide by 9-ft high with soil fill on three sides and on top. The trim building was built in 1944 and used to prepare HE for detonation. HE was molded at S-Site and then transported to L-Site for final preparation. Pins and detonators were attached to HE within the building. Pins were thin rods around the explosive that were used to time the detonation speed. Sometimes the HE was shaved and trimmed but no major changes were made to the explosive. Scrap trinitrotoluene (TNT) and cyclonite (RDX) from the trim building operation would have amounted to only one pound a month.

RFI Report: The site was abandoned in 1953 and the buildings burned in 1960. The typical procedure for disposing of these wooden buildings was to fill each structure with combustible material (e.g. paper, wood, tires), add diesel fuel, and ignite it. Any small amount of the unburned material would normally be taken to the S-Site burning ground; remaining non-combustibles would be taken to the material disposal areas. At the Laboratory, funds were not available for additional cleanup. Although this building was burned in 1960, some noncombustible debris (e.g., concrete blocks, metal radiators) remains in place.

Type of Release: Lead, uranium-238 (LANL 1996, Page 5-4)

Justification: NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that; 1) it was appropriate not to add this site to the LANL RCRA/HSWA Permit. However, the Permittees have not submitted a Class 3 Permit Modification requesting No Further Action (NFA) for this site. Additionally, this site requires further investigation to determine whether it poses a threat to human health and the environment. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.1-5-5.1-6.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-1 – 5-5.
3) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-12-002 – Control Building

Background: RFI Work Plan: This site was the control building (TA-12-2) for the firing site. This structure was located on the south side of Redondo Road 100-ft east of the TA-12 entrance. The building, built in 1945, was of wood frame construction measuring 8-ft long by 8-ft wide by 8-ft high with soil fill on three sides and on top. It was believed that the presence of potential contaminants of concern (PCOCs) was unlikely in the structure. However, a 1959 report indicated that the structure was contaminated with HE.

RFI Report: The site was abandoned in 1953 and the buildings burned in 1960. The typical procedure for disposing of these wooden buildings was to fill each structure with combustible material (e.g. paper, wood, tires), add diesel fuel, and ignite it. Any small amount of the unburned material would normally be taken to the S-Site burning ground; remaining non-combustibles would be taken to the material disposal areas.

Type of Release: HE, radionuclides, metals (LANL 1996, Page 5-6)

Justification: NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that; 1) it was appropriate not to add this site to the LANL RCRA/HSWA Permit. However, the Permittees have not submitted a Class 3 Permit Modification requesting No Further Action (NFA) for this site. Additionally, this site requires further investigation to determine whether it poses a threat to human health and the environment. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5-1-6 – 5-1-7.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-5 - 5-8.
3) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-12-003 – Storage Magazine

Background: RFI Work Plan: Building TA-12-3 was the HE-storage magazine for the firing site. This structure was located on the north side of Redondo Road 50-ft east of the TA-12 entrance. The magazine, built in 1944, measured 6-ft long by 6-ft wide by 7-ft high with soil fill on three sides and on top. Because it is unknown if spillage of explosives occurred, contamination could exist within the building. The bermed soil is all that remains at the site.

RFI Report: The site was abandoned in 1953 and the buildings burned in 1960. The typical procedure for disposing of these wooden buildings was to fill each structure with combustible material (e.g. paper, wood, tires), add diesel fuel, and ignite it. Any small amount of the unburned material would normally be taken to the S-Site burning ground; remaining non-combustibles would be taken to the material disposal areas.

Type of Release: HE, TAL metals (LANL 1996, Page 5-10)

Justification: NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that; 1) it was appropriate not to add this site to the LANL RCRA/HSWA Permit. However, the Permittees obtained only two samples and only analyzed for HE and TAL metals. Therefore, the Permittees have not determined nature and extent of contamination at this site. Also, the Permittees have not submitted a Class 3 Permit Modification requesting No Further Action (NFA) for this site. Additionally, this site requires further investigation to determine whether it poses a threat to human health and the environment. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5-1-6 – 5-1-7.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-8 - 5-12.
3) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-12-004 - Generator Building

Background: RFI Work Plan: Building TA-12-5 was the generator building for the firing site. The building was originally located adjacent to TA-12-6, but was then relocated 10-ft north of the control building in March 1952. The barrel holder that held the drums of fuel oil remains at the site. It is possible that oil and fuel used to produce heat or generate power may have contaminated the soil under the barrel holder. The building was abandoned with the rest of the site in 1953 and burned in 1960.

Type of Release: SVOCs, metals (LANL 1996a, Page 5-13)

Justification: NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that; 1) additional information and/or further investigation was required for this site and 2) the Permittees were required to complete laboratory analysis of inorganics unless "process knowledge" or specific waste characterization precluded the analyses. EPA issued comments on the RFI Report in a letter dated March 3, 1997. EPA's comments stated that; 1) based on LANL's response, it was appropriate to not add C-12-004 to the LANL RCRA/HSWA Permit. However, the Permittees obtained only two samples and only analyzed for SVOCs. Therefore, the Permittees have not determined nature and extent of contamination at this site. Also, the Permittees have not submitted a Class 3 Permit Modification requesting No Further Action (NFA) for this site. This site requires further investigation to determine whether it poses a threat to human health and the environment. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5-1-6 – 5-1-7.
2) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-12 - 5-15.
3) LANL 1996b. Los Alamos National Laboratory. *Letter from LANL to NMED: Response to the NOD for TAs 12, 14, and 67, for RFI Report (Former Operable Unit 1085). EM/ER: 96-539.* October 15, 1996.
4) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
5) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-12-005 – Junction Box

Background: RFI Work Plan: Building TA-12-26 was a junction box for the firing site located 25-ft southwest of the steel-lined firing pit. The purpose of the structure was to act as a relay between the control building (TA-12-2) and the two firing sites. Approximately 750-ft of detonation wire connected the junction box with the control building. This detonation wire and some conduit remain at the site. The structure measured 3-ft wide by 4-ft long by 4-ft high with a soil berm on three sides. The structure housed diagnostic equipment, signal cables, and electrical power. Explosives were not directly associated with the junction shelter. The structure was built in 1945, abandoned in 1953, and burned in 1960.

Type of Release: HE (HMX) (LANL 1996a, Page 5-18)

Justification: NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that; 1) it was appropriate not to add this site to the LANL RCRA/HSWA Permit. No inorganics or radionuclides were detected above background; however, HMX was estimated at a concentration of 0.61 mg/kg. The Permittees have not submitted a Class 3 Permit Modification requesting No Further Action (NFA) for this site. Finally, this site is listed on the "Under Investigation" lists in the 1998 Installation Work Plan and listed as a HSWA SWMU in the 2000 Installation Work Plan.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5-1-5.
2) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-15 - 5-18.
3) LANL 1996b. Los Alamos National Laboratory. *Letter from LANL to NMED: Response to the NOD for TAs 12, 14, and 67, for RFI Report (Former Operable Unit 1085). EM/ER: 96-539.* October 15, 1996.
4) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
5) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

13-003(b) – Septic System

Background: SWMU Report: 13-003(b) is a drain field associated with septic tank TA-13-12. It was located within the boundaries of TA-16, northwest of the tank.

RFI Work Plan: According to construction drawings, ENG-C 1641 Sheet 1 of 7, the drain field was approximately 100-ft northeast of the septic tank. The drain field allowed the contents of the septic tank to discharge through 4-in. vitreous clay tile and leach into the soil beneath the drain lines. The Engineering Drawing ENG-R5111, Sheet 2 of 7, indicated that the septic tank has been removed, but not the drain field.

Type of Release: HE, barium, silver, uranium, VOCs, SVOCs, and cyanide (LANL 1993, Page 5-102)

Justification: Potential RCRA constituents may exist at this site. According to the RFI Work Plan, 13-003(b) was proposed for a Phase I investigation. The Permittees have not submitted a RFI Report or any kind of sampling results for this site. Given that no investigation has been conducted, nature and extent of contamination has not been defined. Due to the routine and systematic release at this site, an investigation is necessary to determine whether this site poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan and listed as a HSWA SWMU in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1082. July 1993*. LA-UR-93-1196. Pgs.: 5-99-5-102.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

14-001(a) - "Pullbox"

Background: SWMU Report: AOC 14-001(a) (TA-14-25) is a pull box structure. The 1987 CEARP describes some of the sites in TA-14 as open and closed chambers and firing pads. Of the original firing sites, several were removed during the renovation in 1952 and new firing sites were added. These latter structures remain active today.

RFI Work Plan: The central TA-14 aggregate consists of SWMUs that are integral components of the active firing site operations at TA-14 (Q Site). Small amounts of HE and metals from years of conducting explosive tests have contributed to possible surface contamination that could extend to the surrounding area for several hundred feet. AOC 14-001(a) is a small structure (26-in. long by 32-in. wide by 32-in. deep), which was known as a pullbox and a pit. A pit holds a capacitor discharge unit (CDU) located next to a firing pad. All of the CDUs are in active use.

RFI Report: AOC 14-001(a) is a small steel "pullbox" cavity with a metal lid in the ground that held a CDU. This site is still associated with active firing sites and continues to be used. Detonator and diagnostic hookups is the function of the pullbox.

Type of Release: HE, metals (LANL 1990)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that; 1) NFA did not appear appropriate at this site and 2) due to the fact that this site is still associated with active firing sites and continues to be used, NFA would not be considered until decommissioning. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED's recommendation. The Permittees have not submitted a RFI Report or any kind of confirmatory sampling and analysis results. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.4-1-5.4-3.
3) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-35.
4) LANL 1996b. Los Alamos National Laboratory. *Letter from LANL to NMED: Response to the NOD for TAs 12, 14, and 67, for RFI Report (Former Operable Unit 1085). EM/ER: 96-539.* October 15, 1996.
5) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.

6) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

14-001(b) – "Pullbox"

Background: SWMU Report: AOC 14-001(b) (TA-14-26) is a pull box structure. The 1987 CEARP describes some of the sites in TA-14 as open and closed chambers and firing pads. Of the original firing sites, several were removed during the renovation in 1952 and new firing sites were added. These latter structures remain active today.

RFI Work Plan: The central TA-14 aggregate consists of SWMUs that are integral components of the active firing site operations at TA-14 (Q Site). Small amounts of HE and metals from years of conducting explosive tests have contributed to possible surface contamination that could extend to the surrounding area for several hundred feet. AOC 14-001(b) is a small structure (26-in long by 32-in. wide by 32-in. deep), which was known as a pullbox and a pit. A pit holds a capacitor discharge unit (CDU) located next to a firing pad. All of the CDUs are in active use.

RFI Report: AOC 14-001(b) is a small steel "pullbox" cavity with a metal lid in the ground that held a CDU. This site is still associated with active firing sites and continues to be used. Detonator and diagnostic hookups is the function of the pullbox.

Type of Release: HE, metals (LANL 1990)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that; 1) NFA did not appear appropriate at this site and 2) due to the fact that this site is still associated with active firing sites and continues to be used, NFA would not be considered until decommissioning. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED's recommendation. The Permittees have not submitted a RFI Report or any kind of confirmatory sampling and analysis results. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.4-1-5.4-3.
3) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-35.
4) LANL 1996b. Los Alamos National Laboratory. *Letter from LANL to NMED: Response to the NOD for TAs 12, 14, and 67, for RFI Report (Former Operable Unit 1085). EM/ER: 96-539.* October 15, 1996.
5) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.

6) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

14-001(c) – "Pullbox"

Background: SWMU Report: AOC 14-001(c) (TA-14-27) is a pull box structure. The 1987 CEARP describes some of the sites in TA-14 as open and closed chambers and firing pads. Of the original firing sites, several were removed during the renovation in 1952 and new firing sites were added. These latter structures remain active today.

RFI Work Plan: The central TA-14 aggregate consists of SWMUs that are integral components of the active firing site operations at TA-14 (Q Site). Small amounts of HE and metals from years of conducting explosive tests have contributed to possible surface contamination that could extend to the surrounding area for several hundred feet. AOC 14-001(c) is a small structure (26-in. long by 32-in. wide by 32-in. deep), which was known as a pullbox and a pit. A pit holds a capacitor discharge unit (CDU) located next to a firing pad. All of the CDUs are in active use.

RFI Report: AOC 14-001(c) is a small steel "pullbox" cavity with a metal lid in the ground that held a CDU. This site is still associated with active firing sites and continues to be used. Detonator and diagnostic hookups is the function of the pullbox.

Type of Release: HE, metals (LANL 1990)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that; 1) NFA did not appear appropriate at this site and 2) due to the fact that this site is still associated with active firing sites and continues to be used, NFA would not be considered until decommissioning. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED's recommendation. The Permittees have not submitted a RFI Report or any kind of confirmatory sampling and analysis results. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.4-1-5.4-3.
3) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-35.
4) LANL 1996b. Los Alamos National Laboratory. *Letter from LANL to NMED: Response to the NOD for TAs 12, 14, and 67, for RFI Report (Former Operable Unit 1085). EM/ER: 96-539.* October 15, 1996.
5) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.

6) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

14-001(d) – "Pullbox"

Background: SWMU Report: AOC 14-001(d) (TA-14-28) is a pull box structure. The 1987 CEARP describes some of the sites in TA-14 as open and closed chambers and firing pads. Of the original firing sites, several were removed during the renovation in 1952 and new firing sites were added. These latter structures remain active today.

RFI Work Plan: The central TA-14 aggregate consists of SWMUs that are integral components of the active firing site operations at TA-14 (Q Site). Small amounts of HE and metals from years of conducting explosive tests have contributed to possible surface contamination that could extend to the surrounding area for several hundred feet. AOC 14-001(d) is a small structure (26-in. long by 32-in. wide by 32-in. deep), which was known as a pullbox and a pit. A pit holds a capacitor discharge unit (CDU) located next to a firing pad. All of the CDUs are in active use.

RFI Report: AOC 14-001(d) is a small steel "pullbox" cavity with a metal lid in the ground that held a CDU. This site is still associated with active firing sites and continues to be used. Detonator and diagnostic hookups is the function of the pullbox.

Type of Release: HE, metals (LANL 1990)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that; 1) NFA did not appear appropriate at this site and 2) due to the fact that this site is still associated with active firing sites and continues to be used, NFA would not be considered until decommissioning. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED's recommendation. The Permittees have not submitted a RFI Report or any kind of confirmatory sampling and analysis results. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.4-1-5.4-3.
3) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-35.
4) LANL 1996b. Los Alamos National Laboratory. *Letter from LANL to NMED: Response to the NOD for TAs 12, 14, and 67, for RFI Report (Former Operable Unit 1085). EM/ER: 96-539.* October 15, 1996.
5) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.

6) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

14-001(e) – "Pullbox"

Background: SWMU Report: AOC 14-001(e) (TA-14-27) is a pull box structure. The 1987 CEARP describes some of the sites in TA-14 as open and closed chambers and firing pads. Of the original firing sites, several were removed during the renovation in 1952 and new firing sites were added. These latter structures remain active today.

RFI Work Plan: The central TA-14 aggregate consists of SWMUs that are integral components of the active firing site operations at TA-14 (Q Site). Small amounts of HE and metals from years of conducting explosive tests have contributed to possible surface contamination that could extend to the surrounding area for several hundred feet. AOC 14-001(e) is a small structure (26-in. long by 32-in. wide by 32-in. deep), which was known as a pullbox and a pit. A pit holds a capacitor discharge unit (CDU) located next to a firing pad. All of the CDUs are in active use.

RFI Report: AOC 14-001(e) is a small steel "pullbox" cavity with a metal lid in the ground that held a CDU. This site is still associated with active firing sites and continues to be used. Detonator and diagnostic hookups is the function of the pullbox.

Type of Release: HE, metals (LANL 1990)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that; 1) NFA did not appear appropriate at this site and 2) due to the fact that this site is still associated with active firing sites and continues to be used, NFA would not be considered until decommissioning. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED's recommendation. The Permittees have not submitted a RFI Report or any kind of confirmatory sampling and analysis results. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.4-1-5.4-3.
3) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-35.
4) LANL 1996b. Los Alamos National Laboratory. *Letter from LANL to NMED: Response to the NOD for TAs 12, 14, and 67, for RFI Report (Former Operable Unit 1085). EM/ER: 96-539.* October 15, 1996.
5) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.

6) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

14-001(f) – Firing Site

Background: SWMU Report: 14-001(f) (TA-14-34) is a bullet test facility.

RFI Work Plan: 14-001(f) is a gun-firing site but is referred to as a bullet test facility. TA-14-34 was a reinforced concrete building 13.3-ft by 13.6-ft by 8-ft. tall. The bullet test facility was located in the center of the western portion of Q-Site on level ground that drained to the southwest. M-8 group operated the bullet firing facility. Many types of bullets, including copper-jacketed lead, plastic, steel, and depleted uranium, were used. The firing was done in a 10-ft diameter steel tube so that the test material was usually contained in the tube or was vaporized. If residuals were contaminated with uranium, they were placed in 55-gallon drums for disposal. Any HE contaminated scrap or shrapnel was also placed in 55-gallon drums for pickup and treatment as HE contaminated waste. Scrap that is neither HE nor uranium-contaminated was sent to the sanitary landfill. Sandbags were used for shielding disintegrate from blast pressure. When removed, they were used for erosion control at the site.

Type of Release: HE (RDX), manganese, and uranium (LANL 1996, Page 1)

Justification: RCRA constituents potentially exist at this site. EPA issued an approval of the VCA Report in a letter dated January 9, 1998. However, in the letter, EPA stated that this site was by definition a SWMU and should be included in the LANL HSWA permit. The Permittees have not submitted a Class 3 Permit Modification requesting No Further Action (NFA) for this site. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. In addition, this site is listed as a HSWA SWMU in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5-3-3.
3) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-29.
4) LANL 1996b. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for Potential Release Site 14-001(f), Bullet Test Facility.* Field Unit 2. Environmental Restoration Project. LA-UR-96-3317. September 1996.
5) USEPA 1998. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Review of the Supplemental Information for the Voluntary Corrective Action (VCA) Completion Report for PRS 14-001(f).* January 9, 1998.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

14-001(g) – Firing Site – Open Burn/Open Detonation

Background: SWMU Report: 14-001(g) (TA-14-35) is a firing pad that was completed in 1964. To safely dispose of the scrap HE, the pieces were detonated at TA-14-35.

RFI Work Plan: All the work plan states is that this site is an active firing site and will therefore be recommended for deferred action (DA).

RFI Report: Because this site is still active, any corrective action will be deferred until decommissioning.

Type of Release: HE, and other unknowns (LANL 1990)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that deferred action was proposed because this site was still active. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED. The Permittees have not conducted an investigation at this site to date. Therefore, nature and extent of contamination has not been defined. Also, a determination as to whether contamination was routinely and systematically released from this site has not been finalized. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.4-3.
3) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-37.
4) LANL 1996b. Los Alamos National Laboratory. *Letter from LANL to NMED: Response to the NOD for TAs 12, 14, and 67, for RFI Report (Former Operable Unit 1085). EM/ER: 96-539.* October 15, 1996.
5) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
6) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

8) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

14-004(a) – Storage Area (Active)

Background: SWMU Report: 14-004(a) (TA-14-22) was used for satellite storage of scrap HE.

RFI Report: All the RFI Report states is that this is an active satellite storage area located next to structure TA-14-22. The site was deferred from further action until decommissioning.

Type of Release: HE and other unknowns (LANL 1990)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that deferred action was proposed because this site was still active. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED. The Permittees have not conducted an investigation at this site to date. Therefore, nature and extent of contamination has not been defined. Also, a determination as to whether contamination was routinely and systematically released from this site has not been finalized. Additionally, this site is listed in the 1990 SWMU Report.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 6-2 – 6-3.
3) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-81.
4) LANL 1996b. Los Alamos National Laboratory. *Letter from LANL to NMED: Response to the NOD for TAs 12, 14, and 67, for RFI Report (Former Operable Unit 1085). EM/ER: 96-539.* October 15, 1996.
5) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
6) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-14-001 - Magazine

Background: RFI Work Plan: C-14-001 (TA-14-1) was a magazine located in a wooded area 300-ft west of the western complex at TA-14. TA-14-1 was of wooden construction 9-ft wide by 11-ft long by 8-ft high with a soil berm on three sides and the top. It was on a level mesa 50-ft north of the rim of Cañon de Valle. The terrain slopes south to a row of low cliffs. To the west is a small canyon draining south. C-14-001 is about 25-ft in diameter and is located in the center of a 75-ft-diameter clearing on the forested mesa.

RFI Report: This magazine was built in October 1944 and served TA-14 firing sites. It was burned down in February 1963.

Type of Release: Copper, lead, and zinc (LANL 1996a, Page 5-94)

Justification: RCRA constituents exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that it was appropriate not to add this site to the LANL RCRA/HSWA Permit. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED. However, the RFI Report states that copper, lead, and zinc were all found above background values at a depth of 6-11-in. Therefore, the Permittees have not determined the contamination extent. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.6-4.
2) LANL 1996a. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-93 – 5-97.
3) LANL 1996b. Los Alamos National Laboratory. *Letter from LANL to NMED: Response to the NOD for TAs 12, 14, and 67, for RFI Report (Former Operable Unit 1085). EM/ER: 96-539.* October 15, 1996.
4) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
5) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-14-002 – Control Building

Background: RFI Work Plan: C-14-002 (TA-14-3) was a control building, built in October 1944 of wooden construction 8-ft wide by 14-ft long by 8-ft high with an addition of 6-ft wide by 6-ft long by 8-ft high. It was removed in March 1952. Because of the area in which it is located, there may be residual contamination.

RFI Report: This site is a former control building that has been removed. Its exact location is not known because it is under a paved road. No sampling was conducted at this site.

Type of Release: Strontium-90 (LANL 1994, Page 5-3-6)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that it was appropriate not to add this site to the LANL RCRA/HSWA Permit. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED. However, the RFI Report states that no sampling of any kind was conducted at this site. The RFI Work Plan stated that sampling at C-14-002 would be deferred until the site was decommissioned, but sampling would be performed in the drainages to detect any COPCs that may be migrating off-site. Given that, no investigation was conducted at C-14-002, the Permittees have not determined nature and extent of contamination or if there has been a routine and systematic release from this site. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5-3-5.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-31 – 5-32.
3) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
4) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-14-003 – HE-Preparation Building

Background: RFI Work Plan: C-14-003 (TA-14-4) is a decommissioned HE-preparation building. It was located north of magazine TA-14-22 in the central part of TA-14, within the loop made by the paved road circling the magazine. It was of wooden construction 12-ft wide by 25-ft long by 8-ft high. No sign of the building remains. The site was in an unpaved area lightly covered with grasses and weeds on the sloping side of the berm from magazine TA-14-22. The shot preparation building was built in October 1944 and removed in March 1952.

Type of Release: Uranium-238, HE (HMX) (LANL 1996, Page 5-53)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that additional information and/or further investigation was required for this site. EPA issued comments on the RFI Report in a letter dated March 3, 1997. The letter stated that it was appropriate not to add this site to the LANL RCRA/HSWA Permit. However, the RFI Report stated that because there was moderate potential for receptors to come in contact with ecological COPCs, this site would be included in an ecological risk assessment. To date, an ecological risk assessment has not been conducted at C-14-003 and the Permittees have not submitted a Class 3 Permit Modification requesting NFA for this site. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.4-5.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-50 – 5-53.
3) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
4) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-14-004 – Electronics Shop

Background: RFI Work Plan: C-14-004 (TA-14-7) is a decommissioned electronics shop. It was located 75-ft west of building TA-14-23, in the central part of TA-14. It was of wooden construction 15-ft wide by 24-ft long by 9-ft high. The terrain sloped gently to the south and was covered with grasses and a few low shrubs. To the west were oak thickets and pine forest. Runoff was toward the ditch bordering the graveled road serving the firing area. All that remains of building TA-14-7 is the concrete foundation and the concrete stoop at the north end. The electronics shop was built in January 1945 and removed in March 1952.

Type of Release: 4-chloro-3-methyl phenol, HE (LANL 1996, Page 5-55)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that it was appropriate not to add this site to the LANL RCRA/HSWA Permit. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED. However, the RFI Report stated that because there was moderate potential for receptors to come in contact with ecological COPCs, this site would be included in an ecological risk assessment. To date, an ecological risk assessment has not been conducted at C-14-004. In addition, the Permittees obtained only two samples at a depth of 0-2-in. and completed only SVOC analysis. The sampling and analysis conducted at this site is not sufficient to determine whether there was a routine and systematic release or the nature and extent of contamination. Furthermore, the Permittees have not submitted a Class 3 Permit Modification requesting NFA for this site. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.4-5.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-53 – 5-57.
3) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
4) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-14-005 – Storage Building

Background: RFI Work Plan: C-14-005 (TA-14-8) is a decommissioned storage building. It was located on the east side of the access road to TA-14, 80-ft north of building TA-14-6 in the central part of TA-14. It was of wooden construction 16-ft long by 6-ft wide by 9-ft high. The area was nearly level, only slightly sloping to the north, and covered with grasses and weeds. Drainage flowed into the ditch at the side of the road, then north to the R-Site Road drainage system. With the possible exception of a few chips of concrete, no signs of the building remain. This storage building was built in December 1944 and removed in March 1952.

Type of Release: Lead, mercury, and thallium (LANL 1996, Page 5-58)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that it was appropriate not to add this site to the LANL RCRA/HSWA Permit. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED. However, the RFI Report stated that because there was moderate potential for receptors to come in contact with ecological COPCs, this site would be included in an ecological risk assessment. To date, an ecological risk assessment has not been conducted at C-14-005. In addition, the Permittees obtained only two samples at a depth of 0-6-in. The sampling conducted at this site is not sufficient to determine whether there was a routine and systematic release or the extent of contamination, which was an objective of the RFI Report. Furthermore, the Permittees have not submitted a Class 3 Permit Modification requesting NFA for this site. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.4-5.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-57 – 5-61.
3) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
4) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-14-006 - Magazine

Background: RFI Work Plan: C-14-006 (TA-14-9) is a decommissioned magazine. It was located 30-ft northwest of magazine TA-14-22, in the central part of TA-14. It was of wooden construction 6-ft long by 6-ft wide by 6-ft high with a soil berm on three sides and on the top. The area was in a level field with pine forest to the north and west. The site is covered with loose fill, possibly resulting from leveling the berm that surrounded the magazine. Weeds and grasses covered the area. An asphalt road that circled the magazine is still visible. Drainage was to the northeast into the ditches lining the west sides of the paved roads. The location of C-14-006 has been determined from a LANL photograph taken in 1950. This structure was built in January 1945 and removed in March 1952.

Type of Release: TAL metals, HE, and other unknowns (LANL 1996, Page 5-62)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that it was appropriate not to add this site to the LANL RCRA/HSWA Permit. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED. However, the RFI Report stated that because there was moderate potential for receptors to come in contact with ecological COPCs, this site would be included in an ecological risk assessment. To date, an ecological risk assessment has not been conducted at C-14-006. In addition, the Permittees obtained only two samples at a depth of 0-6-in. and submitted the samples for HE and TAL metals analysis. The sampling and analysis conducted at this site was not sufficient to determine whether there was a routine and systematic release or the nature and extent of contamination. Additionally, the holding time for the HE analysis was exceeded. Furthermore, the Permittees have not submitted a Class 3 Permit Modification requesting NFA for this site. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.4-5.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-61 – 5-64.
3) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
4) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-14-007 – Storage Building

Background: RFI Work Plan: C-14-007 (TA-14-10) is a decommissioned storage building. It was located 160-ft west of TA-14-23, in the central part of TA-14, near the rim of the breaks leading south down to Cañon de Valle. It was of wooden construction 10-ft long by 10-ft wide by 8-ft high. The area was forested and covered with grasses and pine duff; the building footprint is overgrown by pines and oak brush. The terrain slopes to the south toward a low, rocky cliff. All that remains of TA-14-10 is a small pile of bricks with mortar attached to their sides. There is no obvious leveling of the site and no other debris. Measurements from photos and old maps indicated that location of TA-14-10. A trace of a gravel road passes the site and leads to the TA-14-7 foundation, as shown on an Engineering drawing (R-129). This building was built in January 1945 and removed in March 1952.

Type of Release: Total uranium, lead, thallium, and 4-amino-2,6-dinitrotoluene (LANL 1996, Page 5-66)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that it was appropriate not to add this site to the LANL RCRA/HSWA Permit. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED. However, the RFI Report stated that because there was moderate potential for receptors to come in contact with ecological COPCs, this site would be included in an ecological risk assessment. To date, an ecological risk assessment has not been conducted at C-14-007. In addition, the Permittees obtained only two samples at a depth of 0-5-in. (due to refusal). The sampling conducted at this site was not sufficient to determine whether there was a routine and systematic release or the extent of contamination. Furthermore, the Permittees have not submitted a Class 3 Permit Modification requesting NFA for this site. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pgs.: 5.4-5 – 5.4-6.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-64 – 5-69.
3) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
4) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-14-009 – Magazine

Background: RFI Work Plan: C-14-009 (TA-14-13) is a former magazine. It was located at the eastern end of TA-14, about 50-ft northeast of bunker TA-14-5. It was built of wooden construction, 3-ft wide by 4-ft long by 3-ft high, with soil berm on three sides and on top. C-14-009 was on a low knoll at the head of a small drainage that dropped to the southeast. The area is at the edge of a pine forest. A berm 6-ft in diameter remains at the site, as do traces of an unimproved road that once allowed access to the magazine from the west. Both are covered with grasses and weeds. The remains of a boardwalk running east to the former TA-14-13 from TA-14-5 are still visible. This magazine was built in January 1945 and was destroyed by burning in February 1960. The magazine was reported to be contaminated with HE in 1959.

Type of Release: Lead and HE (LANL 1996, Page 5-100)

Justification: RCRA constituents potentially exist at this site. NMED issued a NOD for the RFI Report on August 16, 1996. The NOD stated that it was appropriate not to add this site to the LANL RCRA/HSWA Permit. EPA issued comments on the RFI Report in a letter dated March 3, 1997 and concurred with NMED. However, the RFI Report stated that because there was moderate potential for receptors to come in contact with ecological COPCs, this site would be included in an ecological risk assessment. To date, an ecological risk assessment has not been conducted at C-14-007. In addition, the Permittees only analyzed for HE and TAL metals. The analyses conducted at this site were not sufficient to determine whether there was a routine and systematic release or the nature of contamination. Furthermore, the Permittees have not submitted a Class 3 Permit Modification requesting NFA for this site. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1085.* May 1994. LA-UR-94-1033. Pg.: 5.6-4 – 5.6-5.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-14 and TA-12/67 (located in former Operable Unit 1085).* Field Unit 2. Environmental Restoration Project. LA-UR-96-511. February 1996. Pgs.: 5-97 – 5-100.
3) NMED 1996. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Technical Areas 12, 14, and 67.* August 16, 1996.
4) USEPA 1997. United States Environmental Protection Agency (USEPA). *Letter from EPA to NMED: Comments on LANL NOD Response of the LANL RCRA RFI Report for PRSs in Technical Areas (TAs) 14 and 12/67.* March 3, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

15-001 – Surface Disposal ("Boneyard")

Background: SWMU Report: This SWMU is a boneyard, an area used to store equipment. It was located to the east of TA-15-233. The unit stored steel, equipment, and experimental vessels.

RFI Work Plan: 15-001, the boneyard, is an area north and east of TA-15-233 that was used to store equipment, steel, and experimental vessels. The Permittees believed it was unlikely that storage of this equipment resulted in hazardous materials being added to the soil or the air. The experimental vessels were cleaned before they were brought to the site. In addition, the vessels were kept sealed as a precaution against any remaining hazardous material.

RFI Report: 15-001 is an active site that is being used to store equipment, steel, experimental vessels, and construction debris from Dual Axis Radiographic Hydro Test Facility (DARHT) and Pulsed High Energy Radiographic Machine Emitting X-rays (PHERMEX). This was deferred from further action until decommissioning.

Type of Release: HE, lead, uranium, beryllium, radionuclides, other unknowns (LANL 1993, Page 8-22)

Justification: NMED issued a NOD/Denial for the RFI Report on July 30, 1997. The NOD stated that; 1) the Permittees continue to inappropriately apply Toxicity Characteristic Leachate Procedure (TCLP) to determine the nature and extent of contamination, 2) the Permittees failed to perform investigations as set forth in the approved RFI Work Plan, 3) the Permittees did not obtain prior regulatory approval for deferrals and other variances from the schedule of compliance, 4) the Permittees did not directly address the NOD comments as provided in the NOD, 5) the Permittees failed to provide requested supporting documentation which was required for a regulatory determination or that supported a stand-alone document, 6) the Permittees did not provide a compilation of all analytical data and analytical results obtained during the RFI, and 7) the Permittees did not provide information upon which it based further action decisions. NMED approved an extension for submittal of the revised RFI Report and Phase II Sampling and Analysis Plans for TA-15 in a letter dated October 15, 1998. The letter stated that all revised documents must be submitted by March 31, 1999. The Permittees have not submitted a revised RFI Report, any kind of sampling and analysis results, or a request of deferred action for this site. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086.* June 1993. LA-UR-92-3968. Pgs.: 8-20, 8-22.

3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086).* Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-1.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996).* July 30, 1997.
5) NMED 1998. New Mexico Environment Department (NMED). *Letter from NMED to LANL*: *Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency.* October 15, 1998.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

15-004(d) – Firing Site C (inactive)

Background: 15-004(d) (TA-15-35) was firing point C (control chamber) and was built in 1947 and was believed to have been abandoned in 1949. It was constructed of wood and had dimensions of 4'9" x 4' x 8'. It was removed in 1969.

RFI Work Plan: Firing Point C was located at the "Y" of the road from the main TA-15 headquarters buildings to E-F site and the road to I-J site in TA-36. Building TA-15-7 was the headquarters building and was used as the control room for Firing Point C. The x-unit, TA-15-35 was at ground level and partially covered with a berm. Explosions were conducted within 25 ft of the x-unit. The firing platforms (15-004(a)) in the SWMU Report) described in the SWMU Report as "not locate" were in reality concrete slabs at Firing Point C, which were removed by 1947.

Type of Release: uranium, mercury, lead, copper, nickel, uranium-235 (LANL 1995, Pages 4-18 – 4-19)

Justification: NMED granted conditional approval of the RFI Report on November 19, 1997. The approval with modifications stated that; 1) brief summaries of each site must be included in the screening assessment section, 2) NFA proposal is based on human health only and, 3) additional sampling was required because HE samples were not analyzed by an off-site fixed laboratory. The Permittees provided a Response to the conditional approval in May 1998. In the response, the Permittees provided an adequate response to item 1, and also stated that 15-004(d) would be resampled and samples would be submitted to an off-site laboratory for HE analysis. The results and conclusions of the sampling would be presented in an addendum to the RFI Report at a later date. The Permittees have not submitted an addendum to the RFI Report, which addresses the additional HE sampling and analysis at this site. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086.* June 1993. LA-UR-92-3968. Pgs.: 8-12 – 8-16.
3) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites, 15-004(a-d,f), 15-007(b), 15-008(a,b), 15-009(e,j), 15-012(b), C-15-004 (located in former Operable Unit 1086).* Field Unit 2. Environmental Restoration Project. LA-UR-95-3738. November 1995. Pgs.: 4-14 – 4-22.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Conditional Approval Upon Modification: RFI Report for Potential Release Sites, 15-004(a-d,f), 15-007(b), 15-008(a,b), 15-009(e,j), 15-012(b), C-15-004; dated November 1995.* November 19, 1997.

5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

15-004(h) – Firing Site H (inactive)

Background: SWMU Report: 15-004(h) was firing point H and was built in 1948 and was probably used until 1953. 15-004(h) is associated with two structures, TA-15-17 and TA-15-92, an instrument chamber and camera chamber, respectively.

RFI Work Plan: Located at the PHERMEX firing site is the inactive Firing Site H (15-004(h)). Built in 1948, this firing site was probably used until 1953 for larger explosions than those set off at Firing Point A. The camera chamber (TA-15-92) still remains on the site and has been proposed for decontamination and decommissioning. Activities at PHERMEX did not impact this SWMU, with the possible exception of hazardous debris that may have been deposited on the soil by explosions set off at PHERMEX. The EG&G aerial survey results showed that in 1982 the PHERMEX site contained the second largest concentration of radionuclides in the soil surfaces of all the firing sites in OU 1086. The contamination was centered in the PHERMEX site but includes Firing Site H.

RFI Report: 15-004(h) is an inactive Firing Site located within the active PHERMEX hazard area. Due to its close proximity to PHERMEX (within 300 ft), action will be deferred until decommissioning.

Type of Release: uranium, beryllium, lead, and residual HE (LANL 1993, Page 8-27)

Justification: NMED issued a NOD/Denial for the RFI Report on July 30, 1997. The NOD stated that; 1) the Permittees continue to inappropriately apply Toxicity Characteristic Leachate Procedure (TCLP) to determine the nature and extent of contamination, 2) the Permittees failed to perform investigations as set forth in the approved RFI Work Plan, 3) the Permittees did not obtain prior regulatory approval for deferrals and other variances from the schedule of compliance, 4) the Permittees did not directly address the NOD comments as provided in the NOD, 5) the Permittees failed to provide requested supporting documentation which was required for a regulatory determination or that supported a stand-alone document, 6) the Permittees did not provide a compilation of all analytical data and analytical results obtained during the RFI, and 7) the Permittees did not provide information upon which it based further action decisions. NMED approved an extension for submittal of the revised RFI Report and Phase II Sampling and Analysis Plans for TA-15 in a letter dated October 15, 1998. The letter stated that all revised documents must be submitted by March 31, 1999. The Permittees have not submitted a revised RFI Report, any kind of sampling and analysis results, or a request of deferred action for this site. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. Releases from explosions potentially contain hazardous constituents.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.

2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086.* June 1993. LA-UR-92-3968. Pgs.: 8-23, 8-27.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086).* Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-1.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996).* July 30, 1997.
5) NMED 1998. New Mexico Environment Department (NMED). *Letter from NMED to LANL*: *Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency.* October 15, 1998.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

15-005(b) – Container Storage Area

Background: SWMU Report: This container storage area is located in Bunker TA-15-242, the Make-Up Building. This area stored scrap HE.

RFI Work Plan: Soil sampling was proposed outside the building in two places, with bias given to visible staining.

RFI Report: Three storage areas were located near 15-005(b). A grassy field is on one side of the building, and a paved road is on the other side.

Type of Release: Uranium, beryllium, lead, HE (LANL 1993, Page 10-19)

Justification: NMED issued a NOD/Denial for the RFI Report on July 30, 1997. The NOD stated that; 1) the Permittees continue to inappropriately apply Toxicity Characteristic Leachate Procedure (TCLP) to determine the nature and extent of contamination, 2) the Permittees failed to perform investigations as set forth in the approved RFI Work Plan, 3) the Permittees did not obtain prior regulatory approval for deferrals and other variances from the schedule of compliance, 4) the Permittees did not directly address the NOD comments as provided in the NOD, 5) the Permittees failed to provide requested supporting documentation which was required for a regulatory determination or that supported a stand-alone document, 6) the Permittees did not provide a compilation of all analytical data and analytical results obtained during the RFI, and 7) the Permittees did not provide information upon which it based further action decisions. NMED approved an extension for submittal of the revised RFI Report and Phase II Sampling and Analysis Plans for TA-15 in a letter dated October 15, 1998. The letter stated that all revised documents must be submitted by March 31, 1999. The Permittees have not submitted a revised RFI Report, any kind of sampling and analysis results, or a request of deferred action for this site. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086.* June 1993. LA-UR-92-3968. Pgs.: 10-18 – 10-21.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086).* Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-72 – 5-75.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996).* July 30, 1997.
5) NMED 1998. New Mexico Environment Department (NMED). *Letter from NMED to LANL*: *Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency.* October 15, 1998.

6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

15-005(c) – Container Storage Area (R-41)

Background: SWMU Report: This container storage area is located in Bunker TA-15-41. This area stored scrap HE and chem-wipes contaminated with acetone, ethanol, and mineral oil.

RFI Work Plan: 15-005(c) was located near Firing Point C. Soil sampling was proposed outside the building in two places, with bias given to visible staining.

Type of Release: Uranium, beryllium, lead, HE (LANL 1993, Page 10-19), acetone, and ethanol (LANL 1990)

Justification: NMED issued a NOD/Denial for the RFI Report on July 30, 1997. The NOD stated that; 1) the Permittees continue to inappropriately apply Toxicity Characteristic Leachate Procedure (TCLP) to determine the nature and extent of contamination, 2) the Permittees failed to perform investigations as set forth in the approved RFI Work Plan, 3) the Permittees did not obtain prior regulatory approval for deferrals and other variances from the schedule of compliance, 4) the Permittees did not directly address the NOD comments as provided in the NOD, 5) the Permittees failed to provide requested supporting documentation which was required for a regulatory determination or that supported a stand-alone document, 6) the Permittees did not provide a compilation of all analytical data and analytical results obtained during the RFI, and 7) the Permittees did not provide information upon which it based further action decisions. NMED approved an extension for submittal of the revised RFI Report and Phase II Sampling and Analysis Plans for TA-15 in a letter dated October 15, 1998. The letter stated that all revised documents must be submitted by March 31, 1999. The Permittees have not submitted a revised RFI Report, any kind of sampling and analysis results, or a request of deferred action for this site. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086.* June 1993. LA-UR-92-3968. Pgs.: 10-18 – 10-21.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086).* Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-75 – 5-79.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996).* July 30, 1997.
5) NMED 1998. New Mexico Environment Department (NMED). *Letter from NMED to LANL*: *Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency.* October 15, 1998.

6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

15-008(g) – Surface Disposal

Background: SWMU Report: 15-008(g) was a sand bag pile near manhole TA-15-116 and on top of barrier TA-15-142 at the R-45 site.

RFI Work Plan: The sandbags (15-008(g)) are considered part of the firing site SWMU (15-006(d)) and not as a separate SWMU.

RFI Report: 15-008(g) is a pile of broken up sandbags. The sandbags may have been used as shielding during explosions carried out at R-45 Firing Site and may have received fragments from the explosives.

Type of Release: metals, uranium, HE (LANL 1990)

Justification: NMED issued a NOD/Denial for the RFI Report on July 30, 1997. The NOD stated that; 1) the Permittees continue to inappropriately apply Toxicity Characteristic Leachate Procedure (TCLP) to determine the nature and extent of contamination, 2) the Permittees failed to perform investigations as set forth in the approved RFI Work Plan, 3) the Permittees did not obtain prior regulatory approval for deferrals and other variances from the schedule of compliance, 4) the Permittees did not directly address the NOD comments as provided in the NOD, 5) the Permittees failed to provide requested supporting documentation which was required for a regulatory determination or that supported a stand-alone document, 6) the Permittees did not provide a compilation of all analytical data and analytical results obtained during the RFI, and 7) the Permittees did not provide information upon which it based further action decisions. NMED approved an extension for submittal of the revised RFI Report and Phase II Sampling and Analysis Plans for TA-15 in a letter dated October 15, 1998. The letter stated that all revised documents must be submitted by March 31, 1999. The Permittees have not submitted a revised RFI Report or any kind of sampling and analysis results for this site. Additionally, this site is listed in the 1990 SWMU Report and on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. It is listed as a HSWA SWMU in the 2000 Installation Work Plan because it is included in consolidated unit 15-006(d)-99.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086.* June 1993. LA-UR-92-3968. Pgs.: 6-5.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086).* Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May 1996. Pgs.: 5-103 – 5-106.

4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996).* July 30, 1997.
5) NMED 1998. New Mexico Environment Department (NMED). *Letter from NMED to LANL*: *Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency.* October 15, 1998.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

15-009(l) – Septic System TA-15-00

Background:

Type of Release:

Justification:

References:

* There is no information available regarding this site. Therefore, the Permittees must retain it on the permit unless information can be provided concerning its current status.

15-014(d) – Drain line and outfall

Background: SWMU Report: 15-014(d) served building TA-15-185 from 1961 to the present. The intended use of this drain line was unknown, but its outfall was located in Water Canyon.

RFI Work Plan: In all probability, the drain line has been in use since 1961 when Building TA-15-185 was constructed; it drains surface water into Water Canyon. It was recommended for No Further Action (NFA).

Type of Release: Unknown

Justification: To date, no investigation of any kind has been conducted at this site to show the absence of hazardous constituents. It is not clear from the rFI Work Plan which area if the building was serviced by this outfall/drainage. Additionally, this site is listed in the 1990 SWMU Report and on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086.* June 1993. LA-UR-92-3968. Pgs.: 5-8.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086).* Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-6.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996).* July 30, 1997.
5) NMED 1998. New Mexico Environment Department (NMED). *Letter from NMED to LANL*: *Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency.* October 15, 1998.
6) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

15-014(g) – Outfall

Background: SWMU Report: 15-014(g) served building TA-15-203. The period of use is unknown. This ditch was used to drain cooling water and its outfall was located in Water Canyon.

RFI Work Plan: This SWMU is an outfall located 11 ft east of the northwest corner of building TA-15-203. It is a drain that was used for once-through cooling water to an air compressor. The water drained into a ditch emptying into Cañon de Valle. This outfall currently has EPA permit number 04A093. The air compressor has been taken out of service and removed. This site was proposed for No Further Action (NFA).

Type of Release: copper, lead, mercury, zinc, PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, phenathrene, and pyrene), SVOC (bis(2-ethylhexyl)phthalate (LANL 1996, Page 5-42 – 5-43)

Justification: NMED approved an extension for submittal of a revised RFI Report and Phase II Sampling and Analysis Plans for TA-15 in a letter dated October 15, 1998. The letter stated that all revised documents must be submitted by March 31, 1999. The Permittees have not submitted a revised RFI Report or any kind of sampling and analysis results for this site. In addition, the RFI Report stated that because there was a high potential for receptors to come in contact with ecological COPCs, this site would be included in an ecological risk assessment. To date, an ecological risk assessment has not been conducted at 15-014(g). Furthermore, because this site is an outfall, it routinely and systematically released contamination (based on surface sampling results reported in LANL, 1996, no samples were collected >6 inches deep) via surface water to Cañon de Valle. Finally, this site is listed in the 1990 SWMU Report and on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086.* June 1993. LA-UR-92-3968. Pgs.: 5-3.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086).* Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-40 – 5-44.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996).* July 30, 1997.
5) NMED 1998. New Mexico Environment Department (NMED). *Letter from NMED to LANL*: *Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency*. October 15, 1998.

6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

15-014(h) – Outfall

Background: SWMU Report: 15-014(h) served building TA-15-40. The period of use is unknown. This SWMU consists of two 8” diameter vitrified clay pipes. These drain lines discharged non-contact cooling water (EPA Permit No. EPA04A013 & EPA04A102) to Three-Mile Canyon.

RFI Work Plan: 15-014(h) consists of three outfalls on the northeast side of building TA-15-40 from which non-contact cooling water was emptied. The first outfall is presently permitted (EPA04A013). Before the outfall was permitted by EPA, its effluent included wastes from a photographic laboratory; therefore, this outfall may contain silver and organic compounds. The second outfall is from building TA-15-40 located approximately 60 to 100 ft north of the building and in line with the east end of the building. The outfall is an 8” vitrified clay pipe and is permitted as EPA04A102. This outfall is supplied by non-contact cooling water, roof drains, and floor drains. The floor drains can receive flow from drain valves in a potable water system. The third outfall is a storm drain that connected a yard draining north and east of building TA-15-40 to an outfall in a grassed area north and east of building TA-15-40. This drain line is a 12” corrugated-metal pipe and the outfall empties into Three-Mile Canyon. The third outfall was proposed for No Further Action (NFA).

Type of Release: silver, copper, mercury, and zinc (LANL 1996, Page 5-93)

Justification: NMED issued a NOD/Denial for the RFI Report on July 30, 1997. NMED approved an extension for submittal of an revised RFI Report and Phase II Sampling and Analysis Plans for TA-15 in a letter dated October 15, 1998. The letter stated that all revised documents must be submitted by March 31, 1999. The Permittees have not submitted a revised RFI Report or any kind of sampling and analysis results for this site. In addition, the RFI Report stated that because there was a high potential for receptors to come in contact with ecological COPCs, this site would be included in an ecological risk assessment. To date, an ecological risk assessment has not been conducted at 15-014(g). Furthermore, because this site is an outfall, it routinely and systematically releases contamination (based on sampling results in LANL, 1996) through surface water to Three-Mile Canyon. Finally, this site is listed in the 1990 SWMU Report and on the “Under Investigation” lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086.* June 1993. LA-UR-92-3968. Pgs.: 10-22 – 10-24.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086).* Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-90 – 5-94.

4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996).* July 30, 1997.
5) NMED 1998. New Mexico Environment Department (NMED). *Letter from NMED to LANL*: *Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency.* October 15, 1998.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-15-001 – Surface Disposal

Background: RFI Work Plan: During the 1988 environmental restoration site reconnaissance visit, a soil pile contaminated with radionuclides was noted. The pile was denoted as AOC C-15-001 in the SWMU Report. The site was within the sampling plan for Firing Site G.

Type of Release: Chromium, copper, silver, uranium, uranium-234, -235, -238 (LANL 1997, Pages 5-4 – 5-5)

Justification: This site contains hazardous constituents ((chromium, copper, and silver) above background levels. This site is listed in the 1990 SWMU Report and on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086.* June 1993. LA-UR-92-3968. Pgs.: 8-17, 8-19.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086).* Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-1.
3) LANL 1997. Los Alamos National Laboratory. *Addendum; RFI Report for Potential Release Sites, C-15-001, Soil Pile and C-15-007, Stained Soil.* Field Unit 2. Environmental Restoration Project. LA-UR-97-3881. September 1997. Pgs.: 4-1 – 4-2, 5-1 – 5-6.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996).* July 30, 1997.
5) NMED 1998. New Mexico Environment Department (NMED). *Letter from NMED to LANL*: *Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency.* October 15, 1998.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-15-004 – Transformers

Background: SWMU Report: This is a transformer station (TA-15-56) consisting of 2 transformers; one containing 30 gallons of 174 ppm PCB oil and the other containing 18 gallons of 79 ppm PCB oil. The transformers were removed December 3, 1989.

RFI Work Plan: The transformer station, designated TA-15-56 was located 20 to 30 feet southwest of building TA-15-27, the control room for Firing Site E-F. Two transformers were located on a wooden platform some 10 ft in the air. The two transformers (30-gal. and 12-gal. capacity, respectively) contained oil contaminated with PCBs. The transformers were removed in 1989. There was no evidence of leakage on the wood platform or on the soil in a small arroyo below the platform. However, two samples were obtained for field screening and laboratory analyzed for PCBs.

Type of Release: PCBs (LANL 1993, Page 7-21)

Justification: NMED granted conditional approval of the RFI Report on November 19, 1997. The approval with modifications stated that; 1) brief summaries of each site must be included in the screening assessment section, 2) NMED does not concur with a NFA proposal because possible fate and transport required further investigation. The Permittees provided a Response to the conditional approval in May 1998. In the response, the Permittees stated that C-15-004 would be sampled along the drainage to investigate potential migration. The Permittees provided a Sampling and Analysis Plan (SAP) as Attachment 3 of the response. The SAP has not been approved by NMED. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086.* June 1993. LA-UR-92-3968. Pgs.: 7-21.
3) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites, 15-004(a-d,f), 15-007(b), 15-008(a,b), 15-009(e,j), 15-012(b), C-15-004 (located in former Operable Unit 1086).* Field Unit 2. Environmental Restoration Project. LA-UR-95-3738. November 1995. Pgs.: 4-23– 4-57.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Conditional Approval Upon Modification: RFI Report for Potential Release Sites, 15-004(a-d,f), 15-007(b), 15-008(a,b), 15-009(e,j), 15-012(b), C-15-004; dated November 1995.* November 19, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-15-005– Former Laboratory and Building

Background: SWMU Report: C-15-005 (TA-15-1) was a laboratory and shop. The structure was removed in 1962.

RFI Work Plan: Building TA-15-1 (C-15-005) was the original laboratory and shop associated with tests conducted at Firing Points C and D. This is also the site of Building R1. The building was demolished by 1962 and there is no information available regarding the final destination of the remaining rubble. Phase I sampling was proposed for this site.

Type of Release: mercury, uranium, lead, manganese, and zinc (LANL 1996, Page 5-19)

Justification: NMED issued a NOD/Denial for the Response to NOD and RFI Report on July 30, 1997. The NOD/Denial stated that; 1) the Permittees continue to inappropriately apply Toxicity Characteristic Leachate Procedure (TCLP) to determine the nature and extent of contamination, 2) the Permittees failed to perform investigations as set forth in the approved RFI Work Plan, 3) the Permittees did not obtain prior regulatory approval for deferrals and other variances from the schedule of compliance, 4) the Permittees did not directly address the NOD comments as provided in the NOD, 5) the Permittees failed to provide requested supporting documentation which was required for a regulatory determination or that supported a stand-alone document, 6) the Permittees did not provide a compilation of all analytical data and analytical results obtained during the RFI, and 7) the Permittees did not provide information upon which it based further action decisions. NMED approved an extension for submittal of the revised RFI Report and Phase II Sampling and Analysis Plans for TA-15 in a letter dated October 15, 1998. The letter stated that all revised documents must be submitted by March 31, 1999. The Permittees have not submitted a revised RFI Report or any kind of sampling and analysis results for this site. Additionally, this site is listed in the 1990 SWMU Report and on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086*. June 1993. LA-UR-92-3968. Pgs.: 9-2 – 9-6.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086)*. Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-16 – 5-20.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996)*. July 30, 1997.
5) NMED 1998. New Mexico Environment Department (NMED). Letter from NMED to LANL: Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency. October 15, 1998.

6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project*. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-15-006 – Building

Background: SWMU Report: C-15-006 was the location of TA-15-7; an office, darkroom, and associated soil contaminated with mercury. The structure was removed in 1962.

RFI Work Plan: Building TA-15-7 was the original control room and darkroom used in support of tests at Firing Points C and most likely D during the last half of the 1940s.

RFI Report: The building may have been used as a darkroom, but little is known about activities in the building that may have involved hazardous materials.

Type of Release: Metals (uranium, lead, mercury, silver, beryllium), SVOCs, and VOCs (LANL 1993, Page 9-5)

Justification: NMED issued a NOD/Denial for the Response to NOD and RFI Report on July 30, 1997. The NOD/Denial stated that; 1) the Permittees continue to inappropriately apply Toxicity Characteristic Leachate Procedure (TCLP) to determine the nature and extent of contamination, 2) the Permittees failed to perform investigations as set forth in the approved RFI Work Plan, 3) the Permittees did not obtain prior regulatory approval for deferrals and other variances from the schedule of compliance, 4) the Permittees did not directly address the NOD comments as provided in the NOD, 5) the Permittees failed to provide requested supporting documentation which was required for a regulatory determination or that supported a stand-alone document, 6) the Permittees did not provide a compilation of all analytical data and analytical results obtained during the RFI, and 7) the Permittees did not provide information upon which it based further action decisions. NMED approved an extension for submittal of the revised RFI Report and Phase II Sampling and Analysis Plans for TA-15 in a letter dated October 15, 1998. The letter stated that all revised documents must be submitted by March 31, 1999. The Permittees have not submitted a revised RFI Report or any kind of sampling and analysis results for this site. Additionally, this site is listed in the 1990 SWMU Report and on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086*. June 1993. LA-UR-92-3968. Pgs.: 9-2 – 9-6.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086)*. Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-20 – 5-23.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996)*. July 30, 1997.
5) NMED 1998. New Mexico Environment Department (NMED). *Letter from NMED to*

LANL: Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency. October 15, 1998.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project*. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-15-007 – Non-intentional Release

Background: SWMU Report: C-15-007 was an area of stained soil on the exterior southwest corner of building TA-15-194. It was noted during the E.R. site reconnaissance visit in 1988.

RFI Work Plan: The area of stained soil is now covered by a metal transportainer (transportable container) designated TA-15-372.

RFI Report: C-15-007 was an oil stain under a temporary building presently in place in the Hollow. The site is proposed for deferred action until the temporary building is removed.

Type of Release: Copper, zinc, PAHs (LANL 1997, Pages 5-11, 5-13 – 5-14)

Justification: NMED issued a NOD/Denial for the Response to NOD and RFI Report on July 30, 1997. The NOD/Denial stated that; 1) the Permittees continue to inappropriately apply Toxicity Characteristic Leachate Procedure (TCLP) to determine the nature and extent of contamination, 2) the Permittees failed to perform investigations as set forth in the approved RFI Work Plan, 3) the Permittees did not obtain prior regulatory approval for deferrals and other variances from the schedule of compliance, 4) the Permittees did not directly address the NOD comments as provided in the NOD, 5) the Permittees failed to provide requested supporting documentation which was required for a regulatory determination or that supported a stand-alone document, 6) the Permittees did not provide a compilation of all analytical data and analytical results obtained during the RFI, and 7) the Permittees did not provide information upon which it based further action decisions. The Permittees submitted an Addendum RFI Report for this site on September 24, 1997. According to the Addendum RFI Report, several constituents were detected above background values (e.g., copper, zinc) and an ecological risk assessment was not conducted. The Permittees have not defined nature and extent of contamination at this site. Additionally, this site is listed in the 1990 SWMU Report and on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086*. June 1993. LA-UR-92-3968. Pgs.: 10-4.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086)*. Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-45.
4) LANL 1997. Los Alamos National Laboratory. *Addendum RFI Report for Potential Release Sites C-15-001, Soil Pile, C-15-007, Stained Soil*. Field Unit 2. Environmental Restoration Project. LA-UR-97-3881. September 1997. Pgs.: 5-6 – 5-17.
5) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to*

LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996). July 30, 1997.
6) NMED 1998. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency*. October 15, 1998.
7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project*. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-15-010 – Former Underground Tank

Background: SWMU Report: This is an inactive underground fuel storage tank (TA-15-52).

RFI Work Plan: An inactive underground fuel storage tank, AOC C-15-010 (structure designation TA-15-52), was located 15 ft south of the southwest corner of building TA-15-20. The tank was removed in 1989.

RFI Report: Part of the area that contained the fuel storage tank is now covered by a transportainer. The tank was approximately 15 ft to 20 ft long and 7 ft wide. Based on the sample results and screening assessment, a Phase II investigation was recommended.

Type of Release: lead, copper, zinc, TPH, BTEX, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and Indeno(1,2,3-cd)pyrene (LANL 1996, Pages 5-48 – 5-50)

Justification: The RFI Report stated that a Phase II investigation was required to fully characterize the nature and extent of potential contamination associated with the fuel tank. The Permittees have not submitted the results of the proposed Phase II investigation. In addition, NMED issued a NOD/Denial for the Response to NOD and RFI Report on July 30, 1997. The NOD/Denial stated that; 1) the Permittees failed to perform investigations as set forth in the approved RFI Work Plan, 2) the Permittees did not obtain prior regulatory approval for deferrals and other variances from the schedule of compliance, 3) the Permittees failed to provide requested supporting documentation which was required for a regulatory determination or that supported a stand-alone document and, 4) the Permittees did not provide a compilation of all analytical data and analytical results obtained during the RFI. Finally, this site is listed in the 1990 SWMU Report and on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086*. June 1993. LA-UR-92-3968. Pgs.: 10-8 – 10-9.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086)*. Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-45– 5-53.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996)*. July 30, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-15-011 – Former Underground Tank

Background: SWMU Report: This is an inactive, 218-gallon, underground gasoline storage tank (TA-15-274).

RFI Work Plan: Initially a 218-gallon underground fuel storage tank designated TA-15-274 was located immediately south of building TA-15-185. This storage tank was removed in 1987. This site was proposed for Phase I sampling.

Type of Release: Acetone (LANL 1996, Page 5-5), VOCs, and SVOCs (LANL 1993, Page 8-27)

Justification: No constituents were detected above background at this site; however, NMED issued a NOD/Denial for the Response to NOD and RFI Report on July 30, 1997. The NOD/Denial stated that; 1) the Permittees continue to inappropriately apply Toxicity Characteristic Leachate Procedure (TCLP) to determine the nature and extent of contamination, 2) the Permittees failed to perform investigations as set forth in the approved RFI Work Plan, 3) the Permittees did not obtain prior regulatory approval for deferrals and other variances from the schedule of compliance, 4) the Permittees did not directly address the NOD comments as provided in the NOD, 5) the Permittees failed to provide requested supporting documentation which was required for a regulatory determination or that supported a stand-alone document, 6) the Permittees did not provide a compilation of all analytical data and analytical results obtained during the RFI, and 7) the Permittees did not provide information upon which it based further action decisions. NMED approved an extension for submittal of the revised RFI Report and Phase II Sampling and Analysis Plans for TA-15 in a letter dated October 15, 1998. The letter stated that all revised documents must be submitted by March 31, 1999. The Permittees have not submitted a revised RFI Report or any kind of sampling and analysis results for this site. Additionally, this site is listed in the 1990 SWMU Report and on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1086*. June 1993. LA-UR-92-3968. Pgs.: 8-26 – 8-27.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-15 (located in former Operable Unit 1086)*. Field Unit 2. Environmental Restoration Project. LA-UR-96-1685. May- 1996. Pgs.: 5-3 - 5-5.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Denial of RCRA Facility Investigation Report and Response to Notice of Deficiency, Technical Area 15 (dated May 1996)*. July 30, 1997.
5) NMED 1998. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Request for Withdrawal, TA-15 RCRA Facility Investigation (RFI) Report and Notice of Deficiency*. October 15, 1998.

6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-003(p) – Sump - Decommissioned

Background: SWMU Report: SWMU 16-003(p) is identified as a sump. The associated structure is TA-16-478. Common past practices at TA-16 was to route any industrial water containing HE through catchment baffle-filter sumps before discharge. Open floor drains in each room also connect with these collecting sumps. The baffle filters or settling areas have been regularly cleaned since put to use.

RFI work plan: The SWMU 16-003(p) measures 15 ft long X 5 ft wide X 4 ft deep. The SWMU is part of an aggregate, which also includes drain lines from building TA-16-478. TA-16-478 was used for remote HE machining tests, specifically high speed machining tests on experimental HE compounds for Characterization purposes. TA-16-478 is rarely used now and the sump and outfall are plugged and inactive. The drainage systems associated with TA-16-478 are believed to be contaminated therefore the sump associated with TA-16-478 may also have spread contamination into the surrounding soil.

Type of Release: HE, HE residues, metals, barium, VOCs, and possibly depleted or natural uranium (LANL, 1995, pg 5-29-6).

Justification:
There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 5-29-1, 5-29-7
3) LANL 1996. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082*. February 21, 1996. EM/ER:96-072
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project*. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-003(q) – Sump - Decommissioned

Background: SWMU Report: This SWMU is identified as a sump. The associated structure is TA-16-450. Common past practices at TA-16 was to route any industrial water containing HE through catchments baffle-filter sumps before discharge. Open floor drains in each room also connect with these collecting sumps. The baffle filters or settling areas have been regularly cleaned since put to use.

RFI work plan: 16-003(q) is listed in the SWMU report as an active HE sump that serves TA-16-450, a materials testing facility; however, HE was never used in the building. This sump is addressed as SWMU 16-029(g) in the 1993 RFI Work Plan for OU 1082. In the Rationale for Recommendation section of this report, SWMU 16-003(q) is identified as a duplicate of SWMU 16-029(g). SWMU 16-029(g) includes the sump, NPDES permitted outfall (04A091) and drainage associated with TA-16-450.

CEARP Installation Assessment: Table V.D.6 lists TA-16-450 as industrial outfall. Characterized effluent is listed as non-contact cooling water. TA-16-450 is listed as a NPDES site, serial number 091, EPA ID number 04A.

Type of Release: Diethylene triamine (RFI Work Plan, pg. 5-39)

Justification:
There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 2 of 2 Pages VD 48
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
3) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-20
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory

AOC 16-005 (a) – Septic Tank - Decommissioned

Background: SWMU Report: This SWMU is identified as a septic tank and the structure associated with the tank is TA-16-161. The tank was constructed of reinforced concrete with dimensions of 11'6 X 13'6" X 9.7" and was built in 1945. The tank served buildings TA-16-42 thru TA-16-45. Waste associated with the tank consists of domestic waste and possibly industrial waste. The outfall location is listed as Water Canyon, however there is no indication that any outfall is associated with this site. .

RFI work plan: SWMU 16-005(a) contains potentially contaminated subsurface soil adjacent to a decommissioned reinforced concrete septic tank, TA 16-161, with its associated drain field. The report states that the tank was built in 1945 and abandoned in place in 1952, in May 1967 the tank was removed. The tank was located in the southwest region of TA-16 and drained toward Water Canyon. Laundry facilities were likely contaminated with HE because fairly large amounts of HE adhered to the workers clothing, therefore it is likely that TA-16-161 contained HE.

Table 5-110, pg 5-445 identifies SWMU 16-005(a) as a potential release site for contaminants of concern, and the primary activity leading to a potential problem are listed as the steam plant, metal shop, laundry facility, HE storage.

Type of Release: Undetonated HE, HE degradation products, metals suite, barium, volatiles and semi volatiles (LANL 1994, pg. 5-445)

Justification:
There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-439-440, 5-445, 5-452-453.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-005(c) – Septic Tank - Decommissioned

Background: SWMU Report: This SWMU is identified as a septic tank and the associated structure number is TA-16-176. The tank was constructed of reinforced concrete with dimensions of 8' X 6' X 4' and was built in 1945. The waste associated with the tank consisted of domestic waste and possibly industrial waste. The outfall location associated with the site is Water Canyon, however the report does not provide information regarding any releases or contamination.

RFI work plan: The tank served as a lavatory, but the building it served varied drastically in potential HE levels. The tank was of reinforced concrete and had a wooden cover. The tank discharged to a 4 in. vitreous clay pipe that led into a leach field. A former site worker regarded TA-16-176 as not contaminated, however, did not recall its removal. The facilities Engineering Structure Location Map lists the structure as being removed but does not specify a removal date. There are discrepancies in engineering drawings with regards to the exact location of the structure, but its drain line was excavated through exposed tuff. Table 5-80, pg 5-325 identifies SWMU 16-005(c) as a potential release site for contaminants of concern, and the primary activity leading to contamination is listed as HE processing.

Type of Release: Undetonated HE, HE degradation products, metals suite, barium, volatiles and semi volatiles (LANL 1994, pg 5-325).

Justification:
There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-313-314, 5-325.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-005(d) – Septic Tank - Decommissioned

Background: SWMU Report: This SWMU is identified as a septic tank and the associated structure number is TA-16-177. The building the tank served is TA-16-141. The tank was constructed of reinforced concrete with dimensions of 10' X 6' X 4'6". The structure was built in 1945 and removed in 1968. The waste associated with the tanks consisted of domestic waste and possibly industrial waste. Outfalls are associated with this tank, and the associated outfall location is Valle Canyon, however the report does not provide information regarding any releases or contamination.

RFI work plan: The tank served a lavatory, but the building it served varied drastically in potential HE levels. The tank was of reinforced concrete and had a wooden cover. The tank discharged to a 6 in. vitreous clay pipe that discharged to the southeast of the tank in the roadside drainage that received effluent from the 20s-Line buildings. TA-16-27 was a HE casting laboratory and composed one of the 20s-Line buildings. The building was highly contaminated with HE, therefore it is likely that the septic tank is also contaminated. Table 5-80, pg 5-325 identifies SWMU 16-005(d) as a potential release site, and the primary activity leading to a potential problem is HE casting.

Type of Release: Undetonated HE, HE degradation products, uranium, metals suite, barium, volatiles and semi volatiles (LANL 1994, pg 5-325 and LANL 1999, pg. 58).

Justification:
A VCM Report has been submitted. The investigation activities associated with this site have been conducted and several inorganics (antimony, cadmium, mercury, silver, thallium, and uranium) were either detected above the background value or had detection limits above the background value (LANL 1999, pg. 69). Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 and (revised) 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-313-314, 5-325.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 1999. Los Alamos National Laboratory. *Voluntary Corrective Measures Completion Report for Potential Release Sites 16-006(g), Drum Storage Area Aggregate – [16-029(g2) and C-16-074], 16-005(d), and 16-034(p).* LA-UR-99-3001, July 1999.

16-005(e) – Septic Tank- Decommissioned

Background: SWMU Report: This SWMU is identified as a septic tank. The tank was constructed in 1948 and is associated with structure TA-16-179. The waste associated with the tanks consisted of domestic waste and possibly industrial waste. There is outfall associated with the tank and the outfall location is Water Canyon.

RFI work plan: The tank served the lavatories and dark rooms in TA-16-37. The tank was connected to the building by a 6 in. vitrified clay pipe. Table 5-95, pg 5-398 lists 16-005(e) as a potential release site.

CEARP Installation Assessment: Table V.D.5 lists TA-16-179 as a decommissioned tank.

Type of Release: Undetonated HE, HE degradation products, HE burn products, Carbon-14, metals suite, volatiles, semi-volatiles, and cyanide (LANL 1994, pg 5-389).

Justification: A sampling notification was sent to NMED on February 21, 1996 for this SWMU, in accordance with the sampling requirements outlined in the RFI Work Plan. A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 and (revised) 2000 Installation Work Plan.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 2 of 2 Pages VD 28
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25.* Revised November 1990.
3) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-3-87, 5-398.
4) LANL 1996. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082.* February 21, 1996. EM/ER:96-072.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-005(g) – Filter Bed- Decommissioned

Background: SWMU Report: This SWMU is identified as a septic tank. The SWMU Report states that the tank is associated with structure TA-16-393 and was removed in 1965. The outfall location associated with this site is within the Valle Canyon. It is noted in the report that SWMU 16-005(g) and (h) is the dosing chamber and distribution box for the TA-16-272 septic system and all three are consolidated into one system 16-005(f).

RFI work plan: The work plan states that the site is the former location of a filter bed and was decommissioned and removed when TA-16-406 was constructed on the same location. The report also states that the unit was built to receive HE residue wash water from TA-16-390, the basket wash facility. The filter bed was replaced with a tank (SWMU 16-005(f)) and eventually the filter bed was taken to TA-54 for disposal in 1965.

In a letter dated October 14, 1994, EPA rejected the no further action proposal for SWMU 16-005(g). Based on results reported in the RFI Report, vertical extent of contamination was not determined greater than 1-ft therefore NMED does not concur with the NFA proposal.

Type of Release: Unknown

Justification: This site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, July 1993. LA-UR-93-1196. Pgs: 6-5.
3) DOE 1994. Department of Energy. *Notice of Deficiency (NOD) for the OU 1082 RFI Work Plan*. October 14, 1994.
4) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 56-62.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory

16-005(h) – Septic Tank - Decommissioned

Background: SWMU Report: This SWMU is identified as a septic tank and was associated with manholes at TA-16-764 and -763. The tank was built in 1952, removed in 1968, and is associated with structure TA-16-431. The waste associated with the tank consists of domestic waste and possibly industrial waste. Outfall was associated with the tank and the outfall location is Water Canyon. The tank may have received solvents and HE.

RFI work plan: SWMU 16-005(h) contains potentially contaminated subsurface soil associated with septic tank TA-16-431. TA-16-431 once served HE pressing building, TA-16-430, where plastic bonded explosives and mock HE powders were pressed into shape. The tank was built in 1951, it was abandoned in January 1952 and removed in 1968. TA-16-430 was completed in July 1951 and sanitary sewer lines were not connected to TA-16-430 until January 1952. Since the tank was in operation during the first six months that TA-16-430 was in use, it is likely the septic tank received sanitary or industrial waste during this time. SWMU 16-005(h) may have an associated outfall with TA-16-430 (16-003(l)) which consists of methyl ethyl ketone, acetone, and HE. Table 5-110 lists 10-005(h) as a potential contaminant release site.

Type of Release: Methyl ethyl ketone (MEK), acetone, undetonated HE, HE degradation products, metals suite, barium, volatiles, and semivolatiles (LANL 1994, pg 5-445).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-442, 5-449.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory

16-005(j) – Septic Tank- Decommissioned

Background: SWMU Report: This SWMU is identified as potentially contaminated soil associated with septic tank, TA-16-504. The tank was built in 1948, removed in 1963. The waste associated with the tank consists of domestic waste and possibly industrial waste. The tank also received solvents and possibly photographic solutions. Information on possible residuals in the associated drain fields and outfall areas is lacking.

RFI work plan: SWMU 16-005(j) contains potentially contaminated subsurface soil associated with septic tank (TA-16-504) that served the laboratories and darkrooms in building TA-16-490. The tank was connected to the building by 4-in. clay pipe.

Table 5-124 lists this SWMU as a potential release site for contaminants of concern. The primary activity possible leading to contamination is listed as lavatories and dark rooms in TA-16-490.

Type of Release: photographic solutions (LANL 1994, pg 5-486).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-481.
3) LANL 1996. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082.* February 21, 1996. EM/ER:96-072.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory

16-005(k) – Septic Tank- Decommissioned

Background: SWMU Report: This SWMU is identified as a septic tank and is structure TA-16-1132. The tank was removed in 1963. The waste associated with the tank consists of domestic waste and possibly industrial waste. Outfall is associated with the tank and the potential outfall location is unknown.

RFI work plan: SWMU 16-005(k) consists of potentially contaminated soil associated with decommissioned TA-16-1132. The tank was built January 1944 and served TA-16-1 and TA-16-7. The tank was removed in 1956 and is listed as never having received any hazardous materials. The tank was also found to be free of contamination upon removal.

Table 5-110 lists 16-005(k) a potential release site for contaminants of concern. The main activity leading to potential contamination is listed as the steam plan and machine shop.

Type of Release: Metals suite, volatiles, semivolatiles (LANL 1994, pg 5-445).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-443-445.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-005(l) – Grease Trap- Decommissioned

Background: SWMU Report: SWMU 16-005(l) is identified as a grease trap and is associated with structure TA-16-1137. The waste associated with the tank consists of domestic waste and possibly industrial waste. The tank has outfall associated with it and the potential outfall location is Water Canyon.

RFI work plan: SWMU 16-005(l) contains potentially contaminated subsurface soil adjacent to decommissioned manhole/grease trap that served TA-16-525 the women's change house. TA-16-1137 was a 6.5 ft in diameter X 4 ft deep reinforced concrete cylinder with a steel cover that resembled a manhole. The grease trap was partially buried with the top protruding 1 ft above ground. TA-16-1137 drained to an outfall ditch. TA-16-525 was originally a women's change house with laundry facilities. Wastewater from showers, sinks, and all but one floor drain emptied into the grease manhole/grease trap. Wash water from the laundry room also drained into the grease trap. It is likely that laundries would contaminate drains with HE from workers clothing, as mentioned by a former site worker. Table 5-110 lists the women's change room with laundry facilities SWMU 16-005(l), as a potential release site for potential contaminants.

Type of Release: Undetonated HE, HE degradation products, barium, semivolatiles (LANL 1994, pg 5-445)

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-444, 5-445.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-005(m) – Chemical Pit- Decommissioned

Background: SWMU Report: SWMU 16-005(m) is identified as a chemical pit and is associated with structure TA-16-507. The 8'6" X 4'6" X 5' pit was built in 1944 and removed in 1960. The waste associated with the tank consists of domestic waste and possibly industrial waste.

RFI work plan: SWMU 16-005(m) contains potentially contaminated subsurface soil adjacent to the concrete sump. The SWMU report lists TA-16-507 as a chemical pit, but engineering drawings suggest it was an HE sump. The sump received effluent from the large room in the central section of TA-16-490. During World War II this room contained x-ray equipment. Prior to its removal in 1960, TA-16-507 was contaminated with HE. Table 5-124 lists SWMU 16-005(m) as a potential release site with potential contaminants.

Type of Release: undetonated HE, HE degradation, HE burn products, Uranium (Depleted and Enriched), radium, cobalt, strontium-90, and barium (LANL 1994, pg 5-445)

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994.
Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-481, 5-486.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory

16-005(n) – Septic Tank- Decommissioned

Background: SWMU Report: SWMU 16-005(n) is identified as a septic tank and is associated with structure TA-16-173. The 600-gal septic tank was built in 1949 and removed in 1971. The waste associated with the tank consists of domestic waste and possibly industrial waste. Information on the drain fields and outfall areas is lacking.

RFI work plan: SWMU 16-005(n) is a septic tank with a capacity of 600 gal, is structure TA-16-173. The septic tank likely received sanitary waste from TA-16-162 a latrine that was removed in 1971. The 1990 SWMU Report states that the septic tank was removed; however a 1983 memo indicates that the tank was still in place at that time. The tank is listed as abandoned in 1971, in the current Laboratory Technical Area Structure Location Plan. From a series of memos, it is concluded that the septic tank does not pose a threat to humans or to the environment:"…the history of its use (TA-16-137) indicates the possibility of chemical or toxic contamination is insignificant" and "TA-16-173 can be considered free of explosive contamination". Finally, a contamination survey on March 3, 1971 found gross alpha and gross beta activity in water from the septic tank was below limits of detection (0+/- 20pCi/l).

SWMU 16-005(n) is recommended for NFA and delisting from the SWMU Report and the HSWA Module because there is no reasonable basis for characterization of the site based on considerations of human health and environmental risk.

In a letter dated October 14, 1994, EPA rejected the no further action proposal for SWMU 16-005(n).

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, July 1993. LA-UR-93-1196. Pgs: 6-16 and 6-17.
3) DOE 1994. Department of Energy. *Notice of Deficiency (NOD) for the OU 1082 RFI Work Plan*. October 14, 1994.

4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-011 – Incinerator- Inactive/Active

Background: SWMU Report: This SWMU 16-011 (TA-16-412) was used to burn HE contaminated paper and rags. The incinerator was built in 1962 it is a 20 X 20' cage type unit with a pit. The incinerator consisted of primary and secondary combustion chambers and a settling chamber. After a few weeks of burning, the ash was removed, placed in a scrap metal pile and transferred by HSE-7. Up to four burns may have occurred each day and approximately 810-pound burn produces approximately two cubic feet of ash.

Barium is not suspected to be present. HE contaminated oil/solvents may be burned in TA-16-1409 this is a separate structure with approval. Emissions from the present incinerator conform to federal and state standards when operated at manufacturer-specified conditions, and consist of combustion products.

RFI work plan: SWMU 16-011 contains potentially contaminated soil associated with the trash incinerator (TA-16-412) located in the World War II era S-site. The incinerator was built in the basement of TA-16-41. The incinerator is no longer present. The incinerator was used for burning items of paper and cloth that may have been contaminated with low levels of HE. No significant amount of HE could be expected to remain after burning, but is possible that measurable traces might be found in cracks.

Table 5-89 lists the SWMU as a potential release site with contaminants of concern. The primary activity that may be associated with the COCs is listed as incineration of paper and cloth.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium, semi-volatiles, and PAHs (LANL 1994, pgs 5-365 and 5-366).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-354, 5-356, 5-365..
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory

16-015(c) – Steam Cleaning- Decommissioned

Background: SWMU Report: This SWMU is identified as a steam cleaning building (TA-16-36). The steam cleaning building was built in 1944 and burned in 1960. Specific waste information is not available. The waste may have contained HE residues and/or oils and grease.

RFI Work Plan: This SWMU contains potentially contaminated surface soil associated with the decommissioning of the steam cleaning building. Steam cleaning processing equipment is likely to have produced large amounts of HE contamination. Prior to its removal the structure was thought to be contaminated with HE.

Table 5-95 lists SWMU 16-015(c) as a potential release site for contaminants of concern. The activity leading to potential contamination is steam cleaning.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium, semivolatiles (LANL 1994, pg 5-399).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1995. LA-UR-95-1580. Pgs: 5-388, 5-398.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-015(d) – Steam Cleaning- Decommissioned

Background: SWMU Report: This SWMU is identified as a steam cleaning building (TA-16-51). The steam cleaning building was built in 1944 and burned in 1960. Specific waste information is not available. The waste may have contained HE residues and/or oils and grease.

RFI Work Plan: This SWMU contains potentially contaminated surface soil associated with the decommissioning of the steam cleaning building (TA-16-51). Steam cleaning processing equipment is likely to have produced large amounts of HE contamination. Prior to its removal the structure was shown to be contaminated with HE.

Table 5-95 lists SWMU 16-015(d) as a potential release site for contaminants of concern. The activity leading to potential contamination is steam cleaning.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium, semivolatiles (LANL 1994, pg 5-398).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1995. LA-UR-95-1580. Pgs: 5-388, 5-398.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-016(f) – Landfill- Decommissioned/Inactive

Background: SWMU Report: This SWMU is identified as construction debris. The associated structure is TA-16-360. The waste associated with this site may contain asbestos and may also be contaminated with HE.

RFI Work Plan: This SWMU 16-016(f) is identified as construction debris. The debris consists of black cellular glass foam material. A piece of friable asbestos was also identified.

A Voluntary Corrective Action Completion Report (VCA) for this SWMU was submitted in January 1996. Three friable samples of asbestos were collected and sampled, results indicated that two samples were amosite and chrysotile.

A letter dated November 4, 1997 from the USEPA found the VCA Report to be deficient a list of deficiencies is provided in the letter.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-46-47.
3) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for Potential Release Site 16-016(f) Former Surface Disposal Area.* January 1996.
4) USEPA 1997. United States Environmental Protection Agency. *Review of LANL VCA Completion Report for PRS 16-016(f) EPA I.D. No. NM0890010515*. November 4, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-021(b) – Operational Release- Inactive/Active

Background: SWMU Report: This SWMU is identified as an operational release. The release is from a hydraulic press located in an equipment pit in TA-16-430. The hydraulic press leaks oil through the pit drain. The pit drain at 16-021(b) discharges directly to an outfall south of the building.

The RFI work plan: This SWMU 16-021(b) is the soil associated with a hydraulic fluid leak from TA-16-430. The leak was approximately 500 gal. and occurred June 6, 1986. The exact volume that reached the environment is unknown. Analysis was done and there were no PCBs or HE found. Documentation states that the spill was not cleaned up, a site visit shows that the outfall area has been cleaned up.

LANL has determined that there is not immediate threat to human health and the environment from the diesel fuel contamination. The SWMU is recommended for NFA because it has gone through the regulatory closure process. In a letter dated June 27, 1994, NMED has stated that it currently requires no additional work on this UST evaluation and cleanup.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-46-47.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-022(a) – Soil Contamination- Inactive

Background: SWMU Report: This SWMU is identified as contaminated soil from an underground storage tank TA-16-205. The capacity of the tank is 560 gallons. It was installed in 1984. When tested the tank had a loss rate of >10 gallons/hour. The tank was excavated, repaired, and passed the second volumetric test. The tank was mainly used for storing diesel. The tank has released diesel to the surrounding soil.

The RFI work plan: This SWMU is an area where steel UST containing diesel fuel was once located. The UST served TA-16-205, tritium processing building. On September 22, 1993 the UST was removed, and there was no visual soil contamination. However according to a letter from LANL's Environmental Management Division Office to the NMED, a faint odor of diesel fuel was noticed in the soil. Because there was no evidence of leaks and the tank passed a tightness test, it was assumed that the odor was from past surface spills. On September 22, 1993 samples were collected and analyzed for TPH. The soil beneath the tank was not highly contaminated.

LANL has determined that there is not immediate threat to human health and the environment from the diesel fuel contamination. The SWMU is recommended for NFA because it has gone through the regulatory closure process. In a letter dated June 27, 1994, NMED has stated that it currently requires no additional work on this UST evaluation and cleanup.

Type of Release: unknown

Justification: Analytical results have not been provided. Investigation beneath tank from previous leaks has not been performed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) NMED 1994. "No Further Action Required at TA-16 for UST # TA-16-205," State of New Mexico Environment Department Letter from Anthony Moreland (NMED) to Joseph Vozella (LAAO), Santa Fe, New Mexico, June 27, 1994.
3) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-35-37.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-022(b) – Soil Contamination- Inactive

Background: SWMU Report: This SWMU is identified as contaminated soil from an underground storage tank TA-16-197. The capacity of the tank is 4,000-gallons. It also failed a volumetric test. The tank was removed in 1990, it had been excavated, repaired and it did pass the second volumetric test.

The RFI work plan: The tank is a 4,000-gal. unleaded gasoline tank. In 1990, during the removal process, the tank released 15 to 20-gal. of residual fuel. The contaminated soil was removed immediately. The area of contamination was cleaned in compliance with Corrective Action Section, Part XII of the New Mexico Underground Storage Tank Regulations.

Type of Release: unknown

Justification:
There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-39.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-023(b) – Incinerator - Decommissioned

Background: SWMU Report: This SWMU is identified as an incinerator, TA-16-403. The incinerator was constructed of steel wire cloth on a steel frame. It was active from 1961 to 1962, and removed in 1967. The waste associated with this SWMU is mainly HE contaminated paper and rags. There is no evidence that hazardous releases occurred from this incinerator.

RFI Work Plan: The SWMU contains potentially contaminated soil associated with trash incinerators located in the World War era S-Site. The incinerators were mainly used for burning items of paper and cloth that may have been contaminated with low levels of HE. Burning these materials on the S-Site grounds insured that HE would not be disseminated off site. It is expected that after the burn, HE may only be found in cracks when the incinerator remains or adjacent to the incinerators' locations.

Table 5-89 lists 16-023(b) as a potential release site for contaminants of concern. The primary activity leading to contamination is listed as incineration of paper and cloth.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium, semi-volatiles (LANL 1994, pg 5-365).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-354 to 5-356, 5-365.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(a) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified potentially contaminated soil. The associated structure number is TA-16-488 and was removed in 1951. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE. It is unknown whether the contaminated magazines released hazardous waste to the soil.

RFI Work Plan: The SWMU contains potentially contaminated surface soil associated with HE magazine TA-16-488. The dimensions of TA-16-488 are not documented but the structure appears in a 1947 aerial photograph to be similar in size to TA-16-481. After mid-1945 P-Site was used for initiator testing. Initiators contained beryllium and polonium. TA-16-488 could have been exposed to those materials, however a former worker listed HE as the sole contaminant.

Table 5-26-2 lists 16-024(a) as potential release site for contaminants of concern. The activity leading to potential contamination is listed as a HE magazine.

Type of Release: undetonated HE, HE degradation products, metals suite, barium, semivolatiles (LANL 1995, pg 5-26-14).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 5-26-6, 5-26-14.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(b) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified potentially contaminated soil. The associated structure number is TA-16-74 and was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE. It is unknown whether the contaminated magazines released hazardous waste to the soil.

RFI Work Plan: The SWMU (16-024(b)) contains surface soil associated with HE magazine TA-16-74. The magazine was small and of wooden frame construction with a concrete floor. TA-16-74 was located due north of TA-16-88. TA-16-74 was built in 1946 for storing HE in transit to the machining buildings TA-16-31, TA-16-32, and TA-16-33 but it was later used with the 20s-Line casting operation and held the cast HE after sawing of risers. TA-16-74 was removed in 1949. The magazine was regarded as HE contaminated.

Table 5-89 lists 16-024(b) as potential release site for contaminants of concern. The activity leading to potential contamination is listed as a magazine.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium (LANL 1994, pg 5-365).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-356-358, 5-365.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(c) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified potentially contaminated soil. The associated structure number is TA-16-30 and was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE. It is unknown whether the contaminated magazines released hazardous waste to the soil.

RFI Work Plan: The SWMU contains contaminated surface soil associated with HE magazine TA-16-30. The magazine was small and of wooden frame construction with a concrete floor. TA-16-30 was located within the 30s-line. TA-16-30 was burned in 1960. The magazine was regarded as HE contaminated.

Table 5-89 lists 16-024(c) as potential release site for contaminants of concern. The activity leading to potential contamination is listed as a magazine.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU 16-024(c). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, vertical extent of contamination was not determined greater than 1-ft and, TNT was present, therefore NMED does not concur with the NFA proposal.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium (LANL 1994, pg 5-365, LANL 2005, pg. 56, and LANL 2005, pg. B-132).

Justification: This site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 Installation Work Plan. This site is included in the *Investigation Work Plan for Consolidated Waste Management Units 16-007(a)-99 (30s Line) and 16-008(a)-99 (90s Line) at Technical Area 16* and is referred to as SWMU 16-024(c) (LANL 2005, pg. 3). The SWMU is part of 16-007(a)-99.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-356-358, 5-365.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 38-43.
4) USEPA 1997. United States Environmental Protection Agency. *EPA review of the RFI Report*. December 4, 1997
5) USEPA 1998. United States Department of Energy. *Temporary Cessation of Document Review*. August 24, 1998.

6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Consolidated Waste Management Units 16-007(a)-99 (30s Line) and 16-008(a)-99 (90s Line) at Technical Area 16*, March 2005. LA-UR-05-1694.

16-024(d) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as potentially contaminated soil. The associated structure number is TA-16-34 and was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE. It is unknown whether the contaminated magazines released hazardous waste to the soil.

RFI Work Plan: The SWMU contains contaminated surface soil associated with HE magazine TA-16-34. The magazine was small and of wooden frame construction with a concrete floor. TA-16-34 stored machined product for physical and x-ray examination. TA-16-34 caved in and was not burned along with TA-16-30. The date of destruction is unknown. The magazine was regarded as HE contaminated.

Table 5-89 lists 16-024(d) as potential release site for contaminants of concern. The activity leading to potential contamination is listed as a magazine.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU 16-024(d). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, vertical extent of contamination was not determined greater than 1-ft therefore NMED does not concur with the NFA proposal.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium, VOCs, and SVOCs (LANL 1994, pg 5-365, LANL 2005, pg. 56, and LANL 2005, pg. B-132).

Justification: This site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 Installation Work Plan. This site is included in the *Investigation Work Plan for Consolidated Waste Management Units 16-007(a)-99 (30s Line) and 16-008(a)-99 (90s Line) at Technical Area 16.* This site is similar in background and contaminants to SWMU 16-024(c). The SWMU is part of 16-007(a)-99.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-356-358, 5-365.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 44-50.
4) USEPA 1997. United States Environmental Protection Agency. *EPA review of the RFI Report*. December 4, 1997

5) USEPA 1998. United States Department of Energy. *Temporary Cessation of Document Review*. August 24, 1998.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Consolidated Waste Management Units 16-007(a)-99 (30s Line) and 16-008(a)-99 (90s Line) at Technical Area 16*, March 2005. LA-UR-05-1694.

16-024(e) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-33 and was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: The SWMU contains both surface and subsurface soil associated with HE machining building TA-16-33. This building was part of a row of buildings referred to as the 30s-Line, which included magazines, radiographic facilities, and utility buildings. TA-16-33 was mistakenly designated as a magazine within the SWMU Report. The building consisted of two chambers (13 ft^2) for machining and a separate control room (8 ft^2). Pipes connected the control room to the machining chambers. This structure with concrete slab floors had fill dirt around it. Each machining chamber had lead-lined drainage channels to wash out HE, which were eventually replaced with concrete troughs. In 1950 this building was converted from a machining building to other purposes. In a 1950s list of structures TA-16-33 is listed as an additive storage building.

Investigation Work Plan: The SWMU includes the building and the associated sumps and drainlines (LANL 2005, pg. 55).

Table 5-80 lists 16-024(e) as potential release site for contaminants of concern. The activity leading to potential contamination is listed as HE machining.

Type of Release: undetonated HE, HE degradation products, metals suite, and barium (LANL 1994, pg 5-325, LANL 2005, pg. 55, and LANL 2005, pg. B-132).

Justification: A sampling notification was sent to NMED on February 21, 1996 for this SWMU, in accordance with the sampling requirements outlined in the RFI Work Plan. A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 Installation Work Plan. This site is included in the *Investigation Work Plan for Consolidated Waste Management Units 16-007(a)-99 (30s Line) and 16-008(a)-99 (90s Line) at Technical Area 16* and is referred to as SWMU 16-024(e) (LANL 2005, pg. 3). The SWMU is part of 16-007(a)-99.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.

2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-318, 5-319, 5-325.
3) LANL 1996. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082.* February 21, 1996. EM/ER:96-072.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Consolidated Waste Management Units 16-007(a)-99 (30s Line) and 16-008(a)-99 (90s Line) at Technical Area 16*, March 2005. LA-UR-05-1694.

16-024(f) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified potentially contaminated soil. The associated structure number is TA-16-493 and was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE. It is unknown whether the contaminated magazines released hazardous waste to the soil.

RFI Work Plan: The SWMU 16-024(f) contains potentially contaminated surface soil within the former footprints of decommissioned HE magazine TA-16-493. The site was of wooden-frame construction with earthen barricades on three sides and the top. Evidently a large chunk of baratol was dropped on the site causing a fire. Prior to being burned in 1960, the structure was found to be contaminated with HE.

Table 5-124 lists 16-024(f) as potential release site for contaminants of concern. The activity leading to potential contamination is listed as a magazine.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU 16-024(f). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, TNT and SVOCs were detected at shallow depths (0-1-ft) therefore NMED does not concur with the NFA proposal.

Type of Release: Undetonated HE, HE degradation products, HE burn products, and barium (LANL 1994, pg 5-486 and LANL 2005, pg. 59).

Justification: This site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plan. . This site is referred to as SWMU 16-024(f) (LANL 2005, pg. 3).

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-481, 5-486.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 51.
4) USEPA 1997. United States Environmental Protection Agency. *EPA review of the RFI Report*. December 4, 1997
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) USEPA 1998. United States Department of Energy. *Temporary Cessation of Document Review*. August 24, 1998.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Consolidated Waste Management Units 16-007(a)-99 (30s Line) and 16-008(a)-99 (90s Line) at Technical Area 16*, March 2005. LA-UR-05-1694.

16-024(g) – Soil Contamination- Inactive

Background: SWMU Report: This SWMU is identified as potentially contaminated soil from the operation and decommissioning of a magazine (TA-16-494). The magazine was flash burned prior to demolition. It is unknown whether the contaminated magazine released hazardous waste to the soil.

The RFI work plan: This SWMU contains potentially contaminated surface soil within the former footprints of decommissioned HE magazines. The magazine was of wooden frame construction with earthen barricades on three sides and the top. The structure was burned, however prior to being burned it was contaminated with HE.

Table 5-124 lists SWMU 16-024(g) as a potential release site for potential contaminants. The primary activity leading to the potential problem is the magazine.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU 16-024(g). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, HE was detected therefore NMED does not concur with the NFA proposal.

Type of Release: undetonated HE, HE degradation products, HE burn products, barium (LANL 1994, pg 5-486 and LANL 2005, pg. 59).

Justification:
This site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plan. . This site is referred to as SWMU 16-024(g) (LANL 2005, pg. 3).

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: -481, 5-482, 5-486.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 56-60.
4) USEPA 1997. United States Environmental Protection Agency. *EPA review of the RFI Report*. December 4, 1997.
5) USEPA 1998. United States Department of Energy. *Temporary Cessation of Document Review*. August 24, 1998.5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Consolidated Waste Management Units 16-007(a)-99 (30s Line) and 16-008(a)-99 (90s Line) at Technical Area 16*, March 2005. LA-UR-05-1694.

16-024(h) – Soil Contamination- Inactive

Background: SWMU Report: This SWMU is identified as soil contamination from magazine, TA-16-497. The magazine was removed in 1960 and it is possible that during the operation and decommissioning the soil beneath became contaminated. The waste associated consists primarily of HE and depleted uranium, Strontium-90, and barium. It is unknown whether the contaminated magazine released hazardous waste to the soil.

The RFI work plan: The SWMU contains potentially contaminated soil within the footprint of decommissioning HE magazine TA-16-497. It was a wooden frame construction with earthen barricades on three sides on its top. Unlike other magazines it had a concrete foundation and floor. A radioactive lanthanum source broke open in the building, contaminating it with Strontium-90. Prior to burning and demolition Strontium-90 had an activity level of 20 mr/hr. At this time it was determined that the site was contaminated with residual HE.

Table 5-124 lists SWMU 16-024(h) as a potential release site for potential contaminants. The primary activity leading to the potential problem is the magazine.

Type of Release: undetonated HE, HE degradation products, HE burn products, uranium depleted and enriched, barium, radium, Cobalt-60, Strontium-90 (LANL 1994, pg 5-486 and LANL 2005, pg. 59).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan. This site is referred to as SWMU 16-024(h) (LANL 2005, pg. 3).

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-482, 5-486.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2005. Los Alamos National Laboratory. *Investigation Work Plan for Consolidated Waste Management Units 16-007(a)-99 (30s Line) and 16-008(a)-99 (90s Line) at Technical Area 16*, March 2005. LA-UR-05-1694.

16-024(i) – Soil Contamination- Inactive

Background: SWMU Report: This SWMU is identified as soil contamination from magazine, TA-16-64. The magazine was removed in 1951 and it is possible that during the operation and decommissioning the soil beneath became contaminated. The waste associated consists primarily of HE. It is unknown whether the contaminated magazine released hazardous waste to the soil.

The RFI work plan: The SWMU contains potentially contaminated soil within the footprint of decommissioning HE magazine. The site had concrete floors and soil piled against three sides of the building. TA-16-64 was built in 1944 outside the HE exclusion zone. S-Site was expanded, and as a result of the expansion TA-16-64 was retired as a magazine. The structure was removed in 1951. The area once occupied by the magazine is outside the exclusion zone.

Table 5-26-2 lists SWMU 16-024(i) as a potential release site for potential contaminants. The primary activity leading to the potential problem is the magazine.

Type of Release: undetonated HE, HE degradation products, metals suite, barium, semivolatiles (LANL 1995, pg 5-26-14).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 5-26-1, 5-26-14.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(j) – Soil Contamination- Inactive

Background: SWMU Report: This SWMU is identified as soil contamination from magazine, TA-16-65. The magazine was removed in 1951 and it is possible that during the operation and decommissioning the soil beneath became contaminated. The waste associated consists primarily of HE. It is unknown whether the contaminated magazine released hazardous waste to the soil.

The RFI work plan: The SWMU contains potentially contaminated soil within the footprint of decommissioning HE magazine. The site was 10 X 20X 8.5 ft, had concrete floors and soil piled against three sides of the building but not over the top. TA-16-65 was built in 1944 outside the HE exclusion zone. S-Site was expanded, and as a result of the expansion TA-16-65 was retired as a magazine. The structure was removed in 1951 because it was not considered seriously contaminated. The area once occupied by the magazine is outside the exclusion zone.

Table 5-26-2 lists SWMU 16-024(j) as a potential release site for potential contaminants. The primary activity leading to the potential problem is the magazine.

Type of Release: undetonated HE, HE degradation products, metals suite, barium, semivolatiles (LANL 1995, pg 5-26-14).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 5-26-1, 5-26-14.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(k) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-57, which was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: The SWMU contains potentially contaminated surface soil associated with HE magazine TA-16-57. The magazine was of wooden frame construction with earthen barricades on three sides and on top. Little specific information concerning this magazine is available. However a former site worker suggests that this site was not extensively utilized, and also states that operations in magazines are likely to have spilled HE within the magazines.

Table 5-95 lists SWMU 16-024(k) as a release site for potential contaminants of concern. The activity leading to potential contamination is a decommissioned magazine.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU 16-024(k). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, vertical extent of contamination sampling was shallow (0-1 ft), therefore NMED does not concur with the NFA proposal.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium (LANL 1994, pg 5-398).

Justification: Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-388, 5-398.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 62-68.
6) USEPA 1997. United States Environmental Protection Agency. *EPA review of the RFI Report*. December 4, 1997.

5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) USEPA 1998. United States Department of Energy. *Temporary Cessation of Document Review*. August 24, 1998.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(l) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-72, which was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: The SWMU contains potentially contaminated surface soil associated with HE magazine TA-16-72. The magazine was of wooden frame construction with earthen barricades on three sides and on top. Little specific information concerning this magazine is available.

Table 5-95 lists SWMU 16-024(l) as a release site for potential contaminants of concern. The activity leading to potential contamination is a decommissioned magazine.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium (LANL 1994, pg 5-398).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-388, 5-398.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(m) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-66, which was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: The SWMU contains potentially contaminated surface soil associated with HE magazine TA-16-66. The magazine was of wooden frame construction with earthen barricades on three sides and on top. Little specific information concerning this magazine is available.

Table 5-95 lists SWMU 16-024(m) as a release site for potential contaminants of concern. The activity leading to potential contamination is a decommissioned magazine.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU 16-024(m). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, HE (using a spot test) were detected at shallow depths (0-1 ft), also vertical extent of contamination were shallow therefore NMED does not concur with the NFA proposal.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium (LANL 1994, pg 5-398).

Justification: Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-388, 5-398.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 68-74.
4) USEPA 1997. United States Environmental Protection Agency. *EPA review of the RFI Report*. December 4, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) USEPA 1998. United States Department of Energy. *Temporary Cessation of Document Review*. August 24, 1998.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(n) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-84, which was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: The SWMU contains potentially contaminated surface soil associated with HE magazine TA-16-84. The magazine was of wooden frame construction with earthen barricades on three sides and on top. Little specific information concerning this magazine is available.

Table 5-95 lists SWMU 16-024(n) as a release site for potential contaminants of concern. The activity leading to potential contamination is a decommissioned magazine.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium (LANL 1994, pg 5-398).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan..

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-388, 5-398.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(o) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-67, which was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: The SWMU contains potentially contaminated surface soil associated with HE magazine. The magazine in the report is identified as TA-16-024(o). Table 5-95 lists the site as TA-16-87. The magazine was of wooden frame construction with earthen barricades on three sides and on top. Little specific information concerning this magazine is available.

Table 5-95 lists SWMU 16-024(o) as a release site for potential contaminants of concern. The activity leading to potential contamination is a decommissioned magazine.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU 16-024(o). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, lead and HE were detected at shallow depths (0-1 ft) therefore NMED does not concur with the NFA proposal.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium (LANL 1994, pg 5-398).

Justification: Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-388, 5-398.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 74-80.
4) USEPA 1997. United States Environmental Protection Agency. *EPA review of the RFI Report*. December 4, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) USEPA 1998. United States Department of Energy. *Temporary Cessation of Document Review*. August 24, 1998.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(p) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-70, which was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: The SWMU contains potentially contaminated surface soil associated with HE magazine (TA-16-70). The magazine was of wooden frame construction with earthen barricades on three sides and on top. Little specific information concerning this magazine is available.

Table 5-95 lists SWMU 16-024(p) as a release site for potential contaminants of concern. The activity leading to potential contamination is a decommissioned magazine.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU 16-024(p). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, vertical extent of contamination was not determined greater than 1-ft therefore NMED does not concur with the NFA proposal.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium (LANL 1994, pg 5-398).

Justification: Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-388, 5-398.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 80-85.
4) USEPA 1997. United States Environmental Protection Agency. *EPA review of the RFI Report*. December 4, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) USEPA 1998. United States Department of Energy. *Temporary Cessation of Document Review*. August 24, 1998.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(q) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-71, which was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: The SWMU contains potentially contaminated surface soil associated with HE magazine (TA-16-71). The magazine was of wooden frame construction with earthen barricades on three sides and on top. Little specific information concerning this magazine is available.

Table 5-95 lists SWMU 16-024(q) as a release site for potential contaminants of concern. The activity leading to potential contamination is a decommissioned magazine.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU 16-024(q). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, lead, cobalt, pyrene, manganese, inorganic and SVOCs were detected at shallow depths (0-1-ft) therefore NMED does not concur with the NFA proposal.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium (LANL 1994, pg 5-398).

Justification: Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-388, 5-398.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg:.
4) USEPA 1997. United States Environmental Protection Agency. *EPA review of the RFI Report*. December 4, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) USEPA 1998. United States Department of Energy. *Temporary Cessation of Document Review*. August 24, 1998.

7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(r) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-68, which was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: The SWMU contains potentially contaminated surface soil associated with HE magazine (TA-16-68). The magazine was of wooden frame construction with earthen barricades on three sides and on top. Little specific information concerning this magazine is available.

Table 5-95 lists SWMU 16-024(r) as a release site for potential contaminants of concern. The activity leading to potential contamination is a decommissioned magazine.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU 16-024(r). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, HE and TNT were detected at shallow depths (0-1 ft) therefore NMED does not concur with the NFA proposal.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium, and TNT (LANL 1994, 5-398).

Justification: Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-388, 5-398.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 92-97.
4) USEPA 1997. United States Environmental Protection Agency. *EPA review of the RFI Report*. December 4, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) USEPA 1998. United States Department of Energy. *Temporary Cessation of Document Review*. August 24, 1998.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(s) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-60 and was removed in 1960. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: The SWMU contains potentially contaminated surface soil associated with TA-16-60 magazine. The magazine was 20 X 60 X 8.5 ft. TA-16-60 was a receiving magazine built in 1945 that was used for storage of finished HE product and packaged, raw HE. The magazine was removed in 1950 due to its proximity to the TA-16-435 construction site.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU 16-024(s). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, HE, RDX, TNT, inorganic chemicals and lead were present at shallow depths (0-1 ft). Therefore NMED does not concur with the NFA proposal.

Type of Release: undetonated HE, HE degradation products, metals suite, barium, RDX, TNT and semivolatiles (LANL 1995, pg 5-26-14).

Justification: Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 5-26-1, 5-26-14.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 97-104.
4) USEPA 1997. United States Environmental Protection Agency. *EPA review of the RFI Report*. December 4, 1997.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(t) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-424, which was removed in 1966. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: SWMU 16-024(t) contains potentially contaminated soil associated with decommissioned HE magazine (TA-16-464). The SWMU report lists the magazine as TA-16-424. TA-16-464 was used to store HE. It was heavily used until it was removed in 1966. There are no engineering drawings of this magazine so the size, shape and composition are unknown. The method of removal and subsequent cleanup of TA-16-464 is unknown.

Table 5-26-2 lists SWMU 16-024(t) as a release site for potential contaminants of concern. The activity leading to potential contamination is a HE magazine.

Type of Release: undetonated HE, HE degradation products, metals suite, barium, and semivolatiles (LANL 1995, pg 5-26-14).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 5-26-9, 5-26-14.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(u) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-481, which was removed in 1951. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: The SWMU contains potentially contaminated surface soil associated with HE magazine (TA-16-481). The magazine was decommissioned in 1951. After mid-1945 P-Site was used for initiator testing. Initiators contained beryllium and polonium. TA-16-481 could have been exposed to those materials, however a former worker listed HE as the sole contaminant.

Table 5-95 lists SWMU 16-024(p) as a release site for potential contaminants of concern. The activity leading to potential contamination is a decommissioned magazine.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU 16-024(p). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, vertical extent of contamination was not determined greater than 1-ft therefore NMED does not concur with the NFA proposal.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, barium (LANL 1995, pg 5-26-14).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 5-26-6, 5-26-14.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-024(v) – Soil Contamination - Inactive

Background: SWMU Report: This SWMU is identified as a magazine with potentially contaminated soil. The associated structure number is TA-16-62 and was removed in 1968. It is possible that during the operation and decommissioning of the magazine the soil beneath became contaminated. The magazine was flash-burned prior to demolition. The waste for this site consists primarily of HE.

RFI Work Plan: The SWMU contains potentially contaminated surface soil associated with TA-16-62 magazine. The magazine was 6 X 6 X 7 ft and had a concrete floor and soil piled against three sides of the building but not over the top. TA-16-62 was built outside of the HE exclusion zone. During the time the magazine was removed in 1968, it was not considered seriously contaminated, plumbers and carpenters were allowed to use it for storage. There is public access to the regions once occupied by SWMU 16-024(v) (TA-16-62).

Table 5-26-2 lists SWMU 16-024(v) as a potential release site for chemicals of potential concern. The main activity leading to contamination would be related to HE magazine.

Type of Release: Undetonated HE, HE degradation products, metals suite, barium, and semivolatiles (LANL 1995, pg 5-26-14).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 5-26-1, 5-26-14.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-027(a) – Transformer - Active

Background: SWMU Report: SWMU 16-027(a) is located in building TA-16-260, Room 110 and is identified as a transformer with a moderate leak. It contains 100-500 gallons of PCB dielectric oil and is 31-35 years old. There have been documented releases of PCBs to concrete and soil.

The RFI work plan: This SWMU is identified as a leak from a transformer located in building TA-16-260, Rm 110, an HE processing building. The transformer is 31-35 years old and contained 100 to 500 gal of PCB containing dielectric oil with listed concentrations greater than 500,000 ppm. In May 1990, a spill characterized as a high concentration spill involving a non-reportable release occurred. The contaminated materials consisted of a concrete floor, a concrete sump, and an impervious metal sump cover. There were subsequent cleanup efforts four other times in 1990. After ascertaining that all locations sampled were below the 100μg/100 cm^2 the entire floor of the room was encapsulated, the transformer was drained, removed, and replaced with a non-PCB-containing unit on July 9, 1990.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-44.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-027(b) – Transformer - Active

Background: SWMU Report: This SWMU 16-027(b) is identified as a transformer located on the second floor of building, TA-16-540. It contains 100-500 gallons of PCB dielectric oil and vents to the inside of the building. It is listed as being 31-35 years old and having a moderate leak. The waste associated with this site, consists primarily of PCB containing oil and other oil constituents if present are unknown.

The RFI work plan: This SWMU is identified as a leak from a transformer located on the second floor of the TA-16-540, steam plant. The transformer contained 100 to 500 gal. of PCB-containing dielectric oil listed at concentrations greater than 500,000 ppm. The transformer is 31 to 35 years old and is characterized as having a moderate leak. The leak was eventually contained and since there was no indication of spill onto surfaces, no spill records exist. On September 6, 1990 the transformer was reclassified as non-PCB containing.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-45.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-027(c) – Transformer - Active

Background: SWMU Report: This SWMU is a pad-mounted transformer, 16-027(c). This transformer is associated with structure TA-16-563. It contains 100-500 gallons of 25,000 ppm PCB oil. It is listed as having a moderate leak and is located 100 ft. from the building. The pad has a drain, cracks, and open spaces around conduit and ground wire. The spill containment is listed as <10% of total volume.

The RFI work plan: This SWMU is a leak from a transformer, TA-16-563, that contained 100 to 500 gal. of 25000 ppm PCB-containing oil. The pad-mounted transformer was built in 1952. On July 28, 1987, a moderate leak of 0.5 to 1 gal was detected. After this finding the soil and concrete pad underwent immediate cleanup. In 1989 inspection and sampling revealed a need for further cleanup, this cleanup included the removal of the transformer and concrete pad, soil excavation of the contaminated soil, and replacement of the transformer and pad, with a non-PCB transformer and a new pad. The site cleanup was completed November 12, 1992, when samples revealed PCB levels below the 25 ppm.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-45.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-027(d) – Transformer - Active

Background: SWMU Report: This SWMU is a pad-mounted transformer, 16-027(d). This transformer is associated with structure TA-16-569. It contains 100-500 gallons of 25,000 ppm PCB oil. It is listed as having a moderate leak and is located 100 ft. from the building. The pad has a drain, cracks, and open spaces around conduit and ground wire. The spill containment is listed as <10% of total volume.

The RFI work plan: SWMU 16-027(d) is reported as a leak from a transformer, TA-16-569. Extensive archival research revealed no record of any releases from TA-16-569, further records on the transformer indicated that the transformer never contained oil with a 25,000 ppm PCB concentration. Records do show that it contained a mineral oil dielectric fluid, which, according to 40 CFR 761.123, must be assumed to contain 50-449 ppm PCBs. Therefore it is assumed that the leak was from a nearby transformer, possibly TA-16-563, that did not contain oil with a 25000 ppm PCB content and that did have a release in 1987. TA-16-569 has no record of releases reported. This site was also dechlorinated in 1992 and reclassified in February 1993 as a non-PCB transformer containing 2 ppm PCBs. In April 1994 soil was collected fro the area around the transformer which resulted in 7.3 ppm PCBs. The SWMU is recommended for NFA because no release to the environment has occurred.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-32.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-030(d) – Outfall - Active

Background: SWMU Report: This SWMU is identified as outfall associated with structure TA-16-280. This outfall contains HE, it is unknown whether hazardous waste has been released through outfalls.

RFI Work Plan: 16-030(d) is the outfall from an inactive HE sump (SWMU 16-003(h)) and is located northeast of TA-16-280. 16-003(h) is an inactive HE sump, this sump receives effluent from a room in which HE testing is conducted. TA-16-280 is a physical inspection and metrology laboratory for HE and other weapon and non-weapon components, including depleted uranium products. HE, solvents, and uranium are the PCOCs in TA-16-280, but likelihood of their presence is small.

CEARP Installation Assessment: Table V.D.6 lists TA-16-280 as an outfall type and as having effluent characteristics consisting of high explosives and treated cooling water. TA-16-280 is a NPDES permitted site.

Type of Release: High explosives, solvents, uranium (LANL 1993, pg 5-30)

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 2 of 2 Pages VD 47.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50.* Revised November 1990.
3) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program. July 1993. LA-UR-93-1196. Pgs: 5-28 and 5-30.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-030(g) – Outfall- Active

Background: SWMU Report: SWMU 16-030(g) is identified as outfall. The SWMU is associated with TA-16-380. The building drain location is on the south side and are believed to receive compressor condensate. It is unknown whether hazardous waste has been released through the outfalls.

RFI work plan: SWMU 16-030(g) is an outfall associated with the HE sump at TA-16-380. The outfall receives effluent from the sump, two roof drains, and a drop inlet which drains the parking area on the east of TA-16-380.

Table 5-7 lists 16-030(g) as a potential release site with contaminants of concern. The primary activity leading to the potential contamination problem is the development of plastics 300 line.

RFI Report: Phase I sampling at the site was done in order to determine if release had occurred from the drain line outfall and if that release caused contamination. Contamination was bounded relative to SALs except for the PAHs. All constituents analyzed were below SALs. VOC contamination is attributable to an ongoing release. PRS 16-030(g) is recommended for human health NFA.

CEARP Installation Assessment: Table V.D.6 lists TA-16-380 as high explosive industrial outfall.

In a letter dated December 11, 1997, EPA rejected the no further action proposal for SWMU 16-030 (g). The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report COPCs were detected therefore NMED does not concur with the NFA proposal

Type of Release: lead, semivolatiles, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene (LANL 1993, pg 5-40)

Justification: This site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 and (revised) 2000 Installation Work Plan.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 2 of 2 Pages VD 28
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
3) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, July 1993. LA-UR-93-1196. Pgs: 5-32, 5-40.

4) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Program, September 1997. LA-UR-97-3072. Pgs: 118-127.
5) EPA 1997. Environmental Protection Agency. *TA-16 Potential Release Sites RFI Report*. December 11, 1997.
6) USEPA 1998. United States Department of Energy. *Temporary Cessation of Document Review*. August 24, 1998.
7) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-033(a) – Underground storage tank - Decommissioned

Background: SWMU Report: This SWMU is identified as a 1,000 gal. underground storage tank, structure number TA-16-16. The tank was primarily used for diesel containment and was removed in 1987. There were documented releases from this tank, contaminated soil was removed from TA-16-16 and replaced with clean backfill. Until site characterization information is acquired, it must be assumed that the tank may have leaked.

The RFI work plan: The tank is described as a diesel fuel tank. There was a documented release from this tank in the SWMU report. Analysis of the tank for gross alpha, beta, gamma, and tritium prior to removal in 1987 revealed no activity. During the removal process approximately 15 yd^3 of contaminated soil were excavated and taken to TA-54 for land farming, the excavation site was backfilled with soil.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-38.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-033(b) – Underground storage tank - Decommissioned

Background: SWMU Report: This SWMU is identified as a 4,000 gal. underground storage tank, structure number TA-16-196. The tank was primarily used for leaded gasoline containment and was removed in 1987. The tank may have leaked, however until site characterization information is acquired it must only be assumed. Attempts were made to remove contaminated soil from this site, but further excavation would have threatened overlying building integrity.

The RFI work plan: The tank is a 4,000-gal. leaded gasoline tank, once located next to tank 16-197 on the east side of the TA-16 service station. Before removal in 1987 attempts were made to remove contaminated soil by TA-16-196, but further excavation was impeded by the adjacent UST, TA-16-197, and TA-16-195.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-38 and 39.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-033(c) – Underground storage tank - Decommissioned

Background: SWMU Report: This SWMU is identified as a 52,000 gal. underground storage tank, structure number TA-16-29. The tank was primarily used for fuel oil containment and was removed in 1956. The tank may have leaked, however until site characterization information is acquired it must only be assumed. Attempts were made to remove contaminated soil from this site, but further excavation would have threatened overlying building integrity.

The RFI work plan: The tank was a 52,000 gal above ground fuel oil storage tank. The metal tank was 62 ft in length, 12 ft in diameter and mounted on concrete saddles. During a site visit, there was no evidence of soil staining, past researches do not reveal any releases either.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-28.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-033(d) – Underground storage tank - Decommissioned

Background: SWMU Report: This SWMU is identified as an underground storage tank structure number TA-16-1140. The tank was primarily used for propane containment and was removed in 1956. The tank may have leaked, however until site characterization information is acquired it must only be assumed. Attempts were made to remove contaminated soil from this site, but further excavation would have threatened overlying building integrity.

The RFI work plan: The tank is described as an aboveground propane tank, TA-16-1140, that once served the cafeteria. The tank was installed in 1946 and removed in1956. The exact size of the tank is unknown. The two saddles that held the tank still remain and are positioned seven feet apart. There are no records of any releases, and a memo reports no hazardous materials were associated with this tank.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-29.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-033(e) – Underground storage tank - Decommissioned

Background: SWMU Report: This SWMU is identified as an underground storage tank located NW of TA-16-10 (2). The tank size and capacity is unknown. The tank was primarily used for gasoline containment and was removed in 1956. The tank may have leaked, however until site characterization information is acquired it must only be assumed. Attempts were made to remove contaminated soil from this site, but further excavation would have threatened overlying building integrity.

The RFI work plan: SWMU 16-033(e) consists of two underground fuel tanks, associated fuel lines, and pump base located northwest of TA-16-10 in a level, industrialized area which drains to the east. The structures do not have structure numbers, capacity size, dimensions, or installation and removal dates.

A 1967 memo regarding a radioactive contamination survey mentions that monitoring of the two underground gasoline tanks occurred, however no further information is provided. These are believed to be the tanks associated with SWMU 16-033(e)

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 5-27-1.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-033(f) – Underground storage tank - Decommissioned

Background: SWMU Report: This SWMU is identified as a 1,000 gal. underground storage tank, structure number TA-16-512. The tank was primarily used for oil containment and was removed in 1968. It is unknown if this tank leaked, however, until site characterization information is acquired which indicates that there were no releases, it must be assumed that the tank may have leaked.

The RFI work plan: The tank is a 1,000 gal. oil tank once located at T-site. In 1960 the tank was found to be free of radioactivity and toxic contamination.

Type of Release: unknown

Justification: A sampling notification was sent to NMED on February 21, 1996 for this SWMU, in accordance with the sampling requirements outlined in the RFI Work Plan it was recommended for NFA in the RFI work plan, no sampling was proposed. A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-38.
3) LANL 1996. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082.* February 21, 1996. EM/ER:96-072.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-033(g) – Underground storage tank - Decommissioned

Background: SWMU Report: This SWMU is identified as an underground storage tank, TA-16-1138. The tank capacity and removal date are unknown. The tank was primarily used for fuel containment. The tank may have leaked, however until site characterization information is acquired it must only be assumed. Attempts were made to remove contaminated soil from this site, but further excavation would have threatened overlying building integrity.

The RFI work plan: SWMU 16-033(g) is a tank, TA-16-1138. The Comprehensive Environmental Assessment Response Program (CEARP) Report lists this structure as being above ground, however after examination of drawings it is apparent that the tank is underground. The tank was installed in 1951 and the removal date is unknown. The tank was found to be free of radioactive and toxic contamination before it was removed. There is no visible evidence that the tank is still present. It is assumed that the tank was removed when the survey was done, in 1967.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-38.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-033(h) – Underground storage tank - Decommissioned

Background: SWMU Report: This SWMU is identified as an underground storage tank, structure number TA-16-1139. The SWMU Report states that the tank was primarily used for fuel containment and was removed in the early 1960s.

RFI work plan: Before TA-16-1139 was removed (date unknown) it was found to be free of radioactive and toxic contamination. It was assumed that the tank was used for heating during the construction of building TA-16-260. Site screening with a metal detector did not locate the tanks, therefore, it was assumed that the tanks had been removed, possibly in 1967 when the contamination survey was conducted.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-38-39
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory

16-033(i) – Underground storage tank - Decommissioned

Background: SWMU Report: This SWMU is identified as a 5,000 gal. underground storage tank, structure number TA-16-1341. The tank was primarily used for leaded gasoline containment and was removed in 1980. The tank may have leaked, however until site characterization information is acquired it must only be assumed.

The RFI work plan: The tank was a leaded gasoline tank and once served the TA-16 service station. The installation date is estimated to have been in the early 1950s. The tank was removed in 1980 and there was no record of historical releases.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan. According to the RFI Work Plan, this SWMU is being investigated in conjunction with TA-16-1465, another UST.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-38-39.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-033(j) – Underground storage tank - Decommissioned

Background: SWMU Report: This SWMU is identified as a 5,000 gal. underground storage tank, structure number TA-16-1342. The tank was primarily used for leaded gasoline containment and was removed in 1980. The tank may have leaked, however until site characterization information is acquired it must only be assumed.

The RFI work plan: The tank was a leaded gasoline tank and once served the TA-16 service station. The installation date is estimated to have been in the early 1950s. The tank was removed in 1980 and there was no record of historical releases.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan. According to the RFI Work Plan, this SWMU is being investigated in conjunction with TA-16-1465, another UST.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-38-39.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

16-033(k) – Underground storage tank - Decommissioned

Background: A letter dated August 12, 1996 stats that Field Unit 3 is planning an interim action activity at TA-16 in August 1996. The activity will include the removal of a 30-gallon UST and confirmatory sampling at Potential Release Site 16-033(k). Following cleanup the site will be regraded and re-vegetated.

A letter dated October 2, 1996 identifies this unit as a new solid waste management unit (SWMU) 16-033(k). The unit is an abandoned underground storage tank (UST) located at TA-16. The tank was identified as a result of routine construction activities being performed. The tank is located south of Building 16-500. The tank is a steel tank with a 200 gal. capacity. The main product stored in the tank was gasoline, which served an emergency generator system. The tank is thought to have been installed in 1952. Tank abandonment is unknown.

Type of Release: Unknown

Justification: A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment.

References:

1) LANL 1996a. Los Alamos National Laboratory. *Field Unit 3 IA at TA-16*. August 12, 1996. EM/ER:96-435.
2) LANL 1996b. Los Alamos National Laboratory. *Notification of a SWMU at TA-16*. October 2, 1996. EM/ER:96-531.

16-037 – Tank - Inactive

Background: SWMU Report: This SWMU is identified as an industrial waste tank structure number TA-16-215. It is unknown whether hazardous waste was released. Period of use is also unknown. As of 1990 the tank was still in use.

The RFI work plan: The tank is listed as an industrial waste tank and is recommended for NFA, because the SWMU Report incorrectly identifies the existence of this SWMU. The site was investigated and as a result it appeared that SWMU 16-037, industrial waste tank, does not exist. In 1982 TA-16-215 was proposed, but there were no laboratory work jobs or work orders listed for the structure.

Type of Release: Unknown

Justification: A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10- TA-25*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-26.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-001 – Crossover Platform - Decommissioned

Background: SWMU Report: Is identified as a crossover platform. It was built in 1962 and removed in 1970. No hazardous materials were ever handled or stored on the cross over platform.

RFI Work Plan: C-16-001 is a T-shaped, elevated, crossover platform, TA-16-384, that runs across the three HE slurry drain troughs. The platform was built in 1962 to allow workers to cross over the trough area instead of walking around it. There is debate as to whether the platform was or was not ever contaminated with HE. While an engineering department memo lists the structure as HE contaminated, a former site worker includes the structure on a list of structures removed from TA-16 and states that it was not associated with hazardous materials. The crossover platform is presently inactive, but will probably be used when the drain trough area is sampled as planned. This SWMU is recommended for NFA because it has never been used for the management of hazardous waste.

Type of Release: Unknown.

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-27.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-002 – Contaminated Soil - Decommissioned

Background: SWMU Report: Is identified as the former location of a cooling tower (TA-16-262), constructed in 1945 and removed in 1958. Available information indicated that no hazardous materials have ever been used, handled or stored at this site; therefore no further action is warranted.

RFI Work Plan: C-16-002 is an area of potential soil contamination associated with outfalls from cooling towers used at TA-16. COPCs for these towers are chemicals commonly used in the water to inhibit algae growth, such as chromates, although there is no documentation that such chemicals were used. This SWMU is associated with decommissioned cooling tower TA-16-262 and is potential soil contamination associated with the footprint of the tower structure. The purpose of the cooling tower is not known. The tower was built in August 1946 at TA-16-42, relocated to TA-16-260 in 1951, and removed in 1957. It is not known if the industrial waste system was removed along with the structure at that time. A former site worker noted that no hazardous materials were associated with this structure.

Table 5-28-2 lists C-16-002 as a potential release site with contaminants of concern. The primary activity leading to potential contamination is listed as a cooling tower.

Type of Release: Metals suite (LANL 1995, pg 5-28-20).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 5-28-15, 5-28-20.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-005 – Contaminated Soil – Inactive

Background: SWMU Report: This SWMU is associated with a former optical equipment storage building and associated soil contaminated with HE constructed in 1945 and removed in 1960.

RFI Work Plan: C-16-005 contains potentially contaminated surface and subsurface soil associated with TA-16-53 and its sumps and drain lines. TA-16-53 was constructed in spring of 1945, it contained a hydraulic press for HE processing. A former site worker claimed to have machined the inner charges for the Trinity device in TA-16-53. Another former site worker claimed that both HE machining and casting were done in this building. A former site worker removed a "desk sized" chunk of HE from around the sump of this building when the sump became clogged. The building was contaminated with HE prior to its demolition by burning in 1960.

Table 5-95 lists this site as a potential site for potential release of contaminants of concern. The activity leading to potential contamination is listed as HE machining.

In a letter dated December 4, 1997 EPA concurred with the NFA proposal for SWMU C-16-005. The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, vertical extent of contamination was not determined greater than 1-ft. The reason as stated in the report that 2 ft depth intervals were not sampled was because the soil beneath the PRS structure is undisturbed, as confirmed by the soil descriptions in the sample collection logs. However screening samples contained elevated TNT, mercury was detected above background (0-1 ft), but less than SALs.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, and barium (LANL 1994, pg 5-399).

Justification: This site is listed in the 1990 SWMU Report. Also the RFI Report stated screening samples contained elevated TNT; mercury was detected above background (0-1 ft), but less than SALs. Vertical extent of contamination was not determined at depths greater than 1 foot, therefore NMED does not concur with the NFA proposal.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-395-396.
3) USEPA 1997. *Review of the RFI Report for Potential Release Sites 16-024, C-16-005, and C-16-017*. EPA ID # NM 0890010515. December 4, 1997.

4) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16.* Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 214-220.
5) USEPA 1998. United States Department of Energy. *Temporary Cessation of Document Review*. August 24, 1998.

C-16-006 – Contaminated Soil - Decommissioned

Background: SWMU Report: Is identified as a former location of an equipment building, constructed in 1950 and removed in 1968.

RFI Work Plan: C-16-006 is described in the SWMU report as the former location of an equipment building (TA-16-148). The designation of TA-16-148 was used for two different buildings at different times, so defining the potential site of contamination for this SWMU is difficult. One of the two buildings designated as TA-16-148 was a solvent storage building. The other was a 6 X 12 X6 ft equipment storage room adjacent to the passage to TA-16-24. The potentially contaminated soil associated with the solvent storage building is assumed to be C-16-006, and the storage building is assumed to be SWMU C-16-006 and the storage building is assumed to be SWMU 16-032(b).

Table 5-89 lists SWMU C-16-006 as a potential release site of potential contaminants. The primary activity leading to the potential release is listed as the solvent storage.

Type of Release: volatiles, semivolatiles (LANL 1994, pg 5-365).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-360 and 5-365.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-008 – Implement Shed - Decommissioned

Background: SWMU Report: C-16-008 is identified as the former location of the implement shed. The shed was constructed in 1944 and removed in 1955.

RFI Work Plan: C-16-008, Implement Shed (TA-16-136) was a part of a cluster of buildings that were used by the Zia Company for storage of equipment and tools used for utilities maintenance in the World War II era S-Site. All buildings were removed from the site in 1955. There is now a field covered with grass and small trees. This building did not handle or store unpackaged HE. C-16-008 is recommended for NFA because no release to the environment has occurred. The most likely source of HE contamination to any of these structures would have occurred as a result of personnel and equipment inadvertently introducing HE particles or chunks into the area.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-29 and 6-30.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-009 – Mess Hall - Decommissioned

Background: SWMU Report: C-16-009 is identified as the former location of a mess hall (TA-16-134). The mess hall was constructed in 1944 and removed in 1955.

RFI Work Plan: C-16-009, Mess Hall (TA-16-134) was a part of a cluster of buildings that were used by the Zia Company for storage of equipment and tools used for utilities maintenance in the World War II era S-Site. All buildings were removed from the site in 1955. There is now a field covered with grass and small trees. This building did not handle or store unpackaged HE. C-16-009 is recommended for NFA because no release to the environment has occurred. The most likely source of HE contamination to any of these structures would have occurred as a result of personnel and equipment inadvertently introducing HE particles or chunks into the area.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-29 and 6-30.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-010 – Storage Building - Decommissioned

Background: SWMU Report: C-16-010 is identified as the former location of storage building, TA-16-135. The building was constructed in 1944 and removed in 1955.

RFI Work Plan: C-16-010, Storage Building (TA-16-135) was a part of a cluster of buildings that were used by the Zia Company for storage of equipment and tools used for utilities maintenance in the World War II era S-Site. All buildings were removed from the site in 1955. There is now a field covered with grass and small trees. This building did not handle or store unpackaged HE. C-16-010 is recommended for NFA because no release to the environment has occurred. The most likely source of HE contamination to any of these structures would have occurred as a result of personnel and equipment inadvertently introducing HE particles or chunks into the area.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-29 and 6-30.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-011 – Paint Shop - Decommissioned

Background: SWMU Report: C-16-011 is identified as the former location of a paint (TA-16-132) shop. The shop was constructed in 1944 and removed in 1955.

RFI Work Plan: C-16-011 contains potentially contaminated soil associated with a cluster of buildings that was part of a Zia satellite maintenance area used for the upkeep of S-site buildings. The maintenance area was built in 1944 and 1945 and was removed in 1955. The maintenance area included the decommissioned S-Site fire station. West Road is located east of the area and was fenced on the east side. Beyond this point, no HE was allowed. The road formed the boundary of the HE exclusion zone. The most likely source of contamination to any of these structures would have occurred as a result of personnel and equipment inadvertently introducing HE particles or chunks into the area.

Table 5-26-2 lists this SWMU as a potential release site for contaminants of concern. The primary activity leading to potential contamination is listed as the Paint Shop.

Type of Release: metals suite, volatiles, semivolatiles (LANL 1995, pg 5-26-14).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 5-26-11 and 5-26-14.
3) LANL 1996. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082.* February 21, 1996. EM/ER:96-072.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-012 – Blacksmith Shop - Decommissioned

Background: SWMU Report: C-16-012 is identified as the former location of a blacksmith shop. The shop was constructed in 1944 and removed in 1955.

RFI Work Plan: C-16-012, Blacksmith Shop (TA-16-138) was a part of a cluster of buildings that were used by the Zia Company for storage of equipment and tools used for utilities maintenance in the World War II era S-Site. All buildings were removed from the site in 1955. There is now a field covered with grass and small trees. This building did not handle or store unpackaged HE. C-16-012 is recommended for NFA because no release to the environment has occurred. The most likely source of HE contamination to any of these structures would have occurred as a result of personnel and equipment inadvertently introducing HE particles or chunks into the area.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-29 to 6-31.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-014 – Equipment Room - Decommissioned

Background: SWMU Report: C-16-014 is identified as the former location of the equipment room (TA-16-144). The room was constructed in 1944 and removed in 1955.

RFI Work Plan: C-16-014 (TA-16-144) was a part of a cluster of buildings that were used by the Zia Company for storage of equipment and tools used for utilities maintenance in the World War II era S-Site. All buildings were removed from the site in 1955. There is now a field covered with grass and small trees. This building did not handle or store unpackaged HE. C-16-014 is recommended for NFA because no release to the environment has occurred. The most likely source of HE contamination to any of these structures would have occurred as a result of personnel and equipment inadvertently introducing HE particles or chunks into the area.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-29-31.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-015 – Hose House - Decommissioned

Background: SWMU Report: C-16-015 is identified as the former location of the hose house (TA-16-143). The firehouse was constructed in 1945 and removed in 1959.

RFI Work Plan: C-16-015 was part of a cluster of buildings that were used by the Zia Company for storage of equipment and tools used for utilities maintenance in the World War II era S-Site. All buildings were removed from the site in 1955. There is now a field covered with grass and small trees. This building did not handle or store unpackaged HE. C-16-015 is recommended for NFA because no release to the environment has occurred. The most likely source of HE contamination to any of these structures would have occurred as a result of personnel and equipment inadvertently introducing HE particles or chunks into the area.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-29-6-30.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-016 – Fire House - Decommissioned

Background: SWMU Report: C-16-016 is identified as the former location of the firehouse (TA-16-142). The firehouse was constructed in 1944 and removed in 1955.

RFI Work Plan: C-16-016 (TA-16-142) was a part of a cluster of buildings that were used by the Zia Company for storage of equipment and tools used for utilities maintenance in the World War II era S-Site. All buildings were removed from the site in 1955. Except for TA-16-142, the foundation still remains. There is now a field covered with grass and small trees. This building did not handle or store unpackaged HE. C-16-016 is recommended for NFA because no release to the environment has occurred. The most likely source of HE contamination to any of these structures would have occurred as a result of personnel and equipment inadvertently introducing HE particles or chunks into the area.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-29 to 6-30.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-017 – Steam Plant - Decommissioned

Background: SWMU Report: C-16-017 is identified as the former location of the Steam Plant (TA-16-502). The firehouse was constructed in 1944 and removed in 1960.

RFI Work Plan: C-16-017 contains potentially contaminated surface soil associated with decommissioned steam plant, TA-16-502. The Steam plant was a wooden frame building that contained the boilers that provided heat to the laboratories at T-Site. It is not know what algaecides were used in this facility, but chromates are the most likely additive.

Table 5-124 lists this site as potential release site for contaminants of concern. The main activity leading to potential contamination is listed as the Steam Plant.

In a letter dated December 4, 1997 EPA concurred with the NFA action proposal for SWMU C-16-017. The RFI report was reviewed prior to the receipt of Temporary Cessation of Document Review Letter dated August 24, 1998. Based on results reported in the RFI Report, vertical extent of contamination was not determined greater than 2-ft. Screening samples contained elevated TNT and slightly high amounts of chromium were detected above background (0-1 ft), but less than SALs.

Type of Release: Unknown

Justification: This site is listed in the 1990 SWMU Report. The SWMU is also listed in the 2000 Installation work plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-497.
3) USEPA 1997. *Review of the RFI Report for Potential Release Sites 16-024, C-16-005, and C-16-017*. EPA ID # NM 0890010515. December 4, 1997.
4) LANL 1997. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-16*. Environmental Restoration Project, September 1997. LA-UR-97-3770. Pg: 220-226.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-018 – Water Storage Tank - Decommissioned

Background: SWMU Report: C-16-018 is identified as the former location of a water storage tank (TA-16-172). The firehouse was constructed in 1945 and removed in 1959.

RFI Work Plan: C-16-018 was a 30,000-gal water tank, TA-16-172, that was located in the area along Jemez Road. It was used from 1945 until 1959 when it was moved to TA-49 and renumbered FM-66. It was later moved to TA-3 and renumbered. C-16-018 is recommended for NFA because it has never been used for the management of hazardous waste.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-22-23.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-019 – Pump House - Decommissioned

Background: SWMU Report: C-16-019 is identified as the former location of the Pump House (TA-16-19). The pump house was constructed in 1944 and removed in 1956.

RFI Work Plan: C-16-019 (TA-16-19) was a small wooden pump house, TA-16-19, previously numbered S-16, and located in the old administration area of S-site. The pump house moved fuel from nearby tank TA-16-29 across Anchor Ranch Road via overhead pipes to TA-16-7 to fuel steam boilers. There is no record of any spills occurring in the area during the eleven years it was in use and no stained soil is visible in the area. While a 1983 memo cites this pump house as HE contaminated. The only possible source of HE contamination in this structure would have been from the movement of people between HE contaminated areas and the administration area. C-16-019 is recommended for NFA because no release to the environment occurred.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-33-34.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-020 – Office Building – Decommissioned

Background: RFI Work Plan: C-16-020 is the former location of office building constructed TA-16-22; constructed in 1944 and removed in 1961.

RFI Work Plan: C-16-020, TA-16-22 was originally a 20 ft x 70 ft X 9 ft high office building built in 1944 near the old cafeteria, TA-16-16, in the administration area of S-Site. C-16-020 is recommended for NFA because it has never been used for management of hazardous waste.

Type of Release: unknown

Justification: A sampling notification was sent to NMED on February 21, 1996 for this SWMU, in accordance with the sampling requirements outlined in the RFI Work Plan. A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. The site is listed in the "Under Investigation" lists in the 2000 Installation Work Plan.

References:

1) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-23.
2) LANL 1996. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082.* February 21, 1996. EM/ER:96-072.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-028 – Instrument Shop - Decommissioned

Background: SWMU Report: Is the former location of the instrument shop. The shop was constructed in 1945 and removed in 1958.

RFI Work Plan: C-16-028 is the former location of an instrument shop, TA-16-5. It was constructed in 1945 and removed in 1956. TA-16-5 was used to repair instruments such as gauges. A former site worker claimed that there were no hazards associated with the building, although the building probably had asbestos shingles. TA-16-5 also has an inactive outfall associated with it. Contamination from oils and solvents or metals used in the instrument shop could have occurred.

Table 5-104 lists C-16-028 as a potential release site with contaminants of concern. The activity leading to potential contamination is listed as the instrument shop.

Type of Release: metals suite, volatiles and semivolatiles (LANL 1994, pg 5-426)

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-425 thru 5-426.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-030 – Contaminated Soil - Decommissioned

Background: SWMU Report: The site is identified as the former location of a tank house. The house was constructed in 1948 and removed in 1956.

RFI Work Plan: C-16-030 contains potentially contaminated surface soil associated with decommissioned tank housing (TA-16-181). The tank house was concrete and partially buried in the soil. It is likely that fuel for diesel from the TA-16-182 diesel unit building was stored in a tank located within the tank housing. A former site worker stated that no hazardous materials were expected at these buildings.

Table 5-104 lists C-16-030 as a potential release site with contaminants of concern. The activity leading to potential contamination is listed as tank housing.

Type of Release: metals suite, volatiles and semivolatiles (LANL 1994, pg 5-426).

Justification: In a letter dated April 7, 2004, page 3 of the attachment last paragraph, Los Alamos National Laboratory states that "Based on these results contamination observed in the excavation is believed to be consistent with a release of diesel fuel. In a letter dated February 16, 2005 NMED (Hazardous Waste Bureau) cannot agree to close the diesel release site at TA-16-7 (as requested in the April, 2004 letter). Also, a sampling notification was sent to NMED on February 21, 1996 for this SWMU, in accordance with the sampling requirements outlined in the RFI Work Plan. A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. The site is listed in the "Under Investigation" lists in the 2000 Installation Work Plan as well as in the 1990 SWMU Report.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-425 thru 5-434.
3) LANL 1996. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082*. February 21, 1996. EM/ER:96-072.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Residual Diesel Contamination at TA-16-7, Request for Closure Under NMWQCC Regulations. RRES-WQH:-04-046*. April 7, 2004.

6) NMED 2005. New Mexico Environment Department, Hazardous Waste Bureau. *Residual Diesel Contamination at TA-16-7, Request for Closure Under NMWQCC Regulations Los Alamos National Laboratory, EPA I D #NM0890010515*. February 16, 2005.

C-16-031 – Contaminated Soil - Decommissioned

Background: SWMU Report: This SWMU is identified as former location of a diesel unit building constructed in 1944 and removed in 1956.

RFI Work Plan: C-16-031 is described as potentially contaminated surface soil associated with decommissioned tank housing (TA-16-181) and diesel unit building (TA-16-182). The diesel unit was of wooden construction and the nearby tank housing was concrete and partially buried in the soil. A former site worker stated that no hazardous materials were expected at these buildings.

Table 5-104 lists the site as a potential release site with potential contaminants of concern. The activity leading to contamination is listed as diesel unit building.

Type of Release: Metals suite list , volatiles, and semivolatiles (LANL 1994, pg 5-427).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-425, 5-426.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-034 – Water Tank - Decommissioned

Background: SWMU Report: This SWMU is identified as a water tank constructed in 1945 and removed in 1949.

RFI Work Plan: C-16-035 is described as a 50,000 gal water tank, TA-16-1130. The tank was located along the Jemez Road near the current location of the 1,000,000 gal water tank. The tank was connected to the site water supply via the pump station. This structure had no hazardous materials associated with it and the area is isolated from the HE facility. The site is recommended for NFA because they have never been used for the management of hazardous waste.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-23-24.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-035 – Water Tank - Decommissioned

Background: SWMU Report: This SWMU is identified as a water tank constructed in 1945 and removed in 1949.

RFI Work Plan: C-16-035 is described as a 50,000-gal water tank, TA-16-1131. The tank was located along the Jemez Road near the current location of the 1,000,000-gal water tank. The tank was connected to the site water supply via the pump station. This structure had no hazardous materials associated with it and the area is isolated from the HE facility. The site is recommended for NFA because they have never been used for the management of hazardous waste.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-23-24.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-036 – Latrine - Decommissioned

Background: SWMU Report: This SWMU is identified as the former location of a latrine, it was constructed in 1945 and removed in 1957.

RFI Work Plan: C-16-036 (TA-16-145) is identified, as a decommissioned latrine was part of a cluster of buildings that were used by the Zia Company for storage of equipment and tools used for utilities maintenance in the World War II era S-Site. No unpackaged HE was allowed so this group of buildings did not handle or store unpackaged HE. This site is recommended for NFA because no release to the environment has occurred.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-29-30.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-041 – Hose House - Decommissioned

Background: SWMU Report: This SWMU is identified as a hose house constructed in 1945 and removed in 1958.

RFI Work Plan: C-16-041 was a small hose house, TA-16-198, built in 1945 on the driveway into the old burning area along anchor Ranch Road north of the administration area at S-Site. The building was used to store and protect lengths of fire hose. The building tested free of radioactive contamination in 1967. C-16-041 is recommended for NFA because it has never been used for management of hazardous waste.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-24-25.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-044 – Steam Manhole - Decommissioned

Background: SWMU Report: This SWMU is identified as the former location of a steam manhole (TA-16-1090). The construction date is 1944 and the removal date is unknown.

RFI Work Plan: C-16-044 was a steam manhole, TA-16-1079, made of reinforced concrete with a wooden cover. The manhole was built in 1945, and decommissioned at an unknown date, and then filled with gravel. A site visit confirmed that the manhole has been decommissioned. It is believed to have contained pipes that carried only distilled steam vapor or cool condensate water to and from the steam plant. There were no hazardous materials associated with the manhole.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-25-26.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-046 – Steam Manhole - Decommissioned

Background: SWMU Report: This SWMU is identified as the former location of a steam manhole (TA-16-1090). The construction date is unknown. The manhole was removed in 1952.

RFI Work Plan: C-16-046 was a steam manhole, TA-16-1090. The manhole was 9 ft deep with a gravel bottom and sheet metal cover. Its exact location is unknown. The manhole is believed to have contained pipes that carried only distilled steam vapor or cool condensate water to and from the steam plant. No hazardous materials were associated with TA-16-1090. The site is recommended for NFA because it has never been used for the management of hazardous waste.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-25-26.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-047 – Oil Switches - Decommissioned

Background: SWMU Report: This SWMU is identified as a former location for an oil switch; construction date is unknown and removed in 1966.

RFI Work Plan: C-16-051 is a decommissioned 200 to 400 gal oil switches used to control large amounts of electrical power for several clusters of buildings at S-Site. This oil switch was in service from 1952 to 1967 when it was removed. The switch was mounted on a 7 X 7 ft concrete pad that was surrounded by a metal fence. The site is recommended for NFA because there were no known hazardous materials associated with these sites and no documented releases. The most likely COPC would be lubricating oil containing polychlorinated biphenyls.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-31-32.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-049 – Contaminated Soil - Decommissioned

Background: SWMU Report: This SWMU is identified as the former location of an office and shop building TA-16-475. The building was constructed in 1944 and removed in 1951.

RFI Work Plan: C-16-049 is the soil associated with TA-16-475, a structure that was built in 1944 and removed in 1951. The building consisted of a workshop addition containing workbenches and shelving, a generator, storage area, office, lab, workroom, bathroom, and darkroom. The building was situated on a concrete slab floor, therefore the most likely source of potential soil contaminants is the northern section of the building containing drain lines. A plumbing diagram shows that the only drain lines in the building were from a lead sink in the darkroom and the sanitary facilities in the lavatory that connected to a septic tank. The septic tank and its drain field are a separate site covered under a different SWMU that will be sampled for HE, barium, metals, radionuclides, organics, silver, and cyanide. C-16-049 is recommended for NFA because the drain line, septic tank, and associated drain field that likely constitute the source.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-21.
3) LANL 1996. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082.* February 21, 1996. EM/ER:96-072.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-050 – Soil - Inactive

Background: SWMU Report: The site is listed as the former location of a storage building; constructed in 1944 and removed in 1945.

RFI Work Plan: C-16-050 was a wooden frame storage building, TA-16-482. C-16-050 was constructed in 1944 at TA-30 and was moved from TA-30 to TA-16 in July 1947. It was subsequently moved to TA-11 in 1949. It is not known what was stored in this structure. A site worker with 35 years experience reported that no hazardous materials were associated with the site.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-26.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-051 – Oil Switches - Decommissioned

Background: SWMU Report: This SWMU is identified as a former location for an oil switch; construction date is unknown and removed in 1968.

RFI Work Plan: C-16-051 is a decommissioned 200 to 400 gal oil switch used to control large amounts of electrical power for the 300 Line buildings at S-Site. The oil switch was in service from 1952 to 1967 when they were removed. The switch was mounted on a 7 X 7 ft concrete pad that was surrounded by a metal fence. The site is recommended for NFA because there were no known hazardous materials associated with these sites and no documented releases. The most likely COPC would be lubricating oil containing polychlorinated biphenyls.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-31-32.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-058 – Oil Switches - Decommissioned

Background: SWMU Report: This SWMU is identified as a former location of chemical storage area and associated soil potentially contaminated with organics. It is unknown whether waste chemicals were stored.

RFI Work Plan: C-16-058 is a decommissioned 200 to 400 gal. oil switches used to control large amounts of electrical power for the assembly and pressing There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 1998 Installation Work Plan.
area at S-Site. The oil switch was in service from 1952 to 1967 when they were removed. The switch was mounted on a 7 X 7 ft concrete pad that was surrounded by a metal fence. This AOC is recommended for NFA because no release to the environment has occurred. There was no hazardous material associated with this site and no documented releases. The most likely COPC would be PCBs. Site inspection showed no staining in the area.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-31, 6-32.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-060 – Contaminated Soil - Decommissioned

Background: SWMU Report: Is the former location of a storage building (TA-16-429) and associated soil contaminated with radionuclides; removed in 1951.

RFI Work Plan: C-16-060 contains potentially contaminated surface soil associated with structure TA-16-479. Drainage in this area is generally east but local construction of berms, roads, and walkways directs drainage north and south as well. TA-16-479 is a small storage building with a wooden floor. The storage building may have been used to store materials used in the mockup chamber. A former site worker listed TA-16-479 as possibly having uranium-238 present.

Table 5-26-2 lists C-16-060 as a potential release site for contaminants of concern. The primary activity leading to potential contamination is listed as Storage.

The 1990 SWMU Report lists the associated structure as TA-16-429 therefore it is uncertain what the correct related structure number is.

Type of Release: undetonated HE, HE degradation products, uranium, metals suite, barium, mercury, semivolatiles (LANL 1995, pg 5-26-14).

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1580. Pgs: 5-26-6, 5-26-14.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-061 – Soil - Inactive

Background: RFI Work Plan: C-16-061 represents soil contamination associated with the site of TA-16-396. TA-16-396 was a latrine for the burning grounds at TA-16. The latrine was built in 1951 and removed in 1968. According to the structure list, all materials from the removal were disposed of at the Area P Landfill. No evidence of it remains. No hazardous materials were ever associated with the latrine. This SWMU is recommended for NFA because it has never been used for the handling or storage of hazardous constituents. It contained no hand washing facilities and due to its distance from TA-16-390, it is extremely unlikely to have inadvertently been contaminated with HE.

Type of Release: Unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-24.
2) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-062 – Electrical Manholes – Decommissioned

Background: RFI Work Plan: C-16-062 is a decommissioned manhole, TA-16-889, used to access underground electrical conduits at P-Site. The manhole was installed in 1950 and removed in 1972. The site visit confirmed that the manhole was removed and there were no hazardous wastes associated with the site. The C-16-062 is recommended for NFA.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-22.
2) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-063 – Electrical Manholes – Decommissioned

Background: RFI Work Plan: C-16-063 is the former location of electric manhole removed in 1972.

RFI Work Plan: C-16-063, TA-16-888 was used to access underground electrical conduits at P-Site. It was installed in 1950 and removed in 1972. No hazardous material was ever associated with the structure.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-22.
2) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-064 – Contaminated Soil – Decommissioned

Background: RFI Work Plan: C-16-064 contains potentially contaminated surface soil associated with drum storage platform TA-16-183. This 8 X 8 ft platform consisted of wooden storage areas a few feet off the ground on steel legs. This platform was constructed in April 1945. According to a former site worker the platform was used for storage of garbage cans that contained HE scrap from the riser cutting building. The platform was decommissioned and flashed at the burning ground in 1968.

Table 5-89 lists C-16-064 as a potential release site with contaminants of concern and the primary activity leading to contamination is listed as the drum storage platform.

VCA Completion Report: Eight field screening samples were taken and two laboratory samples. One location was above PRG for RDX and was excavated. After cleanup activities all soils were below PRGS, therefore this PRS is proposed fro NFA.

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, and barium (LANL 1994, pg 5-365).

Justification:. A sampling notification was sent to NMED on February 21, 1996 for this SWMU, in accordance with the sampling requirements outlined in the RFI Work Plan. A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. The site is listed in the "Under Investigation" lists in the 2000 Installation Work Plan as well as in the 1990 SWMU Report. The VCA Completion Report was submitted with out a VCA Work Plan, NMED did not approve a final work plan for this site before sampling activities occurred. In the VCA Completion Report, lead, barium and zinc were above the UTL and extent of contamination was not determined.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-362-373.
2) LANL 1996a. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082*. February 21, 1996. EM/ER:96-072.
4) LANL 1996b. Los Alamos National Laboratory. *VCA Completion Report for Potential Release Sites at TA-16 90s-Line*. September 1996. LA-UR-96-3285. pgs 57-63.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-065 – Contaminated Soil – Decommissioned

Background: SWMU Report: This SWMU is identified as the former location of chemical storage and associated soil contaminated with organics. It is unknown whether waste chemicals were stored. Drum storage area abandoned in place in 1960.

RFI Work Plan: C-16-065 contains potentially contaminated surface soil associated with drum storage platform TA-16-185. This platform was a concrete bandstand 13.5 X 8.66 X 4.5 ft. The drum storage platform was completed in 1948 and abandoned in place in 1960. It is likely the platform was removed in 1968. The platform was used for storage of drums of waste generated within the 20s-Line.

Table 5-89 lists C-16-065 as a potential release site with contaminants of concern and the primary activity leading to contamination is listed as the drum storage platform.

The VCM Complete Report states that Benzo(a)pyrene was detected above SAL; however below the cleanup level

Type of Release: undetonated HE, HE degradation products, HE burn products, metals suite, and barium (LANL 1994, pg 5-365).

Justification: In a letter dated March 31, 1998 EPA completed a review of the LANL RCRA VCM Completion Report dated September 26, 1997. EPA found parts of the Report to be deficient and it recommended that LANL conduct further investigation. LANL is under the impression that the soil sample results are under human screening action levels and that no further investigation is required. This is not the case and LANL must determine the full extent of contamination (horizontally and vertically).

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-362-373.
2) LANL 1997. Los Alamos National Laboratory. *Voluntary Corrective Measures Completion Report Potential Release Sites at 16-013, 16-025(x)m 16-031(d), C-16-065, C-16-068.* September 26, 1997. LA-UR-97-3677. Pgs 20-24.
3) USEPA 1998. United States Environmental Protection Agency. Review of the LANL VCM Completion Report for PRSs in TA-16 EP A I.D. No. NM0890010515. March 31, 1998.

C-16-067 – Contaminated Soil

Background: RFI Work Plan: C-16-067 contains potentially contaminated surface soil associated with drum storage platform TA-16-187. This 8.33 X 8.33 X 4.5 ft platform consisted of wooden storage areas a few feet off the ground on steel legs. It was built in 1945. It is decommissioned, however was once used for storage barrels of oils and solvents that were laid on their sides. The drums were equipped with spigots, which are likely to have allowed material within the drums to spill on the ground.

Table 5-89 lists C-16-067 as a potential release site with contaminants of concern and the primary activity leading to contamination is listed as the drum storage platform.

VCA Completion Report: Following the removal of all surface and subsurface structures, 16 field screening samples were taken. Two samples were taken and analyzed for inorganics, SVOCs, VOCs and HE.

Type of Release: volatiles and semi-volatiles (LANL 1994, pg 5-365)

Justification: A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment.

The VCA Completion Report was submitted with out a VCA Work Plan. In the VCA Completion Report, barium, copper, and lead were above the UTL but below SAL. TNT was above SAL. Based on the above results, NMED does not concur with NFA proposal for this site. NMED did not receive or approve a final work plan for this site before sampling activities occurred.

A sampling notification was sent to NMED on February 21, 1996 for this SWMU, in accordance with the sampling requirements outlined in the RFI Work Plan. A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-362-373.
2) LANL 1996a. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082.* February 21, 1996. EM/ER:96-072.
3) LANL 1996b. Los Alamos National Laboratory. *VCA Completion Report for Potential Release Sites at TA-16 90s-Line*. September 1996. LA-UR-96-3285. pgs 64-69.

C-16-068 – Soil - Inactive

Background: RFI Work Plan: C-16-068 represents soil contamination associated with the site of TA-16-522. The structure was constructed in 1944 and removed in 1945. This building has not been located on any engineering drawings or aerial photographs. Former site workers have not provided any information regarding the location or nature of operations in the building. An unidentified foundation located west of TA-16-519 may be the former site of this building. Another site worker suggested that TA-16-522 was contaminated with beryllium.

Table 5-130 lists C-16-068 as a potential site with potential contaminants of concern. The primary activity leading to contamination is listed as the laboratory.

A Voluntary Corrective Measures Completion Report states that benzo(a)pyrene is above its SAL and slightly above the cleanup level. A report has not been received stating that the site is presently clean of benzo(a)pyrene.

In a letter dated March 21, 1998 EPA completed review of the LANL RCRA VCM Completion Report dated September 26, 1997. EPA has found parts of the Report to be deficient and it is recommended that LANL conduct further investigation. It appears that LANL is under the impression that is soil sample results are under human screening action levels that no further investigation is required. This is not correct LANL must determine the full extent of contamination (horizontally and vertically).

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-506, 5-508.
2) LANL 1997a. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling Activities at TA-16.* March 19, 1997. EM/ER:94-080.
3) LANL 1997b. Los Alamos National Laboratory. *Voluntary Corrective Measures Completion Report Potential Release Sites at 16-013, 16-025(x)m 16-031(d), C-16-065, C-16-068.* September 26, 1997. LA-UR-97-3677. Pgs 24-29.

4) USEPA 1998. United States Environmental Protection Agency. Review of the LANL VCM Completion Report for PRSs in TA-16 EP A I.D. No. NM0890010515. March 31, 1998.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-069 – Media - Inactive

Background: RFI Work Plan: C-16-069 represents potentially contaminated media associated with structure TA-16-87. This building was a standard Signal Corps trailer that was used as a machine shop for metallic parts. TA-16-87 contained no hazardous materials, including HE, when it was surveyed in the late 1950s. It was removed and returned to the Atomic Energy Commission in 1957.

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-389.
2) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-070 – Underground Fuel Storage - Inactive

Background: RFI Work Plan: C-16-070 is TA-16-391, a 3,063 gal. underground propane tank that was installed at the burning grounds in 1951. This tank provided fuel to heat and dry the sand in filter tanks. The tank was 24 ft long by 5 ft in diameter. The tank was abandoned in place in 1970. Although there is no record of its removal, the tank is no longer present. A vitrified clay pipe was discovered approximately 50 ft east of the tank but it is unknown if this is associated with the tank or with another structure.

This structure had no hazardous materials associated with it. In addition it has been cleared of both HE and radioactive contamination. This AOC is recommended for NFA because no release to the environment has occurred. Is propane regulated by RCRA?

Type of Release: unknown

Justification: There is no report of sampling at this SWMU. Also a RFI Work Plan and/or a RFI Report have not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" list in the 2000 Installation Work Plan.

References:

1) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-34-35.
2) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-071 – One Time Spill - Inactive

Background: SWMU Report: This SWMU is identified as an unknown volume of hydraulic oil spilled to the canyon shelf south of TA-16-430 about 1985. The spill has been cleaned up. Since cleanup occurred ER will review existing documentation for further action, if warranted.

IWP: Although no specific information for this site has been found, it is listed in the Los Alamos Environmental Restoration Potential Release Sites Under Investigation table. It is not identified as a HSWA SWMU; the description is identified as a one-time spill.

Type of Release: unknown

Justification: A RFI Report or Work Plan has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally this site is listed in the 1990 SWMU Report. The site is listed in the "Under Investigation" lists in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-072 – Fuel Tank-Active/Inactive

Background: SWMU Report: This SWMU is identified as a fuel tank; existence is not verified.

RFI Work Plan: C-16-072 is as a fuel tank (TA-16-216. The tank is referenced on 1983 Engineering drawings. Interviews with site personnel indicated no location for the tank. Evidence indicates the tank was never installed. The site is recommended for NFA because its location and existence cannot be established and it is assumed that the tank was never installed.

Type of Release: unknown

Justification: A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally this site is listed in the 1990 SWMU Report. The site is listed in the "Under Investigation" lists in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74.* Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082.* Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 6-19.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-073 – Underground Fuel Tank - Inactive

Background: SWMU Report: This SWMU is identified as an underground fuel tank located 6 feet south of TA-16-200.

RFI Work Plan: C-16-073 is an underground gasoline storage tank believed to be located six feet from the southwest wall of TA-16-200. The gasoline storage tank served an emergency generator located inside the basement equipment room of TA-16-200. It is assumed the tank was installed in 1952. Given that it served the emergency generator in the equipment room and was located six feet south of the building, the tank is expected to be located near the basement entrance of TA-16-200, where the embankment starts with the drainage to the south. Constituents of fuels are the primary COPCs for this tank. High explosives or radionuclides are not a concern.

Type of Release: unknown

Justification: A sampling notification was sent to NMED on February 21, 1996 for this SWMU, in accordance with the sampling requirements outlined in the RFI Work Plan. A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. The site is listed in the "Under Investigation" lists in the 2000 Installation Work Plan as well as in the 1990 SWMU Report.

References:

1) LANL 1990. LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 2, July 1995. LA-UR-95-1038. Pgs: 5-27-3.
3) LANL 1996. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082*. February 21, 1996. EM/ER:96-072.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-16-074 – Soil - Active/Inactive

Background: SWMU Report: The site was observed as soil staining where 43 reportedly "empty" drums were stacked. The drums contained residual HE contaminated hydraulic oil.

RFI Work Plan: C-16-074 was potential contamination associated with a drum storage area located on the concrete pad east of TA-16-517. The pad is level, empty and surrounded by the asphalt paving of the adjacent courtyard. No oil stains remain; only a few rust rings are on the concrete pad. Drainage is to the north around TA-16-516 to a ditch leading east to the ditch along K-Site Road.

Table 5-130 lists C-16-074 as a potential release site with contaminants of concern. The primary activity that may potentially cause contamination is listed as drum storage.

VCM Report: C-16-074 sits directly on top of 16-029(g2). It is a potential contamination source associated with a drum storage area located on the concrete pad east of TA-16-517. 16-029(g2) was formerly pit TA-16-523. A 1983 memo indicates that HE and beryllium were used at TA-16-523. Samples were collected at depths ranging from 0 ft to 11 ft and a total of 17 screening samples were collected. Barium was detected in a sample at a 2 to 4 ft depth, Chromium was detected in three samples at a depth of 2 to 4 ft, Copper was detected at a depth of 2 to 4 ft and 4 to 6 ft, and Nickel was detected in two samples at 4 to 6 ft depths. It is stated in the report that soil was not removed.

In a letter dated December 10, 2002 the HWB believes that LANL should defer any NFA proposals or any additional investigations for these PRSs until the appropriate watershed aggregate work plans are developed and the investigations are performed. LANL shall screen the data using residential risk-based screening levels for soils for any PRS that will be proposed in the NFA.

Type of Release: Chromium, nickel, barium, and copper (LANL 1994, pg 5-508).

Justification: In a letter dated March 21, 1998 EPA completed review of the LANL RCRA VCM Completion Report dated September 26, 1997. EPA has found parts of the Report to be deficient and it is recommended that LANL conduct further investigation. It appears that LANL is under the impression that is soil sample results are under human screening action levels that no further investigation is required. This is not correct LANL must determine the full extent of contamination (horizontally and vertically).

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51- TA-74*. Revised November 1990.

2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1082*. Environmental Restoration Program, Addendum 1, July 1994. LA-UR-94-1580. Pgs: 5-506, 5-508.
3) LANL 1996. Los Alamos National Laboratory. *Sampling Notification; Field Unit 3 Sampling at Former Operable Unit (OU) 1082*. February 21, 1996. EM/ER:96-072.
4) USEPA 1998. United States Environmental Protection Agency. *Review of the LANL VCM Completion Report for PRSs in TA-16 EP A I.D. No. NM0890010515*. March 31, 1998.
5) NMED 2002. NMED: *Response to Response to Request for Supplemental Information For the Voluntary Corrective Measures Report for Potential Release Sites 16-006(g), Drum Storage Area Aggregate [16-029(g2) and C-16-074], and 16-034(p) Los Alamos National Laboratory NM0890010515 HRMB-LANL-99-009*. December 10, 2002.

C-16-075 – Spill - Active/Inactive

Background: Installation Work Plan: The C-16-075 is listed in the 2000 installation work plan as a spill location near Building 16-340. The SWMU is also listed as a newly identified area of concern.

Type of Release: Unknown

Justification: There is very little information about this site. Therefore, it must be included on the permit.

References:

1) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

18-002(c) – Drop Tower

Background: SWMU Report: The drop tower was used in tests involving inert, HE and ballistic objects. Located at the former firing site in Threemile Canyon in TA-18. The exact location of the drop tower is unknown. However, LANL thinks it may be west of building 18-5 (battleship) at one of the firing pads. There is also an ephemeral stream just to the north of the firing sites. Surrounding SWMUs/AOCs include: 18-002(b) (Medium firing point-removed/Firing point G-removed/Firing point C/Firing chamber 18-4-removed), 18-010(f) (outfall), 18-003(c) (Septic Tank). Information regarding decommissioning of the entire site (TA-18 firing sites) is not available.

RFI Work Plan and RFI Report: LANL provisionally recommended that 18-002(a & b) be given a NFA. They also proposed NFA for 18-002(c) because its effects were undistinguishable from those of 18-002(a & b). No formal NFA request was submitted to NMED.

Type of Release: Cadmium, copper, 4-Amino-2,6-dinitrotoluene, RDX, 2,4,6-trinitrotoluene (LANL 1995, 4-113 – 4-114)

Justification: RCRA constituents potentially exist at this site. There is little information regarding the status of 18-002(c). An investigation into contaminant characterization has not been conducted and therefore, contamination extent has not been defined. The location of 18-002(c) is unknown and no effort (geophysical survey, etc.) has been made to identify its location. LANL cannot assume that 18-002(c) has the exact same types and concentrations of contamination as 18-002(a & b). Especially when the location of 18-002(c) is virtually unknown. Further investigation is required to determine nature and extent of contamination and whether there is an unacceptable risk to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1093.* Environmental Restoration Program. May 1993. Page 5-53.
3) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 18-002(a-c), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, Vol. I.* Field Unit 2 - Environmental Restoration Program. October 1995. Pages 4-105 through 4-114.
4) LANL 1996. Los Alamos National Laboratory. *Addendum RFI Report for Potential Release Sites 18-002(a, b), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, PCO wells, Wetlands LACEF Monitoring Wells.* Field Unit 2 - Environmental Restoration Program. April 1996. Pages 4-45 through 4-49.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

18-006 – Uranium Solution Pipe

Background: SWMU Report: This was an underground pipe used for the storage of uranyl sulfate solution that was used for fuel in fission reactions. Located at the south side of building 18-168 (Dynamic Critical Assembly Facility, renamed the Los Alamos Critical Experiment Facility (LACEF)).

RFI Work Plan: The pipe was buried 5-ft bgs and extended from Building 18-168, 100-ft west to the fence corner. The pipe was used as storage for the Kinglet fission reactor, an aboveground containment vessel. The solution has been removed, but the piping and pump remain in place. Residuals may be present in the pipe and pump. Decommissioning information on the pipe and pump is not available. The pipe is not a waste management unit, and because there was no evidence of a release, it was designated as an AOC.

Type of Release: Uranium solution (LANL 1990)

Justification: According to the RFI Work Plan, 18-006 has deferred investigation status. Soil and groundwater samples were obtained upgradient and downgradient of 18-006. The data showed that all samples were below detection levels. However, no samples have been obtained in the immediate vicinity or beneath the pipe because LANL may want to use the pipe in the future. Information on the presence of contamination immediately surrounding the pipe cannot be obtained without excavating or completely exposing the pipe. Such an excavation runs the risk of damaging the pipe, thus precluding its future utility. Based on this information, LANL has not conducted a thorough investigation of this site. LANL has not determined the vertical or horizontal extent of contamination and future use of the pipe is unknown. Based on this, it should be included on the permit. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1093.* Environmental Restoration Program. May 1993. Pages 5-16 and 6-6 through 6-7.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

18-008 – Underground Storage Tank

Background: SWMU Report: This is a 1,000-galllon steel, underground storage tank (TA-18-104). It was used to store fuel oil for diesel-operating generators. The tank was in use from the 1950's to 1966. It was then abandoned and thought to be removed. It was located approximately where Building TA-18-250 is presently.

RFI Work Plan: In 1992, site personnel indicated that the tank had not been removed and was more likely located 40-ft north of Building TA-18-250.

RFI Report: A Ground Penetrating Radar (GPR) survey was performed that covered the entire area within the fence line north of Building TA-18-250. The survey could not detect the underground tank. Based on this, no sampling was completed for this site. NFA was recommended for PRS 18-008 based upon No Further Action Criteria Policy Criterion 1: The PRS could not be found. Listed in the SWMU Report, but now considered an AOC.

Type of Release: Diesel Fuel (LANL 1993, Page 5-47)

Justification: The information available is not sufficient to make a determination as to whether the tank still exists. LANL did conduct a GPR survey in a large area where the tank was thought to be, however, NMED has not reviewed a copy of the GPR Survey report (a copy was not provided with the RFI Report) and therefore cannot say definitively that the survey was thorough. Based on the lack of information, this AOC must be included on the permit. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1093.* Environmental Restoration Program. May 1993. Pages 5-46 through 5-50.
3) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 18-002(a-c), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, Vol. I.* Field Unit 2 - Environmental Restoration Program. October 1995. Pages 4-91 through 4-92.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

18-010(b) – Storm Sewer Outfall

Background: SWMU Report: The outfall is a drainage ditch that runs southward along the wet side of the paved area west of Building TA-18-30. It runs into a flat, grassy area at the fence southwest of the southwest corner of the Building TA-18-30 parking lot. SWMU 18-010(a) (storm sewer outfall) is nearby.

RFI Report: Sediment samples were collected for field screening at 10 locations in the asphalt-paved drainage ditch and analyzed for SVOCs and inorganics. Samples were also colleted from the upper 6-in. of surface soil at two locations below the outfall, at the outfall, and approximately 12-ft from the outfall in the discharge channel. Samples submitted for laboratory analysis were tested for SVOCs, metals, and uranium. LANL reported QA/QC problems with analytical results for organics. According to the SWMU Report and RFI Report, because of the long, thick grass, it is difficult to determine how far liquid flowed before it completely penetrated the ground.

Type of Release: Manganese, zinc, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, di-n-butylphthalate, fluoranthene, phenanthrene (LANL 1995, Page 4-144), and uranium (LANL 1996, Page 4-59)

Justification: Analytical data for this site is highly questionable. Not one sample was submitted for full-suite analysis to rule out other possible types of contamination. There were QA/QC problems with some of the data. LANL excluded some analytes as COPCs for inappropriate reasons. If an analyte is detected above its background value (BV) or if it doesn't have a BV and it's detected, it must be retained as a COPC. Not only was a risk assessment not performed but also, according to the ecotoxicological assessment in the RFI Report Addendum, the potential for receptors to come in contact with COPCs at this outfall is moderate. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1093.* Environmental Restoration Program. May 1993. Pages 5-64, 5-67 through 5-68.
3) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 18-002(a-c), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, Vol. I.* Field Unit 2 - Environmental Restoration Program. October 1995. Pages 4-137 through 4-145.
4) LANL 1996. Los Alamos National Laboratory. *Addendum RFI Report for Potential Release Sites 18-002(a, b), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, PCO wells, Wetlands LACEF Monitoring Wells.* Field Unit 2 - Environmental Restoration Program. April 1996. Pages 4-59 through 4-61.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

18-010(c) – Storm Sewer Outfall

Background: SWMU Report: This is a storm drainage collection area that drains the paved area and driveway between Building TA-18-30 and Building TA-18-31. This area drains to the southeast of Building TA-18-30 into a grassy depression. Because of the thick grass, it was difficult to determine how far the liquid flowed before it infiltrated completely.

RFI Report and Addendum: A sediment sample was collected for field-screening purposes at each of four locations in the drainage pathway below the outfall. The screening samples were analyzed for SVOCs and inorganics. Two of the four locations were chosen for analytical sampling based on the presence of elevated concentrations of inorganics. Mercury and copper were detected at concentrations greater than both the background UTL and site-specific background values. The general landscape condition around 18-010(c) is highly developed and disturbed, and the potential for receptors to come in contact with COPCs from the outfall is high.

Type of Release: Copper, mercury, fluoranthene, phenanthrene, and pyrene (LANL 1995, Page 4-151)

Justification: There were QA/QC problems with much of the data and LANL improperly eliminated COPCs. No risk assessment was completed for the site and LANL made too many assumptions. The Addendum to the RFI Report states that an ecological risk assessment should be conducted at this site. "Threatened and endangered species and/or sensitive habitat will be evaluated in the ecological risk assessment." There are RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1093.* Environmental Restoration Program. May 1993. Pages 5-65, 5-67 through 5-68.
3) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 18-002(a-c), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, Vol. I.* Field Unit 2 - Environmental Restoration Program. October 1995. Pages 4-146 through 4-152.
4) LANL 1996. Los Alamos National Laboratory. *Addendum RFI Report for Potential Release Sites 18-002(a, b), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, PCO wells, Wetlands LACEF Monitoring Wells.* Field Unit 2 - Environmental Restoration Program. April 1996. Pages 4-62 through 4-63.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

18-010(d) – Storm Sewer Outfall

Background: SWMU Report: This storm drainage collection area, northeast of Building TA-18-37, drains the paved area northeast of Building TA-18-37. It discharges at the northwest corner of Building TA-18-258 into a flat graveled and grassy area.

RFI Report and Addendum: It was assumed that because of the flatness of the area and the amount of gravel that infiltration of stormwater was almost immediate. A sediment sample was collected for field-screening purposes at each of four locations in the drainage pathway below the outfall. The screening samples were analyzed for SVOCs and inorganics. Two of the four locations were chosen for analytical sampling based on the presence of elevated concentrations of inorganics. Listed in the SWMU Report, but now considered an AOC.

Type of Release: Lead, zinc, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene (LANL 1995, Page 4-156), and uranium (LANL 1996, Page 4-64)

Justification: There were QA/QC problems with much of the data and LANL improperly eliminated COPCs. For example, lead and zinc were eliminated as COPCs because they were present below their respective SALs. LANL cannot eliminate a COPC if it is above background or if they expect to find the analyte at the site. No risk assessment was completed and LANL made too many assumptions. The Addendum to the RFI Report states that an ecological risk assessment should be conducted at this site. "Threatened and endangered species and/or sensitive habitat will be evaluated in the ecological risk assessment." There are potentially RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1093.* Environmental Restoration Program. May 1993. Pages 5-65, 5-67 through 5-68.
3) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 18-002(a-c), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, Vol. I.* Field Unit 2 - Environmental Restoration Program. October 1995. Pages 4-153 through 4-157.
4) LANL 1996. Los Alamos National Laboratory. *Addendum RFI Report for Potential Release Sites 18-002(a, b), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, PCO wells, Wetlands LACEF Monitoring Wells.* Field Unit 2 - Environmental Restoration Program. April 1996. Pages 4-64 through 4-65.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

18-010(e) – Storm Sewer Outfall

Background: SWMU Report: This storm sewer drains the paved area between Buildings TA-18-28 and –147. It enters a drain at the east end of the buildings, passes under the paved area west of Building TA-18-129 to a grating east of Building TA-18-190 and turns south. The outfall is south of the main entrance driveway in a small grassy gully that leads to the main creek.

RFI Report and Addendum: Because of the thick grass in the gully, determining how far the liquid flowed before it completely infiltrated the ground was difficult. A sediment sample was collected for field-screening purposes at each of 14 locations in the drainage pathway. The screening samples were analyzed for SVOCs and inorganics. Seven locations were chosen for analytical sampling based on the presence of elevated concentrations of inorganics.

Type of Release: Cadmium, lead, mercury, zinc, benzo(a)pyrene, dibenzo(a,h)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, and phenanthrene (LANL 1995, Pages 4-163 – 4-164)

Justification: There were QA/QC problems with much of the data and LANL improperly eliminated COPCs. For example, lead, mercury, zinc, and cadmium were eliminated as COPCs because they were not present at concentrations greater than their respective SALs. LANL cannot eliminate a COPC if it is above background or if they expect to find the analyte at the site. No risk assessment was completed for the site and LANL made too many assumptions. The Addendum to the RFI Report states that an ecological risk assessment should be conducted at this site. "Threatened and endangered species and/or sensitive habitat will be evaluated in the ecological risk assessment." There are potentially RCRA constituents present at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1093.* Environmental Restoration Program. May 1993. Pages 5-65, 5-67 through 5-69.
3) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 18-002(a-c), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, Vol. I.* Field Unit 2 - Environmental Restoration Program. October 1995. Pages 4-158 through 4-166.
4) LANL 1996. Los Alamos National Laboratory. *Addendum RFI Report for Potential Release Sites 18-002(a, b), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, PCO wells, Wetlands LACEF Monitoring Wells.* Field Unit 2 - Environmental Restoration Program. April 1996. Pages 4-66 through 4-67.

5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

18-012(c) – Sump and Drain lines

Background: SWMU Report: The site is described as a sump and two drain lines of unknown origin located northeast of Building TA-18-141. A field inspection revealed two metal posts, each labeled drain, east of Building TA-18-141. An engineering drawing shows a pit in Building TA-18-141 with an associated 4-in. cast-iron drain line coming out of the building. The pit houses an ultrasonic cleaner containing ethanol and benzene that is used for cleaning beryllium parts and possibly radioactive items. In the event of a spill from the ultrasonic cleaner, the sump would discharge only to the outfall, which empties into a drainage ditch east of Building TA-18-141.

RFI Work Plan: There is another drain line (3-in. cast-iron) exiting the building and leading in an easterly direction. The 3-in. drain line is connected to floor drains and sinks in the building. The outfall for the 3-in. drain line is a dry well sump outside the building that is approximately 20-ft upstream from the location depicted in Figure 5-5 in the RFI Work Plan. A field inspection in 1992 verified the presence of the sump.

RFI Report: There are discrepancies between the RFI Report and RFI Work Plan. The RFI Report stated that SWMU 18-012(c) was a former equipment pit, which is now covered by a raised floor. The RFI Report also said that the 3-in. cast-iron drain line and associated sump are near a metal post, labeled "Drain". It also claims that potable water backflow from a chilled-water cooling system was the only source of wastewater that could have entered this drain. Two analytical sediment samples, one a duplicate, were taken at the outfall. Field surveys and field screening was not conducted at the site.

Type of Release: Uranium-235, plutonium-238, photo processing chemicals (LANL 1990), and VOCs (LANL 1993, Page 5-46).

Justification: The Permittees could not have determined nature and extent of contamination because they only took two samples (one a duplicate) at the outfall. The SWMU includes the sump and sump drain lines. No sampling was performed beneath the drain lines, which leads to the outfall. Furthermore, this site does not meet NFA Criteria Policy Criterion 4. The site has not been characterized because the Permittees did not analyze the samples for all potential constituents and there were not nearly enough samples to make a determination regarding extent. The burden of proof lies with the Permittees. Two samples cannot prove that no contamination is present at this site. RCRA constituents potentially exist at this site and the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1093.* Environmental Restoration Program. May 1993. Pages 5-15, 5-45 through 5-46.

3) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 18-002(a-c), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, Vol. I.* Field Unit 2 - Environmental Restoration Program. October 1995. Pages 4-82 through 4-84.
4) LANL 1996. Los Alamos National Laboratory. *Addendum RFI Report for Potential Release Sites 18-002(a, b), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, PCO wells, Wetlands LACEF Monitoring Wells.* Field Unit 2 - Environmental Restoration Program. April 1996. Pages 4-35 through 4-36.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

18-013 – Waste Tank

Background: RFI Work Plan: The work plan refers to it as a 'Special Wastes Catch Tank" because it had not been previously identified and therefore, did not have a numerical designation. This AOC was not identified in the 1990 SWMU Report, but proposed for investigation in the RFI Work Plan. A review of engineering drawings revealed a catch tank for "special wastes (extra-valuable materials)" outside the north side of Kiva 1. The same drawings showed the presence of an open-bottomed concrete pit below grade, equipped with a stainless steel catch tank supplied by a pipe from inside the building. A 1992 site inspection did not reveal any surface expression of the pit outside the building, but a capped drainpipe was inside the building at the point indicated in the drawing.

RFI Report: TA-18-013 is a small, buried concrete pit beneath the asphalt pavement on the north side of Building TA-18-23. The pit contains a catch tank that reportedly received industrial wastes via a pipe from inside the building. Excavation through the asphalt pavement verified that the concrete pit, containing an 18-in. diameter, 2.6-ft high metal catch basin, was still in place; both pit and tank were entirely backfilled with soil. The bottom of the concrete pit, 4.8-ft below grade, was covered with gravel open to the soil below, which would have allowed any overflow from the catch tank to filter through the gravel to the soil surface. Discussions with site personnel could not establish what the drain pipe and catch tank may have been used for, or if they were ever used at all. During the RFI investigation, the pit was excavated to the top of the catch tank. Because a radiological survey detected no elevated levels, no screening samples were collected at this PRS. Five backfill samples were collected inside the settling tank and in the surrounding concrete pit (two at the bottom of the catch tank, two from the fill beneath the drainline, and one from the gravel in the bottom of the pit). Soil beneath the gravel floor was not sampled.

Type of Release: Lead, zinc, benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene (LANL 1995, 4-89)

Justification: All of the organic samples had QA/QC problems that affected data usability. The Permittees did not carry any COPCs forward because the levels did not exceed SALs, even though all analytes were above background values. During the RFI, three organic constituents, more specifically PAHs, were identified. It could not be determined whether the source of these analytes was the asphalt covering the pit or a result from site-related activities. The RFI Report states that the risk value at the site is slightly above the acceptable risk level. Lead and zinc were also detected at concentrations greater than the background UTLs; however, they did not exceed SALs and were therefore not considered a health concern. Finally, the Permittees determined that the existence of an exposure pathway for the detected organic chemicals is unlikely unless the tank is removed. This is not an acceptable reason for eliminating COPCs. The Permittees have no idea what the future land use of this site will be and cannot simply assume that the tank will remain in place. RCRA constituents potentially exist at this site and the Permittees have not demonstrated that this was not a routine and systematic

release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1093.* Environmental Restoration Program. May 1993. Pages 5-15, 5-46.
2) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 18-002(a-c), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, Vol. I.* Field Unit 2 - Environmental Restoration Program. October 1995. Pages 4-85 through 4-90.
3) LANL 1996. Los Alamos National Laboratory. *Addendum RFI Report for Potential Release Sites 18-002(a, b), 18-003(a-h), 18-004(a,b), 18-005(a), 18-008, 18-010(b-f), 18-011, 18-012(a-c), 18-013, 27-002, PCO wells, Wetlands LACEF Monitoring Wells.* Field Unit 2 - Environmental Restoration Program. April 1996. Pages 4-37 through 4-39.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-19-001 – Soil Contamination

Background: SWMU Report: This is described as potential soil contamination beneath former structures.

RFI Report: The laboratory was constructed in 1944 and the battery building, latrine, guard shack, retreat building, septic tank, and shelter building were added by the early 1950s. In December 1956, the battery building, guard building, and latrine were removed. The other structures were transferred to the Zia Company in 1957 and 1962. All LASL capital equipment remaining at East Gate Laboratory was assigned to E-Division and was used in civil defense activities by the Amateur Radio Club until late 1974, at which time the site was apparently abandoned. When DOE visited the site in 1986 as part of the CEARP, the only remaining structure at TA-19 was the septic tank.

Remedy Completion Report: AOC C-19-001 contains potentially contaminated soil located beneath the now-demolished laboratory building, battery building, guard house, latrine, retreat building, and shelter building [TA-19-1, -2, -3, -4, -5, and –7]. None of the former buildings or structures remains at the site, except for an inactive underground gas line. Potential residual contamination in soil and tuff from the former structures and laboratory operations was investigated.

Type of Release: Aluminum, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, selenium, silver, zinc, uranium-235, VOCs, SVOCs, Pesticides, PCBs (LANL 2005, Pages 21-24)

Justification: A letter sent by the DOE OB on June 30, 1998, states that; 1) the investigation was not conducted in accordance with the sampling plan, 2) the report did not include all of the data (detected or undetected and the QC results), 3) the report did not provide sufficient site history information to justify the number and location of samples nor the limited analytical suites that were selected, 4) the report provides data that confirms there were releases, but the Permittees proposed “No Further Action” (NFA) for all sites, 5) the Permittees did not define nature and extent at the site and, 6) NFA is not appropriate and additional sampling and investigation should be performed at this site. In addition, this site was investigated as part of the remedy for consolidated unit (CU) 19-001-99. During the investigation hazardous constituents (chromium, cobalt) were detected at this site. Finally, this site is listed in the 1990 SWMU Report and the “Under Investigation” lists in the 1998 and 2000 Installation Work Plans. Furthermore, C-19-001 is listed as part of CU 19-001-99, which is a HSWA SWMU.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. Revised November 1990.
2) NMED 1998. New Mexico Environment Department – Department of Energy, Oversight Bureau (NMED DOE OB). *Letter from DOE OB to LANL: Review of an RFI Report from LANL Remedial Action Focus Group (formerly FU-1): RFI Report for*

Potential Release Sites: 19-001, 19-003, and C-19-001 in OU 1071, September 1997. June 30, 1998.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2005. Los Alamos National Laboratory. *Remedy Completion Report for the Investigation and Remediation of Consolidated Unit 19-001-99 (Former Technical Area 19/East Gate Laboratory).* LA-UR-05-0975. July 2005.

20-003(b) – Firing Site

Background: SWMU Report: Testing initiators involved the firing of Navy guns against steel plates along the cliffs. SWMU 20-003(b) (TA-20-13), which was associated with the site, was removed in 1955.

RFI Work Plan: This SWMU is identified as structure TA-20-13, a 20-mm-gun building located in a canyon on the north side of TA-20. It actually consisted of two buildings (TA-20-13 and TA-20-44). An engineering drawing shows structure TA-20-44 as a wood-frame building having interior dimensions of approximately 16-ft by 16-ft by 8-ft high and equipped with concrete gun mounts. Built in February 1945, this structure was moved to TA-4 in March 1946. Structure TA-20-13, which was adjacent to TA-20-44, was described in a 1947 Laboratory memo as a workshop. However, it appears to have been a control building from which the gun in TA-20-44 could be fired. Engineering drawings show this structure as a 16-ft by 16-ft wood-frame building whose north wall (which faced TA-20-44) was covered with a 0.5-in.-thick steel plate. An electrical conduit trench ran between the two structures.

Type of Release: Strontium-90, radionuclides, metals (LANL 1994, Page 5-13), uranium-235, and lead (LANL 1996, Page 5-38)

Justification: Both NMED and EPA tentatively agreed in letters dated March 11, 1997 and July 23, 1997 respectively, that this site was not a potential SWMU and it seemed appropriate not to add this site to the LANL RCRA/HSWA Permit. However, the Permittees state in the RFI Report that uranium and isotopic uranium analyses were not requested for this site even after Uranium-235 was detected using gamma spectroscopy. Also, the RFI Work Plan lists Sr-90 as a potential contaminant of concern for 20-003(b), yet no laboratory analysis was performed for Sr-90. Consequently, the Permittees have not determined nature and extent of contamination. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1100.* May 1994. LA-UR-94-1097. Pgs.: 5-13, 5-16, and 5-22.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TAs-20, -53, and -72 (located in former Operable Unit 1100).* Field Unit 2. Environmental Restoration Project. LA-UR-96-906. March 1996. Pgs.: 5-34 – 5-39.
4) NMED 1997. New Mexico Environment Department (NMED). *Letter from NMED to LANL: Notice of Deficiency, RCRA Facility Investigation Report, Potential Release Sites in Technical Areas 20, 53, and 72.* March 11, 1997.

5) EPA 1997. Environmental Protection Agency (EPA). *Letter from EPA to NMED*: *Review of LANL "Response to the NOD" of RCRA RFI Report for PRSs in TAs-20, -53, and -72.* July 23, 1997.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

20-003(c) – Firing Site

Background: SWMU Report: Testing initiators involved the firing of Navy guns against steel plates along the cliffs. SWMU 20-003(c) (TA-20-16), which was associated with the site, was removed in 1955.

RFI Work Plan: 20-003(c) was located near the center of TA-20. An engineering drawing showed this structure as a gun mount consisting of a 10-ft by 10-ft concrete pad with a steel plate surface. Constructed around August 1944, this structure was removed in April 1948. A nearby structure, TA-20-10, an earth-bermed timber frame filled with tamped earth, was built around January 1945 on the slope at the toe of the canyon wall. Another drawing showed this structure to be 30-ft long. At the end nearest the gun, it was 12-ft wide and 10-ft high; and at the far end it was 20-ft wide and 5-ft high. From the layout of these structures, it appears that the gun was fired into the earth-filled bin. Presumably the projectile could be recovered.

Type of Release: Beryllium, nickel, strontium, tungsten, and HE (LANL 1994, Page 5-17)

Justification: EPA completed a review of the VCA Report and issued a Notice of Deficiency on November 7, 1997. The NOD stated that the VCA Report and RFI Report were contradictory regarding confirmatory sampling, the request for NFA was denied, and the Permittees were required to submit all sampling and screening assessment results. To date, the Permittees have not submitted the sampling and screening assessment results for this SWMU. Therefore, it has not been determined whether there is a routine and systematic release at this site and the nature and extent of contamination has not been defined. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1100.* May 1994. LA-UR-94-1097. Pgs.: 5-13, 5-16 – 5-17, 5-22.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TAs-20, -53, and -72 (located in former Operable Unit 1100).* Field Unit 2. Environmental Restoration Project. LA-UR-96-906. March 1996. Pgs.: 5-39.
4) EPA 1997. Environmental Protection Agency (EPA). *Letter from EPA to NMED*: *Review of LANL VCA Completion Report for PRSs 20-003(c) and 53-010.* November 7, 1997. Pgs.: 1-2.
6) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-20-001 – Storage Building

Background: SWMU Report: C-20-001 (TA-20-11) was the former location of a storage building and associated soil, which was radioactively contaminated and has been removed.

RFI Work Plan: Two engineering drawings show structure TA-20-11 as a 16-ft x 16-ft wooden hut with work benches along three walls. It apparently was used for assembly of test devices that contained radioactive materials. An adjacent 36-ft x 15-ft timber barricade TA-20-26) protected the hut from flying debris. The two structures were located north of the laboratory building (TA-20-1), next to the canyon wall. A 1948 Laboratory memo describes the removal of two "hot huts" and one "hot house" from Sandia Canyon. Although structure numbers were not given, it was suspected that one of these was TA-20-11. The memo states that the structures and all contents were transported to the "contaminated dump" (probably TA-21), after which the ground checked negative for radioactivity. The former location of TA-20-11 was later surveyed radiologically and sampled, as part of the 1985 Site Characterization Program. The radiological survey (done by Phoswich detector) yielded no readings above background at this location, and analysis of the soil samples showed uranium present within the background range of 3 to 7 mg/kg.

Type of Release: Uranium (LANL 1994, Page 6-28)

Justification: According to the RFI Work Plan, the Permittees propose NFA for this site because there was no evidence of a release. However, the Permittees state that uranium was detected within the background range of 3 to 7 mg/kg. 3 mg/kg is above the background value for all uranium isotopes (Ur-234: 2.59 mg/kg, Ur-235: 0.20 mg/kg, Ur-238: 2.29 mg/kg). Therefore, it has not been determined whether there is a routine and systematic release at this site and the nature and extent of contamination have not been defined.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C.* Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1100.* May 1994. LA-UR-94-1097. Pgs.: 6-27 – 6-28.

C-20-002 – Storage Building

Background: SWMU Report: C-20-002 (TA-20-12) was the former location of a storage building and associated soil reportedly contaminated with HE. The building was destroyed by burning on February 28, 1960.

RFI Work Plan: An engineering drawing showed TA-20-12 as a portable magazine, a skid-mounted wooden structure with interior dimensions of 6-ft x 6-ft x 7-ft. This structure was located south of C-20-001 (20-mm gun-firing site) and was completed in April 1945. This structure was surveyed for explosives on July 13, 1959 and was contaminated with HE. The extent of HE contamination was not discussed. A memo of January 29, 1960 stated that TA-20-12 was scheduled for demolition by burning in February and a memo of May 27, 1960 recorded the demolition of the structure on February 28, 1960.

Type of Release: HE and other unknowns (LANL 1994, Page 6-28)

Justification: EPA issued an Approval of the RFI Work Plan on December 28, 1994. In addition, the Permittees requested a NFA for this site because there was no evidence of a release. The Permittees have no way of knowing if there was a release because no sampling was conducted at the site. The Permittees simply assumed that contamination present in surface soils was destroyed when the structure was burned. Therefore, it has not been determined whether there is a routine and systematic release at this site and the nature and extent of contamination have not been defined. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C.* Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1100.* May 1994. LA-UR-94-1097. Pgs.: 6-28 – 6-29.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-20-003 – Building

Background: SWMU Report: C-20-003 (TA-20-14) was the former location of a magazine and associated soil reportedly contaminated with HE. The magazine was destroyed by burning on February 28, 1960.

RFI Work Plan: Engineering records showed TA-20-14 as a 9-ft by 11-ft by 7-ft wood-frame structure protected by an earth berm. This structure was located south of C-20-001 (20-mm gun-firing site) and was completed in April 1945. A 1959 Laboratory memo identified TA-20-14 as an abandoned, HE-contaminated structure. This structure was surveyed for explosives on July 13, 1959 and was contaminated with HE. The extent of HE contamination was not discussed. A memo of January 29, 1960 stated that TA-20-14 was scheduled for demolition by burning in February and a memo of May 27, 1960 recorded the demolition of the structure on February 28, 1960.

Type of Release: HE and other unknowns (LANL 1994, Page 6-28)

Justification: EPA issued an Approval of the RFI Work Plan on December 28, 1994. In addition, the Permittees requested a NFA for this site because there was no evidence of a release. The Permittees have no way of knowing if there was a release because no sampling was conducted at the site. The Permittees simply assumed that contamination present in surface soils was destroyed when the structure was burned. Therefore, it has not been determined whether there is a routine and systematic release at this site and the nature and extent of contamination have not been defined. Finally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1100.* May 1994. LA-UR-94-1097. Pgs.: 6-28 – 6-29.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

21-001 – MDA T

Background: SWMU Report: This unit is described as a drum storage area used to hold sludge from the TA-21 industrial wastewater treatment plant. There was a tarp covering the drums during the Visual Site Inspection (VSI). These drums were stored at this location prior to transfer to TA-54. A November 1988 field survey found 57 drums southwest of TA-21-257. The drums southwest of Building 257 were empty.

RFI Work Plan: The waste consists of radioactive sludges and is believed to contain hazardous constituents. In 1990, twenty, 55-gallon drums of unused thermal oil were observed to be stored in the area (OU RFI Work Plan, May 1991, p 16-171). The wastes that were generally disposed of at MDA T were drummed and stored in this area (LANL 1991, p 16-172). The site was proposed for investigation with SWMU 21-011 in the work plan.

Type of Release: No known releases but is suspected of systematic releases of solid wastes, including RCRA-regulated constituents.

Justification: This AOC is being addressed under the MDA T Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" list in the 2000 Installation Work Plan submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume II*, LAUR-91-962. May 1991.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Material Disposal Area T at Technical Area 21, Solid Waste Management Unit 21-016(a)-99.* LA-UR-04-0559. February 2004. Pg.: 1
5) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-2.

21-002(b) – Container Storage

Background: SWMU Report: This was a barrel storage area located southeast of TA-21-38, where a 55-gallon drum was noted as leaking during the CEARP. The barrel storage area was removed in 1966.

RFI Work Plan: No contaminated soil was removed nor was any clean backfill brought into the area following D&D (LANL 1991, p 14-58). The site was proposed for investigation in the 1991 RFI Work Plan.

Type of Release: Unknown

Justification: This AOC is being addressed under the Delta Prime Site Aggregate Area investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans submitted by the Permittees.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume II*, LAUR-91-962. May 1991.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21.* LA-UR-04-5009. August 2004. Pg.1.
6) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-1.

21-004(a) – Aboveground Tank

Background: SWMU Report: This aboveground tank (TA-21-335) was a 6,000-gallon tank designed to receive any liquids discharged from TA-21-21 in the event of an emergency release, (*i.e.*, if the sprinklers in the building were used). To date, there was no record of any discharges to this tank. The tank was 8-ft in diameter and 16-ft long. It was installed in 1974.

RFI Work Plan: There is conflicting information available on the origin of the drain line connected to the tank. It may have been connected to the floor drains of building TA-21-21 (OU Work Plan, p 14-28). No data exists for 21-004(a) but sampling results from the outfall that is located northeast of the tank, detected zinc, SVOCs, tritium, americium and plutonium above background values (LANL 1991, p 14-30).

Type of Release: Potentially zinc, SVOCs, americium, and plutonium (LANL 1991, page 14-30)

Justification: This AOC is being addressed under the Delta Prime Site Aggregate Area investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans submitted by the Permittees. Additionally, this site is listed as a HSWA SWMU in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume II*, LAUR-91-962. May 1991.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21.* LA-UR-04-5009. August 2004. Pg.109.
6) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-3.

21-006(f) – Disposal Pit

Background: SWMU Report: This was a seepage pit adjacent to room 413 of Building TA-21-4. This pit received fluorine waste contaminated with plutonium. The pit has been paved over.

RFI Work Plan: The seepage pit may have received up to 4000 liters per day (lpd) of effluent from hydrofluorination processes located in room 413, the southern most room of building TA-21-4. Wastewater from the seepage pit may have emptied into Los Alamos Canyon. The length of time this seepage pit was used is also not known (LANL 1991, p 18-13). It was recommended that investigation of this site be conducted in conjunction with the D&D program at TA-21 (RFI Work Plan 1991, p 18-14).

Type of Release: unknown

Justification: Due to access restrictions, investigation of this AOC is being deferred until D&D activities are completed. In order to properly track the progress of this site and to ensure corrective action is implemented, this site must remain on the LANL RCRA/HSWA Permit. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume III*, LAUR-91-962. May 1991.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21.* LA-UR-04-5009. August 2004. Pg.109.

21-009 – Waste Treatment Laboratory

Background: SWMU Report: This was the old waste treatment laboratory (TA-21-33). It was a wood frame building, 16-ft by 48-ft by 12-ft high. It was in use from 1948 to 1965. It was found to be free of contamination with the exception of two pipes under the building (The SWMU Report does not specify how this determination was made, *i.e.* whether screening was conducted at the site or soil samples were collected and analyzed after the building was removed). An engineering document showed that the building was removed by controlled burning, and the remains were taken for burial in 1965 to MDA G. However, the document does not indicate whether the contaminated pipes were removed.

RFI Work Plan: The former waste treatment facility was identified as contaminated with plutonium. Perchloric acid was also used and may have contaminated the hoods in the building. A release to the surface and subsurface soil may have occurred from the drainlines and releases to the surface soils may have occurred via exhaust ducts (LANL, 1991, p 17-29 to 17-31). The Work Plan recommended investigation of the site to determine the presence of contamination.

Type of Release: Plutonium and perchloric acid (LANL 1991, pages 17-29 to 17-30)

Justification: This AOC is being addressed under the Delta Prime Site Aggregate Area investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume III*, LAUR-91-962. May 1991.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21.* LA-UR-04-5009. August 2004. Pg.1.
6) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-1.

21-011(h) – Aboveground Tank

Background: SWMU Report: 21-011(h) was an aboveground acid storage tank (TA-21-256). The tank has been in use since 1967. The drainline from building TA-21-3 was previously split and discharged to the treatment plant (TA-21-257) as well as the acid tank. The tank was relocated in 1967-68.

RFI Work Plan: The treatment plant handled waste streams that were rich in chlorides, fluorides and radionuclides (LANL, 1991, p16-173). The site was recommended for investigation in the work plan.

Type of Release: Chlorides, fluorides, and radionuclides (LANL 1991, page 16-173)

Justification: This AOC is being addressed under the MDA T Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume II*, LAUR-91-962. May 1991.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Material Disposal Area T at Technical Area 21, Solid Waste Management Unit 21-016(a)-99.* LA-UR-04-0559. February 2004. Pg.: 1
6) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-2.

21-013(f) – Surface Disposal Site

Background: SWMU Report: This disposal area was identified on an aerial photograph in 1949. It appeared to be a series of mounds. An aerial photograph taken in 1950 showed the mounds had been removed and replaced by TA-21-61. No information was available on the contents of the mounds, or whether they were waste material.

RFI Work Plan: Investigation of the site was recommended in the work plan to determine if contamination exists at the site (LANL, 1991, p 14-72).

Type of Release: unknown

Justification: This AOC is part of consolidated unit 21-003-99 and is being addressed under the Delta Prime Site Aggregate Area investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume II*, LAUR-91-962. May 1991.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21.* LA-UR-04-5009. August 2004. Pg.1 and 109.
6) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-1.

21-013(g) – Surface Disposal Site

Background: SWMU Report: These were two drainlines observed during an E.R. Program site visit. The drainlines were located immediately south of MDA V. The drainlines appeared to have been disposed of and were not associated with drainage from MDA V.

RFI Work Plan: Investigation of the site was recommended in the work plan to determine if contamination exists (LANL, p 14-72).

MDA V IWP: This surface disposal area is located on the southern edge of DP Mesa, immediately south of MDA V, and there is no clear distinction between it and 21-013(b). The AOC consists of miscellaneous building demolition material, the origin and total volume of which is unknown.

Type of Release: Unknown

Justification: This AOC is part of consolidated unit 21-018(a)-99 and is being addressed under the MDA V investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume II,* LAUR-91-962. May 1991.2) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-2.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Solid Waste Management Unit 21-018(a)-99, Material Disposal Area V, at Technical Area 21.* LA-UR-04-3699. June 2004. Pgs.: v and 3.

21-026(c) – Wastewater Treatment Facility

Background: SWMU Report: 21-026(c) (TA-21-348) was a chlorine contact chamber, 3-ft by 3-ft by 5-ft deep located next to the sewage treatment plant. The treatment plant also received water from a decontamination area that resulted in sludge being contaminated with small amounts of radioactive chemicals.

RFI Work Plan: 21-026(c) was a chlorine contact chamber that was converted to a dosing siphon chamber in 1990. The chlorine contact chamber was used to treat wastewater with chlorine disinfectant. Radionuclide assays were performed on the liquid effluent and sludge. Gross alpha, beta, gamma and tritium were detected. Various inorganic chemicals were also detected in the sludge samples (LANL 1991, p 14-96 to 14-98).

DP Site Aggregate Area Work Plan: 21-026(c) is a dosing siphon chamber that was a concrete tank; 5-ft wide, 7-ft long, and 8-ft deep. The dosing siphon chamber received effluent until the chamber was full, and then the effluent was pumped to the two westernmost sand filter beds. 21-026(c) was in use from 1966 to 1992. The chamber was left in place when the treatment plant operations ceased.

Type of Release: Gross alpha/beta/gamma, tritium, and various inorganics (LANL 1991, pages 14-96 to 14-98)

Justification: This AOC is part of consolidated unit 21-026-99 and is being addressed under the Delta Prime Site Aggregate Area investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400. Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume II*, LAUR-91-962. May 1991.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21*. LA-UR-04-5009. August 2004. Pg.1, 109, and 5-86 - 5-87 (Revised Section 5 text).
6) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-3.

21-026(d) – Outfall

Background: RFI Work Plan: The treated sewage line could potentially contain small amounts of any contaminant present at TA-21 that could have potentially entered the septic system. Tritium and other radionuclides would not be removed by any of the treatment process. The site was recommended for investigation in the work plan (LANL 1991, p-15-64).

DP Site Aggregate Area Work Plan: 21-026(d) is an outfall. Discharge from the sewage treatment plant flowed through an 8-in VCP into a concrete channel on the north edge of DP Mesa and ran down a natural drainage to a tributary of DP Canyon. Prior surveys of the effluent indicated the presence of gross-alpha, beta, and gamma radiation and tritium. From 1966 to 1992, this outfall received treated liquid wastes from Building TA-21-227.

Type of Release: Tritium and other radionuclides (LANL 1991, page 15-64)

Justification: This AOC is part of consolidated unit 21-026-99 and is being addressed under the Delta Prime Site Aggregate Area investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume II,* LAUR-91-962. May 1991.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Re0*
vision 8. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21*. LA-UR-04-5009. August 2004. Pg.1, 109, and 5-87 (Revised Section 5 text).
6) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-3.

21-028(a) – Container Storage

Background: SWMU Report: This is an inactive satellite storage area on a loading dock associated with building TA-21-121. This particular satellite area stores alcohol, acetone, and Freon. It was inactive as of January 1990.

RFI Work Plan: Potential surface releases may have occurred from SWMU 21-028(a). The work plan recommended that it be investigated along with MDA T (LANL 1991, p-16-96 to 16-98).

Type of Release: Acetone, freon (LANL 1990), and other unknowns

Justification: This AOC is part of consolidated unit 21-016(a)-99 and is being addressed under the MDA T Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume II,* LAUR-91-962. May 1991.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Material Disposal Area T at Technical Area 21, Solid Waste Management Unit 21-016(a)-99.* LA-UR-04-0559. February 2004. Pg.: 1
6) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-2.

21-028(c) – Container Storage

Background: SWMU Report: This site consists of inactive satellite storage areas located inside and in an outside cabinet at building TA-21-3 (four total). These particular satellite areas store solvents, miscellaneous chemicals; halogenated organics, non-halogenated organics, and radionuclides.

RFI Work Plan: These four container storage areas may have been in use from as early as 1945. Stains were noted on the soil surrounding the storage cabinet outside of room 362, at building TA-21-3. Materials stored included chromic acid, waste mercury. The work plan recommended investigation of the site (LANL 1991, p-18-21 to 18-24).

Type of Release: Solvents, miscellaneous chemicals; halogenated organics, non-halogenated organics, radionuclides (LANL 1990), chromic acid, and waste mercury (LANL 1991, pages 18-21 to 18-24)

Justification: Due to access restrictions, investigation of this AOC is being deferred until D&D activities are completed. In order to properly track the progress of this site and to ensure corrective action is implemented, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume III,* LAUR-91-962. May 1991.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21*. LA-UR-04-5009. August 2004. Pg.111.

21-028(d) – Container Storage

Background: SWMU Report: This is a less than 90-day storage area located on a loading dock associated with building TA-21-209. This particular satellite area stores radioactive waste.

RFI Work Plan: The storage area was assumed to be in use since 1965. It was recommended for investigation in the work plan (LANL 1991, p 14-39).

RFI Report: 21-028(d) is a less than 90-day, 3-ft square storage site located on a concrete loading dock on the northwest side of building TA-21-209. TA-21-209 is currently used for high-temperature chemistry and research involving tritium. This area is assumed to have been in use since 1965, the date when construction was completed.

Type of Release: Lithium-deuterium waste, uranium-235, -238, thorium-228, -232, tritium, oil, acetone, ethanol, convoil 20, ethyl alcohol (LANL 1996, Page 36), calcium, copper, lead, mercury, sodium, uranium, zinc, tritium (LANL 1996, Page 46)

Justification: According to the RFI Report, several constituents were detected above their respective background values; however, these COPCs were not carried forward because they were not detected above their SALs. The Permittees did not define the extent of contamination at this site. The DP Site Aggregate Area Work Plan states that this site has obtained an NFA determination and requires no further investigation. Los Alamos National Laboratory is not the Administrative Authority and therefore does not have the authority to grant an NFA for any site. This site requires further investigation to determine whether there has been a routine and systematic release and whether the site poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1991. Los Alamos National Laboratory. *TA-21 Operable Unit RFI Work Plan for Environmental Restoration Volume II,* LAUR-91-962. May 1991.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 21-024(a-c) and 21-028(d,e).* Field Unit 1. Environmental Restoration Project. LA-UR-96-2041. June 1996. Pgs.: 36-51.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21*. LA-UR-04-5009. August 2004. Pg.111.

C-21-001 – One-Time Spill

Background: SWMU Report: This AOC was a one-time spill of hydrogen fluoride in a corridor of Building TA-21-17.

Type of Release: Hydrogen fluoride (LANL 1990)

Justification: According to the DP Site Aggregate Area Work Plan the spill is not tied to a specific location and cannot be directly investigated. Therefore, this AOC will be deferred until D&D activities are completed. NMED disagrees with the deferral and will require the Permittees to address this AOC as part of the DP Site Aggregate Area investigation. This site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. LAUR-90-3400, Revised November 1990.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21*. LA-UR-04-5009. August 2004. Pg.111.
5) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-4.

C-21-005 – One-Time Spill

Background: SWMU Report: This was a release of americium-241 and plutonium on the west side of Building TA-21-257. The associated soil was reported decontaminated.

Type of Release: Amercium-241, plutonium (LANL 1990)

Justification: This AOC is being addressed under the MDA T Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-10 - TA-25*. LAUR-90-3400, Revised November 1990.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Material Disposal Area T at Technical Area 21, Solid Waste Management Unit 21-016(a)-99.* LA-UR-04-0559. February 2004. Pg.: 1
5) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-2.

C-21-006 – Non-intentional Release (Building TA-21-2)

Background: SWMU Report: This was a release of americium-241 from a leaking transport trailer (TA-21-2). The contaminated area was covered with asphalt.

Type of Release: Americium-241 (LANL 1990)

Justification: Due to access restrictions, investigation of this AOC is being deferred until D&D activities are completed. In order to properly track the progress of this site and to ensure corrective action is implemented, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. LAUR-90-3400. Revised November 1990.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21*. LA-UR-04-5009. August 2004. Pg.111.
5) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-4.

C-21-007 – Non-intentional Release

Background: SWMU Report: This was a release of plutonium, americium, and uranium from a tank vent at Building TA-21-257.

Type of Release: Americium, plutonium, and uranium (LANL 1990)

Justification: This AOC is being addressed under the MDA T Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. LAUR-90-3400. Revised November 1990.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Material Disposal Area T at Technical Area 21, Solid Waste Management Unit 21-016(a)-99.* LA-UR-04-0559. February 2004. Pg.: 1
5) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-4.

C-21-009 – One-Time Spill

Background: SWMU Report: This AOC was a spill of americium-241 in a cement paste. The paste was removed and the area was decontaminated.

MDA T IWP: C-21-009 was a 1978 spill of americium-241 cement paste that occurred during the filling of the shafts.

Type of Release: Americium-241 (LANL 1990)

Justification: This AOC is part of consolidated unit 21-016(a)-99 and is being addressed under the MDA T Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C.* LAUR-90-3400. Revised November 1990.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Material Disposal Area T at Technical Area 21, Solid Waste Management Unit 21-016(a)-99.* LA-UR-04-0559. February 2004. Pg.: 1, B-85
5) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-4.

C-21-012 – One-Time Spill

Background: SWMU Report: This AOC was a spill of americium-241 and plutonium in a cement paste.

MDA T IWP: C-21-012 was a 1976 spill of cement paste contaminated with americium-241 and plutonium that occurred during the filling of corrugated metal pipes.

Type of Release: Americium-241 and plutonium (LANL 1990)

Justification: This AOC is part of consolidated unit 21-016(a)-99 and is being addressed under the MDA T Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. LAUR-90-3400. Revised November 1990.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Material Disposal Area T at Technical Area 21, Solid Waste Management Unit 21-016(a)-99.* LA-UR-04-0559. February 2004. Pg.: 1, B-85
5) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-4.

C-21-027 – Machinery

Background: SWMU Report: This site is described as an active chilled water recirculator (TA-21-143).

VCA Report: C-21-027 was the site of structure TA-21-143, a cooling tower (chilled water recirculator) that received water from Building TA-21-3, circulated it, and returned it to the building in a closed loop. The cooling tower occupied an area approximately 10-ft by 20-ft. The aboveground section of the cooling tower was removed (along with the south portion of Building TA-21-3) in 1994 by the Decontamination and Decommissioning Program, and the belowground section was removed in April 1995. No information is available from previous investigations to determine whether hazardous or radioactive contamination remained at this site.

Type of Release: Calcium, chromium, plutonium-239, and uranium-235 (LANL 1996, Page 2)

Justification: Table 1.2-2 of the DP Site Aggregate Area Work Plan shows the status of this site as "Remedy Complete". The Permittees have stated that absent comments from an Administrative Authority (AA), the Permittees consider the remedy for this site to be complete. However, EPA issued a NOD for the VCA Report on October 31, 1997. The NOD stated that; 1) the Permittees must briefly explain the issues with this site as well as the chemicals of potential concern (COPCs). Without knowing the type of contamination that once existed, how can the Permittees be sure that the contamination was removed, 2) the Permittees must describe what was removed from the below-ground section and how deep it went, 3) the confirmatory sampling was inadequate, 4) the Permittees must explain how the chromium screening action level was established and, 5) the Permittees must resample location 21-4036. Based on the above information, the Permittees must include this AOC as part of the investigation for DP Site Aggregate Area. For this reason, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Finally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C*. LAUR-90-3400. Revised November 1990.
2) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for Potential Release Site C-21-027, TA-21 Cooling Tower, Revision 1.* Field Unit 1. Environmental Restoration Program. LA-UR-96-247. February 1996.
3) LANL 1997. Environmental Protection Agency (EPA). *Letter from EPA to NMED: Review of LANL VCA Completion Report for PRS C-21-027.* October 31, 1997.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21*. LA-UR-04-5009. August 2004. Pg.111.
7) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-4.

C-21-033 – One-Time Spill

Background: SWMU Report: This was a spill of TRU cement paste, which occurred in 1976.

MDA T IWP: A 1976 cement paste spill that occurred when radioactive cement was being pumped from Building TA-21-257 to shafts located between Absorption Beds 1 and 2 at MDA T.

Type of Release: Radionuclides (LANL 1990)

Justification: This AOC is being addressed under the MDA T Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, Appendix C.* LAUR-90-3400. Revised November 1990.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Material Disposal Area T at Technical Area 21, Solid Waste Management Unit 21-016(a)-99.* LA-UR-04-0559. February 2004. Pg.: B-85
5) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-4.

C-21-034 – Tank

Background: MDA T IWP: A 1000-gallon raffinate holding tank, located at the southwest corner of Building TA-21-035.

Type of Release: Unknown

Justification: This AOC is being addressed under the MDA T Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
2) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Material Disposal Area T at Technical Area 21, Solid Waste Management Unit 21-016(a)-99.* LA-UR-04-0559. February 2004. Pg.: 1, B-84
4) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-4.

C-21-035 – Aboveground Tank

Background: MDA T IWP: This is the former location of an aboveground process water holding tank (Structure TA-21-111) on the south side of Building TA-21-035.

Type of Release: Unknown

Justification: This AOC is being addressed under the MDA T Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
2) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Material Disposal Area T at Technical Area 21, Solid Waste Management Unit 21-016(a)-99.* LA-UR-04-0559. February 2004. Pg.: 1, B-84.
4) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-4.

C-21-036 – Aboveground Tank

Background: MDA T IWP: This is the former location of an aboveground process water holding tank (Structure TA-21-111) on the south side of Building TA-21-035.

Type of Release: Unknown

Justification: This AOC is being addressed under the MDA T Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
2) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Material Disposal Area T at Technical Area 21, Solid Waste Management Unit 21-016(a)-99.* LA-UR-04-0559. February 2004. Pg.: 1, B-84
4) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-4.

AOC C-21-037 – Aboveground Tank

Background: MDA T IWP: This is the former location of a 2000-gallon aboveground process tank (Structure TA-21-256) at the southwest corner of Building TA-21-035.

Type of Release: Unknown

Justification: This AOC is being addressed under the MDA T Investigation, which is currently being implemented; therefore, this site must remain on the LANL RCRA/HSWA Permit until investigation is completed and nature and extent of contamination determined. Also, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
2) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2004. Los Alamos National Laboratory. *Investigation Work Plan for Material Disposal Area T at Technical Area 21, Solid Waste Management Unit 21-016(a)-99.* LA-UR-04-0559. February 2004. Pg.: 1, B-84
4) LANL 2005. Los Alamos National Laboratory. *Aggregate Areas List; Maps of TAs, SWMUs/AOCs.* LA-UR-05-6234. August 2005. Pg.: A-4.

33-008(c) – Landfill

Background:
The Permittees notified NMED that a new SWMU had been identified at the Laboratory (LANL 1996a). Notification was sent in accordance with the requirements of Module VIII of LANL's Hazardous Waste Facility Permit. The newly identified SWMU is a landfill located at TA-33. It is a 50-ft x 100-ft area located approximately 250-ft east of Building TA-33-39. The depth of the landfill is not known. Erosion of the soil cap has exposed debris of chemical bottles, carbon rods, and scrap metal at the site and in drainages. A Sampling and Analysis (SAP) Plan was submitted to NMED in July 1996. A site inspection revealed a trench north of the culvert and a second area of debris southeast of the culvert (LANL 1996b). Samples taken around the area during investigation of SWMU 33-017 revealed the presence of cadmium, lead, nickel, silver, and zinc above background levels. The SAP proposed sampling for inorganics, uranium, SVOCs and VOCs, tritium was not included though it was detected in previous samples. NMED sent a notice of deficiency (NOD) for the SAP (NMED 1997a). The Permittees resubmitted the response to the NOD on March 27, 1997 (LANL 1997c) because the original response was incomplete (LANL 1997b). The response stated that the results of sampling and analysis conducted at SWMU 33-008(c) in September of 1996 indicated presence of mercury, copper and lead in concentrations that exceeded screening action levels by an order of magnitude in several samples. SWMU was proposed to undergo voluntary corrective action in fiscal year 1999 (LANL 1997c, page 1). In 1998, the Permittees requested that NMED cease review of some documents until further notice because some of these documents required revisions; SWMU 33-008(c) was included on this list (LANL 1998).

Type of Release: Unknown, potentially metals, organics, PCBs and radionuclides.

Justification:
Nature and extent of contamination has not been defined and determination of whether there was a release has not been made. The SAP for SWMU 33-008(c) stated that based on current information no further action should not be recommended for this SWMU (LANL 1996b, page 2). The site should be included in the permit because potential releases from the site could pose a threat to human health and the environment. The site was identified as a new SWMU by the Permittees in accordance with the requirements of Module VIII of the Facility Permit (LANL 1996).

References:

1. LANL 1996a, *Identification of New Potential Release Sites (PRSs) at Los Alamos National Laboratory (Laboratory)*, May 2, 1996, EM/ER:96-239, Los Alamos National Laboratory.
2. LANL 1996b, *Sampling and Analysis Plan for PRS 33-008(c)*, July 23, 1996, EM/ER:96-410, Los Alamos National Laboratory.
3. NMED 1997a, *Notice of Deficiency Sampling and Analysis Plan Potential Release Site 33-008(c) Los Alamos National Laboratory NM0890010515*, February 4, 1997, New Mexico Environment Department.

4. LANL 1997b, Response to the NOD for TA-33, *PRS 33-008(c) SAP (Former Operable Unit 1122)*, March 19, 1997, EM/ER:97-075, Los Alamos National Laboratory.
5. LANL 1997c, *Resubmittal of the Response to the NOD for TA-33, PRS 33-008(c) SAP (Former Operable Unit 1122)*, March 27, 1997, EM/ER:97-075R, Los Alamos National Laboratory.
6. LANL 1998, *Temporary Cessation of Document Review*, August 24, 1998, EM/ER: 98-289, Los Alamos National Laboratory.

33-011(b) – Storage Area

Background: SWMU Report: This is described as a storage yard [33-011(b)] started in 1948. It was located in the area around the elevator building (TA-33-3). It was used to store equipment used at the firing sites. The equipment was stored until a sufficient quantity was accumulated to allow a strategic materials recovery program to recover materials such as tungsten, uranium, and beryllium. This storage area was cleaned up in 1984.

RFI Work Plan: SWMU 33-011(b) is located just west of the National Radio Astronomy Observatory fenced complex. The SWMU occupies a 200-ft x 300-ft area. About three-quarters of the site has been scraped and leveled. A few bits of scrap and debris still litter the area [page 3-78].

In the 1950's the area became the principal nonradioactive disposal area at TA-33. It was also used to store equipment used at the firing sites. This storage area was cleaned up in 1984. At that time, no analyses were performed for hazardous metals or organic compounds [page 3-78].

Type of Release: Beryllium [LANL 1996, page 10].

Justification: The VCA Report has not been approved by NMED. RCRA constituents are present at this site and therefore it should remain on the permit until review and approval of the VCA Report is complete. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-20 - TA-50*. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1122.* Environmental Restoration Project. LA-UR-92-925 May 1992. Page 3-78.
3) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for Solid Waste Management Units at TA-33, 33-010(a), Canyon-Side Disposal Area, 33-010(d), Surface Disposal Area, 33-010(g), Canyon-Side Disposal Area, 33-011(b), General Storage Area, Field Unit 3.* Environmental Restoration Project. LA-UR-96-1839. June 1996. Page 10.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-33-001 – Transformer

Background: RFI Work Plan: This is a power transformer mounted on a concrete pad adjacent to the east wall of Building TA-33-114. The concrete pad and transformer are enclosed within a fence with access through a locked gate. The concrete pad is surrounded by a paved parking area located between adjacent buildings. The transformer pad exhibits evidence of oil stains. No active leaks were noted during a LANL transformer assessment on September 24, 1985. The transformer site was inspected March 19, 1992, and no evidence of active leaks was observed. This transformer pad was scheduled for replacement during the summer of 1992. The transformer pad will be sampled and cleaned during replacement activities [page 3-26].

RFI Report: Transformer oil in this transformer may have contained PCBs. When the RFI work plan was written, the transformer was scheduled for replacement. The transformer was replaced in 1992 under the Toxic Substances Control Act. However, sampling after replacement was not adequate for ER objectives [page 90].

Type of Release: The transformer pad exhibits evidence of oil stains. [LANL 1992, Page 3-26]. Transformer oil in this transformer may have contained PCBs [LANL 1995, Page 90].

Justification: Potential contaminants of concern exist at this site. The Permittees submitted an RFI Report, which included a Phase I sampling and analysis plan for this site. The Permittees submitted a cessation of document review for the RFI Report; therefore, NMED has not adequately reviewed the RFI Report. The site should remain on the permit until review and subsequent investigation and remediation are complete. Furthermore, this site is listed in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1122.* Environmental Restoration Project. LA-UR-92-925. May 1992. Page 3-26.
2) LANL 1995. Los Alamos National Laboratory. *RFI Report for Field Unit 3 Operable Unit 1122 Technical Area 33 RFI Report for PRSs 33-003(a), 33-004(a), 33-007(c) 33-009, 33-011(d), 33-013, 33-016, 33—017, Revised Sampling Plans for PRSs 33-003(b), 33-004(k), 33-008(b), C-33-001, C-33-002*. Environmental Restoration Project. LA-UR-95-3624. September 1995. Page 90.
3) LANL 1998a. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 1998b. Los Alamos National Laboratory. Environmental Restoration Project. *Letter from LANL to NMED: Temporary Cessation of Document Review*. August 24, 1998.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-33-002 – Transformer

Background: RFI Work Plan: This area of concern is located inside the transformer vault, TA-33-95, located at East Site. The berm-covered transformer vault is constructed of thick concrete walls with a thick steel door to withstand explosive blast effects and protect the power transformer. The power transformer is mounted on the concrete floor of the vault. The vault floor exhibits evidence of old stains. No active leaks were noted during a LANL transformer assessment. The transformer site was inspected March 19, 1992, and no evidence of active leaks was observed. This transformer is scheduled for replacement during the summer of 1992. The transformer pad will be sampled and cleaned as required during the replacement operation [page 3-71].

RFI Report: Transformer oil in this transformer may have contained PCBs. When the RFI work plan was written, the transformer was scheduled for replacement. The transformer was replaced in 1992 under the Toxic Substances Control Act. However, sampling after replacement was not adequate for ER objectives. This subsection proposes sampling and analysis to detect any PCB contamination and migration that may have resulted from historic operation of the transformer [page 90].

Type of Release: The transformer pad exhibits evidence of oil stains. [LANL 1992, Page 3-71]. Transformer oil in this transformer may have contained PCBs [LANL 1995, Page 90].

Justification: Potential contaminants of concern exist at this site. The Permittees submitted an RFI Report, which included a Phase I sampling and analysis plan. The Permittees submitted a cessation of document review for the RFI Report; therefore, NMED has not adequately reviewed the RFI Report. The site should remain on the permit until review and subsequent investigation and remediation are complete. Furthermore, this site is listed in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1122.* Environmental Restoration Project. LA-UR-92-925. May 1992. Page 3-71.
2) LANL 1995. Los Alamos National Laboratory. *RFI Report for Field Unit 3 Operable Unit 1122 Technical Area 33 RFI Report for PRSs 33-003(a), 33-004(a), 33-007(c) 33-009, 33-011(d), 33-013, 33-016, 33—017, Revised Sampling Plans for PRSs 33-003(b), 33-004(k), 33-008(b), C-33-001, C-33-002*. Environmental Restoration Project. LA-UR-95-3624. September 1995. Page 90.
3) LANL 1998a. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 1998b. Los Alamos National Laboratory. Environmental Restoration Project. *Letter from LANL to NMED: Temporary Cessation of Document Review*. August 24, 1998.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-33-003 – Soil Contamination Area

Background: VCA Status Report: PRS C-33-003 consisted of two fill areas that were geographically separated [C-33-003 (west) and C-33-003 (east)] at Main Site. Fill was used to level and grade two areas where portable trailers were located from 1984 to 1988. Projectiles had been fired into the cinder cone prior to its material being excavated and used as fill material. The trailers that had been placed on the fill material were removed in March 1988. Once the trailers were removed, the areas were left without any further improvements. During brush-cleaning activities, conducted in the spring of 1996, three projectiles up to 2-ft long were discovered at C-33-003 (west). Further observations revealed that one of the three projectiles was radioactively contaminated (containing greater than two times the site-specific background). The basaltic cinder fill material was originally excavated from a cinder cone within the boundaries of PRS 33-007(c). The fill was known to contain uranium particles and solid metal projectiles up to 2-ft long. C-33-003 (east) is located inside the northwest corner of the security area north of Building TA-33-114. It was approximately 70-ft long x 90-ft wide x 4-ft deep [page 22].

Excavation of both parts of PRS C-33-003 was conducted using a bulldozer to scrape the cinder and soil down to native material and then a front-end loader to deposit the soil into a dump truck. During VCA activities, BMPs were installed to minimize the potential impact of surface water runoff [page 23].

Type of Release: Surface water contamination is a concern at C-33-003 (west) as there is visible evidence of cinder material migrating into a small drainage channel on the western boundary of the PRS [LANL 2000, Page 22]. Barium, calcium, cobalt, copper, lead, magnesium, nickel, and selenium were detected at levels above background values. Uranium and tritium were detected above background values [LANL 2000, Pages 29 – 30]. Several SVOCs, mostly polyaromatic hydrocarbons (usually associated with asphalt) were detected. Several volatile organic compounds were detected in samples. The following were all detected in at least one sample: acetone, benzene, naphthalene, toluene, trichloroethene, and 1,2-xylene [LANL 2000, Page 32].

Justification: Potential contaminants of concern exist at this site. The Permittees submitted a VCA Plan for this site in April 1999. The VCA proceeded at risk during the spring of 1999 with verbal approval from NMED. NMED has not approved the voluntary corrective action at this site. The site should remain on the permit until review and subsequent investigation and remediation are complete. Furthermore, this site is listed in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1998a. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

2) LANL 1998b. Los Alamos National Laboratory. Environmental Restoration Project. *Letter from LANL to NMED: Temporary Cessation of Document Review*. August 24, 1998.
3) LANL 2000a. Los Alamos National Laboratory. *Segmented Gate System Voluntary Corrective Action Status Report for Potential Release Sites 33-007(b), 33-010(c), C-33-033 (sp).* Environmental Restoration Project. LA-UR-00-1913. April 2000. Page 22, 23, 29, 30 and 32.
4) LANL 2000b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) NMED 2002. New Mexico Environment Department. Memo to File. April 18, 2002.

35-003(r) - Effluent Receiving Canyon

Background:
It is a small shallow canyon that was the site of effluent discharge and spill from the holding tanks, SWMUs (35-003(d)). It is located in the Pratt Canyon, east of the former location of the wastewater treatment plant. It extends from the eastern edge of Ten Site Mesa to the confluence of Pratt and Ten Site Canyons. The wastewater treatment plant that released the effluent ceased operations in 1963 (LANL 2002, page B17). The SWMU Report stated that waste going through the treatment plant probably contained solvents and other chemicals (LANL 1990). The canyon is contaminated with radionuclides but contamination with hazardous chemicals has not yet been characterized (LANL 1992, page 3-43). Several incidences of inadvertent releases of large volumes of insufficiently treated, radioactively contaminated water from the facility to this canyon have been documented over the years (LANL 1992, pages 3-64 to 3-67). Inorganic chemicals like mercury and cadmium were detected above background. Several organic chemicals were detected. Radioactive chemicals like strontium-90, plutonium-239, and cesium-137 were detected above background and fallout values in Pratt Canyon. The site has been included for investigation by the Permittees in the Pratt Canyon Subarea of the Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that this site requires additional sampling for TAL metals, SVOCs, PCBs, and alpha and gamma-spectroscopy, to complete the data set for the site (LANL 2002, page 164).

Type of Release:
Inorganic chemicals, organic chemicals, PCBs, and radionuclides (LANL 2002, pages C-99 to C-111).

Justification: There is evidence of a release of hazardous chemicals from the site that could pose a potential threat to human health and the environment. Nature and extent of contamination is not fully defined.

References:

1. LANL 1990, *Solid Waste Management Units Report, Volume III*, November 1990. LAUR-90-3400, Los Alamos National Laboratory.
2. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
3. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, LA-UR-02-0244, Los Alamos National Laboratory.

35-003(misc.) - Industrial Waste Lines

Background:
35-003(misc.) is a network of underground lines connecting various structures of the TA-35 wastewater treatment plant. Most of the piping of the waste disposal system was constructed of stainless, black or galvanized steel. The majority of these pipes were removed from 1981 through 1984 (LANL 1992, page 3-41). These lines transported wastes contaminated with various radionuclides and possibly hazardous chemical contaminants from laboratories and hot cells in TA-35-2 to various portions of the treatment facility (LANL 1992, page 3-42). The SWMU Report stated that waste going through the treatment plant probably contained solvents and other chemicals (LANL 1990). Release of radioactive contaminants from these lines at 15-20-ft below ground surface is documented. Gross beta contamination as high as 3,243 pCi/g was detected in soil at a depth of 17-20-ft below ground surface (bgs) (LANL 1992, page 3-42, 3-76). Vertical and lateral extent of contamination has not been determined (LANL 1992, page 3-42). A D&D event occurred in 1996 at which time building TA-35-07 and associated piping was removed (LANL 1997). Verification sampling was done at that time (LANL 2002, page B-6). Inorganic chemicals like cadmium, chromium, copper, lead, mercury, nickel, and zinc were detected above background values. PCBs, organic chemicals and radionuclides were also detected at the site (LANL 2002, pages C-19 to C-36). The site has been included for investigation by the Permittees in the Mesa Top Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis plan (SAP) (LANL 2002). The SAP concluded that lateral and vertical extent had not been adequately defined and additional sampling needed was necessary for inorganics, VOCs, SVOCs, PCBs, and radionuclides (LANL 2002, page 114).

Type of Release:
Inorganic chemicals, organic chemicals, PCBs, and radionuclides (LANL 2002, page C-19 to C-36).

Justification: There is evidence of a release of hazardous chemicals from the site that could pose a potential threat to human health and the environment. Nature and extent of contamination is not fully defined.

References:

1. LANL 1990, *Solid Waste Management Units Report, Volume III*, November 1990. LAUR-90-3400, Los Alamos National Laboratory.
2. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
3. LANL 1997, *Decommissioning Completion Report for Phase Separator Pit at Technical Area 35*, September 1997, Los Alamos National Laboratory.
4. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, LA-UR-02-0244, Los Alamos National Laboratory.

35-004(m) - Container Storage Area

Background: This site is a former container storage area located along the fence on the south side of Building TA-35-86 (carbon dioxide laser building). It is an approximately 5-ft x 25-ft partially asphalted strip. A metal chemical storage building and a trash dumpster believed to have originated at the firing sites at TA-15 were present on the site in 1995, but have since been removed (LANL 2002, page B-10). Spills and releases have been documented at several active and inactive storage areas at TA-35 (LANL 1992, page 3-43). Radioactive chemicals were detected at the site and nature and extent of contamination is not defined. Only one sample was analyzed for metals, VOCs, SVOCs and PCBs (LANL 2002, pages C-43, C-59). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for metals, SVOCs, and alpha-spectroscopy to complete the data set for the site (LANL 2002, page 145).

Type of Release:
Solvents, freon, oils and contaminated rags were stored in the area (LANL 1990).

Justification: Nature and extent of contamination is not fully defined. There is evidence of a release from the site that could pose a potential threat to human health and the environment.

References:

1. LANL 1990, *Solid Waste Management Units Report, Volume III*, November 1990. LAUR-90-3400, Los Alamos National Laboratory.
2. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
3. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, LA-UR-02-0244, Los Alamos National Laboratory.

35-014(d) - Operational Release

Background: This is a stained area present at the former location of two siege tanks at the southwest corner of Building TA-35-29 (LANL 1990). Dielectric oil may have leaked from valves on the siege tanks. These tanks were associated with the decommissioned oil treatment facility, SWMU 35-015(b). Oil stained soils occur at the entry point of a culvert that drains this area, and also at the point where the culvert ends near the southeast corner of Building TA-35-29 (LANL 1992, page 3-53). The volume of the oil leak is not documented. The site was backfilled in 1988 or 1989 with clean soil and covered with asphalt (LANL 2002, page B-8). RFI samples were collected for the site as part of the investigation at consolidated unit 35-003(j)-99. Inorganic chemicals, organic chemicals including GRO and DRO, PCBs, and radioactive chemicals were detected at the consolidated unit (LANL 2002, pages C-14 to C-35). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for SVOCs, VOCs, and PCBs to complete the data set for the site (LANL 2002, page 134).

Type of Release:
PCBs, SVOCs, VOCs and oils (LANL 2002).

Justification: Nature and extent of contamination is not fully defined. There is evidence of a release from the site that could pose a potential threat to human health and the environment.

References:

1. LANL 1990, *Solid Waste Management Units Report, Volume I-IV*, November 1990. LAUR-90-3400, Los Alamos National Laboratory.
2. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
3. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, LA-UR-02-0244, Los Alamos National Laboratory.

35-014(e2) - Oil Spill

Background: This is a stained area from overflows from the waste oil impoundment, SWMU 35-005(a). Soil samples from this stained area detected PCBs (LANL 1992, page 3-53, LANL 2002, page C-77). The site is located 150-ft northeast of TA-35-85. The site was decommissioned in 1989 (LANL 2002, page B 14). Samples collected from the site were never analyzed for metals (LANL 2002, page C-68). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for TAL metals, SVOCs, and PCBs to complete data set for the site (LANL 2002, page 153).

Type of Release:
PCBs, SVOCs, and TAL metals (LANL 2002).

Justification: Nature and extent of contamination is not fully defined. There is evidence of a release from the site that could pose a potential threat to human health and the environment.

References:

1. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
2. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, LA-UR-02-0244, Los Alamos National Laboratory.

35-014(f) - Soil Contamination

Background: This is an area of soils stained from oil spills. The stained area was located under the base of a compressor that was part of a dielectric oil-handling system that connected a pair of underground storage tanks (35-011(d)) to Building TA-35-188 (LANL 1990, LANL 2002, page B-8). The site is located east of Building TA-35-188. The site was cleaned up in 1996 by removing 45 cubic yards of TPH waste from the site. Soil samples were never analyzed for metals but were analyzed for PCBs and TPH. TPH-DRO was detected at the site (LANL 2002, pages C-5, C-24). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for TAL metals, SVOCs, and PCBs to complete the data set for the site (LANL 2002, page 133).

Type of Release:
VOCs, SVOCs, and TAL metals (LANL 2002).

Justification: Nature and extent of contamination is not fully defined. There is evidence of a release from the site that could pose a potential threat to human health and the environment.

References:

1. LANL 1990, *Solid Waste Management Units Report, Volume III*, November 1990. LAUR-90-3400, Los Alamos National Laboratory.
2. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
3. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, *LA-UR-02-0244*, Los Alamos National Laboratory.

35-014(g2) - Soil Contamination

Background: This site comprises a number of small oil-stained areas within the former container storage areas identified as 35-004(m). The stains were reported to have originated from leaking containers that were formerly stored in the area. The volume and timing of these releases is not documented. The storage area is no longer active and was reportedly cleaned up in the late 1980s (March 2002, page B-11). Contaminants released at the site are unknown but the stains appear to be a type of oil (LANL 1992, page 3-54). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for TAL metals, SVOCs, including GRO and DRO, and VOCs to complete the data set for the site (LANL 2002, page 145).

Type of Release:
VOCs, SVOCs, and TAL metals (LANL 2002).

Justification: Nature and extent of contamination is not fully defined. The release of contaminants from the site could pose a potential threat to human health and the environment.

References:

1. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
2. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, *LA-UR-02-0244*, Los Alamos National Laboratory.

35-014(g3) - Soil Contamination

Background: This site is an oil-stained area resulting from a major oil spill that occurred near the former tank farm (35-015(a)) on the west side of Building TA-35-86. The amount of oil that was released is unknown but the source was an oil tank truck. The spill flowed through a culvert under the road into Ten Site Canyon. The spill occurred sometime prior to May 1984 and the path of the spill was visible in a 1986 aerial photograph. The stained area was also observed in 1991. All vegetation in the path of the spill was dead and the area had strong petroleum odor. The tank farm underwent D&D in 1988-1989. Organic chemicals were detected in the samples collected from the site (LANL 2002, page C-59). In 1987, eleven samples were collected within the area of the spill, which extended to the canyon bottom. Metals, pesticides/PCBs, SVOCs, VOCs, and alpha and gamma emitters were detected in the samples (LANL 1992, page 3-54). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for TAL metals, SVOCs (including GRO and DRO), and VOCs to complete data set for the site (LANL 2002, page 145).

Type of Release:
VOCs, SVOCs, TAL metals, pesticides/PCBs and radionuclides (LANL 1992, page 3-54).

Justification: Nature and extent of contamination is not fully defined. The release of contaminants from the site could pose a potential threat to human health and the environment.

References:

1. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
2. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, *LA-UR-02-0244*, Los Alamos National Laboratory.

35-016(b) – Outfall

Background: This is an active outfall (NPDES Permit 06A132) that was established in 1977 to discharge photographic processing effluents from Building TA-35-87. Effluent from the outfall discharges to Ten Site Canyon. The outfall is sampled for silver and cyanide under NPDES requirements (LANL 1992, page 3-55). The six photographic laboratory waste drains (three floor and three sink) routed to this outfall have been either plugged or rerouted to the sanitary sewer system (LANL 2002, page B-11). Lead and uranium-235 were detected at the site. The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for TAL metals, cyanide, SVOCs, and alpha and gamma spectroscopy analysis to complete the data set for the site (LANL 2002, page 143).

Type of Release:
SVOCs, TAL metals, and radionuclides (LANL 2002).

Justification: Nature and extent of contamination is not fully defined. There is evidence of a release from the site that could pose a potential threat to human health and the environment.

References:

1. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
2. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, *LA-UR-02-0244*, Los Alamos National Laboratory.

35-016(e) – Outfall

Background: This is an inactive outfall (NPDES Permit 04A090) that was established in 1977 to discharge non-contact cooling water from the Chemical Laser Facility (TA-35-85). Effluent from the outfall discharges to Mortandad Canyon. The outfall was removed from the NPDES Permit in April 1987. The volume of water discharged is not documented, but the amount of erosion below the outfall indicates significant amounts of water were released (LANL 2002, page B-14). Only one sample was collected for VOCs and four samples were collected for PCBs (LANL 2002, page C-67). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for TAL metals, SVOCs, and alpha and gamma spectroscopy analysis, to complete the data set for the site (LANL 2002, page 153).

Type of Release:
SVOCs, TAL metals, and radionuclides (LANL 2002).

Justification: Nature and extent of contamination is not fully defined. The release of contaminants from the site could pose a potential threat to human health and the environment.

References:

1. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
2. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, *LA-UR-02-0244*, Los Alamos National Laboratory.

35-016(f) - Storm Drain

Background: This is an active storm drain located north of Building TA-35-85, the Chemical Laser Building. It discharges into a small channel cut into backfill material on the south slope of Mortandad Canyon. Oil spills have occurred near the source areas for this storm drain (35-014(e)) but the volume of the spills is not documented. Soil samples from the stained areas had detectable concentrations of PCBs (LANL 1992, page 3-57). Organic chemicals were detected in the samples collected at the site (LANL 2002, page C-75). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for TAL metals, PCBs, and SVOCs, to complete the data set for the site (LANL 2002, page 152).

Type of Release:
SVOCs, PCBs, and, TAL metals (LANL 2002).

Justification: Nature and extent of contamination is not fully defined. A release of contaminants from the site could pose a potential threat to human health and the environment.

References:

1. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
2. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, *LA-UR-02-0244*, Los Alamos National Laboratory.

35-016(g) – Outfall

Background: This is an inactive outfall (NPDES Permit # 04A127) that was established in 1979 to handle reverse osmosis discharge from Room 29 in the basement of Building TA-35-213, the Target Fabrication Facility. The outfall now handles cooling tower blow down from the same room. The drains run about 100-ft northward to its point of discharge on the south rim of Mortandad Canyon. The drain line is suspected of containing tritium and other chemicals used to prevent scaling, corrosion, and algal growth (LANL 1992, page 3-57). This site is located in the Upper Mortandad Canyon, and the Permittees have stated that it will be included in the investigation of Upper Mortandad Canyon Aggregate Area (LANL 2004).

Type of Release:
Tritium, metals and organic chemicals (LANL 1992).

Justification: Nature and extent of contamination is not fully defined. A release of contaminants from the site could pose a potential threat to human health and the environment.

References:

1. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
2. LANL 2004, *Response to Notice of Deficiency (NOD) Comments regarding the Supplemental Sampling and Analysis Plan (SAP) for Middle Mortandad/Ten Site Aggregate, June 9,* 2004, *ER2004-0287,* Los Alamos National Laboratory.

35-016(h) - Storm Drain

Background: This site is comprised of several active storm water drains installed in 1979 to handle rainwater runoff from Building TA-35-213 and brine from the water deionizer in Building TA-35-213. Drains discharged wastewater and storm water runoff (LANL 1992, page 3-56). The drains run about 300-ft to the points of discharge on the south rim of Mortandad Canyon. The drain line is suspected of containing tritium (LANL 1992, page 3-57). This site is located in Upper Mortandad Canyon. The Permittees have stated that it will be included in the investigation of Upper Mortandad Canyon Aggregate Area (LANL 2004).

Type of Release:
Tritium and unknown contaminants (LANL 1990)

Justification: Nature and extent of contamination is not fully defined. A release of contaminants from the site could pose a potential threat to human health and the environment.

References:

1. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
2. LANL 2004, *Response to Notice of Deficiency (NOD) Comments regarding the Supplemental Sampling and Analysis Plan (SAP) for Middle Mortandad/Ten Site Aggregate, June 9,* 2004, *ER2004-0287,* Los Alamos National Laboratory.

35-016(j) - Storm Drain

Background: This site is comprised of active storm water drains installed in 1975 to handle rainwater runoff from Building TA-35-125, and electro-polishing wastewater from Room B 102 in Building TA-35-125. The channels run southward to their points of discharge into Ten Site Canyon (LANL 1992, page 3-57). Drains discharged wastewater and storm water runoff (LANL 1992, page 3-56). Only one sample was analyzed for metals and organics. Organics were detected. Plutonium-239 was also detected at the site (LANL 2002, pages C-41 to C-58). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for metals, SVOCs, and radionuclides to complete the data set for the site (LANL 2002, page 145).

Type of Release:
Metals, VOCs, and radionuclides (LANL 2002)

Justification:Nature and extent of contamination is not fully defined. A release of contaminants from the site could pose a potential threat to human health and the environment.

References:

1. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
2. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, *LA-UR-02-0244*, Los Alamos National Laboratory.

35-016(l) - Storm Drain

Background: This site is comprised of active daylight discharge channels that were established in 1961 to handle rainwater runoff from Building TA-35-29 and water leaks from an ultraviolet water sterilizer in Building TA-35-29. The channels run eastward and discharge to a tributary of Ten Site Canyon (SWMU 35-003(r)). Stained areas from past dielectric oil spills are present in the source areas for these drains (LANL 1992, page 3-57). In 1988, the concrete catch basin for these drains measured gamma radiation at 50% greater than background (LANL 1990). Only one surface sample was analyzed for SVOCs; however several SVOCs were detected in that sample. No other analyses were performed (LANL 1992, page C-94). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for metals, SVOCs, PCBs, and radionuclides to complete the data set for the site (LANL 2002, page 166).

Type of Release:
Metals, SVOCs, PCBs, and radionuclides (LANL 2002)

Justification:Nature and extent of contamination is not fully defined. A release of contaminants from the site could pose a potential threat to human health and the environment.

References:

1. LANL 1990, *Solid Waste Management Units Report, Volume III*, November 1990. LAUR-90-3400, Los Alamos National Laboratory.
2. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
3. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, *LA-UR-02-0244*, Los Alamos National Laboratory.

35-016(n) - Storm Drain

Background: This site is comprised of several active daylight discharge channels that were established in 1977 to handle rainwater runoff from Building TA-35-86, the Carbon Dioxide Laser Building. The channels run approximately 75-ft southward to their points of discharge into Ten Site Canyon. Three soil areas stained by oil spills are present near the facility. Samples analyzed from one of the stained areas tested positive for metals, pesticides/PCBs, SVOCs, VOCs, and alpha and gamma emitters. The concentrations of these contaminants are not documented (LANL 1992, page 3-58). In 1995, the ER Project sampled the area for metals, SVOCs, and radionuclides and all were detected at the site (LANL 1992, pages C-41 to C-58). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for metals, SVOCs, and radionuclides to complete the data set for the site (LANL 2002, page 145).

Type of Release:
Metals, SVOCs, and radionuclides (LANL 2002)

Justification:Nature and extent of contamination is not fully defined. A release of contaminants from the site could pose a potential threat to human health and the environment.

References:

1. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
2. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, *LA-UR-02-0244*, Los Alamos National Laboratory.

35-018(a) – Transformer

Background: This is a transformer (ID # 5024) that leaked PCB-contaminated dielectric oil. The transformer was located at Substation TA-35-32, near the southwest corner of Building TA-35-29. The transformer dripped onto a porous concrete pad with no spill containment and no drip pan. The extent of release to the underlying pad and surrounding soil is undocumented (LANL 2002, page B-9). The site was cleaned up in 1996 and 9 cubic yards of PCB-contaminated waste was removed. Metals and organic chemicals were detected at the site (LANL 1992, pages C-11 to C-35). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site requires additional sampling for organic chemicals and radionuclides to complete the data set for the site (LANL 2002, page 135).

Type of Release:
Metals, organics, and radionuclides (LANL 2002)

Justification: Nature and extent of contamination is not fully defined. A release of contaminants from the site could pose a potential threat to human health and the environment.

References:

1. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
2. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, *LA-UR-02-0244*, Los Alamos National Laboratory.

C-35-007 - Soil Contamination

Background: This is a contaminated area east of the TA-35 sanitary lagoons. Unknown spilled material was observed over a 0.25-mile area on a dirt road. The spilled material killed vegetation and was reported on June 27, 1988. A spill report filed on July 1, 1988 indicated that a composite sample had been collected and corrective actions were pending analytical results (LANL 1990). No documentation of corrective actions or analytical results has been found (LANL 1992, page 3-62). The site has also been described as sand and gravel piles located along the unpaved access road, north of the sand filter beds. The sand and gravel material may consist of clean material for use in the sand filters and/or used material that was removed from the filter beds. The filter operated between 1983 and 1992 (LANL 2002, page B-18). Samples were collected at the site in 1998. Metals, PCBs, organics, and radionuclides were detected at the site (LANL 1992, pages C-117 to C-129). The Permittees have included this site in the Ten Site Slope Subarea of Middle Mortandad/Ten Site Aggregate Sampling and Analysis Plan (SAP) (LANL 2002). The SAP concluded that the site did not require additional sampling to complete the data set for the site (LANL 2002, page 168).

Type of Release:
Metals, organics, and radionuclides (LANL 2002)

Justification: A site assessment has not been performed for the site. A release of contaminants from the site could pose a potential threat to human health and the environment.

References:

1. LANL 1990, *Solid Waste Management Units Report, Volume IV*, November 1990. LAUR-90-3400, Los Alamos National Laboratory.
2. LANL 1992, *RFI Work Plan for Operable Unit 1129*, May 1992, LA-UR-92-800, Los Alamos National Laboratory.
3. LANL 2002, *Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, March 2002, *LA-UR-02-0244*, Los Alamos National Laboratory.

36-004(a) – Eenie Firing Site - Active

Background: SWMU Report: This site is identified as Eenie site and is associated with Building TA-36-3 and TA-36-4. The SWMU Report also states that at one time, dithekite, a mixture of nitric acid, nitrobenzene, and water, was used in firing experiments at TA-36. The standard operating procedure listed the proper disposal technique as "pouring on the ground not less than 100 feet from any building or road at Kappa Site."

RFI Work Plan: 36-004(a) is an active firing site located on a mesa top overlooking Potrillo Canyon. The only permanent structures at this site are a control bunker, TA-36-3; a make-up building with container storage, TA-36-4; and an impact area. The established hazard radius for Eenie site is 3,000 ft. The construction of Eenie site began in July 1949 and completed in July 1951. A few of the shots fired at the site have contained small amounts of lead oxide; mercury, copper, nickel, and brass have been used more frequently. Shots containing depleted uranium have been detonated at this site, and at least two shots fired at Eenie contained nitroglycerine, but most of the shots are believed to have contained relatively small amounts of hazardous substances. In addition to the types of shots usually fired, shoulder-mounted projectiles have been fired into targets south of the firing site. Sediment samples from the stream channel that travels from Eenie firing site contained total uranium concentrations ranging from 1.3 to 60.9 ppm, with a mean of 15.1 ppm.

Type of Release: Depleted uranium, beryllium, lead, barium, HE (LANL 1994), nitric acid, nitrobenzene, liquid cyanogens, tetranitromethane (LANL 1990), lead oxide, mercury, nickel, and copper (LANL 1993, Page 5-37) and organic solvents (LANL, 1993, pg. 5-47).

Justification: A sampling notification was sent to NMED on May 13, 1994 in accordance with the sampling requirements outlined in the RFI Work Plan. A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol III of IV, TA-26 – TA-50.* Revised November 1990.
2) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1130.* Environmental Restoration Program. June 1993. LA-UR-93-1152. Pgs: 5-35-5-37.
3) LANL 1994, Los Alamos National Laboratory. *Sampling Notification; 36-002, 36-003(a,b), 36-004(a-e), 36-005, and C-36-003.* May 13, 1994. EM/ER:94-A173.

4) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

36-004(b) – Meenie Firing Site – Active

Background: SWMU Report: This site is known as Meenie site and is associated with Buildings TA-36-5 and TA-36-6.

RFI Work Plan: Meenie Firing Site is an active firing site located in the headwaters of Fence Canyon. Meenie comprises a make-up/magazine building, TA-36-5; a control bunker, TA-36-6; and an impact area. The hazard radius for Meenie site is 3,000 ft. Construction of Meenie site began in July 1949, and it was completed in June 1950. This site was used for extensive gun work; shots have been fired into the cliff to the north as well as into the embankment south of the firing area. Shots of up to 300 lbs have been fired, and at least one shot was detonated that contained 60 gal. of nitromethane sealed in an aluminum cylinder. Until 1971, lead bricks were often used as parts of the shots. Sometimes these bricks were pulverized during detonation. The CEARP indicates there was a burn pit across from this site but there is no indication that it was ever used as a burn site. It may have been used for detonation of unstable gas cylinders. In the 1960's the area caught fire as a result of an explosives experiment. In the 1960's barium concentrations ranged from 0.028-3.89 mg/g and uranium ranged from 0.055 to 0.114 mg/g. In 1986 water samples from Fence Canyon contained beryllium, lead, and mercury. Uranium in soils at this site was 12.3 +/- 1.2 micrograms/g. The OU 1130 Work Plan conducted water and sediment sampling in areas of Water Canyon, Fence Canyon, and Potrillo Canyon. The analytical suite included gross alpha, total uranium, heavy metals, VOCs, SVOCs and explosives.

Type of Release: Depleted uranium, lead, mercury, beryllium, chromium, barium, HE (LANL 1994), copper, iron, nitric acid, nitrobenzene, liquid cyanogens aluminum, and tetranitromethane (LANL 1990) and organic solvents (LANL, 1993, pg. 5-47).
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Justification: A sampling notification was sent to NMED on May 13, 1994 in accordance with the sampling requirements outlined in the RFI Work Plan. A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol III of IV, TA-26 – TA-50.* Revised November 1990.
2) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1130.* Environmental Restoration Program. June 1993. LA-UR-93-1152. Pgs: 5-35-5-37.

3) LANL 1994, Los Alamos National Laboratory. *Sampling Notification; 36-002, 36-003(a,b), 36-004(a-e), 36-005, and C-36-003.* May 13, 1994. EM/ER: 94-A173.
4) DOE 1987, Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages EX-25, TA36-4-TA36-8.
5) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

36-004(c) – Minie Firing Site – Open Detonation (active)

Background: SWMU Report: This site is known as Minie site and is associated with Buildings TA-36-7 and TA-36-8.

RFI Work Plan: 36-004(c), commonly called Minie, is an active firing site located on the mesa top in the headwaters of Fence Canyon approximately 800 ft south of Meenie site. Minie consists of an x-ray house; a control bunker, TA-36-8; a firing platform; and a make-up building, TA-36-7. The hazard radius for Minie site is 3,000 ft. The construction of this firing site began in July 1949 and was completed in June 1950. Many armor-piercing experiments that involve the use of various metal penetrators are conducted at this site. The penetrator jets are directed at the canyon wall to the west. Most of the penetrators are stopped by metal plates placed behind the targets. Permitted open burning (detonation) of waste, scrap explosives, and unstable gas cylinders has been conducted at the explosives destruction area within this firing site.

Type of Release: Depleted uranium, barium, beryllium, lead, mercury, and HE (LANL 1994) and organic solvents (LANL, 1993, p 5-47).

.**Justification:** A sampling notification was sent to NMED on May 13, 1994 for this SWMU, in accordance with the sampling requirements outlined in the RFI Work Plan. A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) DOE 1987, Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages EX-25, TA36-4-TA36-8.
2) LANL 1990, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol III of IV, TA-26 – TA-50.* Revised November 1990.
3) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1130.* Environmental Restoration Program. June 1993. LA-UR-93-1152. Pgs: 5-35-5-38.
4) LANL 1994, Los Alamos National Laboratory. *Sampling Notification; 36-002, 36-003(a,b), 36-004(a-e), 36-005, and C-36-003.* May 13, 1994. EM/ER: 94-A173.
5) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

36-004(e) - I-J Firing Site – Active

Background: SWMU Report: I-J site was part of TA-15 until 1982 and was associated with Building TA-36-55 and associated trailers.

RFI Work Plan: 36-004(e), commonly called the I-J firing site, is an active firing site located on the north leg of R-Site Mesa overlooking Potrillo Canyon. I-J consists of two active firing points: I and J; two control buildings; a dirt bunker; a covered work area; and an old chamber for enclosed firing. Firing point J is located near control building TA-36-55; firing point I, which has a firing pad radius of 15 ft., is located about 75 ft northeast of the old control building. The hazard radius for I-J site is 5,000 ft. Construction of this firing site began in 1948, and it was ready to use by 1949 or 1950. This firing site was part of TA-15 until about 1981, when TA-36 was enlarged to include I-J. At I-J firings site, shots of up to 500 lb explosives were fired. In the early years, depleted uranium was heavy in use at this site. However, all of the shots fired at this site using radioactive materials were fired in fully containing vessels, with any releases being captured by the environ-efficiency filters. One such vessel, after being decontaminated, was brought back to I-J site, where it remains. This vessel was listed as C-36-001 in the 1990 SWMU Report. The 1990 SWMU Report identified an additional site, which it referred to as SWMU 15-006(e), within the bounds of I-J site: in the late 1980s, approximately 138 lb of depleted uranium, in the form of bullets, was used in projectiles that were fired into the cliff face. This projectile-testing site, now renamed C-36-006(e), together with the rest of I-J site, is now part of TA-36. Numerous pieces of depleted uranium and oxidized depleted uranium have been found at and around the firing area, and there is evidence of barium contamination in the Potrillo Canyon watershed near I-J site. A surface radiological survey gave contamination results ranging from 40,000 to 255,000 counts per minute (readings were not for hot spots).

Type of Release: Solid and liquid explosive residues that included benzene ring compounds, n-hexane, cyclohexane, nitrogen oxide, nitroglycerine, nitromethane and TNT. Potential releases from iron, copper, and lead targets, and from other metals like antimony, lithium-magnesium alloys and lithium hydride. In addition, hydrocarbons, argon, benzene, barium, beryllium, cadmium, mercury and depleted uranium may have been released (LANL 1993, Pgs. 5-40 to 5-43) and organic solvents (LANL, 1993, pg. 5-47).

Justification: A sampling notification was sent to NMED on May 13, 1994 in accordance with the sampling requirements outlined in the RFI Work Plan. A RFI Report has not been submitted. Therefore, NMED must assume that the investigation activities associated with this site have not been conducted. Nature and extent of contamination has not been defined at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed “Under Investigation” lists in the 1998 and 2000 Installation Work Plans.

References:

1) DOE 1987, Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program, Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages EX-25, TA36-4-TA36-8.
2) LANL 1990, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol III of IV, TA-26 – TA-50.* Revised November 1990.
3) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1130.* Environmental Restoration Program. June 1993. Pgs. 5-39-5-40, 5-43.
4) LANL 1994, Los Alamos National Laboratory. *Sampling Notification; 36-002, 36-003(a,b), 36-004(a-e), 36-005, and C-36-003.* May 13, 1994. EM/ER: 94-A173.
5) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-36-001 - Containment Vessel

Background: RFI Work Plan: C-36-001 is a large portable containment vessel currently sitting at the I-J firing site. It is considered to be part of active firing site I-J. Shots fired at the I-J site, which used radioactive materials, were fully contained in vessels, with any release being captured by the environ-efficiency filters. The filter system is contaminated with plutonium (LANL 1990b). C-36-001 was brought back to I-J site (36-004(e)) and is considered to be part of the active firing site I-J. Action taken at this site was to be deferred until the decommissioning of I-J site.

Type of Release: HE, buried shell residuals, and radioactive materials (LANL 1990a).

Justification: The RFI Work Plan states that this site would be deferred until the decommissioning of the I-J site. There is little to no other information about this site. More information is required in order to make a decision regarding if it poses a threat to human health and the environment Additionally, this site is identified on the "Under Investigation" list in the 1998 and 2000 Installation Work Plan.

References:

1) LANL 1990a, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol III of IV, TA-26 – TA-50.* Revised November 1990.
2) LANL 1990b, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol IV of IV, TA-51 – TA-74.* Revised November 1990.
3) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1130.* Environmental Restoration Program. June 1993. Pgs. 5-40, 5-70.
4) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-36-006(e) I-J Firing Site – Projectile Test Area

Background: RFI Work Plan: The 1990 SWMU Report identified an additional site, which it referred to as SWMU 15-006(e), within the bounds of I-J site: in the late 1980s, approximately 138 lb of depleted uranium, in the form of bullets, was used in projectiles that were fired into the cliff face. This projectile-testing site, now renamed C-36-006(e), together with the rest of I-J site, is now part of TA-36.

Type of Release: Depleted uranium (LANL 1990).

Justification: The RFI Work Plan states that this site would be deferred until the decommissioning of the I-J site. There is little to no other information about this site. More information is required in order to make a decision regarding if it poses a threat to human health and the environment Additionally, this site is identified on the "Under Investigation" list in the 1998 and 2000 Installation Work Plan.

References:

1) LANL 1990, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol III of IV, TA-26 – TA-50.* Revised November 1990.
2) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1130.* Environmental Restoration Program. June 1993. Pgs. 5-40, 5-70.
3) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

39-002(a) – Storage Area

Background: SWMU Report: An active satellite storage area, which is comprised of three locations, but are all associated with building TA-39-2. The first (Area 1) is located outside the northwest corner of the building and stores ethanol, acetone, trichloroethane, and solvent-contaminated wipes. The second storage area location (Area 2) is in the hallway outside Room 184 in Building TA-39-2 and stores used photo chemicals in 5-gallon containers. The third storage area location (Area 3) is outside the north end of Building TA-39-2 and stores used vacuum pump oil contaminated with solvents, ethanol, acetone, trichloromethane, and transformer oil.

RFI Work Plan: Area 1 is a RCRA Satellite Hazardous Waste storage site located near an exit door at the outside northwest corner of Building TA-39-2; the surface is earth/gravel (no berm), and is not protected by a roof. This site has been in occasional use for approximately 10 years. It is currently occupied by a 30-gal. drum that holds small quantities of solvents and adhesives along with rags and paper wipes contaminated with solvents or adhesives. (Waste solvents are usually returned to their original containers, which are then placed in the drum; contaminated rags and paper are put into plastic bags before being placed in the drum.). In 1993, an outside metal dumpster was temporarily located near Area 1 to receive low-level radioactive debris from the remodeling of a vault where radioactive materials had been stored for use in experiments. The dumpster has been removed.

Area 2 is an indoor storage area (inside Room 18-A of Building TA-39-2). It has been in use for about the last 10 years, for storage of waste chemicals from photographic processing, and at the time contained about 5 gallons of those chemicals. No releases are known or have ever been documented at Area 2, and because the site is inside a building, the potential for release was thought to be negligible if not zero. For that reason, Area 2 was not investigated.

Area 3 is an outside storage area, on the asphalt driveway, at the north end of the loading dock on the southwest side of Building Ta-39-2. Various materials used in the firing site experiments were delivered here and picked up as needed. Materials stored include transformer oil in 55-gal. drums (one or two per month) and small quantities (1 gal. or less) of vacuum pump oil, and solvents (ethanol, acetone, and trichloroethane). The RFI work plan proposed collecting four samples for analysis of metals, HE, SVOCs, PCBs, petroleum hydrocarbons, and radionuclides.

Expedited Cleanup Plan: A 1993 Phase I investigation was conducted at TA-39, based on the analytical results of the sampling, it was determined that AOC 39-002(a) required corrective action and an Expedited Cleanup Plan (EC) was prepared. Various contaminants were detected above background values. Lead, benzo(a)pyrene, dibenzo(a,h)anthracene, and PCBs exceeded their respective SALs (LANL 1995, pg. 7). The lateral and vertical extent of contamination was not defined. Excavation of the contaminated surface soils and collection of verification samples at the bottom of the excavation was proposed in the EC.

Type of Release: Systematic release of solid waste, including RCRA regulated constituents (LANL 1990). There is potential for radioactive contamination from stored debris at the site. Solvents were also stored at the site (LANL 1993, pg.5-16). Copper, lead, mercury, PCBs, SVOCs, 1,3-dinitrobenzene, 2,4-dinitrotoluene, and 1,3,5-trinitrobenzene (LANL 1995b, pg. 7 and LANL 1997b, Page 7).

Justification: The RFI Report identified numerous chemicals that exceeded their respective screening action levels and ecological screening action levels (LANL 1995a, pg. 4-8). During the 1997 VCA sampling, several RCRA constituents (e.g. copper, lead, mercury, zinc, PCBs, SVOCs, HE) were detected above background UTLs (LANL 1997b, pg.10). The VCA Report states that DOE approved the VCA Plan in the spring of 1997. NMED or EPA were and are the Administrative Authority (AA) for RCRA corrective action at the Laboratory. The Permittees did not obtain a proper approval for the VCA Plan or the VCA Completion Report from NMED. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1132.* Environmental Restoration Program. June 1993. LA-UR-93-768. Pgs: 1-12, 5-14-5-16.
3) LANL 1995a, Los Alamos National Laboratory. *RFI Report for Potential Release Sites 39-002(a-f), 39-005, 39-006(a), 39-007(a,d) (located in former Operable Unit 1132).* Environmental Restoration Project. Field Unit 2. April 1995. LA-UR-95-1069. Pgs: 4-1-4-10.
4) LANL 1995b, Los Alamos National Laboratory. Environmental Restoration Project. *Expedited Cleanup Plan for Solid Waste Management Unit 39-002(a).* June 1995.
5) LANL 1997a, Los Alamos National Laboratory. Environmental Restoration Project. *Voluntary Corrective Action Plan for Potential Release Site 39-002(a), Storage Area.* April 1997. LA-UR-97-1464.
6) LANL 1997b, Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report; Potential Release Site 39-002(a), Storage Area.* Environmental Restoration Project. Field Unit 2. September 1997. LA-UR-97-3790. Pgs.: 4
7) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

39-002(b) – Storage Area

Background: SWMU Report: An active satellite storage area located outside Building TA-39-6. This area stored ethanol, acetone, transformer oil, trichloroethane, and vacuum grease.

RFI Work Plan: This small concrete pad outside of Building TA-39-6 measures about 5 ft x 5 ft. It has been used since 1953 to store small quantities of paper contaminated with waste solvents (ethanol, acetone, trichloroethane, copper, sulfate); transformer oil; vacuum grease; and photographic wastes (Polaroid). Nothing is currently stored here, but the area remains active for use as needed. The RFI work plan proposed collecting two samples for analysis of metals, HE, SVOCs, PCBs, petroleum hydrocarbons, and radionuclides.

RFI Report: This site is within the blast radius of firing site 39-004(c) and therefore is expected to contain contaminants from explosives tests. Drainage from the site goes off the pad onto asphalt pavement, to disturbed soil, and then to the local site drainage channel.

Type of Release: Cadmium, copper, lead, mercury, uranium, zinc, cobalt-60, SVOCs and PCBs (LANL 1995, Pgs. 4-10 to 4-14). Potential releases of solvents, transformer oil, vaccum grease and photographic chemicals from the waste that was stored at the site (LANL 1993 pg. 5-21).

Justification: EPA issued an Approval for the RFI Report on July 17, 1996. In the approval, EPA disagreed with the idea of combining 39-002(b) with 39-004(c) until decommissioning. EPA also stated that additional characterization was required for this site because PCBs were found in two samples in the drainage at levels well in excess of 1 mg/kg. Additionally, the RFI Report identified ten chemicals including lead, cadmium, copper, mercury, zinc and uranium as chemicals of ecological concern (LANL 1995, pg. 4-14). Finally, EPA stated that this SWMU should be added to the HSWA portion of the RCRA permit. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1132*. Environmental Restoration Program. June 1993. LA-UR-93-768. Pgs: 1-12, 5-16.
3) LANL 1995, Los Alamos National Laboratory. *RFI Report for Potential Release Sites 39-002(a-f), 39-005, 39-006(a), 39-007(a,d) (located in former Operable Unit 1132).* Environmental Restoration Project. Field Unit 2. April 1995. LA-UR-95-1069. Pgs: 4-10-4-14.
4) EPA 1996, *Approval of RFI Report for Technical Area 39.* Los Alamos National Laboratory. July 17, 1996~~7~~.

5) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

39-002(c) – Storage Area

Background: SWMU Report: This is an active satellite storage area outside of Building TA-39-56 and stores paper and cloth contaminated with ethanol, acetone, trichloroethane, and vacuum grease.

RFI Work Plan: This area, on the asphalt pavement outside the southeast corner of Building TA-39-56, contains an empty 55-gal. barrel. It is used only as needed for activities in the vicinity, to store waste paper and rags contaminated with solvents (ethanol, acetone, trichloroethane) and vacuum grease. The RFI work plan proposed collecting two samples for analysis of metals, HE, SVOCs, PCBs, petroleum hydrocarbons, and radionuclides.

RFI Report: The area is a gas-gun firing site from which depleted uranium projectiles are fired into the cliff face to the west. Drainage from this area appears to be to the east and northeast. The RFI recommended a VCA for the site to define the nature and extent of contamination.

VCA Report: During VCA activities two additional areas of contamination adjacent to Building TA-39-56 were identified. It was determined that the site actually consisted of four subsites and each subsite was potentially contaminated with a different set of contaminants. The total number of samples was increased from two to eight.

Type of Release: RCRA metals (cadmium, copper, lead, mercury, silver, uranium, and zinc), PCBs, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, di-n-nutylphthalate, and di-n-octylphthalate (LANL 1995, Page 4-15).

Justification: EPA issued an Approval for the RFI Report on July 17, 1996. In the Approval letter EPA asked that this site be added to the HSWA portion of the RCRA Permit and asked for additional characterization of the site and removal of the source of contamination. Additionally, the RFI Report identified twelve chemicals as chemicals of ecological concern (LANL 1995, pg. 4-20). EPA issued a NOD for the VCA Report on October 28, 1997. In that letter, EPA noted several deficiencies, including lack of VOC analysis for confirmatory samples, lack of a quality assurance/quality control section, and not having a formal approval of the VCA Plan. The Permittees did not respond to the NOD nor did they submit a revised VCA Completion Report. Therefore, corrective action activities have not been completed at this site. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1132*. Environmental Restoration Program. June 1993. LA-UR-93-768. Pgs: 1-12, 5-18.

3) LANL 1995, Los Alamos National Laboratory. *RFI Report for Potential Release Sites 39-002(a-f), 39-005, 39-006(a), 39-007(a,d) (located in former Operable Unit 1132).* Environmental Restoration Project. Field Unit 2. April 1995. LA-UR-95-1069. Pgs: 4-15-4-20.
4) LANL 1996, Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for PRS 39-002(c), Waste Container Storage Area, Revision 1*. Environmental Restoration Project. Field Unit 2. January 1996.
5) EPA 1996, *Approval of RFI Report for Technical Area 39, Los Alamos National Laboratory*, July 17, 1996.
6) EPA 1997, Environmental Protection Agency. *Letter: NOD Comments on the Voluntary Corrective Action (VCA) Completion Report for PRS 39-002(c).* October 28, 1997.
7) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
8) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

39-002(d) – Storage Area

Background: SWMU Report: This is an active satellite storage area in an outdoor bunker outside of Building TA-39-57. The materials stored were unknown.

RFI Work Plan: This area is a gravel pad on the outside southwest corner of Building TA-39-57. It has been in use since the 1980s for storage of photographic (Polaroid) wastes and cloth and paper contaminated with various substances (acetone, ethanol, transformer oil, trichloroethane, vacuum grease, and copper sulfate.) The area is currently empty but remains active for use as needed. The RFI work plan proposed collecting two samples for analysis of metals, HE, SVOCs, PCBs, petroleum hydrocarbons, and radionuclides.

RFI Report: TA-39-57 is the blockhouse for firing site 39-004(d). It is unpaved and includes an electrical closet – a concrete-lined sump measuring approximately 5 ft x 5 ft x 4 ft deep and covered with a steel grating. The sump may act as an accumulation point for debris from explosives tests conducted at the firing site, 15-20 ft away. 39-002(d) is currently empty but remains active for use as needed.

Type of Release: Beryllium, total chromium, copper, lead, mercury, nickel, uranium (detected above SALs), and zinc), bis(2-ethylhexyl)phthalate, benzoic acid, butylbenzylphthalate, di-n-butylphthalate, dibenzofuran, and di-n-octylphthalate (LANL 1995, Page 4-20).

Justification: Beryllium and uranium were found above SALs. The Permittees did not address the deficiencies outlined by EPA in their NOD of the RFI Report dated December 31, 1995. In the approval of the RFI Report dated July 17, 1996, EPA recommended additional characterization of this site. Additionally, the RFI Report identified thirteen chemicals as chemicals of ecological concern (LANL 1995, pg. 4-24). The Permittees have not conducted additional work at this site, nor have they submitted a revised RFI Report. This site requires further investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

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References:

1) LANL 1990, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1132*. Environmental Restoration Program. June 1993. LA-UR-93-768. Pgs: 1-12, 5-18.
3) LANL 1995, Los Alamos National Laboratory. *RFI Report for Potential Release Sites 39-002(a-f), 39-005, 39-006(a), 39-007(a,d) (located in former Operable Unit 1132).* Environmental Restoration Project. Field Unit 2. April 1995. LA-UR-95-1069. Pgs: 4-20-4-23.
4) EPA 1995, Environmental Protection Agency. *Letter: Notice of Deficiency, RFI Report Technical Area 39.* December 31, 1995. Pgs: 5-6.

5) EPA 1996, Environmental Protection Agency. *Letter: Approval of RFI Report for Technical Area 39.* July 17, 1996.
6) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

39-002(e) – Storage Area

Background: SWMU Report: This is an active satellite storage area located outside the north wall of Building TA-39-69. Materials stored include cloth rags, spent propellant, aluminum, brass, lead, steel, polyethylene, gloves, paraffin, quartz, and carbon.

RFI Work Plan: Located at the south end of Building TA-39-69, this is a concrete pad under the breezeway that connects Building 69 to Building 89. (The SWMU Report incorrectly listed this area as at the north end of Building 69.) Since the 1980s, when these buildings were built, it has served as a hazardous waste storage and pick-up area (containers of waste are placed here when full for pick-up). The materials stored are waste products from the two-stage gas gun experiments, which include Gunk, aluminum, lead, carbon dust, nylon, WD-40, Polaroid film, ethanol, brass, paraffin, stainless steel, quartz, and Fantastik cleaner. A total of about 60 gallons of waste are generated per year. The RFI work plan proposed collecting two samples for analysis of metals, HE, SVOCs, PCBs, petroleum hydrocarbons, and radionuclides.

RFI Report: The area immediately adjacent and downgradient from this site is an asphalt pavement: drainage runs across this pavement to an unpaved area.

Type of Release: Lead, uranium, and bis(2-ehtylhexyl)phthalate (LANL 1994, Page 4-28)

Justification: The Permittees did not address the deficiencies outlined by EPA in their NOD of the RFI Report dated December 31, 1995. In the approval of the RFI Report dated July 17, 1996, EPA stated that additional sampling and characterization was appropriate at this site. Additionally, the RFI Report identified lead and uranium as chemicals of ecological concern (LANL 1995, pg. 4-27). The Permittees have not conducted additional work at this site, nor have they submitted a revised RFI Report. This site requires further investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1132.* Environmental Restoration Program. June 1993. LA-UR-93-768. Pgs: 1-12, 5-18.
3) LANL 1995, Los Alamos National Laboratory. *RFI Report for Potential Release Sites 39-002(a-f), 39-005, 39-006(a), 39-007(a,d) (located in former Operable Unit 1132).* Environmental Restoration Project. Field Unit 2. April 1995. LA-UR-95-1069. Pgs: 4-24-4-29.
4) EPA 1995, Environmental Protection Agency. *Letter: Notice of Deficiency, RFI Report Technical Area 39.* December 31, 1995. Pg: 6.

5) EPA 1996, Environmental Protection Agency. *Letter: Approval of RFI Report for Technical Area 39.* July 17, 1996.
6) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000.

39-002(f) – Storage Area

Background: SWMU Report: This is an active satellite storage area located outside of Building TA-39-88. Materials stored at this site include ethanol, acetone, copper sulfate, trichloroethane, vacuum grease, and contaminated transformer oil.

RFI Work Plan: This is a small storage area on the asphalt driveway outside the northeast corner of Building TA-39-88. This area has been used since the 1980s to store small quantities of waste solvents (ethanol, acetone, trichloroethane, copper sulfate), transformer oil, vacuum grease, and, later, photographic (Polaroid) wastes. The area is currently empty but remains active for use as needed. The RFI work plan proposed collecting two samples for analysis of metals, HE, SVOCs, PCBs, petroleum hydrocarbons, and radionuclides.

RFI Report: Drainage is northward from the building and then eastward (or directly eastward over the steps) and across the pavement to a local drainage, that leads to the area's main drainage channel.

Type of Release: Copper (exceeded SAL), uranium, mercury, cobalt-60, bis(2-ethylhexyl)phthalate, and di-n-octylphthalate (LANL 1994, Page 4-33)

Justification: In EPA's approval of the RFI Report dated July 17, 1996, it was stated "copper detected at 3200 mg/kg (SAL is 200 mg/kg) indicates that additional characterization is needed for this site. The extent of contamination needs to be defined." EPA recommended that this site should also be added to the permit. The presence of high levels of copper may be especially significant in an ecological risk assessment. The RFI report identified six chemicals including, copper as a chemical of ecological concern (LANL 1995, pg. 4-32). The Permittees have not conducted additional work at this site, nor have they submitted a revised RFI Report. This site requires further investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1132.* Environmental Restoration Program. June 1993. LA-UR-93-768. Pgs: 1-12, 5-18.
3) LANL 1995, Los Alamos National Laboratory. *RFI Report for Potential Release Sites 39-002(a-f), 39-005, 39-006(a), 39-007(a,d) (located in former Operable Unit 1132).* Environmental Restoration Project. Field Unit 2. April 1995. LA-UR-95-1069. Pgs: 4-28-4-32.
4) EPA 1995, Environmental Protection Agency. *Letter: Notice of Deficiency, RFI Report Technical Area 39.* December 31, 1995. Pg: 6-7.
5) EPA 1996, Environmental Protection Agency. *Letter: Approval of RFI Report for Technical Area 39.* July 17, 1996.

6) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000.

39-007(d) – Storage Area

Background: SWMU Report: This area is a boneyard south of TA-39-24. The boneyard area consisted of a bermed asphalt pad for oil storage.

RFI Work Plan: Erroneously identified as an inactive storage area in the SWMU Report, this is an active storage area consisting of a bermed asphalt pad, 30 ft x 90 ft, covered by a metal roof. Designated TA-39-142, it was built in 1989. Since the early 70s, before construction of the pad, this area- called the "Boneyard"-was used for storage of metals (for use in test stands and shielding) and, occasionally, a drum or two of transformer oil. Chemicals were first stored at the site around 1985-1987. Currently, the pad contains barrels of dielectric (silicon transformer) oil, empty barrels, ethylene glycol, weathered lead sheets, and capacitors (labeled "No PCBs"). Barrels for dispensing acetone, oil, kerosene, and trichloroethane are aligned just inside the berm on the east side. An oil-like substance covers about half of the pad and has accumulated near the east end, where a valved drainpipe (about 3 ft long) extends through the berm. This pipe discharges water and other liquids from the bermed area, which then flow across the access road and east along the road edge to the Ancho Road drainage. The RFI work plan proposed collecting two samples for analysis of metals, HE, SVOCs, PCBs, petroleum hydrocarbons, and radionuclides.

RFI Report: On the northeast side of the pad are stored drums of solvents (acetone, oil, and kerosene), with the dispensing valves directed outward and very near the berm's outer edge. At the southeast corner is a valved drainpipe that drains water (from rain or snow) and/or other fluids that inadvertently reach the pad (such as leaks from storage containers). Releases of such fluids via the drainpipe have resulted in oil stains on the soils just east of the pad. Drainage from the pad flows eastward across the unpaved access road into a local drain, then to the drain along the main road.

Type of Release: waste oil, solvents, lead, dielectric oil, capacitors, uranium (LANL 1990), cobalt-60, and bis(2-ethylhexyl)phthalate (LANL 1995 , Page 4-41)

Justification: In their NOD dated December 31, 1995, EPA noted that VOC analysis was not conducted for samples collected at this site, although the report indicates that 1) acetone, oil, and kerosene have been stored at the site, and 2) releases of these solvents have stained the soil next to the east side of the storage area. Although, in an approval letter for the RFI Report dated July 17, 1996, EPA recommended no further action for this site. However, Bis(2-ethylhexyl)phthalate and uranium were identified as chemicals of concern for ecological risk. It was proposed in the RFI Report that an ecological risk assessment would be addressed with Ancho Canyon (LANL 1995, pg. 4-39). The site should be on the permit until ecological risk has been evaluated and the site is found to pose no threat to the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990, Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993, Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1132.* Environmental Restoration Program. June 1993. LA-UR-93-768. Pgs: 1-12, 5-18-5-20.
3) LANL 1995, Los Alamos National Laboratory. *RFI Report for Potential Release Sites 39-002(a-f), 39-005, 39-006(a), 39-007(a,d) (located in former Operable Unit 1132).* Environmental Restoration Project. Field Unit 2. April 1995. LA-UR-95-1069. Pgs: 4-37-4-41.
4) EPA 1995, Environmental Protection Agency. *Letter: Notice of Deficiency, RFI Report Technical Area 39.* December 31, 1995. Pg: 6-7.
5) EPA 1997, Environmental Protection Agency. *Letter: Approval of RFI Report for Technical Area 39.* July 17, 1996.
6) LANL 1998, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000, Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000.

40-007(a) - Storage Area

Background: SWMU Report: This was a bunker (TA-40-3) used for short periods of time to store scrap HE contaminated waste.

RFI Work Plan: This bunker was used between 1950 and 1980 for storage of waste contaminated by explosives. The buildings are now used for preparation of explosives tests at the TA-40 firing sites.

Type of Release: HE (LANL 1993, Page 5-100)

Justification: According to the RFI Work Plan, it was recommended that characterization be deferred until this site was decommissioned. No investigation has been performed to date, therefore, nature and extent of contamination has not been defined. This site requires investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1111*. Environmental Restoration Program. August 1993. Pgs: 5-98-5-100.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

40-007(b) – Storage Area

Background: SWMU Report: This was a bunker (TA-40-6) used for short periods of time to store scrap HE contaminated waste.

RFI Work Plan: This bunker was used between 1950 and 1980 for storage of waste contaminated by explosives. The buildings are now used for preparation of explosives tests at the TA-40 firing sites.

Type of Release: HE (LANL 1993, Page 5-100)

Justification: According to the RFI Work Plan, it was recommended that characterization be deferred until this site was decommissioned. No investigation has been performed to date, therefore, nature and extent of contamination has not been defined. This site requires investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1111*. Environmental Restoration Program. August 1993. Pgs: 5-98-5-100.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

40-007(c) – Storage Area

Background: SWMU Report: This was a bunker (TA-40-11) used for short periods of time to store scrap HE contaminated waste.

RFI Work Plan: This bunker was used between 1950 and 1980 for storage of waste contaminated by explosives. The buildings are now used for preparation of explosives tests at the TA-40 firing sites.

Type of Release: HE (LANL 1993, Page 5-100)

Justification: According to the RFI Work Plan, it was recommended that characterization be deferred until this site was decommissioned. No investigation has been performed to date, therefore, nature and extent of contamination has not been defined. This site requires investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1111*. Environmental Restoration Program. August 1993. Pgs: 5-98-5-100.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

40-007(d) – Storage Area

Background: SWMU Report: This was a bunker (TA-40-14) used for short periods of time to store scrap HE contaminated waste.

RFI Work Plan: This bunker was used between 1950 and 1980 for storage of waste contaminated by explosives. The buildings are now used for preparation of explosives tests at the TA-40 firing sites.

Type of Release: HE (LANL 1993, Page 5-100)

Justification: According to the RFI Work Plan, it was recommended that characterization be deferred until this site was decommissioned. No investigation has been performed to date, therefore, nature and extent of contamination has not been defined. This site requires investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1111*. Environmental Restoration Program. August 1993. Pgs: 5-98-5-100.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

40-007(e) – Storage Area

Background: SWMU Report: This was a bunker (TA-40-41) used for short periods of time to store scrap HE contaminated waste.

RFI Work Plan: This bunker was used between 1950 and 1980 for storage of waste contaminated by explosives. The buildings are now used for preparation of explosives tests at the TA-40 firing sites.

Type of Release: HE (LANL 1993, Page 5-100)

Justification: According to the RFI Work Plan, it was recommended that characterization be deferred until this site was decommissioned. No investigation has been performed to date, therefore, nature and extent of contamination has not been defined. This site requires investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1111*. Environmental Restoration Program. August 1993. Pgs: 5-98-5-100.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

40-010 – Surface Disposal Site

Background: RFI Work Plan: This SWMU includes an area on the edge of Pajarito Canyon extending about 50 ft. along the canyon edge and about 50 ft down the canyon side. Debris in this area includes farm and home implements that probably predate Manhattan Project activities and approximately twenty 30-gallon drums of a type that may have contained chemicals.

Type of Release: explosives, metals, SVOCs, and VOCs (LANL 1993, Page 5-60)

Justification: According to the Approval issued by EPA in 1994, the Permittees were required to submit an RFI Report for 40-010 on June 30, 1995. In 1995, EPA sent another letter requiring submittal of RFI Reports, and again, EPA specified that an RFI Report including 40-010 must be submitted on June 30, 1995. To date, the Permittees have not submitted an RFI Report addressing this site. This site requires investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1111.* Environmental Restoration Program. August 1993. Pgs: 5-55-5-61.
2) LANL 1994. Los Alamos National Laboratory. *Letter: Approval of the RFI Work Plan for Operable Unit 1111.* October 19, 1994.
3) EPA 1995. Environmental Protection Agency (EPA). *Letter: Required Submittal of RFI Reports.* December 5, 1995.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

41-003 – Sump

Background: SWMU Report: A site drawing ENG-R5122 indicated a sump pit, TA-41-10. It is 3'7-3/4" x 2' x 2'6" deep and discharges to Los Alamos Canyon.

RFI Work Plan: The sump serviced TA-41-1 and handled storm water and the water used to hose out the storage tunnel at TA-41. The tunnel, which was built in 1948 and occupied by 1949, has been used to store TRU wastes and tritium. In the fall of 1988, the sump was completely excavated to make room for a concrete pad, retaining wall, HEPA housing, motor, fan, and a stack for the ventilation system upgrade for TA-41-1. At the time of the sump's excavation, a concrete lid to the sump and three pipes from the tunnel to the sump were found. Along with the sump and its associated pipes, 10 ft. of soil from each side and below the sump were excavated. No contamination was found in the structures or surrounding soil. Note that the finding of no contamination in the structures and soil is according to a 1992 memo by R. Larson, at TA-41 site worker. Radiation survey documentation to support this finding has not been located.

Type of Release: gross alpha/beta, tritium, uranium, isotopic plutonium, beryllium, lead, and mercury (LANL 1993, Page 7.16-3).

Justification: According to the RFI Work Plan, 6 soil samples, from two depths were proposed at 41-003. However, the Permittees have not conducted the investigation at this site. Therefore, nature and extent of contamination has not been defined. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit (OU) 1098.* Environmental Restoration Program. June 1993. Pgs.: 1-5 and 7.16-1 through 7.16-5.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-41-004 – Storm Drains

Background: RFI Work Plan: Structures TA-41-22 through 28 are storm drainage catch basins/manholes. According to Rick Larson, a TA-41 site worker, there have been no indications of contaminant releases into the storm drains. However, the stack between buildings TA-41-4 and TA-41-30 is known to have had operational releases of tritium in the past. Surface contamination of the storm drains might have resulted from these operational releases. No monitoring of the storm drains or outfalls has been done in the past.

Type of Release: gross alpha/beta/gamma, tritium, uranium, plutonium, beryllium, lead, and mercury (LANL 1993, Page 7.17-1).

Justification: According to the RFI Work Plan, 17 samples were proposed at C-41-004. However, the Permittees have not conducted the investigation at this site. Therefore, nature and extent of contamination has not been defined. This site requires an investigation to determine if it poses a threat to human health and the environment.

References:

1) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit (OU) 1098.* Environmental Restoration Program. June 1993. Pgs.: 1-5, 7.17-1 – 7.17-5.

42-002(a) – Former Structures

Background: SWMU Report: This is Building TA-42-1, where a vacublaster was used to remove radionuclides from various laboratory equipment. Dry boxes were typical items decontaminated. The area also served as a storage area for contaminated equipment.

RFI Work Plan: Between 1956 and 1969, the main floor area of the incinerator/control building, TA-42-1, was used by Group H-1 as an area for storage and decontamination of contaminated equipment. In the decontamination process, a "vacublaster" was used to remove radionuclides and possibly other contaminants including grease and oil from laboratory equipment. This process generated wastes probably consisting of fine solid residues and liquids containing radionuclides, and possibly acids and solvents. Waste liquids apparently went to the septic system that served this building. It is believed that fine solid residues were bagged and sent to a MDA.

Type of Release: Radionuclides (americium-241, cesium-137, lanthanum-140, plutonium-238, 239, tritium, uranium-235) (LANL 1992, Page 3-83), unspecified fission products, acids, and organic compounds (oil, grease, solvents) (LANL 1990)

Justification: According to a letter dated August 21, 1998, the Permittees were granted an extension for the submittal of the *RFI Report for TA-42*. NMED required that the RFI Report for TA-42 be submitted on September 30, 2000. The 2000 Installation Work Plan lists this as a SWMU within consolidated unit 42-001(a)-99. There has been no investigation at this site to date. The Permittees have not conducted an investigation at this site. Therefore, nature and extent of contamination has not been defined. This site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" lists in the 2000 Installation Work Plan.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. I of III, TA-26- TA-50*. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit (OU) 1129.* Environmental Restoration Program. LA-UR-92-800. May 1992. Pgs.: 3-78 – 3-87.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

43-001(a1) - Former Sanitary Line

Background: RFI Work Plan: This site was a sanitary sewer line that serviced building TA-43-1. In 1963, the TA-45 treatment plant shut down, and TA-43-1 connected its industrial waste and sewer lines to the treatment facility in Bayo Canyon. During that time, composite samples of waste were collected and analyzed for radioactivity three times a week. Concentrations of radionuclides in these liquid effluents were kept well below Table II, AEC Manual 0524 guidelines and were usually less than 1/10 of these values. In 1975, containers for radioactive wastes were placed in laboratories generating contaminated liquids. These containers were then transported to TA-50 to be treated. Sanitary sewer lines continued to flow to the county system in Bayo Canyon until 1981 when drains were redirected into the TA-3 sanitary sewer system. During the time that TA-43-1 was connected to the Bayo Canyon facility, the 4-in. cast iron sewer line ran from a lift station (TA-43-10) located at the southeast side of HRL, to a county manhole located 315 ft to the northeast. The sewer line is roughly 30 ft below ground at the lift station and reaches a joint to the east at a depth of approximately 10 ft. where gravity then caries the flow to the county manhole to the northeast. During at least a portion of its useful life, low levels of radioactive materials and other chemicals [alcohol, acetonitrite, chloroform, aqueous solutions of organic salts, phosphate-buffered saline, acids, and bases] were disposed of via this line. There is no quantitative information available that indicates either the level of residual contamination in the line or the level of contamination, if any, that may have leaked from the line to the surrounding soil.

Type of Release: Alcohol, acetonitrile, chloroform, aqueous solutions of organic salts, phosphate-buffered saline, acids and bases, transuranics, fission products, and naturally occurring radioactive materials may have been released to this line (LANL 1994, page 5-5).

Justification: The investigations proposed in the RFI Work Plan were never performed for this site. Therefore, this site requires an investigation to determine if a release occurred and if it poses a threat to human health and the environment. Additionally, this site is listed as a HSWA SWMU on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1136*. Environmental Restoration Program. May 1994. Pgs. 5-2 - 5-3; 5-5 – 5-6; 5-11 – 5-15.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

43-001(a2) - Waste line (post 1981)

Background: 43-001(a2) is the post-1981 sanitary waste disposal system that was redirected to the TA-3 sanitary sewer system in 1981 and in 1992 again redirected to the Laboratory sanitary waste system consolidation facility. However, in 1985, once-through cooling water and treated cooling water were identified as being disposed of through the sanitary collection system. This water was potentially radioactive, and it was recommended that this nonsanitary flow source be eliminated from the sanitary waste system. Also, until 1987, all photoprocessing chemicals were disposed of down the drains and into the sanitary waste system. After 1987, recovery units, collection points, and the types of chemicals being used upgraded in an attempt to eliminate hazardous constituents. Currently both the photographic developer and fixer area collected and recycled under the Genomics and Structural Biology Group (LS-2) Standard Operating Procedure. The RFI Work Plan "Deferred Action" at this site until it was decommissioned because the sanitary waste collection system was part of an active experimental site.

Type of Release: Radionuclides, photoprocessing chemicals (LANL 1994, pages 6-3 to 6-4)

Justification: This site is potentially contaminated with radionuclides and possible RCRA constituents. Therefore, this site requires an investigation to determine if a release occurred and if it poses a threat to human health and the environment. Additionally, this site is on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1136*. Environmental Restoration Program. May 1994. Pgs. 6-3 - 6-4.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

43-001(b2) – Outfall

Background: RFI Work Plan: This storm drain outfall was permitted under national pollutant discharge elimination system (NPDES) number 03A040 in the mid-to-late 1970s. The outfall takes effluent from the following sources: 6 floor drains from the sub-basement, blowdown from the evaporative cooler, and storm water from 13 roof drains on the west side of HRL. These effluents are all discharged to the west of HRL through a 130-ft. long, 12-in. corrugated metal pipe. In 1985, some once-through coolant water and treated coolant water from HRL were identified as being disposed of through the sanitary collection system. This water was potentially radioactive. It was recommended that this nonsanitary flow source be eliminated from the sanitary waste system. The 1990 SWMU Report indicated an active outfall of noncontact cooling water from HRL. The 1987 CEARP noted an old NPDES map showing a similar outfall location; thus, the outfall may also have received the once-through coolant water before NPDES permitting and certainly before the 1985 connections to the sewage system. This is the outfall element of 43-001(b2).

Type of Release: radionuclides, sanitary waste, cooling water (LANL 1994, page 5-6)

Justification: This site is potentially contaminated with radionuclides and possible RCRA constituents. The investigations proposed in the RFI Work Plan were never performed for this site. Additionally, corrective action for a spill at TA-43-MR 1042 was not implemented properly and may have impacted SWM 43-001(b2). Based on this information, this site requires an investigation to determine if it poses a threat to human health and the environment. Finally, this site is on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1136*. Environmental Restoration Program. May 1994. Pg: 5-3 and 5-6.
2) NMED 1997. New Mexico Environment Department. *Letter: Corrective Action for Steam Condensate Line Spill at TA-43-MH1042.* October 8, 1997.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-43-001 – Outfall

Background: C-43-001 is a storm drain outfall that drains into Los Alamos Canyon. The drain took storm water from the dock area of HRL and also doubled as an overflow line for the lift station (TA-43-10). The possibility exists that at some point the sanitary lines for HRL may have become clogged causing an overflow. Any hazardous waste being carried through the lines could have possibly discharged into the storm drains. Although no record was found that documents any type of routine releases into the storm drain, this outfall may have received potentially radioactive, nonsanitary cooling water and therefore is considered an area of concern (AOC). The 8-in. overflow line, made of vitrified clay, extends 130 ft. south from the lift station to a manhole. A 12-in. corrugated metal pipe, containing discharge from two storm drains and any effluent from the overflow, flows southwest for 160 ft. and drains into Los Alamos Canyon.

Type of Release: Radionuclides, nonsanitary cooling water (LANL 1994, Page 5-5)

Justification: This site is potentially contaminated with radionuclides and possible RCRA constituents. The investigations proposed in the RFI Work Plan were never performed for this site. Therefore, this site requires an investigation to determine if it poses a threat to human health and the environment. Additionally, this site is on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1136*. Environmental Restoration Program. May 1994. Pg: 5-3-5-5.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-45-001 – Parking Lot of Former Treatment Plant

Background: RFI Work Plan: In January 1957, a release of plutonium-contaminated sludge occurred in the parking area south of the TA-45 treatment plant (C-45-001). An area of the parking lot and a layer of soil near the treatment plant were excavated to a depth of one and one-half ft. No information was available on the post excavation activity levels.

Type of Release: Inorganics (cadmium, chromium, lead, mercury, nickel, silver), Organics (tetrachloroethylene, toluene), and zinc. (LANL 1995, Page 49 and LANL 2005, Pg. 312)

Justification: According to the RFI Report, there were several constituents detected above background UTLs and one constituent, chromium, was detected above its SAL. NMED has not approved the RFI Report for PRSs in TA-45. Additionally, extent of contamination has not been defined for this site and therefore requires further investigation to determine if it poses a threat to human health and the environment. This site is currently being investigated as part of the Pueblo Canyon Aggregate Area investigation.

References:

1) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit (OU) 1079.* Environmental Restoration Program. May 1992. Pgs.: 3-119
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Potential Release Sites in TA-45.* Environmental Restoration Project. Field Unit 1. June 22, 1995. Pgs.: 45-52.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2005. Los Alamos National Laboratory. *Pueblo Canyon Aggregate Area Investigation Work Plan.* May 2005. Pg. 59.

46-004(a2) – Outfall MM

Background: This is the outfall from a second industrial drain servicing Rooms 160 through 172 in TA-46-31. The outfall is a 6 in.-diameter cast iron pipe, located northwest of the building, which discharges to Canada del Buey. Engineering Drawings indicated that the floor and roof drains associated with Rooms 160 through 172 constitute one of three industrial drain systems for this building. Historical information indicated that fissionable materials were used in several rooms in Building TA-46-31.

Type of Release: Cadmium, chromium, copper, lead, mercury, nickel, silver, zinc, PCBs, and uranium and plutonium isotopes (LANL 1996, Page iv).

Justification: According to the RFI Report, information discovered following the RFI sampling indicated that samples may have been collected in inappropriate locations. The Permittees stated in the report that Phase II sampling would be performed for this site. EPA issued an NOD for the RFI Report on June 13, 1997. The NOD stated that the Permittees did not follow the approved work plan regarding this site. At the outfall area samples were supposed to be taken at 6-in. and at 18-24-in. intervals. Also, samples were to be analyzed for VOCs and several samples were not analyzed for VOCs. The Permittees did not respond to the NOD. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-119, 5-128.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: iv, 99-112
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(b2) – Outfall U/Operational Release

Background: RFI Work Plan: This is the outfall for an additional industrial drain in the north high bay in TA-46-1. The outfall is a 4-in.-diameter vitrified clay pipe located east of TA-46-1. Engineering Drawings indicated that the floor drains along the east wall of the north high bay are plumbed to this drain. The effluent from this outfall discharges to a ditch, SWMU 46-007; this is part of a storm drain network discharging to Canada del Buey.

Type of Release: Copper, lead, mercury, silver, zinc, uranium isotopes (LANL 1996, Page v), and VOCs/SVOCs (Acenapthene, Anthracene, Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[g,h,i]perylene, Benzo[k]fluorathene, Chrysene, Dibenzo[a,h,]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3-cd]pyrene, Naphthalene, Phenanthrene, Pyrene) (LANL 1996, Page 117-118).

Justification: According to the RFI Report, only four samples were obtained from one depth at this site. Several constituents were detected above LANL UTLs and many of the results were qualified as estimates because holding times were exceeded. EPA issued an NOD for the RFI Report on June 13, 1997. The NOD stated that the Permittees did not follow the approved work plan regarding this site. At the outfall area samples were supposed to be taken at 6-in. and at 18-24-in. intervals. Also, samples were to be analyzed for VOCs and one sample was not analyzed for VOCs. The Permittees did not respond to the NOD. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-119, 5-129.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46.* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: v, 113-119.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(c2) – Outfall S

Background: This is the outfall from an industrial drain from Building TA-46-1. The outfall is a 4-in.-diameter cast iron pipe, located northwest of the building that drains into Canada del Buey. Engineering Drawings indicated that the floor drains in the north equipment room are plumbed to this drain. Building TA-46-1 was used for Rover experiments. It is not known what activities and processes took place in the north high bay.

RFI Report: This is the outfall from cooling water blowdown, floor drains, and trench drains from the north equipment room TA-46-1. Outfall S received treated discharges from a cooling tower located on the roof. It also received effluent from floor drains in rooms 103 and 105 and from the drain of a utility trench in the floor of the north high bay and received infrequent flow from floor washings.

Type of Release: Copper, lead, mercury, silver, zinc, uranium-235 (LANL 1996, Page v), and organics (Acenaphthene, Anthracene, Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Bis(2-ethylhexyl)phthalate, Chrysene, Dibenzofuran, Fluoranthene, Fluorene, Methylnapthalene [2-], Napthalene, Phenathrene, Pyrene), and Pesticides (Aldrin, DDT, Dieldrin, Endosulfan II, Endosulfan sulfate, Endrin, Heptachlor epoxide, Methoxychlor) (LANL 1996, Page 125-126).

Justification: According to the RFI Report, several constituents were detected above LANL UTLs and many of the results were qualified as estimates because holding times were exceeded. Additionally, lateral and vertical extent of contamination was not defined and a risk assessment was not performed for this site. EPA issued an NOD for the RFI Report on June 13, 1997. The NOD stated that the Permittees did not follow the approved work plan regarding this site. At the outfall area samples were supposed to be taken at 6-in. and at 18-24-in. intervals. Also, samples were to be analyzed for VOCs and eight samples were not analyzed for VOCs. Additionally, EPA disagreed with the no further action recommendation for this site for several reasons: 1) Not all the work was performed according to the approved work plan; 2) a 18-24 in. sample was not obtained below the outfall; 3) several samples were not analyzed for VOCs; 4) and lateral and vertical extent of contamination was not determined. The Permittees did not respond to the NOD. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-119, 5-129.

2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46.* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: v, 120-128.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(d2) – Stack Emissions/Outfall

Background: RFI Work Plan: 46-004(d2) represents experimentation done at Building TA-46-24 in 1960-61. These experiments used beryllium and beryllium oxide; quantities of these constituents may have been released through building stacks. Air sample data sheets based on room air monitoring connected with beryllium operations at TA-46 indicated results as high as 16 mg/m^3.

RFI Report: Nineteen samples were collected over a broad area at TA-46 for this SWMU. Because of the prevailing winds, sampling points are generally north of TA-46. RCRA metals and uranium-235 were detected above LANL UTLs.

Type of Release: Copper, mercury, silver, zinc, and uranium-235 (LANL 1996, Page v).

Justification: Several constituents were detected above LANL UTLs. Uranium and plutonium results were qualified as estimated (J) based on anomalous recoveries of laboratory control samples. Additionally, lateral and vertical extent of contamination was not defined and a risk assessment was not performed for this site. Additionally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. EPA issued an NOD for the RFI Report on June 13, 1997, citing several deficiencies. The Permittees did not provide a response to the NOD. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-184, 5-186.
2) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(e2) – Outfall (AP)

Background: RFI Report: This outfall was found prior to the 1994 field campaign. Outfall AP serves roof, floor, and sink drains from TA-46-42. Much of the routine effluent is from blowdown and condensate. TA-46-42 was constructed in 1960 as an equipment checkout facility. It now contains electronic and robotics laboratories. The drains for TA-46-42 are plugged. Hazardous materials may have been handled in machining operations. Solvents may have been used in conjunction with the laboratory. COPCs included inorganics, SVOCs, VOCs, and radionuclides.

The 4-in. outfall is located at the head of the ditch that comprises PRS 46-006(a). The area south of the ditch is paved between TA-46-42 and TA-46-1, and the ditch serves as a runoff area from the pavement. The outfall is approximately 3 ft. below the level of the asphalt and is covered by silt and sediment deposited during runoff events. The outfall was excavated for sampling; within months it was silted over.

Type of Release: Chromium, copper, lead, zinc (LANL 1996, Page v), SVOCs (Anthracene, Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Bis(2-ethylhexyl)phthalate, Chrysene, Fluoranthene, Phenathrene, Pyrene), Pesticides (DDE, DDT, Dieldrin, Endodulfan II, Endrin, Endrin aldehyde, Heptachlor epoxide, and Methoxychlor) (LANL 1996, Pages 132 – 133)

Justification: EPA issued an NOD for the RFI Report on June 13, 1997 citing several deficiencies. The Permittees did not follow the approved work plan regarding this site. At the outfall area samples were supposed to be taken at 6-in. and at 18-24-in. intervals. Also, samples were to be analyzed for VOCs and 2 samples were not analyzed for VOCs. Additionally, EPA disagreed with the no further action recommendation for this site for several reasons: 1) Not all the work was performed according to the approved work plan; 2) a 18-24 in. sample was not obtained below the outfall; 3) several samples were not analyzed for VOCs; 4) and lateral and vertical extent of contamination was not determined. The Permittees did not provide a response to the NOD. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Finally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Appendix G.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46.* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: v, 128-134.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(f2) – Outfall (AQ)

Background: RFI Report: This outfall was found prior to the 1994 field campaign. Outfall AP serves roof, floor, and sink drains from TA-46-42. Much of the routine effluent is from blowdown and condensate from cooling towers. TA-46-42 was constructed in 1960 as an equipment checkout facility. It now contains electronic and robotics laboratories. The drains for TA-46-42 are plugged. Hazardous materials may have been handled in machining operations. Solvents may have been used in conjunction with the laboratory. COPCs included inorganics, SVOCs, VOCs, and radionuclides.

Type of Release: Lead, zinc, mercury, uranium-235, plutonium-238, SVOCs (phenanthrene and pyrene), pesticides (dieldrin) (LANL 1996, Page 137-138).

Justification: EPA issued an NOD for the RFI Report on June 13, 1997 citing several deficiencies. The Permittees did not follow the approved work plan regarding this site. At the outfall area samples were supposed to be taken at 6-in. and at 18-24-in. intervals. Also, samples were to be analyzed for VOCs and 2 samples were not analyzed for VOCs. Additionally, EPA disagreed with the no further action recommendation for this site for several reasons: 1) Not all the work was performed according to the approved work plan; 2) a 18-24 in. sample was not obtained below the outfall; 3) several samples were not analyzed for VOCs; 4) and lateral and vertical extent of contamination was not determined. The Permittees did not provide a response to the NOD. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Finally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Appendix G.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46.* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: v, 134-139.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(p) – Dry Well

Background: RFI Work Plan: SWMU 46-004(p) is an approximately 2 x 2 x 10 ft deep dry well lined with corrugated metal pipe, located at the southwest corner of Building TA-46-1. The dry well was constructed for the disposal of alkali-metal waste, but was used for the disposal of a variety of chemical wastes. This dry well served TA-46-1, which was constructed in 1954. TA-46-1 housed offices, two assembly bays, a staff machine shop, a few laboratories for electrical assembly and checkout, general laboratories, and a uranium polishing area. All of these functions were connected with the Rover Program. During the late 1950s and early 1960s cesium-metal waste was generated in TA-46-1, primarily from the operation of a cesium-plasma diode. All of the cesium used in this effort was of a natural stable isotopic mixture. No radioactive cesium-137 was used. Any solid pieces of cesium or other alkali metals were discarded in the alkali-metal pit, SWMU 46-004(p). According to the Work Plan, this dry well was to be removed as a VCA. Prior to excavation, two sludge/sediment samples were to be obtained. After the dry well was excavated, a total of two soil samples were to be collected in the excavated surface beneath the dry well and analyzed for PCOCs.

Type of Release: RCRA metals, VOCs, SVOCs, radionculides (LANL 1993, Page 5-15)

Justification: The proposed VCA for this SWMU was never completed. EPA issued an NOD for the RFI Report on June 13, 1997, citing several deficiencies. The Permittees did not provide a response to the NOD. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-6, 5-15.
2) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(q) - Outfall B

Background: RFI Work Plan: Outfall B is a 6 in.-diameter cast iron pipe that discharged into Canada del Buey north of Building TA-46-58. The source is unknown, so the outfall was treated as an industrial drain. The outfall was scheduled to be sampled for uranium, SVOCs, VOCs, and metals in 1993.

RFI Report: The outfall protrudes from a steep slope of loose fill; a pile of rocks supports the end of the pipe. A drainage ditch formed below the outfall, leading approximately 15 ft to a large ditch scoured by runoff from outfall C, a 2-ft diameter culvert that receives parking lot runoff from the northeast quadrant of TA-46. This site was recommended for Phase II sampling.

Type of Release: Barium, cadmium, copper, lead, mercury, nickel, sliver, zinc and uranium isotopes (LANL 1996, Page iii). Mercury and uranium isotopes were found above SALs and uranium-234, uranium-235, and uranium-238 were found above background (LANL 1996, Page 58-60).

Justification: This site was proposed for Phase II sampling in the RFI Report because several constituents were detected above SALs. EPA issued an NOD for the RFI Report on June 13, 1997, citing several deficiencies. The NOD stated that the Permittees did not follow the approved work plan regarding this site and did not submit all the necessary information. Also, the vertical extent of contamination was not determined at all locations. EPA also disagreed with a NFA recommendation based on the above information. The Permittees did not provide a response to the NOD and the Phase II sampling was never performed. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940.Pgs: 5-124, 5-133.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: iii, 55-61.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(r) - Outfall Z

Background: This 4 in. cast iron pipe outfall from an industrial drain that services the west wing of TA-46-24, constructed in 1964. Engineering drawings indicated that roof drains and possibly sink drains were plumbed to this drain. The outfall discharges to a storm drain south of TA-46-24 between TA-46-59 and TA-46-76 as part of a storm drain network that discharges to SWSC Canyon. Activities and processes are not known at building TA-46-24.

Type of Release: uranium, mercury, other metals, VOCs, SVOCs, uranium-235, uranium-238, and PCBs (LANL 1993, Page 5-125)

Justification: This site is potentially contaminated with RCRA metals and radionuclides. This site should have been addressed in the 1996 RFI Report, but sampling was not completed, thus, nature and extent of contamination has not been defined for this site. Additionally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. EPA issued an NOD for the RFI Report on June 13, 1997, citing several deficiencies, including the exclusion of this site from the RFI Report. The Permittees did not provide a response to the NOD. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs.: 5-125, 5-119.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46.* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: i-ii.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(s) - Outfall X

Background: This site is a 4 in. diameter cast iron pipe located about 25 ft. south of TA-46-1. Engineering Drawing ENG-C 3369 indicated that the floor and roof drains in the south high bay discharge via this outfall. The effluent flows to a ditch, SWMU 46-007, that is part of a storm drain network that discharges to Cañada del Buey. The outfall for this storm drain network is designated as Outfall M. Activities and processes that were conducted in the south addition of Building TA-46-1 are not known; however, based on general process knowledge of Building TA-46-1, potential contaminants of concern (PCOCs) include mercury, other metals, VOCs, SVOCs, and uranium. Engineering Drawing ENG-C 1811, sheet 43, indicated that some floor drains in the south high bay connected to a pipe that exited to the east. This outfall has not been confirmed in the field. Outfall W, located in this area, may serve these floor drains or may be the outfall for roof drains. (The east outfall was included in SWMU 46-004(s) in this work plan.)

RFI Report: SWMU 46-004(s) is comprised of outfall X and an unnamed outfall from trench drains in TA-46-1. Both drains are now plugged. The unnamed outfall was scheduled to be sampled in 1996. Outfall X serves a trench and floor drain in room 133 of the south high bay of TA-46-1. The unnamed outfall serves the utility trench in room 131. All activities and processes that were conducted in the south high bay of TA-46-1 are not known.

Type of Release: Copper, mercury, lead, nickel, silver, zinc, uranium-235, uranium-238, and SVOCs (Acenaphthene, Anthracene, Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[g,h,i]perylene, Benzo[k]fluoranthene, Chrysene, Dibenzo[a,h]anthracene, Fluoranthene, Indeno[1,2,3-cd]pyrene, Phenathrene, and Pyrene) (LANL 1996, Pages 64-65).

Justification: EPA issued an NOD for the RFI Report on June 13, 1997. The NOD stated that the Permittees did not follow the approved work plan regarding this site. At the outfall area samples were supposed to be taken at 6-in. and at 18-24-in. intervals. Also, samples were to be analyzed for VOCs and one sample was not analyzed for VOCs. Additionally, EPA disagreed with the NFA recommendation for this site based on the above information. The Permittees did not provide a response to the NOD. In addition, this site has not been fully investigated because the unnamed outfall has not been sampled, thus, nature and extent of contamination has not been defined for this site. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Finally, this site is listed as a HSWA SWMU in the “Under Investigation” lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-119 & 5-125.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46.* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: 61-67.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(t) - Outfall YY

Background: This is the outfall from the industrial drain in Building TA-46-88. The outfall is NPDES 04A014, a 4 in.-diameter vitrified clay pipe located northeast of TA-46-88 on the west side of the SWSC road. The effluent flows through a storm drain under the road then discharges to SWSC Canyon. Engineering drawings indicate that all laboratory sinks, floor drains, and roof drains in Building TA-46-88 are plumbed to this outfall. Based on this information, the outfall pipe labeled NPDES 04A014 is the outfall for the industrial drain in Building TA-46-88. A non-contact cooling water system is one of several sources for this outfall. In the late 1960s and 1970s, Building TA-46-88 was the N-7 structural test laboratory used to test pressure vessels associated with the Rover Program. In the mid-1970s, Isotope and Nuclear Chemistry (INC) Division acquired the building for its ICON program, which isolated non-radioactive isotopes of carbon, oxygen and nitrogen.

Type of Release: VOCs (LANL 1993, Page 5-126).

Justification: The RFI Work Plan indicates that VOCs could be a PCOC at this outfall. The Work Plan also proposes RFI sampling at this site, however, the investigation results are not presented in the 1996 RFI Report. Given that the RFI sampling for this site was never conducted, this site requires further investigation to determine if it poses a threat to human health and the environment. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Finally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-119, 5-125-5-129.
2) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

46-004(u) - Outfall F

Background: RFI Work Plan: This outfall is from an overflow pipe for the west concrete wet well in TA-46-87. The outfall, located north of TA-46-86, is an 8 in.-diameter cast iron pipe that discharges to Cañada del Buey. Engineering drawings indicate that the west well, a deionized-water holding pit, was originally part of a closed-loop cooling-water system that serviced Buildings TA-46-16, -25, and –31. This process system was a secondary system that operated in conjunction with the primary, open, recirculating, cooling-tower system that is believed to have been in operation only six months after its construction in 1968. Based on discussions with ENG-6 personnel and inspection of engineering drawings, the wet well was used to store industrial waste from TA-46-25. The industrial drain is connected to two sink drains; there are no floor drains in the building. Industrial waste from TA-46-25 is routed to the wet well through an old cooling-water supply line associated with the original cooling water system. Historically, chemical-processing activities did not take place in Building TA-46-25. During the time of the Rover Program, this building was used as a battery storage building and for selective small-scale painting activities.

RFI Report: A steep runoff drainage channel from the mesa top formed near the outfall. Effluent from the outfall quickly merges with the runoff channel. No channel has formed between the outfall and the runoff drainage.

Type of release: Copper, mercury, nickel, lead, silver, and zinc), VOCs and SVOCs (Benzo[a]pyrene, Chrysene, Fluoranthene, Methylene Chloride, Phenanthrene, and Pyrene), Pesticides (DDD, DDE, BHC [alpha-], Dieldrin, Endrin aldehyde, BHC[delta-], Heptachlor epoxide, Lindane, and Methoxychlor) and Plutonium-238, 239 (LANL 1996, Pages 70-72).

Justification: EPA issued an NOD for the RFI Report on June 13, 1997. The NOD stated that the Permittees did not follow the approved work plan regarding this site. At the outfall area samples were supposed to be taken at 6-in. and at 18-24-in. intervals. Also, samples were to be analyzed for VOCs and several samples were not analyzed for VOCs. Additionally, EPA disagreed with the NFA recommendation for this site based on the above information. The Permittees did not provide a response to the NOD. The lateral and vertical extent of contamination was not determined at this site and the data presented in the RFI Report is questionable based on the number of laboratory-estimated values. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Finally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. Therefore, this site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-119, 5-126.

2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: iii, 67-73.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(v) - Outfall G

Background: This is the outfall for the industrial drain from TA-46-87. The outfall is a 6 in.-diameter cast iron pipe located northwest of TA-46-87 and discharges to Cañada del Buey. An Engineering drawing suggests that floor and roof drains are connected to this drain. Building TA-46-87 is the pump house for the associated cooling tower, TA-46-86. It houses two wet well systems and mechanical equipment associated with the cooling tower. According to the RFI Work Plan, chemical processing activities have never taken place in this building. The pump house was used to store non-hazardous cooling tower chemicals.

Type of Release: Beryllium, mercury, nickel, sliver, lead, zinc, radionuclides (plutonium-238, 239), SVOCs/VOCs (Benzo[a]anthracene, Benzo[a]pyrene, Benzo[k]fluoranthene, Chrysene, Fluoranthene, Methylene chloride, Phenanthrene, and Pyrene), and pesticides (BHC[alpha-], BHC[delta-], DDD, DDE, Dieldrin, Endrin aldehyde, Heptachlor epoxide, Lindane, Methoxychlor) (LANL 1996, Pages 77-79)

Justification: According to the RFI Report, this site contains RCRA hazardous constituents above background values and laboratory reporting limits. The lateral and vertical extent of contamination was not determined at this site and the data presented in the RFI Report is questionable based on the number of laboratory-estimated values. EPA issued an NOD for the RFI Report on June 13, 1997. The NOD stated that the Permittees did not follow the approved work plan regarding this site. At the outfall area samples were supposed to be taken at 6-in. and at 18-24-in. intervals. Also, samples were to be analyzed for VOCs and several samples were not analyzed for VOCs. Additionally, EPA disagreed with the NFA recommendation for this site based on the above information. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Finally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-119, 5-127.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: iii, 73-80.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515*. June 13, 1997.

46-004(w) - Outfall AA

Background: This is the outfall from the sink drain in TA-46-59. Engineering drawings indicated that the outfall is a 2 in.-cast iron pipe that discharged to a storm drain located between TA-46-59 and TA-46-76. This is the same storm drain network described under SWMU 46-004(r) as discharging to SWSC Canyon. Under the Rover Program, TA-46-59 was used for hydraulic and structural testing of Rover components.

Type of Release: VOCs, SVOCs, and PCBs (LANL 1993, Page 5-127).

Justification: This site may contain RCRA hazardous constituents above background values and laboratory reporting limits. The RFI sampling proposed in the 1993 Work Plan was not completed. Consequently, the lateral and vertical extent of contamination has not been determined at this site. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Finally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. Therefore, this site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-119, 5-127.

46-004(x) - Outfall J

Background: RFI Work Plan: This SWMU may be the outfall from floor and/or roof drains in TA-46-31. The outfall is a 6-in.-diameter cast iron pipe, located northeast of TA-46-31, that discharges to Cañada del Buey. The pipe projects approximately 1 ft beyond the steep canyon slope. A drainage channel 1-2 ft. wide has formed beneath the pipe and extends to the toe of the slope. McCulla identified three industrial drain systems for TA-46-31. Based on discussions with ENG-6 personnel, this outfall is probably another industrial drain that services floor and/or sink drains in TA-46-31. Historical information indicated that fissionable materials were used in several rooms in Building TA-46-31. Based on general activity and process information, other PCOCs may include mercury, other metals, VOCs, SVOCs, uranium, and thorium.

RFI Report: This SWMU serves roof drains and possibly a potable water drain from TA-46-31. TA-46-31 has been the site of many experimental programs over the years. It is now primarily a laser laboratory with offices and shops. Because the drain from TA-46-31 is not plugged, outfall J is considered active.

Type of Release: Cadmium, copper, lead, mercury, and zinc, radionuclides (unranium-235, 238, and plutonium-239), PAHs (Acenapthene, Acenaphthylene, Acetone, Anthracene, Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[g,h,I]perylene, Benzo[k]fluoranthene, Bis(2-ethylhexyl)phthalate, Chrysene, Dibenzofuran, Dibenzo[a,h]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3-cd]pyrene, Methylnaphthalene [2-], Methylphenol[4-], Naphthalene, Phenanthrene, Phenol), SVOCs/VOCs (Pyrene), and Pesticides (DDD, DDE, DDT, Endrin aldehyde, Heptachlor epoxide) (LANL 1996, Pages 83-86)

Justification: According to the RFI Report, this site contains RCRA hazardous constituents above background values and laboratory reporting limits. The lateral and vertical extent of contamination was not determined at this site. EPA issued an NOD for the RFI Report on June 13, 1997. The NOD stated that the Permittees did not follow the approved work plan regarding this site. At the outfall area samples were supposed to be taken at 6-in. and at 18-24-in. intervals. Also, samples were to be analyzed for VOCs and one sample was not analyzed for VOCs. Additionally, EPA disagreed with the NFA recommendation for this site based on the above information. The Permittees have not demonstrated that this was not a routine and systematic release. Finally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-119, 5-127.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: iii, 80-87.

3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(y) - Outfall K

Background: This SWMU is the blowdown outfall from the cooling tower that serves TA-46-31. The outfall is a 6-in.-diameter cast iron pipe labeled NPDES 03A043 and located north of TA-46-31. It discharges to Cañada del Buey. Engineering Drawing ENG-C 22752 indicated that floor drains, laboratory sinks, and fume hoods in TA-46-31are also plumbed to this outfall, which constitutes one of three industrial drain outfalls from TA-46-31. Based on the SWMU Report, chromates may be a contaminant of concern at Laboratory cooling tower blowdown outfalls; however, no chromates were used at TA-46. Cooling tower treatment chemicals currently used at the Laboratory, Garratt-Callahan Formula 227-L and 314-T, are EPA-approved products. In addition, historical information indicated that fissionable materials were used in several rooms in Building TA-46-31. Based on general activity and process information, PCOCs may include mercury, other metals, VOCs, SVOCs, uranium, and thorium.

RFI Report: Outfall K served sinks, drains and cooling water blowdown from the central portion of TA-46-31. Historical information indicated that uranium and possibly thorium were used in several rooms in TA-46-31. The drainpipe leading to outfall K was rerouted and connected to the LANL sanitary sewer system prior to 1993. The outfall is now inactive.

Type of Release: Copper, mercury, nickel, silver (no BV), zinc, radionuclides (uranium-234, uranium-235, plutonium-238, and plutonium-239), and VOCs/SVOCs (Anthracene, Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Chrysene, Fluoranthen, Indeno[1,2,3-cd]pyrene, Methylene chloride, Phenathrene, Purene, Trichlorofluoromethane) (LANL 1996, Pages 91-92).

Justification: According to the RFI Report, this site contains RCRA hazardous constituents above background values and laboratory reporting limits. The lateral and vertical extent of contamination was not determined at this site. EPA issued an NOD for the RFI Report on June 13, 1997. The NOD stated that the Permittees did not follow the approved work plan regarding this site. At the outfall area samples were supposed to be taken at 6-in. and at 18-24-in. intervals. Also, samples were to be analyzed for VOCs and one sample was not analyzed for VOCs. Additionally, EPA disagreed with the NFA recommendation for this site based on the above information. The Permittees have not demonstrated that this was not a routine and systematic release. Finally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-119, 5-127-5-128.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46*

Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: iii, 88-93.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-004(z) - Outfall L

Background: RFI Work Plan: This outfall is from a second industrial drain servicing Rooms 160 through 172 in TA-46-31. The outfall is a 6 in. diameter cast iron pipe, located northwest of building, that discharges to Cañada del Buey. Engineering drawing ENG-C 26332 indicated that the floor and roof drains associated with Rooms 160 through 172 constituted one of three industrial drain systems for this building. Historical information indicated that fissionable materials were used in several rooms in Building TA-46-31. Based on general activity and process information, PCOCs may include mercury, other metals, VOCS, SVOCs, uranium, and thorium.

RFI Report: Outfall L served roof drains and two floor drains in Rooms 160 through 172 of TA-46-31, called the west high bay. As a best management practice (BMP), the two floors drains leading to outfall K were rerouted to the LANL sanitary sewer system prior to 1993. Only two floor drains now discharge to outfall L.

Type of Release: Mercury, silver, nickel and zinc, and radionuclides (uranium-235, and plutonium-238) (LANL 1996, Pages 96-97).

Justification: According to the RFI Report, this site contains RCRA hazardous constituents above background values and laboratory reporting limits. The lateral and vertical extent of contamination was not determined at this site. EPA issued an NOD for the RFI Report on June 13, 1997. The NOD stated that the Permittees did not follow the approved work plan regarding this site. At the outfall area samples were supposed to be taken at 6-in. and at 18-24-in. intervals. Also, samples were to be analyzed for VOCs and several samples were not analyzed for VOCs. Additionally, EPA disagreed with the NFA recommendation for this site based on the above information. The Permittees have not demonstrated that this was not a routine and systematic release. Finally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-119, 5-127-5-128.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: iv, 94-98.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515*. June 13, 1997.

46-006(f) – Storage Area

Background: This is Building TA-46-36, a 20 ft. x 30 ft. metal building located 50 ft. east of Building TA-46-1. It was constructed about 1955 as a storage building with double, sliding, metal doors on the west and a single door on the southeast. The concrete or asphalt floor is 6 to 8 in. below grade with a sloping asphalt ramp from double doors to floor. The sliding doors face an asphalt roadway; the remaining area around the building is unpaved. The building and surrounding area have been used as a storage area, a disposal area for surplus equipment, and an unloading point for new equipment. Items included furnaces, electronic equipment, oils, alkali metals, asbestos products, beryllium alloys, potassium dichromate, lead bricks, mercury, other metals, and small amounts of PCBs.

Type of Release: Lead, mercury, and zinc, Aroclor 1254, SVOCs (Fluoranthene), uranium-235, -238, asbestos, and pesticides (Endosulfan II, dieldrin) (LANL 1996, Pages 192-193)

Justification: According to the RFI Report, this site contains RCRA hazardous constituents above background values and laboratory reporting limits. Also, the lateral and vertical extent of contamination was not determined at this site. The Permittees also stated that mercury results were valid because holding times were only "slightly exceeded". EPA issued an NOD for the RFI Report on June 13, 1997. The NOD stated that the Permittees did not follow the approved work plan regarding this site. Holding times for mercury were exceeded, making the results invalid, and the sample depths were inadequate. At the outfall area samples were supposed to be taken at 6-in. and at 18-24-in. intervals. Additionally, EPA disagreed with the NFA recommendation for this site based on the above information. Finally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-76, 5-79.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: vi, 189-194.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

46-006(g) – Storage Area

Background: This is a storage shed (TA-46-128) at the west end of TA-46-31. From 1982 to 1984 the shed housed a vacuum pump used in experiments involving plasma vaporization of depleted-uranium powder. Pump oil spilled in the shed, which was later used only for storage. Contaminants of concern may include uranium-235, -238; VOCs; and oils. This site is adjacent to SWMU 46-006(d) and runoff drains into that SWMU.

RFI Report: The shed, attached at the west end of TA-46-31, is approximately 15 x 30 ft. It is constructed of corrugated steel and is 8 ft. high with an asphalt floor. The area around the shed is level and paved. Because the doors are not weather tight, rain and snowmelt regularly flood the floor.

Type of Release: VOCs (1,1,2-Trichloro-1,2,2-Trifluoroethane, Trichloroethene) (LANL 1996, Page 197)

Justification: According to the RFI Report, this site contains RCRA hazardous constituents above background values and laboratory reporting limits. Also, the lateral and vertical extent of contamination was not determined at this site. EPA issued an NOD for the RFI Report on June 13, 1997. The NOD stated that the Permittees did not submit the required analytical data. Also, the Permittees did not complete analysis for inorganics. This is curious because the description provided in the RFI Work Plan states that this site is adjacent to SWMU 46-006(f) and runoff drains into SWMU 46-006(d). SWMU 46-006(d) was analyzed for inorganics; therefore, it is logical that the SWMU from which runoff originated must also be analyzed for inorganics. Additionally, EPA disagreed with the NFA recommendation for this site based on the above information. Finally, this site is listed as a HSWA SWMU in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pgs: 5-76, 5-79.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: vi, 194-198.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) Environmental Protection Agency (EPA). *Letter from EPA to NMED: TA-46 RFI Report, NOD Comments, Los Alamos National Laboratory (LANL), EPA I.D. NM0890010515.* June 13, 1997.

C-46-001 - One-Time Spill

Background: This is described as a spill of .55 to 1.1 lb of mercury near TA-46-75 on July 22, 1975. Cleanup of all visible mercury was ordered at the time. No precise location was given for the spill. Aerial photos and the term "scraped up" indicated that the area was paved. From the existing information, runoff from the site would have been directed toward Outfall BB or possibly the storm drain Outfall NN. Both outfalls were proposed for mercury sampling.

Types of Release: Mercury (LANL 1993, Page 5-131)

Justification: This site was proposed for sampling, but not included in the 1996 RFI Report. Sample locations and depths are inadequate to determine nature and extent of contamination at this site. Additionally, this site is listed in the "Under Investigation" list in the 2000 Installation Work Plan. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pg: 5-131.
2) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-46-002 – Stack Emissions

Background: RFI Work Plan: In April 1960, an accidental tube rupture within Building TA-46-31 led to stack readings as high as 2,998 dpm/m^3; apparently the contaminant was uranium-235.

RFI Report: C-46-002 is described as possible stack emissions from Rover activities at TA-46-31. Failure testing of fuel rods led to possible releases of uranium-235 through the stack.

Type of Release: Copper, mercury, silver, zinc, and radionuclides (uranium-235) (LANL 1996, Page vi)

Justification: Nineteen samples were obtained for multiple SWMUs/AOCs (46-004(g), 46-004(h), 46-004(d2), C-46-002, C-46-003). Sample locations and depths are inadequate to determine nature and extent of contamination for AOC C-46-002. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pg: 5-184-5-187.
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: vi, 214-220.

C-46-003 - Stack Emissions

Background: This was a one-time release of approximately 5 to 10 g of depleted uranium hexafluoride (UF6) containing uranium-237 as a tracer. The release took place from Building TA-46-30 on March 29, 1978. The LANL SWMU Report stated inaccurately that it was Building TA-46-158. It was followed by a series of decontamination and monitoring efforts within the building as well as downwind.

RFI Report: A May 1978 report on ambient air monitoring in response to the release from TA-46-30 indicated no detectable level of uranium-237. It is not clear whether investigators looked for uranium-238 as well. Monitoring was performed downwind of TA-46-30 and at the Laboratory perimeter.

Type of Release: Uranium hexafluoride (LANL 1990), copper, mercury, silver, zinc, and uranium-235 (LANL 1996, Page vi).

Justification: Nineteen samples were obtained for multiple SWMUs/AOCs (46-004(g), 46-004(h), 46-004(d2), C-46-002, C-46-003). Sample locations and depths are inadequate to determine nature and extent of contamination for AOC C-46-002. This site requires further investigation to determine if it poses a threat to human health and the environment.

References:

1) Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1140.* Environmental Restoration Program. August 1993. LA-UR-93-1940. Pg: 5-184-5-187
2) Los Alamos National Laboratory. *RFI Report for Potential Release Sites in TA-46* Environmental Restoration Program. June 1996. LA-UR-96-1957. Pgs: vi, 214-220

48-001 – Air Exhaust System

Background: SWMU Report: The air exhaust system is in the Alpha Wing in the northeast corner of TA-48-1. Some hoods have filters and others do not have filters because of possible problems with clogging and corrosion. No air scrubbers are currently being used. Approximately one-half to one-third of the major acids used are vented to the hoods.

RFI Work Plan: The Alpha Wing is used for processing high-level alpha and/or beta-gamma emitters. Exhaust hoods have been used in a variety of operations since TA-48 first opened in 1957. Most hoods in the Radiochemistry Laboratory are equipped with a water spray that can be used while the hoods are operating. This spray is particularly important when using perchloric acid to prevent a buildup that could react with organics at elevated temperatures to form an explosive. All ducts from the hoods are periodically sprayed with water to prevent corrosion. Because perchloric acid causes corrosion of filters, most of the hoods do not have filters. Hoods have apparently been used without filters since the 1950s for this reason. Approximately one-third to one-half of the major acids used (i.e. hydrochloric, hydrofluoric, nitric, and perchloric) are vented to the hoods. None of the hoods in the Alpha Wing meet the criteria to work with radioactive materials. Radioactive materials are handled in gloveboxes that have individual filters [page 3-92 – 93]. Because contaminated air has been vented to the atmosphere without proper filtration during the long operation of this facility, the soil surrounding TA-48-1 is possibly contaminated [page 3-94].

In April 1991, five surface and five subsurface soil samples were collected. Some samples were collected in the vicinity of SWMU 48-001, potential soil contamination from improperly filtered atmospheric emissions.

Type of Release: Trace amounts of three VOCs, p-isopropyltoluene, isopropylbenzene, and trichlortrifluoroethane, a number of transuranic radionuclides, and metals [LANL 1995, Page 3-106].

Justification: Potential RCRA constituents exist at this site. No ecological risk assessments were conducted, therefore, the Permittees cannot assume there is no unacceptable risk. Furthermore, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26-TA-50*. LA-UR-90-3400. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for OU 1129*. Environmental Restoration Project. LA-UR-92-800. May 1992. Page 3-92 – 3-106.
3) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 48-001 48-002(e) 48-003 48-005 48-007(a) 48-007(b) 48-007(c) 48-007(d) 48-007(f) 48-*

010 (located in former Operable Unit 1129) Field Unit 4. Environmental Restoration Project. LA-UR-95-3328. September 1995. Pages 3-92 to 94, and 3-106.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

48-002(e) – Container Storage

Background: SWMU Report: A fifth storage area [48-002(e)] was identified as an active satellite container storage area in the 1988 LANL Active Container Storage Area Database. According to LANL personnel, it is located on the east side of Building TA-48-1.

RFI Work Plan: This area was used for many years for the storage of solvents such as cutting oil. All containers and other materials were removed from this area in 1989 or 1990. Rust stains were observed on the pavement on which drums were formerly stored [page 3-96 - 3-97].

Type of Release: Transuranic radionuclides and PCBs [LANL 1995, Pages 4-35 to 47]

Justification: Potential RCRA constituents exist at this site. The Permittees submitted a cessation of document review for the Addendum to the RFI in August of 1998; therefore, NMED has not reviewed the Addendum to the RFI Report. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26-TA-50*. LA-UR-90-3400. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for OU 1129*. Environmental Restoration Project. LA-UR-92-800. May 1992. Page 3-96 to 97.
3) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 48-001 48-002(e) 48-003 48-005 48-007(a) 48-007(b) 48-007(c) 48-007(d) 48-007(f) 48-010 (located in former Operable Unit 1129) Field Unit 4*. Environmental Restoration Project. LA-UR-95-3328. September 1995. Pages 4-35 to 4-47.
4) LANL 1997. Los Alamos National Laboratory. *Addendum to the RFI Report for Potential Release Sites at Technical Area 48.* Environmental Restoration Project. LA-UR-97-3112. September 1997.
5) LANL 1998. Los Alamos National Laboratory. *Subject: Temporary Cessation of Document Review*. Environmental Restoration Project. Correspondence August 24, 1998.

49-002 – Operational Facility (Area 10 Underground Chamber)

Background: SWMU Report: This unit, located at Building TA-49-62, consisted of two shafts, an elevator shaft and a calibration shaft 64-ft 3-in. deep and 6-ft in diameter connected at the bottom by a gallery 4-ft wide, 7-ft long and 7-ft high with a 14-ft diameter x 10-ft (max. height) calibration room. The room was lined with 8-in. reinforced concrete faced with a 1-in. steel plate. At one time the calibration room contained a lead-containing canister and lead bricks used as shielding. Radioactive materials were handled in the complex. Beryllium pieces may have been utilized as well.

RFI Work Plan: The elevator shaft, used to transport personnel and equipment, presently is covered by a heavy but removable concrete cover and the shaft is probably open at least part way to the bottom. The second shaft (the calibration shaft) was used to position a portable pulse neutron source over calibration samples placed at the bottom of the shaft and probably has been backfilled with local soil and crushed tuff. A hydraulic platform was located at the bottom of the calibration chamber and a hydraulic line led to an oil reservoir at the surface. The underground hydraulic system is probably still in place but the surface components have been removed [page 6.5-2].

Type of Release: During operation of the pulse neutron source over the calibration shaft, small amounts (milligrams or less) of enriched uranium may occasionally have spalled off the critical assembly. When spallation was noticed during operations, this material routinely was collected, but very small amounts conceivably could have eluded cleanup and fallen to the bottom of the shaft or been dispersed onto adjacent soils. Other potential contaminant sources at Area 10 are canisters containing lead and lead shielding bricks that were used in the calibration chamber. Various low-level radioactive source materials were handled in the complex, and beryllium pieces also may have been used [LANL 1992, Page 6.5-2].

Justification: Potential RCRA constituents exist at this site. The Permittees submitted a cessation of document review for the RFI Report in August 1998 (see reference number 5 below). Therefore, NMED has not completed review of the RFI Report. The site should remain on the permit until all necessary investigation and remediation are completed. Furthermore, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26-TA-50*. LA-UR-90-3400. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1144*. Environmental Restoration Project. LA-UR-92-900. May 1992. Pages 6.5-2.
3) LANL 1997a. Los Alamos National Laboratory. *RFI Report for Technical Area 49 Potential Release Sites (Areas 5, 6, 10, and 11) (located in former Operable Unit 1144) Field Unit 5*. Environmental Restoration Project. LA-UR-97-2786. August 1997. Pages 19, 21, and 23 to 35.

4) LANL 1997b. Los Alamos National Laboratory. *Addendum to the RFI Report for Potential Release Sites at Technical Area 48.* Environmental Restoration Project. LA-UR-97-3112. September 1997.
5) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter from LANL to NMED: Temporary Cessation of Document Review*. August 24, 1998.
6) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

49-005(b) – Landfill – Area 5

Background: SWMU Report: In addition to reopening the old landfill area in 1984 two small disposal areas were created. One is described as utilizing an existing sump or pit in Area 5 [49-005(b)].

RFI Work Plan: Available information, primarily from employee interviews, indicates that these small landfills were used solely to dispose of uncontaminated debris from the 1984 cleanup operations. Inspection of aerial photographs and field inspection of the most likely locations for these small landfills has failed to indicate the exact position of these units [page 6.3-11].

Type of Release: Antimony, copper, lead, silver, potassium, zinc [LANL 1997, Page 77-78].

Justification: Potential RCRA constituents exist at this site. The Permittees submitted a cessation of document review for the RFI Report in August 1998 (see reference number 4 below). Therefore, NMED has not completed review of the RFI Report. The site should remain on the permit until all necessary investigation and remediation are completed. Furthermore, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26-TA-50*. LA-UR-90-3400. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1144*. Environmental Restoration Project. LA-UR-92-900. May 1992. Pages 6.3-11.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Technical Area 49 Potential Release Sites (Areas 5, 6, 10, and 11) (located in former Operable Unit 1144) Field Unit 5*. Environmental Restoration Project. LA-UR-97-2786. August 1997. Pages 21, and 67-83 to 35.
4) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter from LANL to NMED: Temporary Cessation of Document Review*. August 24, 1998.
5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

49-008(a)– Soil Contamination – Area 5

Background: SWMU Report: Subsurface soil contamination may have occurred beneath buildings and structures, many now decommissioned, which were located within four separate areas of TA-49. There is a possibility of soil contamination from small-scale radiochemistry operations in Area 5 [49-008(a)]. A photo-processing trailer was present in the area, along with a photo tower, a timing and firing building, and several sheds. All structures in Area 5 were removed in 1984.

Waste consisted of the radionuclides plutonium, americium, uranium, cesium-137, and gross gamma, alpha, and beta emitters. Beryllium, lead, and silver may have been present, as well as acids, organics, volatiles, hydraulic oil, and grease.

RFI Report: PRS 49-008(a) is the surface soil in Area 5. The transformer stations are not identified as PRSs but are considered part of PRS 49-008(a). Lead and copper were detected above SALs in one surface sample, and PCBs were detected above the SAL in one sample and its duplicate at the western transformer station [page 67].

Type of Release: Depleted uranium, HE residues, plutonium-238, -239, and –240 and americium (LANL 1990), antimony, chromium, lead, mercury, magnesium, thallium copper, potassium, and zinc (LANL 1997, Page 75).

Justification: Potential RCRA constituents exist at this site. The Permittees submitted a cessation of document review for the RFI Report in August 1998 (see reference number 4 below). Therefore, NMED has not completed review of the RFI Report. The site should remain on the permit until all necessary investigation and remediation are completed. Furthermore, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26-TA-50*. LA-UR-90-3400. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1144*. Environmental Restoration Project. LA-UR-92-900. May 1992.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Technical Area 49 Potential Release Sites (Areas 5, 6, 10, and 11) (located in former Operable Unit 1144) Field Unit 5*. Environmental Restoration Project. LA-UR-97-2786. August 1997. Pages 67 and 70 to 83.
4) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter from LANL to NMED: Temporary Cessation of Document Review*. August 24, 1998.
5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

49-008(b)– Soil Contamination – Area 6

Background: SWMU Report: Subsurface soil contamination may have occurred beneath buildings and structures, many now decommissioned, which were located within four separate areas of TA-49. Unknown operations were conducted in Area 6 [49-008(b)] during 1959-61. Two craft shacks and two sheds were located in the area during that time. All of the structures have been decommissioned with the exception of shed TA-49-83.

Waste consisted of the radionuclides plutonium, americium, uranium, cesium-137, and gross gamma, alpha, and beta emitters. Beryllium, lead, and silver may have been present, as well as acids, organics, volatiles, hydraulic oil, and grease.

RFI Report: PRS 49-008(b) is the surface soil in Area 6. A portion of area 6 just north of Frijoles Mesa Drive and west of the main control area was developed as a general support area very early in the hydronuclear program. This portion included storage and office buildings and structures used by carpenters and electricians. An area approximately 400 ft^2 in size was used to store lumber, fencing, and steel. Cables, pipes, and sand for backfilling shafts also were stored there. All of these structures had been removed by 1977. Anecdotal information suggests that a small lead-casting shop may also have operated briefly in this area [pages 84-85].

Type of Release: Mercury, silver, thallium (LANL 1997, Page 88)

Justification: Potential RCRA constituents exist at this site. The Permittees submitted a cessation of document review for the RFI Report in August 1998 (see reference number 4 below). Therefore, NMED has not completed review of the RFI Report. The site should remain on the permit until all necessary investigation and remediation are completed. Furthermore, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26-TA-50*. LA-UR-90-3400. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1144*. Environmental Restoration Project. LA-UR-92-900. May 1992.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Technical Area 49 Potential Release Sites (Areas 5, 6, 10, and 11) (located in former Operable Unit 1144) Field Unit 5*. Environmental Restoration Project. LA-UR-97-2786. August 1997. Pages 84-90.
4) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter from LANL to NMED: Temporary Cessation of Document Review*. August 24, 1998.

5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

49-008(c)– Soil Contamination – Area 11

Background: SWMU Report: Subsurface soil contamination may have occurred beneath buildings and structures, many now decommissioned, which were located within four separate areas of TA-49. Structures located in Area 11 of TA-49 [49-008(c)] were used for radiochemistry operations. Experiments were performed in a trailer during the early period of operations from which spent solutions were drained to containers that were later taken for disposal. The change house/radiochemistry building TA-49-15 replaced the trailer and contained hoods and sinks for performing chemical operations. In September 1971 all the surface structures in Area 11 were decontaminated, demolished and removed.

Waste consisted of the radionuclides plutonium, americium, uranium, cesium-137, and gross gamma, alpha, and beta emitters. Beryllium, lead, and silver may have been present, as well as acids, organics, volatiles, hydraulic oil, and grease.

RFI Report: PRS 49-008(c) is the surface soil in Area 11. Possible surface soil contamination is from the small-scale shot area, the storage area, and the surface soils overlying the leachfield [page 35].

Type of Release: Plutonium-239/240, manganese, silver, uranium, aluminum, barium, calcium, chromium, cobalt, copper, iron, lead, magnesium, nickel, potassium, vanadium [LANL 1997, Pages 43-44, 46]

Justification: Potential RCRA constituents exist at this site. The Permittees submitted a cessation of document review for the RFI Report in August 1998 (see reference number 4 below). Therefore, NMED has not completed review of the RFI Report. The site should remain on the permit until all necessary investigation and remediation are completed. Furthermore, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26-TA-50*. LA-UR-90-3400. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1144*. Environmental Restoration Project. LA-UR-92-900. May 1992.
3) LANL 1997. Los Alamos National Laboratory. *RFI Report for Technical Area 49 Potential Release Sites (Areas 5, 6, 10, and 11) (located in former Operable Unit 1144) Field Unit 5*. Environmental Restoration Project. LA-UR-97-2786. August 1997. Pages 35 to 50.
4) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter from LANL to NMED: Temporary Cessation of Document Review*. August 24, 1998.

5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

49-008(d)– Firing Sites (bottle house area) – Soil Contamination Area and Underground Chamber (inactive)

Background: SWMU Report: Subsurface soil contamination may have occurred beneath buildings and structures, many now decommissioned, which were located within four separate areas of TA-49. High explosive confinement experiments were conducted in steel vessels placed in one or more of the 10-ft diameter, 30-ft deep shafts in Area 12 [49-008(d)]. The tests involved use of depleted uranium, and most of the energy absorbent for the experiments was salt. The salt was removed after each experiment and disposed of off-site. Multiple tons of salt were used during the experiments. In addition, a building in Area 12 was converted to a control room with hydraulic equipment, making hydraulic oils a potential contaminant. By 1983, the bottle house, TA-49-23, was the only structure remaining in Area 12.

At the time, waste consisted of plutonium, americium, uranium, cesium-137, and gross gamma, alpha, and beta emitters. Beryllium, lead, and silver may have been present, as well as acids, organics, volatiles, hydraulic oil, and grease. High explosive residues may have been present at Area 12.

VCA Completion Report: PRS 49-008(d) consists of the surface soils around two structures and a stained soil area. Structure 49-23, referred to as the Bottle House, is a small building (17-ft by 17-ft) located over a 10-ft-diameter 30-ft-deep backfilled shaft where confinement experiments were conducted. The shaft used for the confinement experiments was backfilled in the early 1960s, and no surface evidence of the shaft exists. Structure 49-121, referred to as the Cable Pull Test Facility, consists of a cement slab with a structure built on top designed to test the integrity of cables to be used in experiments. The stained soil area is a 10-ft-diameter surface depression located south of structure 49-121. The main historic activities in Area 12 were confinement experiments in 1960 and 1961 that were related to the TA-49 hydronuclear program. These experiments consisted of HE detonations in sealed metal “bottles” (up to 5-ft in diameter by 16-ft in length) placed in a 10-ft-diameter by 30-ft deep shaft [pages 1 to 2].

Type of Release: Uranium (metal), uranium-234, uranium-238 [LANL 1997, Pages 12-13]

Justification: Potential RCRA constituents exist at this site. The Permittees submitted a cessation of document review for the VCA Completion Report in August 1998 (see reference number 4 below). Therefore, NMED has not completed a review of the VCA Completion Report. The site should remain on the permit until all necessary investigation and remediation are completed. Furthermore, this site is listed in the 1990 SWMU Report and the “Under Investigation” lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26-TA50*4. LA-UR-90-3400. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1144*. Environmental Restoration Project. LA-UR-92-900. May 1992.
3) LANL 1997. Los Alamos National Laboratory. *VCA Completion Report for Potential Release Site at TA-49 49-008(d) Bottle House Soils.* Environmental Restoration Project. LA-UR-97-3809. October 1997. Pages 1 to 2, and 4 to 17.
4) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter from LANL to NMED: Temporary Cessation of Document Review*. August 24, 1998.
5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

50-001(b) – Waste lines and Manholes

Background: SWMU Report: Drainlines [50-001(b)] that transport liquid waste to the treatment facility are identified below. The waste treated at this facility is radioactive waste. It is suspected that some waste streams entering the plant contain hazardous constituents.

FROM	STATUS	WASTE MANAGED
TA-55 to TA-50-66	Active	Acidic and caustic waste
Collector manhole TA-50-72 to grit chamber in TA-50-1	Active	LL radioactive industrial waste
TA-50-69 and TA-50-37	Active	LL radioactive industrial waste
TA-2, -3, -35, -43, -48, and –52 via manhole TA-50-72	Active	LL radioactive industrial waste
Manhole at TA-50-7	Active	LL radioactive industrial waste
TA-55, via monitor pit TA-50-57 and manhole TA-50-72	Active	LL radioactive industrial waste

RFI Work Plan: This subunit is the underground drainline system through which liquid waste is transferred to the radioactive waste treatment facility from many of the active technical areas. Manhole TA-50-72 is the central collection area for most of the industrial liquid waste coming into TA-50. A major line connecting several technical areas to this manhole was constructed in 1982 to replace the old line [50-004(a)] that transported low-level radioactive liquids to TA-50. The new pipe is a double (8-in. within 12-in.) polyethylene pipe that enters manhole 72 from the north side of Pecos Drive [page 2-69].

TA-55 to TA-50-66 – Four stainless steel lines encased in plastic connect TA-55 to TA-50-66. One line carries acidic radioactive liquid waste, one carries caustic radioactive liquid waste, and one carries radioactive industrial waste. The fourth line is a spare and has never been used. These lines will not vacuum-test and were scheduled to be replaced with double-encased polypropylene lines in March 1992 [page 2-71].

Type of Release: Acidic radioactive liquid waste, caustic radioactive liquid waste, and industrial radioactive liquid waste [LANL 1992, Page 2-71]

Justification: Potential contaminants of concern exist at this site. The nature and extent of potential contamination has not been investigated. The Permittees cannot assume there is no unacceptable risk because neither a human health or ecological risk assessment have been completed. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the “Under Investigation” lists [Unit No. 50-001(b)] in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26 - TA-50*. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1147*. Environmental Restoration Project. May 1992. Pages 2-69, 2-71 and 5-13 – 5-16.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

50-002(d) – Underground Tanks

Background: CEARP: This site consists of three stainless steel, underground storage tanks, encased in concrete at the TA-50-3 tank farm. They range in capacity from 1,000 to 4,500 gallons. These tanks were used to store waste from the Omega West reactor and could be used in an emergency for storage of other waste.

SWMU Report: Contradictory to the CEARP, 50-002(d) is described as an outdoor, aboveground storage tank, (TA-50-5) located adjacent to the north wall of Building TA-50-1. The tank is used to store nitric acid and is associated with a concrete containment structure.

RFI Work Plan: Similar to the SWMU Report, 50-002(d) (TA-50-5) is described as an aboveground, 4000-gallon, stainless-steel storage tank for nitric acid. It is located adjacent to the north wall of Room 60D of Building TA-50-1. The nitric acid was intended to recharge an ion-exchange column for removing radionuclides not removed by the clariflocculator system. The tank is supported by concrete saddles and is placed over a pit (TA-50-12) filled with limestone chips to neutralize any nitric acid fumes that escape the tank. The pit also has retaining walls to hold any spillage. The footings for the tank saddles are about 4-ft below grade and the bottom of the pit is about 2.5-ft below grade.

The concentration of radioisotopes in the radioactive industrial waste influent has always been below the accepted DOE limits. For this reason, the ion-exchange column and nitric acid tank have never been used as intended. At present, the tank is about one-quarter full. It is scheduled to be emptied and left empty unless the ion-exchange columns have to be operated. In that event, the tank would be filled with sulfuric acid instead of nitric acid because of the nitrate problems that develop when nitric acid is neutralized [page 2-17].

Type of Release: Nitric acid (LANL 1992, Page 2-17)

Justification: Potential RCRA constituents exist at this site. The nature and extent of contamination have not been defined. The Permittees cannot assume there is no unacceptable risk because neither a human health nor an ecological risk assessment have been completed for this site. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, the site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages TA50-4.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26 - TA-50*. Revised November 1990.

3) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1147*. Environmental Restoration Project. May 1992. Pages 2-17, 2-40 and 5-4 to 5-13.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

50-003(a) – Container Storage

Background: SWMU Report: There are five drum storage areas in conjunction with the Radioactive Waste Treatment Facility. The primary storage is located in Building 1, Room 60D [50-003(a)]. The source of the waste is the cementing unit in Room 60A.

RFI Work Plan: SWMU 50-003(a) is a greater-than-90-day storage area located in Room 60D in the northeast corner of the east wing of Building TA-50-1. It contains transuranic (TRU) waste produced by treatment of the acid and caustic wastes from TA-55. The waste is mixed with water, glass, vermiculite, and cement and then stored in drums, which are periodically hauled to TA-54. This waste will eventually be shipped to the Waste Isolation Pilot Plant (WIPP) site [page 2-17].

Type of Release: TRU waste (LANL 1992, Page 2-17)

Justification: Potential contaminants of concern exist at this site. An investigation has not been conducted to define the nature and extent of contamination. The Permittees cannot assume there is no unacceptable risk because neither a human health nor an ecological risk assessment has been conducted at this site. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26 - TA-50*. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1147*. Environmental Restoration Project. May 1992. Pages 2-17 and 5-10.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

50-007 – Incinerator

Background: CEARP: The Treatment Development Facility (TA-50-37) was designed and constructed to develop incineration methods for transuranic wastes. A controlled air incinerator has been operated for these types of wastes and for wastes emitting beta/gamma, ion exchange resins, carcinogens, and other hazardous wastes (including PCBs) in both solid and liquid form [page 50-7].

SWMU Report: The incinerator is located in Room 112 and the feed system is located in Room 115 of Building 37. The liquid feed system prep room is bermed and contains no floor drains. The inventory permitted in this room is 600 gallons and release containment is designed to 110 percent of the maximum inventory. The containers are opened and handled under a barrel hood with an exhaust blower capacity of about 1000 cfm. An off-gas treatment unit is associated with the incinerator complex. The exhaust air system from the room includes two HEPA filters.

RFI Work Plan: Incinerator equipment was upgraded and all process piping was changed from fiberglass to CT76-Hasteloy. According to the RFI Work Plan, a sampling train (to take samples off the process line) and a gravity ash system were designed, but construction had not yet been scheduled at the time the work plan was written [pages 2-32 to 33].

Type of Release: Aroclor 1254, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo[g,h,i]perylene, beryllium, benzo(k)flouranthene, cadmium, chromium (total), dibenzo(ah)anthracene, indeno(1,2,3-cd)pyrene, phenanthrene, silver, cobalt-60, and radium-226 [LANL 1995, Page 32].

Justification: The Permittees submitted a cessation of document review for the RFI Report on August 24, 1998. Neither a human health or ecological risk assessment were conducted at this site, therefore, the Permittees cannot assume there is no unacceptable risk. The site should remain on the permit until all necessary investigation and remediation have been completed. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages TA50-7.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26 - TA-50*. Revised November 1990.
3) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1147*. Environmental Restoration Project. May 1992. Pages 2-32 to 33..

4) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 50-006(c), 50-007, 50-008, 50-006(a) (located in former Operable Unit 1147) Field Unit 5, Environmental Restoration Project.* September 1995. Page 32.
5) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter from LANL to NMED: Temporary Cessation of Document Review*. August 24, 1998.
6) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

50-008 – Reduction Site

Background: CEARP: The Site Reduction Facility (TA-50-69) was a prototype facility designated to repackage and reduce the volume of various types of metallic waste items contaminated with transuranics. Operations were initiated in August 1983. Through Fiscal Year (FY) 1985, a total volume of 3,106 ft^3 of transuranic-contaminated waste has been reduced by a factor of 3.7 to 1. This facility is moderately contaminated with transuranics and associated radionuclides. [Page TA50-7]

Type of Release: Aroclor 1254, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo[g,h,i]perylene, beryllium, benzo(k)flouranthene, cadmium, chromium (total), dibenzo(ah)anthracene, indeno(1,2,3-cd)pyrene, phenanthrene, silver, cobalt 60, and radium 226 [LANL 1995, Page 32].

Justification: The Permittees submitted a cessation of document review for the RFI Report on August 24, 1998. No human health or ecological risk assessments were conducted at this site, therefore, the Permittees cannot assume there is no unacceptable risk. The site should remain on the permit until all necessary investigation and remediation have been completed. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages TA50-7.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26 - TA-50*. Revised November 1990.
3) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1147*. Environmental Restoration Project. May 1992.
4) LANL 1995. Los Alamos National Laboratory. *RFI Report for Potential Release Sites 50-006(c), 50-007, 50-008, 50-006(a) (located in former Operable Unit 1147) Field Unit 5, Environmental Restoration Project.* September 1995. Page 32.
5) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter from LANL to NMED: Temporary Cessation of Document Review*. August 24, 1998.
6) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

50-010– Decontamination Facility

Background: CEARP: The site is described as a radioactive decontamination facility for the Laboratory, located in the lower level at the south end of Building TA-50-1. Liquid wastes go to the tank farm.

SWMU Report: The facility is used to clean radioactive contamination from vehicles and other objects. Liquid wastes produced during decontamination go to the tank farm at TA-50 via floor drains and drainlines, and solid wastes go to TA-54 for storage (TRU) or burial (low-level). The decontamination takes place at the facility in hoods, gloveboxes, and open areas.

RFI Work Plan: The vehicle decontamination pad is located between Buildings TA-50-1 and TA-50-2. Contaminated acids from the "Tuff Tanks" hauled in from other technical areas are also pumped into the floor drain, either directly to TA-50-2 or to TA-50-1, where they are neutralized and then sent to TA-50-2. The vehicle decontamination pad has been in use since 1963. In 1983, it was enclosed in a metal building. All TRU-contaminated equipment is decontaminated in Room 36 of Building TA-50-1, not in the vehicle decontamination facility. For TRU decontamination, the floor drain in Room 36 is blocked and the equipment is manually wiped down. The wiping material and the waste are collected in plastic bags, which are then sealed in steel, 55-gallon drums [page 2-33].

Type of Release: TRU, and other radionuclides (LANL 1992, Page 2-33)

Justification: Potential contaminants of concern exist at this site. The nature and extent of contamination has not been defined. No human health or ecological risk assessments have been completed at this site, therefore the Permittees cannot assume there is no unacceptable risk. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, the site is listed in the 1990 SWMU Report and the "Under Investigation" lists [Unit number 50-010] in the 1998 and 2000 Installation Work Plans.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2. Pages TA50-8.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26 - TA-50.* Revised November 1990.
3) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1147.* Environmental Restoration Project. May 1992. Page 2-33.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

50-011(b)– Septic System

Background: SWMU Report: The site is described as an active sanitary waste system of drainlines [50-001(b)]. It was installed in 1983 to discharge sanitary sewage from TA-50 to the treatment lagoons at TA-35. The lines are 6-inch, ductile, iron pipe and were installed to replace the earlier septic tank system. The drainlines are operational and subject to monitoring.

RFI Work Plan: Effluent lines exit near the southwest and the northwest corners of Building 1 and drain to lift stations. The sewage is pumped through 4-in. laterals at each lift station to a new 6-in. main on the west side of the building. The 6-in. main runs across Pecos Drive to a sanitary sewer manhole, then it joins the 5-in. gravity main to the disposal plant in the TA-35 area [page 2-34].

Type of Release: Unknown

Justification: Contaminants of concern potentially exist at this site. The nature and extent of contamination has not been defined. No human health or ecological risk assessments have been completed at this site, therefore the Permittees cannot assume there is no unacceptable risk. Furthermore, the Permittees have not demonstrated that this was not a routine and systematic release. Additionally, the site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26 - TA-50*. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1147*. Environmental Restoration Project. May 1992. Page 2-34.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-50-001 – Transformer

Background: Unknown.

Type of Release: Unknown, possibly PCBs and solvents.

Justification: Contaminants of concern potentially exist at this site. The nature and extent of contamination has not been defined. No human health or ecological risk assessments have been completed at this site; therefore, the Permittees cannot assume there is no unacceptable risk. There is virtually no information available regarding this site; therefore it must be included on the LANL RCRA/HSWA Permit. Additionally, the site is listed in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. Finally, this SWMU is included in the Draft: General Watershed Aggregate Prioritization, Mortandad Watershed.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program Phase 1: Installation Assessment, Los Alamos National Laboratory*. October 1987. Volume 1 of 2.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. III of IV, TA-26 - TA-50*. Revised November 1990.
4) LANL 1999. Los Alamos National Laboratory. *Draft: General Watershed Aggregate Prioritization, Mortandad Watershed*. January 1999.
5) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

51-001–Septic System

Background: SWMU Report: 51-001 is described as a 1000-gallon septic tank, which serves Building TA-51-30 and discharges to seepage pit TA-51-31.

RFI Work Plan: The septic system (SWMU 51-001) [now inactive] provides service to the offices of the EETF including structures TA-51-03, a 1000-gal septic tank, and TA-51-31, a seepage pit. The seepage pit is 4-ft in diameter and 50-ft deep. The septic tank is connected to the seepage pit by a 4-in.-diameter vitrified clay pipe buried in a 2-ft, 6-in.-deep trench. The vitrified clay pipe connects to a 4-in.-diameter perforated PVC drop pipe that extends to within 2-ft of the bottom of the pit. The pit is backfilled with screened gravel. The NMED registration number for the septic system is LA-53. The system was installed in 1983. It serves the Environmental Research Lab (Structure TA-51-11) and the Environmental Science Lab (Structure TA-51-12). Transportable offices for the Laboratory's Health Physics Policy and Programs Group (HS-12, Structures TA-51-25, -26, and –27) were connected to the septic system when they were placed at TA-51 in 1986. Sampling to confirm the absence of contamination will be done after the facilities at TA-51 are connected to a sanitary line installed by the Laboratory's Sanitary Wastewater Systems Consolidation (SWSC) Program. According to the work plan, the sanitary line was scheduled to be in operation in 1992 [page 5-282].

Type of Release: Isotopic plutonium, isotopic uranium, gamma-emitters, tritium, chloroethane, and 1,2-dichloroethane [LANL 2000a, page 6].

Justification: RCRA constituents exist at this site. The site has not been adequately investigated and therefore, nature and extent of contamination has not been defined. No human health or ecological risk assessments have been completed at the site, therefore the Permittees cannot assume there is no unacceptable risk. Additionally, the site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-282.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000a. Los Alamos National Laboratory. *Voluntary Corrective Action Plan for Potential Release Sites 51-001 and 54-007(d).* Environmental Restoration Project. August 2000. LA-UR-00-3617. Page 6.
5) LANL 2000b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2002. Los Alamos National Laboratory. *Subject: Responses to the Department of Energy (DOE) Comments on the Voluntary Corrective Action (VCA) Completion Report for Potential Release Sites (PRSs) 51-001 and 54-007(d).* Environmental Restoration Project. August 7, 2002, ER2002-0535.

C-51-001– Container Storage

Background: RFI Work Plan: At the time the SWMU Report was written, drums of clean soil were present at the research caisson, TA-51-38. The soil was used in research at the caissons. The drums of soil were listed as AOC C-51-001 in the 1990 SWMU Report. There were no drums present at the site during a visit on August 22, 1991.

Type of Release: Unknown

Justification: There is virtually no information available regarding this site. The site should be included on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51-TA*-74. LA-UR-90-3400. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 6-9.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-51-002– HE Storage Magazines (formerly 18-005 (b,c))

Background: SWMU Report: TA-18-11 [18-005(b)] and TA-18-12 [18-005(c)] were high explosives storage magazines. They were located at the far north end of TA-18. Both were removed in 1960.

RFI Work Plan: The SWMU Report listed the former locations of two explosives magazines as AOC C-51-002. The exact locations and dimensions of the magazines are unknown. The date that the structures were removed is also unknown. One of the structures was reportedly located north of a Laboratory water supply storage tank (TA-54-1006); the other was reportedly located north of the former Animal Holding Facility (TA-54-15). A site visit on April 16, 1992 to the area where the explosives magazines were located determined that there is no physical evidence of the former location of either magazine. The reported areas where the magazines were located are presently within the area of construction of the new Sanitary Wastewater Consolidation System line that will service facilities in TA-51 and the western part of TA-54. The ground surface in this area has been regraded due to trenching to install the new buried sanitary line.

Type of Release: HE contamination was reported in 18-005(b) and (c) in 1959. A 1988 E.R. program site visit showed slightly elevated beta/gamma and gamma readings (CEARP 1987).

Justification: Potential contaminants of concern exist at this site. Known discharge to trenches and the outfall occurred. No sediment or water samples were taken to define nature and extent of contamination. No human health or ecological risk assessments were conducted at this site, therefore, the Permittees cannot assume there is no unacceptable risk. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) DOE 1987. Department of Energy. *Draft: Comprehensive Environmental Assessment and Response Program Phase 1: Installation Assessment, Los Alamos National Laboratory.* October 1987. Volume 1 of 2.
2) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. II of IV, TA-51-TA*-74. LA-UR-90-3400. Revised November 1990.
3) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for OU 1148*. Environmental Restoration Project. LA-UR-92-855. May 1992. Page 6-15.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

52-002(g)–Septic System

Background: SWMU Report: 52-002(g) is described as a 3,000-gallon septic system serving structure TA-52-95.

RFI Work Plan: SWMU No 52-002(g) (TA-52-95) is a 3,000-gallon holding tank installed in 1989 or 1990 to serve new transportable offices located west of TA-52-33. The tank is located southwest of TA-52-33 [page 3-115].

Type of Release: Cobalt-60, uranium-235, and solvents (LANL 1992, Page 3-117)

Justification: RCRA constituents potentially exist at this site. The site has not been adequately investigated, therefore, nature and extent of contamination has not been defined. Permittees cannot assume there is no unacceptable risk because no human health or ecological risk assessments have been completed. Additionally, the site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for OU 1129*. Environmental Restoration Project. LA-UR-92-800. May 1992. Page 3-115 – 3-117.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

53-008 - Storage Area, Boneyard

Background: SWMU report: 53-008 is described as a boneyard located northeast of the TA-53 lagoons covers 3 to 4 acres and is underlain by soil. The boneyard contains several locked trailers, the contents of which are unknown. Several drums of unknown contents are also present. The CEARP identifies three main boneyard areas containing material of various shapes and descriptions including steel shielding blocks, concrete, radioactively contaminated or activated equipment and general debris. In 1990, an effort was made to clean up the boneyard.

RFI Work Plan: Magnetite concrete and steel shielding blocks, miscellaneous items, and a "Lead Shed" were observed during a September 1993 site inspection in conjunction with the RFI work plan. Signs posted in the Lead Shed warn of potential hazards from airborne lead dust. The Permittees proposed a sampling design for this SWMU [page 5-60].

Type of Release: Possibly radionuclides and lead [LANL 1994, page 5-60]

Justification: Because AOC 53-008 is an active storage area; investigation into the site has been limited to collecting a small number of soil samples. The number and locations of stored items changed frequently, therefore, the samples do not provide adequate information about potential contaminants. Corrective action will be deferred at this site until the storage area is no longer in use. The site should remain on the permit until investigation and/or remediation are completed. Additionally, the site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. _IV_ of IV, TA-51-TA*-74. LA-UR-90-3400. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1100*. Environmental Restoration Project. May 1994. Page 5-60.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2004. Los Alamos National Laboratory. *Investigation and Remediation Report for Consolidated SWMU 53-002(a)-99, Inactive Wastewater Impoundments, and AOC 53-008, Storage Area, at Technical Area 53.* LA-UR-03-9119. January 2004. Page 6-7.
6) LANL 2005. Los Alamos National Laboratory. *Letter: Response to the Notice of Disapproval for the Investigation and Remediation Report for the Consolidated SWMU 53-002(a)-99, Inactive Wastewater Impoundments, and AOC 53-008, Storage Area, at Technical Area 53.* July 7, 2005. ER-2005-0444.

53-009 – Aboveground Tanks (3)

Background: SWMU Report: Three above ground tanks that store liquid scintillation fluid are located to the north of the lagoons. These tanks are surrounded by an earthen berm that would contain liquids in the event of a spill.

RFI Work Plan: When this area was inspected in conjunction with work plan preparation, the bermed storage area was found to have been removed. In its place were two new container storage areas, identified as Structures TA-53-1071 and TA-53-1072. These structures, each of which measures 60-ft by 30-ft, were made of 3-ft-high welded steel plates with a galvanized steel-supporting framework. The walls and the floors were lined with large sheets of 1/8-in. thick butyl rubber, to contain spills (the sheets overlap but are not welded).

The western enclosure, TA-53-1071, contained three large, aboveground tanks, each containing 30,000-gallons of liquid scintillation oil; and 30, 55-gallon drums that collectively contained 165 gallons of liquid scintillation oil. The drums were covered with a canvas tarp. The eastern enclosure, TA-53-1072, contained four large, aboveground tanks that were empty and 141, 55-gallon drums that collectively contained 7,755 gallons of liquid scintillation oil. These drums were also securely covered with canvas tarp.

Type of Release: Liquid scintillation oil (LANL 1994, Page 6-33)

Justification: According to the RFI Work Plan, this site was proposed for Deferred Action (DA) because it was active. The Permittees determined this site did not pose an unacceptable current risk and that investigation could be deferred. Therefore, the Permittees have not determined nature and extent or whether this site poses a threat to human health and the environment. Furthermore, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51-TA*-74. LA-UR-90-3400. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1100*. Environmental Restoration Project. May 1994. Page 6-33
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

53-010 – Container Storage

Background: SWMU Report: Two large (3,000 gallon) tanks and eighteen 55-gallon drums labeled "Mineral Oil Based Liquid Scintillator" were noted during the 1989 RCRA audit. The tanks and drums were stored in a plastic lined, soil bermed area southeast of TA-53-30. The tanks and drums contained mineral-oil-based liquid scintillator containing a small percentage of pseudocumene (1,2,4-tirmethylbenzene). According to the SWMU Report, the drums and tanks of oil have were moved into secondary containment prior to reuse. Two small areas of oil-stained soil were noted before removal of the tanks and drums. This soil was disposed of in TA-54, Area G.

RFI Work Plan: This area was inspected in September 1993 as part of the RFI work plan preparation. The storage area measured approximately 22-ft by 34-ft with 2-ft-high berms made of soil. The interior slopes of the berms and the floor were lined with a reinforced, welded geomembrane and covered with a protective layer of soil. Erosion of this layer around the top of the interior slope had exposed the synthetic liner to sunlight, causing localized deterioration (the liner over the lower portions of the berm and the floor appeared to be intact).

Type of Release: 1,2,4-trimethylbenzene and other VOCs (LANL 1995, Page 6)

Justification: EPA issued a NOD for the VCA Report on November 7, 1997. The NOD stated that; 1) The Permittees must explain what analytical methods were used for confirmatory sampling, 2) did the Permittees analyze for TPH based on the elevated levels that were detected (5100 mg/kg) and, 3) why do all soil samples represented in Table 1 show they were collected at 0'0"? The Permittees did not submit a response to the NOD or a revised VCA Report. RCRA constituents exist at this site. Furthermore, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. This site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51-TA*-74. LA-UR-90-3400. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1100*. Environmental Restoration Project. May 1994. Page 5-60.
3) LANL 1996. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for Potential Release Sites 20-003(c) & 53-010 Field Unit 2*. Environmental Restoration Program. LLA-UR-96-1089. April 19, 1996. Page 5.
4) EPA 1997. Environmental Protection Agency (EPA). *Letter from EPA to NMED: Review of LANL VCA Completion Report for PRSs 20-003(c) and 53-010.* November 7, 1997.
5) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Subject: Temporary Cessation of Document Review*. August 24, 1998.

6) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
7) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

53-012(e) – Outfall

Background: SWMU Report: This outfall was connected to the cooling tower of beam stop. It is not known whether the cooling tower water could be contaminated with radionuclides because of leaks in the heat exchangers. Various scale and corrosion control compounds, as well as chemical cleaners, have been added to the water. This outfall was associated with building TA-53-64. 140,000-gallons per day of water is discharged into Los Alamos Canyon by TA-53-60, -62, -64. The extent of hazardous or radioactive releases is unknown.

RFI Work Plan: 53-012(e) is a drain line and outfall for discharges from TA-53-2, the Equipment Test Laboratory (ETL). It discharges treated cooling water from the ETL cooling tower at an average flow of 2.9-gallons per minute (currently under a NPDES permit). This outfall was characterized under the TA-53 wastewater stream characterization study. The report indicates that 12 trench drains, 2 sink drains, and a floor drain are connected to this outfall. One of the trench drains carries blowdown water from the cooling tower at Building TA-53-2. Discharges carried by the other trench drains include equipment-flushing and floor-washing wastewaters from the Klystron Lab and equipment-drainage liquid from the Furnace Room. The various discharges drain to a sump pit outside the southwest corner of Building TA-53-2. From there, discharge goes to a drainline that runs south, underneath the parking lot south of TA-53-2, to a drainage ditch. The ditch carries the discharges southwest to the rim of Sandia Canyon [pages 74-76]. A sample of the cooling tower water has been analyzed and shows chromium, nickel, and thallium present in concentrations above screening action levels for water. No sediment below the outfall or discharges from the outfall has been sampled [page 76].

Type of Release: Chromium, copper, lead, mercury, nickel, zinc, alpha-chlordane, aroclor-1248, aroclor-1254, and aroclor-1260 (LANL 1996, Pages 5-68 – 5-69)

Justification: EPA issued a second NOD for the response and RFI Report on July 23, 1997. The NOD stated that it appeared appropriate not to add 53-012(e) to the LANL RCRA/HSWA Permit. RCRA constituents potentially exist at this site. The Permittees have not demonstrated that this was not a routine and systematic release. The site should remain on the permit until all necessary investigation and remediation are completed. Furthermore, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51-TA*-74. LA-UR-90-3400. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1100*. Environmental Restoration Project. May 1994. Page 5-74 to 5-88.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release sites at TA's –20, -53, and –72, Field Unit 2*. LA-UR-96-906. March 1996. Pages 5-65 – 5-70

4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-001(b) – Less than 90 Day Storage Area

Background: SWMU Report: This is a site in Area L where chemical waste containers are accumulated for packaging and storing at TA-54-31. The packaging site [54-001(b)] manages, primarily, lab pack quantities of hazardous waste.

RFI Work Plan: Chemical waste containers are accumulated for packaging and storing at TA-54-31 [SWMU 54-001(b)]. The building is 13.5-ft by 14.5-ft and has a total storage capacity of 440-gal, or eight 55-gal drums. Secondary containment mechanisms are present inside the building in the form of three shallow sumps, 6-in. deep; one is 7-ft by 6-ft, and the other two are 6-ft by 4-ft. The building is surrounded by a paved drainage diversion ditch to prevent run-on [page 5-102].

Type of Release: Solvents, oils, gas cylinders, mixed waste, miscellaneous chemicals, and coolants [LANL 1990].

Justification: Potential contaminants of concern exist at this site. The site has not been investigated, therefore, nature and extent of contamination has not been defined. Furthermore, a human health or ecological risk assessment has not been completed for this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-102.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-001(d) – Less than 90 Day Storage Area

Background: SWMU Report: Building TA-54-39 [54-001(d)] is used to store PCB waste in Area L. Most hazardous waste types are managed at these locations. This includes the storage of solvents, oils, gas cylinders, mixed waste, miscellaneous chemicals, and coolants.

RFI Work Plan: PCB-contaminated wastes are stored at MDA L until final disposition. SWMU 54-001(d) consists of a PCB building (TA-54-39) and a PCB storage pad (TA-54-81). The building is a roofed structure measuring 40-ft by 40-ft. The PCB building has a design storage capacity of 20,000-gallons of waste stored in 55-gallon drums. The building has a bermed concrete floor forming a sump. The bermed concrete storage pad is covered and has a back wall made of sheet metal. The storage pad measures 59-ft by 17-ft. It has a capacity of 8,000-gallons and incorporates a secondary containment system [page 5-102].

Typical materials handled at the facilities include transformer and capacitor oil contaminated with PCBs, carcasses from transformers and capacitors, debris, protective clothing, soil contaminated with PCBs, and storm water from secondary containment systems around above-ground tanks [page 5-102].

Type of Release: PCBs [LANL 1995, page 5-102]

Justification: The RFI Work Plan proposed that Phase I Sampling include analyses for PCBs to investigate migration away from the MDA. The potential for contaminants of concern exist at this site. The site has not been investigated to date, therefore, nature and extent of contamination has not been defined. Furthermore, a human health or ecological risk assessment has not been completed for this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-102.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-001(e) – Less than 90 Day Storage Area

Background: SWMU Report: Another storage area in Area L, TA-54-32 [54-001(e)], is a concrete pad divided into six cells, each with a collection sump. The area is roofed and the drums are stored on grating and pallets. Most hazardous waste types are managed at these locations. This includes the storage of solvents, oils, gas cylinders, mixed waste, miscellaneous chemicals, and coolants.

RFI Work Plan: TA-54-32 [SWMU 54-001(e)] is a concrete pad built in 1987. It is 15.5-ft by 106-ft, and has a capacity of 16,720-gallons, or 304, 55-gallon drums. It is covered by a metal roof and has a sheet metal wall along its northwest side. Fiberglass or metal grating lies above the floor of each cell so that waste drums are elevated several inches above the floor. The floor of each cell slopes toward a sump. The secondary containment volume is significantly greater than the required 10% of maximum volume of liquid waste stored on the pads. The concrete pads are coated with a sealant and maintained in good condition [page 5-103].

Type of Release: Unknown

Justification: Contaminants of concern potentially exist at this site. For example, it is unclear how this waste was managed before 1987 when the pads were constructed. The site has not been investigated. The site has not been investigated to date, therefore, nature and extent of contamination has not been defined. Furthermore, a human health or ecological risk assessment has not been completed for this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-103.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-002–Gas Cylinder Storage Areas

Background: SWMU Report: Compressed gas cylinders are stored at various locations throughout Area L. The cylinders contain hazardous and mixed waste. They are stored at these locations until detonated by LANL.

RFI Work Plan: MDA L provides for storage of containerized gasses until they can be treated and/or disposed of off site. The cylinders are stored in racks along the southern and eastern fence line in the eastern part of MDA L. The gasses are classified as mixed, hazardous, and nonhazardous wastes. They are managed in compliance with the RCRA permit or RCRA interim status and are handled in a manner that meets Laboratory safety requirements. Most of the gas cylinders stored at MDA L have had their contents analyzed and are awaiting shipment off site for final disposition. From July 1990 to July 1991, the Laboratory was involved in a project to retrieve and identify waste compressed-gas cylinders throughout the Laboratory. A group of cylinders, the contents of which are unknown, is being stored indefinitely at MDA L until their contents can be analyzed and the cylinders treated and/or disposed of off site.

Type of Release: unknown

Justification: Contaminants of concern potentially exist at this site. For example, it is unclear how this waste was managed before 1990. The site has not been investigated to date, therefore, nature and extent of contamination has not been defined. Furthermore, a human health or ecological risk assessment has not been completed for this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, these sites are listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-103.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-007(d)–Septic System

Background: SWMU Report: Septic system 54-007(d) serves structure TA-54-4. It has a 972-gallon capacity and overflows to a leach field.

RFI Work Plan: The septic system includes a 972-gallon tank that is connected to a trench constructed with 4-in.-diameter drain tile. The NMED registration number for the septic system is LA-51. The system was installed in 1962 at the time of the construction of the Radiation Exposure Facility. The Radiation Exposure Facility conducted research on the exposure of animals to gamma radiation from cobalt-60 sources. The research was conducted from 1962 to the mid-1970s. The three cobalt-60 sources (10, 100, and 1,000 Ci) were removed when the radiation exposure research was completed. From the mid-1970s to the mid-1980s, structures at the former Radiation Exposure Facility were used to house animals including mice, dogs, sheep, miniature swine, and cows. These animals were used in biomedical research on exposure to fiberglass, oil-shale dust, and oil-shale retort gasses. Animal wastes were routinely removed from the facility for disposal in a sanitary landfill.

The septic system for the former Radiation Exposure Facility has received sanitary waste and animal waste. There is no indication that radioactive or hazardous waste was disposed to the septic system. Sampling to confirm the presence or absence of contamination will be done after the facilities in the western part of TA-54 are connected to a sanitary line to be installed by the Laboratory's SWSC Program [pages 5-286 to 5-288].

Type of Release: Toluene, chloroethane, 1,2-dichloroethane, and acetone [LANL 2000a, page 8].

Justification: According to DOE's review of the Voluntary Corrective Action Completion report (not viewed by NMED), no soil borings were advanced to investigate this site. RCRA constituents potentially exist at this site. The site has not been fully investigated, therefore, nature and extent of contamination has not been defined. A human health or ecological risk assessment have not been completed for this site, therefore, the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-286 through 5-288.

3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000a. Los Alamos National Laboratory. *Voluntary Corrective Action Plan for Potential Release Sites 51-001 and 54-007(d).* Environmental Restoration Project. August 2000. LA-UR-00-3617. Page 8.
5) LANL 2000b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2002. Los Alamos National Laboratory. *Subject: Responses to the Department of Energy (DOE) Comments on the Voluntary Corrective Action (VCA) Completion Report for Potential Release Sites (PRSs) 51-001 and 54-007(d).* Environmental Restoration Project. ER2002-0535. August 7, 2002.

54-009–Aboveground Tanks (treatment tanks)

Background: SWMU Report: Four former treatment tanks (TA-54-35) are present in Material Disposal Area L. The tanks are 1,665-gallons each and are constructed of carbon steel and lined with plastic. One mixing tank is also present. It has a 210-gallon capacity and is constructed of stainless steel. The tanks are located on a bermed concrete pad. These tanks treat ammonium bifluoride solutions and lithium hydride solutions that were used to clean cooling towers. Other wastes are barium sand and radioactively contaminated lithium hydride.

RFI Work Plan: Barium-contaminated sand from burn pads located at other areas of the Laboratory is treated in four 1,665-gallon carbon steel open-top tanks. The tanks were installed in 1988. They are 9-ft in diameter and 3.5-ft high. One 210-gallon mixing tank constructed of stainless steel is also present. All five tanks are located on a bermed concrete pad with a containment capacity of 3,554-gallons [page 5-103].

The tanks, operated in compliance with the Laboratory's RCRA permit, are used primarily to treat sands containing barium in excess of TCLP limits. Barium is precipitated as a nonhazardous (barium sulfate) salt in the tanks, drummed and shipped to MDA J. The treated sand is also disposed of at MDA J. In the past, the tanks were used to treat ammonium bifluoride, neutralize acids and bases, and oxidize reactive wastes. However, due to safety considerations, the tanks are no longer used for these purposes [page 5-103].

Type of Release: Ammonium bifluoride, lithium hydride, barium, and radionuclides [LANL 1995, page 5-103]

Justification: RCRA constituents potentially exist in the soil at this site. Nature and extent of contamination in the soil has not been defined. Furthermore, a human health or ecological risk assessment has not been completed at this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-103.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-012(a)–Former Reduction Site (Drum Compactor)

Background: SWMU Report: A compactor [54-012(a)] used to compact radioactive solid waste is located at Area G, inside operations building TA-54-2. The wastes compacted by 54-012(a) contain radionuclides. In previous years, hazardous wastes may also have been present.

Type of Release: Radionuclides and other unknowns (LANL 1995, Page 5-182)

Justification: RCRA constituents potentially exist in the soil at this site. Therefore, nature and extent of contamination in the soil has not been defined. Furthermore, a human health or ecological risk assessment has not been completed at this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-182.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-014(a)–MDA L Storage Shafts (Pb stringer shafts)

Background: SWMU Report: Lead stringers are stored in two shafts [54-014(a)] at the southwest corner of Area L. The RFA indicated that one shaft is 30-ft deep, and has a metal liner and a concrete bottom. The lead stringers are steel rods filled with lead shot, and are noted to be "very hot 40 R/L." The two shafts are capped with concrete.

RFI Work Plan: Lead stringers are stored in two shafts at the northwest corner of MDA L. Lead stringers are steel rods filled with irradiated lead and concrete. One shaft is 30-ft deep and has a metal liner and a concrete bottom. No information is available regarding the construction design of the second shaft. The two shafts are capped with a concrete shielding block. The shafts are managed under RCRA interim status authority as container storage units.

Type of Release: Radioactively contaminated lead (LANL 1990)

Justification: RCRA constituents potentially exist in the soil at this site. Therefore, nature and extent of contamination in the soil has not been defined. Furthermore, a human health or ecological risk assessment has not been completed at this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-104.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-015(a)–Storage Area (surface corrosive inhibitor)

Background: SWMU Report: Several areas used for the surface storage of TRU waste are present in TA-54 West and in Areas L and G. There is a TRU drum storage area [54-015(a)] at TA-54-8 where drums are stored on plywood inside a 15-ft x 40-ft x 12-ft high metal shed prior to being sprayed with a corrosion inhibitor.

Type of Release: TRU waste, oil, and grease (LANL 1990)

Justification: RCRA constituents potentially exist in the soil at this site. Nature and extent of contamination in the soil has not been defined. Furthermore, a human health or ecological risk assessment has not been completed at this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-182.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-015(b)–Storage Area - TRU surface storage

Background: SWMU Report: Several areas used for the surface storage of TRU waste are present in TA-54 West and in Areas L and G. There is also a site [54-015(b)] 100-ft southwest of TA-54-11 in Area G where TRU waste is stored in 20-year retrievable containers and low-level radioactive waste is stored in dumpsters. Stored waste near TA-54-11 [54-015(b)] contains TRU and low-level radioactive waste.

Type of Release: TRU and low-level radioactive waste [LANL 1990]

Justification: Contaminants of concern potentially exist in the soil at this site. Nature and extent of contamination in the soil has not been defined. Furthermore, a human health or ecological risk assessment has not been completed at this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-182.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-015(c)–Storage Area - TRU Pad 1

Background: SWMU Report and RFI Work Plan: TRU waste storage pad 1 [54-015(c)] is located at the northwest corner of Area G. Pad 1 contains six levels of retrievable, contact-handled, TRU waste in 55-gallon drums. Pad 1 is partially filled and partially covered. Storage began on Pads 1 through 4 in 1974. Pads 1-4 overlie disposal pits 2, 4, and 5, which are addressed in 54-017.

Type of Release: TRU wastes, other unknowns [LANL 1995, page 5-182]

Justification: Contaminants of concern potentially exist in the soil at this site. Nature and extent of contamination in the soil has not been defined. Furthermore, a human health or ecological risk assessment has not been completed at this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-182.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-015(d)–Storage Area - TRU Pad 2

Background: SWMU Report and RFI Work Plan: TRU waste storage pad 2 [54-015(d)] is located at the northwest corner of Area G. Pad 2 contains six levels of retrievable, contact-handled, TRU waste in 55-gallon drums. Pad 2 is completely filled and covered over with tuff. Storage began on Pads 1 through 4 in 1974. Pads 1-4 overlie disposal pits 2, 4, and 5, which are addressed in 54-017.

Type of Release: TRU wastes, other unknowns [LANL 1995, page 5-182]

Justification: Contaminants of concern potentially exist in the soil at this site. Nature and extent of contamination in the soil has not been defined. Furthermore, a human health or ecological risk assessment has not been completed at this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-182.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-015(e)–Storage Area - TRU Pad 3

Background: SWMU Report and RFI Work Plan: TRU waste storage pad 3 [54-015(e)] is located at the northwest corner of Area G. Pad 3 [54-015(e)] is covered by a temporary dome structure (TA-54-48). Storage began on pads 1 through 4 in 1974. Pads 1-4 overlie disposal pits 2, 4, and 5, which are addressed in 54-017. Pads 1-4 [54-015(c) through (f) store retrievable, contact-handled, TRU waste.

Type of Release: TRU wastes, other unknowns [LANL 1995, page 5-182]

Justification: Contaminants of concern potentially exist in the soil at this site. Nature and extent of contamination in the soil has not been defined. Furthermore, a human health or ecological risk assessment has not been completed at this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-182.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-015(f)–Storage Area - TRU Pad 4

Background: SWMU Report and RFI Work Plan: TRU waste storage pad 4 [54-015(f)] is located at the northwest corner of Area G. Pad 4 contains six levels of retrievable, contact-handled, TRU waste in 55-gallon drums. Pad 4 is completely filled and covered over with tuff. Storage began on Pads 1 through 4 in 1974. Pads 1-4 overlie disposal pits 2, 4, and 5, which are addressed in 54-017. Pads 1-4 [54-015(c) through (f) store retrievable, contact-handled TRU waste.

Type of Release: TRU wastes, other unknowns [LANL 1995, page 5-182]

Justification: Contaminants of concern potentially exist in the soil at this site. Nature and extent of contamination in the soil has not been defined. Furthermore, a human health or ecological risk assessment has not been completed at this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-182.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-015(j)–Storage Area (Dome #49, mixed waste sludge)

Background: SWMU Report and RFI Work Plan: A temporary dome structure (TA-54-49) is located on pit 32 in Area G for storage of mixed waste sludge.

Type of Release: Unknown

Justification: RCRA constituents potentially exist in the soil at this site. Nature and extent of contamination in the soil has not been defined. Furthermore, a human health or ecological risk assessment has not been completed at this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-182.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

54-016(b)–Sump

Background: SWMU Report and RFI Work Plan: There is a sump [54-016(b)] that collects waste from the removal of the corrosion inhibitor (grease) that is sprayed on the TRU waste drums. This sump is associated with TA-54-33 in Area G.

Type of Release: Unknown

Justification: RCRA constituents potentially exist in the soil at this site. Therefore, nature and extent of contamination in the soil has not been defined. Furthermore, a human health or ecological risk assessment has not been completed at this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans. The site should remain on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1148.* Environmental Restoration Project. July 1995. Page 5-182.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

57-001(b) – Settling Pond

Background: The SWMU Report describes this as pond GT-2. It was triangular in shape, approximately 150-ft on each side and 12-ft deep. It was in use for a number of years. In 1988, some of the sludge from this pond was removed, taken to a landfill, and the pond was backfilled. According to the RFI Work Plan, the settling pond system was started in 1974 in conjunction with the drilling of well GT-2 at TA-57. The GTP-3 ponds were constructed in 1974 and had a surface area of ~600 m^2. The last known capacity of the pond was 750,000 gallons. The pond was deactivated in 1984. 57-001(b) now consists of ponds GTP-3E (east) and GTP-3W (west) as well as Burns Swale. The location of the ponds changed considerably, so they were given east and west designations. Pond GTP-3E (east) was originally used as the drilling mud pit for the drilling of well GT-2. GTP-3E was smaller than GTP-3W, and both ponds were used in conjunction with well GT-2. Because pond GTP-3W was much larger, (originally estimated to have been about 20-ft deep), and was also used in conjunction with the other deep drill holes at the site, it was considered to have a higher potential for contamination. The pond was created by constructing an approximately 10-ft high berm across the head of Burns Swale, a natural drainage channel at the southern edge of the site. A spillway conducted overflow water around the west end of the berm and into the swale. Discharges into the swale were periodic rather than continuous. Following decommissioning and cleaning, the pond was backfilled with large boulders and clean soil to form a flat surface at the elevation of the surrounding terrain. The area was also reseeded. Pond GTP-3E was filled with dirt and is now the site of a road. Little or no visual evidence remains of the GTP-3E or GTP-3W ponds. The original GTP-3 ponds, as well as the GTP-1 ponds, were used to provide settling water used in drilling and circulation. They formed a two-stage system to remove particulates from the recirculating hydrothermal fluids by settlement. During most of the Fenton Hill drilling and experimental activities, drilling and circulation fluids first settled in Pond GTP-1, and when pond GTP-3W was still active, the fluid was piped to that pond for final clarification prior to release. The ponds were also continuously reconstructed to service changing experimental configurations. As the ponds were reconfigured, the sludge in the bottom of the ponds was disposed in the sludge pit.

Type of Release: The Fenton Hill ponds contained minerals that precipitated during circulation experiments (LANL 1990). The principal materials entering the system were fresh water from the on-site freshwater well (FH-1); drilling muds, which included barite and lubricating materials; and solids dissolved from passage through the rock underground. It was also noted that the supply water also contained dissolved solids (LANL 1994, page 5-7). Also, barium, arsenic, and manganese (LANL 1996, pages ES-2 and 29)

Justification: Based on the sampling results for pond GTP-3W and Burns Swale, there were elevated levels of barium, arsenic, and manganese. The RFI Report notes that contamination present in Burns Swale is a result of releases from pond GTP-3W. There was not enough sampling completed at either site to make an NFA determination. Also, the fact that arsenic and barium concentrations are highest at 11-12-ft below ground surface (bgs) and therefore, poses no risk to humans under the recreational use scenario is

irrelevant. The Permittees did not obtain enough samples to determine nature and extent of contamination at pond GTP-3W or Burns Swale. Also, a remedial action was proposed, but NMED does not have the report summarizing the investigation activities. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1154.* Environmental Restoration Program. May 1994. Page 5-4 through 5-26.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-57, 57-001(b), 57-001(c), 57-002, 57-004(a), 57-006, and 57-007.* Field Unit 5 - Environmental Restoration Program. April 1996. Pages ES-1, 4, and 23-40.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

57-001(c) – Experiment Pond GTP-2

Background: Pond GTP-2 was constructed in 1976 and was approximately 260 m^2. The capacity of the pond was approximately 50,000-gallons. Pond GTP-2, used during experiments related to geothermal energy recovery and contained circulation fluids. In 1980, after geothermal testing ceased, the pond was decommissioned, cleaned, and filled with clean soil to the level of the original ground surface. The location of the pond is no longer evident. The depth to the bottom of this filled-in pond is approximately 9.5-ft. One borehole was drilled at the pond. The estimated depth of the pond was 12-ft. The borehole was terminated at 15-ft. Beginning at a depth of 3-ft, sediment samples were taken at 1-ft intervals; these were field screened for metals by XRF and for VOCs by either OVA or PID. At the 4-5-ft. interval, the core revealed a slimy, black, clay-like material, which contained pieces of wood. One soil sample was taken from the core at 4.5-5-ft. (the horizon judged on the basis of field observations and screening to have the highest constituent concentrations) and was submitted for metals, total uranium, and SVOCs analyses.

Type of Release: The Fenton Hill ponds contained minerals that precipitated during circulation experiments. There was no evidence that a hazardous release occurred from the ponds (LANL 1990). The principal materials entering the system were fresh water from the on-site freshwater well (FH-1); drilling muds, which included barite and lubricating materials; and solids dissolved from passage through the rock underground. It was also noted that the supply water also contained dissolved solids (LANL 1994, page 5-7).

Justification: The Permittees did not obtain enough samples from an adequate number of locations to determine nature and extent of contamination. The Permittees only drilled one 15-ft borehole in the pond (unknown location), and only collected one sample for laboratory analysis. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1154.* Environmental Restoration Program. May 1994. Page 5-4 through 5-26.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-57, 57-001(b), 57-001(c), 57-002, 57-004(a), 57-006, and 57-007.* Field Unit 5 - Environmental Restoration Program. April 1996. Pages 4 and 40 through 43.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

57-002 – Sludge Pit

Background: According to the SWMU Report, drilling mud and cuttings from the old Fenton Hill ponds and EE-1 drilling mud pond have been disposed of in a former gravel pit (57-002) located on Forest Service property, about 5 miles west of TA-57. The RFI Work Plan states that the sludge pit was used between 1974 and 1990 as a disposal area for the sludge that was cleaned out of the settling ponds, GTP-1, GTP-2, and GTP-3, and the mud from the drilling mud pits. It is the site of a former gravel, or borrow, pit that was used by the State of New Mexico in conjunction with the building of State Road 126. The pit is located about 2 miles west of the main compound of TA-57 on U.S. Forest Service property. The dimensions of the pit are approximately 200-ft by 100-ft, with the western section occupying about 2/3 of the total area. The pit was divided into two sections. The western side, reported to be about 15-ft to 20-ft deep, was used during the early stages of operation at Fenton Hill. It was active until about 1985 when disposal started in the eastern section. Although the western side was reseeded after use and currently has grasses and shrubs growing on it, visible signs of the Fenton Hill disposal operations remain. The eastern section of the pit was last used in 1990 when the GTP-1W pond was recontoured, cleaned, and relined. The sludge from the cleaning operation was trucked from TA-57. The trucks backed up to the north end of the pit and dumped the sludge, which was then pushed toward the south with a bulldozer. The south end of the eastern side of the pit is bermed. However, when the water in the sludge did not evaporate or soak into the sludge pit at a sufficient rate, personnel would breach the berm and allow the water to flow to a graded area where it would evaporate faster. The eastern side of the pit is estimated to be about 6-ft to 8-ft deep. At one time, the eastern side of the pit was surrounded by a barbed-wire fence and large boulders. The fence has been torn down and is no longer useful in keeping unsuspecting visitors, human or animal, out of the pit. At a site visit in the summer of 1993, the eastern side was observed to be noticeably softer than the western section. The sludge was analyzed by Fenton Hill personnel prior to disposal in the sludge pit. Although each individual analysis indicated the sludge met any restrictions imposed according to the agreement between the DOE and the U.S. Forest Service. It is not known what standards or quality assurance requirements were followed.

Type of Release: Metals: arsenic, barium, calcium, copper, lead, magnesium, sodium, and zinc (LANL 1996, page 45).

Justification: The Permittees received a Notice of Disapproval (NOD) from the USEPA for the RFI Report on June 20, 1997. There is no record of the Permittees responding to the NOD and furthermore, the RFI Report recommends that a Voluntary Corrective Action (VCA) be performed at SWMU 57-002 and a VCA proposal would be prepared. There is no record of the Permittees proposing or completing a VCA at the site. Based on this information, or lack thereof, 57-002 must be included on the permit. Additionally, this site is listed in the 1990 SWMU Report and the “Under Investigation” lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1154.* Environmental Restoration Program. May 1994. Page 5-27 through 5-34.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-57, 57-001(b), 57-001(c), 57-002, 57-004(a), 57-006, and 57-007.* Field Unit 5 - Environmental Restoration Program. April 1996. Pages 4-7 and 43 through 48.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

57-004(a) – Settling Pond GTP-1E

Background: The SWMU Report describes this site as a drilling mud circulation pit that was used to store wastes from deep drilling operations and experiments. It was refurbished for use as a holding pond with a PVC underliner and a Seaman Corp. Style 8130, XR-5 top liner. The pit was approximately 300-ft x 75-ft x 30-ft deep. The drilling muds were removed as necessary and transported to a landfill (57-002). The RFI Work Plan states that the pond was constructed in 1975, had a surface area of 1040 m^2 and had a 1,000,000-gallon capacity. As of May 1994, the pond was still active. It was originally constructed along with the drilling of well EE-1. It was originally used as the drilling put for the drilling of well EE-1, but was also used for circulation and settling of the drilling and circulation fluids from the circulation loop. Pond GTP-1E was originally excavated on level ground. It was cleaned of sludge and backfilled with clean soil to original ground level. The location of the western end of the pond continued to migrate and is now the site of pond GTP-1W, the currently active, one-million-gallon lined pond. GTP-1W was lined in 1983-84 and again in 1990 after the original lining had deteriorated. The RFI Report clarifies that since GTP-1E was enlarged in several stages as operations advanced, and was also used for settling and recycling of fluids from the circulation loop. The successive enlargements eventually extended Pond GTP-1E into the area that would later be occupied by Pond GTP-1W. When the entire pond area was decommissioned it was cleaned of sludge and backfilled with clean soil to original ground level. Subsequently, Pond GTP-1W was excavated and lined with plastic. One core was taken from within the pond and sediment samples were taken at 1-ft intervals, beginning at 3-ft.

Type of Release: Arsenic, barium, calcium, cadmium, chromium, copper, lead, total uranium, and zinc (LANL 1996, page 51).

Justification: The Permittees did not obtain enough samples from an adequate number of locations to determine nature and extent of contamination. The Permittees only drilled one, 7-ft borehole in the pond, and collected two samples for laboratory analysis. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1154.* Environmental Restoration Program. May 1994. Page 5-4 through 5-26.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-57, 57-001(b), 57-001(c), 57-002, 57-004(a), 57-006, and 57-007.* Field Unit 5 - Environmental Restoration Program. April 1996. Pages 4 and 48 through 54.
4) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

57-004(b) - Surface Impoundment

Background: SWMU Report: Surface impoundment 57-004(b) replaced 57-004(a).

RFI Work Plan: The fourth pond, which has no pond number, is known as the five-million-gallon pond. It has been lined since it was built. It is currently active and is used primarily for storage of water to supply the circulation of wells. However, it has also received fluid from pond GTP-1 [57-004(a)] [page 5-7]. The five-million-gallon pond [PRS 57-004(b)] is an active, lined facility that shows no evidence of a release. Sampling beneath it will be deferred until D & D [page 5-19].

Type of Release: Wastes stored in the pond include drilling mud, cuttings, and precipitates from circulation experiments. The water could include dissolved arsenic, cadmium, boron, lithium, and fluorine (LANL 1990).

Justification: Potential contaminants of concern exist at this site. The Permittees submitted an RFI Work Plan that was approved by EPA in 1995. Investigation has been deferred until decontaminating and decommissioning. The site should be included on the permit until investigation and remediation are complete. Furthermore, this site is listed in the SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1122*. Environmental Restoration Project. LA-UR-94-1096. May 1994. Pages 5-7 and 5-19.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

57-006 - Drum and Contents, Fenton Hill

Background: VCA Completion Report: Potential Release Site 57-006 is a buried chemical waste vessel that contained elevated levels of lead, mercury, and a variety of spent organic solvents. It was used to collect chemical waste from a LANL chemistry laboratory sited from about 1976 to 1989 used to provide real-time data analysis for drilling. The vessel is inactive, and no longer serves as a chemical waste storage vessel [page 1].

RFI Report: Chemicals that were considered to be too dangerous to be disposed of via the drain that ran from the sink in the trailer were poured into a special drain connected to a plastic-lined 55-gal drum buried in the ground beneath the trailer. When the drum was full its contents were transported to the main laboratory for disposal. The drum and its residual contents were removed as a voluntary corrective action on September 15, 1994 [page 7].

Type of Release: Acetone (LANL 1996, page 56), lead, mercury, and a variety of organic solvents [LANL 1996, page 55].

Justification: Potential contaminants of concern exist at this site. Because only one soil sample was collected, it is unlikely that the nature and extent of contamination has been defined. The Permittees included the RFI Report in a cessation of document review, dated August 24, 1998. Therefore, NMED has not adequately reviewed the RFI Report. The site should be included on the permit until review and subsequent investigation and remediation are complete. Furthermore, this site is listed in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1122.* Environmental Restoration Project. LA-UR-94-1096. May 1994.
2) LANL 1995. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for Potential Release Site 57-006 – A buried Chemical Waste Vessel.* Environmental Restoration Project. LA-UR-96-465. September 1995. Page 1.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-57, 57-001(b), 57-001(c), 57-002, 57-004(a), 57-006, 57-007 (located in former Operable Unit 1154) Field Unit 5*. Environmental Restoration Project. LA-UR-96-1062. April 1996. Pages 55 to 56.
4) LANL 1998a. Los Alamos National Laboratory. Letter*: Temporary Cessation of Document Review*. Environmental Restoration Project. August 24, 1998.
5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

57-007 - Leach Field

Background: RFI Report: Waste water from the trailer's analytical chemistry laboratory was poured into a sink that drained to a subsurface leach field located about 20-ft southeast of the trailer. The RFI Work Plan for OU 1154 reports that some chemicals were mixed with water and poured into the sink drain. Indicator constituents analyzed for were metals and volatile organic compounds [page 7].

Type of Release: Mercury, zinc, and total uranium [LANL 1996, page 59].

Justification: Potential contaminants of concern exist at this site. Because only one soil sample was collected, it is unlikely that the nature and extent of contamination has been defined. The Permittees included the RFI Report in a cessation of document review, dated August 24, 1998. Therefore, NMED has not adequately reviewed the RFI Report. The site should be included on the permit until review and subsequent investigation and remediation are complete. Furthermore, this site is listed in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1122.* Environmental Restoration Project. LA-UR-94-1096. May 1994.
2) LANL 1995. Los Alamos National Laboratory. *Voluntary Corrective Action Completion Report for Potential Release Site 57-006 – A buried Chemical Waste Vessel*. Environmental Restoration Project. LA-UR-96-465. September 1995. Page 1.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA-57, 57-001(b), 57-001(c), 57-002, 57-004(a), 57-006, 57-007 (located in former Operable Unit 1154) Field Unit 5*. Environmental Restoration Project. LA-UR-96-1062. April 1996. Pages 55 to 56.
4) LANL 1998a. Los Alamos National Laboratory. Letter*: Temporary Cessation of Document Review*. Environmental Restoration Project. August 24, 1998.
5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project.* November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

59-004 – Outfall

Background: SWMU Report: The 1987 CEARP notes an outfall that discharges waste from basement drains in TA-59-1 and once-through cooling water from cooling tower TA-59-10. The NPDES serial number is 098. Liquids discharged from the outfall are cooling water treated with biodegradable scale and corrosion inhibitors and unknown liquids from the TA-59-1 basement. The outfall discharges into Two-Mile Canyon.

RFI Work Plan: SWMU 59-004 is located at the exit of an outfall located south of the occupational health laboratory (TA-59-1) and of an office trailer (TA-59-2). Effluent from the outfall, NPDES permit number EPA 03A098, empties onto a rock-lined ditch underlain with a cloth-type liner approximately 4-ft wide x 50-ft long, then flows down a narrow channel into Two-Mile Canyon. The ground directly below the outfall (under the rock-lined ditch) has recently been excavated to lay underground piping for the sanitary waste system consolidation (SWSC) plant. Natural catchments are visible for another 50-ft before the outfall traverses downward into the canyon. The canyon is 160-ft deep at this point and is forested with coniferous trees [pages 5-28 to 5-29].

TA-59-1 houses laboratories and offices of the industrial hygiene group. Facilities also include a machine shop, storage for radioactive sources, and photographic darkrooms. Laboratories in TA-59-1 perform analyses of radioactive constituents as well as organic and inorganic analyses. Drains in these laboratories have always been connected to the acid waste line. The exhaust hoods in the laboratories were required to add a scrubber unit to the ventilation system. The water from the scrubber was rerouted to the outfall. Other water sources from the outfall include drains located in the basement of TA-59-1 from equipment rooms (once-through cooling water), sinks, fire-water, the boiler room (boiler blowdown), and hot and cold water pumps (LANL 1992, 17-810) [page 5-29].

Type of Release: Cadmium, chromium, lead, mercury, nickel, and bis(2-ethylhexyl)phthalate [LANL 1995, pages 143-144].

Justification: Potential contaminants of concern exist at this site. The Permittees submitted an addendum to the RFI Work Plan and an RFI Report for this site. This site has undergone various rounds of review by U.S. EPA. The Permittees submitted a cessation of document review for the Addendum to the RFI Work Plan on August 24, 1998. Therefore, NMED has not reviewed the Addendum to the RFI Work Plan. The site should be included on the permit until all necessary investigation and remediation are completed. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51-TA*-74. LA-UR-90-3400. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114*. Environmental Restoration Project. LA-UR-93-1000. July 1993. Pages 5-28 to 29.

3) LANL 1995. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, TA-61*. Field Unit 1. Environmental Restoration Project. LA-UR-96-726. September 1995. Pages: 139-146.
4) LANL 1998a. Los Alamos National Laboratory. Letter*: Temporary Cessation of Document Review*. Environmental Restoration Project. August 24, 1998.
5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-59-001 – PCB Containing Capacitors and Transformer

Background: The SWMU Report states that there were no active leaks at this transformer. However, old stains were visible around bushings and gaskets (PCB ID No. 5550).

RFI Work Plan: C-59-001 was an area of potential contamination from a 1000 kVA transformer once located in room B-1 of Building TA-59-184, now designated TA-59-1. The transformer had a PCB concentration in excess of 500 ppm and was removed in 1991. Four 55-gallon drums were filled with the oil from the transformer and removed from the area. The transformer was taken out of the building. No staining was visible during a site visit in 1994. According to the building manager for TA-59-1, there were never any oil spills or stains from the transformers in the area.

Type of Release: Unknown, possibly PCBs and solvents.

Justification: Potential contaminants of concern exist at this site. The nature and extent of contamination has not been defined. Furthermore, a human health or ecological risk assessment has not been completed for this site; therefore the Permittees cannot assume there is no unacceptable risk. Additionally, the site is listed in the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans, and in the RFI Work Plan for OU 1114. The site should be included on the permit until all necessary investigation and remediation are completed.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51-TA*-74. LA-UR-90-3400. Revised November 1990.
2) LANL 1995. Los Alamos National Laboratory. *RFI Work Plan for OU 1114, Addendum 1*. Environmental Restoration Project. LA-UR-95-731. July 1995. Page 6-67.
3) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
4) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

60-004(b) – Container Storage

Background: SWMU Report: Several storage areas are present on Sigma Mesa. Near the end of the mesa, twelve drums [60-004(b)] containing diesel sludge cleaned out of underground storage tanks at the Western Steam Plant during its decommissioning were noted. An area approximately 100-ft x 3-ft, covered with plastic sheeting, is also within the mesa-end storage area.

Drums of soil and diesel waste, transformers containing oil, and very large vessels (contents unknown) are stored in the mesa-end storage area.

RFI Work Plan: SWMU 60-004(b) is a site next to the road, north of the drilling mud pit, where a dozen drums containing diesel sludge from the USTs that were removed from the Western Steam Plant were stored for a short time in 1988 [page 5-70].

Type of Release: Mercury, PCBs, bis(2-ethylhexyl)phthalate, and phenol, [LANL 1996, pages 150-152].

Justification: Potential contaminants of concern exist at this site. Permittees submitted an RFI Work Plan and an RFI Report for this site. This site has undergone various rounds of review by U.S. EPA. The Permittees submitted a cessation of document review for the RFI Report on August 24, 1998. Therefore, NMED has not reviewed the RFI Report. The site should be included on the permit until all necessary investigation and remediation are completed. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51-TA-74*. LA-UR-90-3400. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114*. Environmental Restoration Project. LA-UR-93-10000. July 1993. Pages 5-70, 5-73.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, TA-61*. Field Unit 1. Environmental Restoration Project. LA-UR-96-726. February 1996. Pages 146-152.
4) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter: Temporary Cessation of Document Review*. August 24, 1998.
5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

60-004(c) – Container Storage

Background: SWMU Report: Several storage areas are present on Sigma Mesa. There are several drums also stored in the experimental pond area [60-004(c)].

RFI Work Plan: SWMU 60-004(c) is a former drum-storage area within the fence surrounding the Sigma Mesa pond, to the east of the pond. Soil stains were apparent at the time the Work Plan was written. In December of 1995, approximately 125 empty, used 55-gallon drums were trucked to the solar pond fenced enclosure and stacked in a pyramid along the east fence for approximately eight months. A field observation dated February 18, 1986, reported the inappropriate drum storage as part of an ongoing EPA RCRA compliance investigation. In June or July of 1986, the drums were returned to TA-54, crushed, and disposed of in Area J, a non-hazardous material facility.

Type of Release: Possibly freon, chlorothane, solvit, Shell Dralla A+oil (sic), and PCBs [LANL 1993, page 5-81].

Justification: According to the RFI Report, there were QA/QC problems with much of the data and samples were not analyzed for inorganics. RCRA constituents potentially exist at this site. The Permittees submitted an RFI Work Plan and an RFI Report for this site. Subsequently, the Permittees submitted a cessation of document review for the RFI Report on August 24, 1998. Therefore, NMED has not reviewed the RFI Report. The site should remain on the permit until all necessary investigation and remediation are completed. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51-TA-74*. LA-UR-90-3400. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114*. Environmental Restoration Project. LA-UR-93-10000. July 1993. Page 5-81.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, TA-61*. Field Unit 1. Environmental Restoration Project. LA-UR-96-726. February 1996. Pages 30-31, and 153-157.
4) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter: Temporary Cessation of Document Review*. August 24, 1998.
5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

60-004(d) – Container Storage

Background: SWMU Report: On occasion, decommissioned underground storage tanks from TA-3 were brought to the eastern end of Sigma Mesa to be cut up and to await salvage. The cutting area [60-004(d)] is located adjacent to the cement pad for the geothermal well, directly north of the drilling mud pit. Drums containing residues from cleaning the tanks were also present in this area.

RFI Work Plan: Oil stains were visible in the area. The northern edge of the area has been used for the disposal of building rubble, concrete, and rebar. [page 5-81].

Type of Release: Bis(2-ethylhexyl)phthalate and phenol [LANL 1996, pages 150-152].

Justification: RCRA constituents potentially exist at this site. The Permittees submitted a cessation of document review for the RFI Report on August 24, 1998. Therefore, NMED has not completed a review of the RFI Report. The site should remain on the permit until all necessary investigation and remediation are completed. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51-TA-74*. LA-UR-90-3400. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114*. Environmental Restoration Project. LA-UR-93-10000. July 1993. Page 5-81.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, TA-61*. Field Unit 1. Environmental Restoration Project. LA-UR-96-726. February 1996. Pages 146-152.
4) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter: Temporary Cessation of Document Review*. August 24, 1998.
5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

60-004(e) – Container Storage

Background: SWMU Report: Just east of the geothermal test well pad is a storage area [60-004(e)]. An E. R. Program site reconnaissance survey in 1989 observed 5 transformers, 4 large dumpsters, stainless steel piping, corrugated tin, 6 large cooling fans and 5 storage tanks, which ranged between 3,000 and 5,000 gallons, at the site.

RFI Work Plan: SWMU 60-004(e) is an area about 100 ft^2 at the south end of the leveled area, southeast of the well. A 1989 reconnaissance survey noted several large items here, including five transformers that possibly contained PCBs, and five large (3000-5000-gallon) storage tanks. Oil-containing equipment stored on Sigma Mesa from the CLS Division was tested for PCBs in 1991 and found to be <5 ppm or non-PCB-containing oil. It is unknown whether equipment from other groups contained PCB-contaminated oil. These items have since been removed but several large oil stains remained visible in early 1992. The area was inspected by the New Mexico Environment Department in March 1992, following a report that a private company, having purchased the large storage tanks from Johnson Controls, was unable to lift them onto their truck and therefore dumped oil and water onto the ground before removing them [page 5-70].

Type of Release: Selenium, thallium, acetone, butanone[2-], hexanone[2-], methyl2-pentanone[4-], toluene, and xylenes (o + m + p) [mixed-] [LANL 1996, pages 161-162].

Justification: According to the RFI Report, there were QA/QC problems with much of the data and samples were not analyzed for radionuclides. Potential contaminants of concern may exist at this site. The Permittees submitted a cessation of document review for the RFI Report on August 24, 1998. Therefore, NMED has not completed review of the RFI Report. The site should remain on the permit until review of the RFI Report is complete. The site should remain on the permit until all necessary investigation and remediation are completed. Additionally, this site is listed in the 1990 SWMU Report and the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51-TA-74*. LA-UR-90-3400. Revised November 1990.
2) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114*. Environmental Restoration Project. LA-UR-93-10000. July 1993. Page 5-70.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, TA-61*. Field Unit 1. Environmental Restoration Project. LA-UR-96-726. February 1996. Pages 31-32 and 157-164.
4) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter: Temporary Cessation of Document Review*. August 24, 1998.
5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

60-004(f) – Container Storage

Background: RFI Report: PRS 60-004(f) consists of two unpaved, bermed storage pads used for new product storage and located southeast of the maintenance warehouse (TA-60-2). Both pads have stored drums of Stoddard™ solvent, antifreeze, motor oil, grease, transmission fluids, and window-washing fluid. The materials were dispensed directly from the drums stored on the pads. Before 1985 neither pad was completely bermed. The pads are discolored and a petroleum odor is evident. Several COPCs (trichlorotrifluroethane, methylene chloride, carbon disulfide, naphthylene, 1,3,5-trimethylbenzene) were detected in samples collected in 1990. In 1985, 6-in. asphalt berms were constructed at the open ends of both pads to help mitigate rainfall runon/runoff problems. All drummed liquids were removed from the pads in 1990 [page 164].

Type of Release: Mercury, zinc, and PCBs [LANL 1996, pages 168-170].

Justification: According to the RFI Report, there were QA/QC problems with much of the data and samples were not analyzed for radionuclides. Potential contaminants of concern may exist at this site. The Permittees submitted a cessation of document review for the RFI Report on August 24, 1998. Therefore, NMED has not completed review of the RFI Report. The site should remain on the permit until review of the RFI Report is complete. The site should remain on the permit until all necessary investigation and remediation are completed. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1993. Los Alamos National Laboratory. *RFI Work Plan for OU 1114*. Environmental Restoration Project. LA-UR-93-1000. July 1993.
2) LANL 1996. Los Alamos National Laboratory. *RFI Report for 53 Potential Release Sites in TA-3, TA-59, TA-60, TA-61*. Field Unit 1. Environmental Restoration Project. LA-UR-96-726. February 1996. Pages 32-34 and 164-171.
3) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter: Temporary Cessation of Document Review*. August 24, 1998.
4) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

C-61-002 – Subsurface Contamination

Background: This was a newly identified AOC. The correspondence says that C-61-002 is an oil spill from fuel flare pots. An investigation of this unit was not included in the baseline. When funds become available, a sampling plan and corrective action schedule will be developed.

Type of Release: Oil spill from fuel flare pots (LANL 1995)

Justification: Potential contaminants of concern may exist at this site. The site has not been investigated to date and therefore nature and extent has not been defined. The site should remain on the permit until all necessary investigation and remediation are completed. Additionally, this site is listed on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1995. Los Alamos National Laboratory. *Letter from LANL to USEPA: Schedule of Activities and Questions Regarding New Solid Waste Management Units (SWMUs) 32-003 and 32-004, and Area of Concern (AOC) C-61-002*. November 28, 1995. EM/ER 95-614.
2) LANL 1998. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
3) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

63-002 – Container Storage

Background: RFI Work Plan: Potentially hazardous wastes generated at TA-63 are temporarily stored in a rectangular fenced area east of the North parking lot. Wastes including paint, solvents, oily rags, and batteries are reportedly stored in this uncovered, unpaved area. During a 1991 ER Program site inspection, several drums were observed on wooden pallets in this area, including one drum with a bulging top labeled "MEK" (methyl ethyl ketone). Some materials are stored on a 4-ft^2 bermed asphalt pad. This site was not included in the 1990 SWMU report, but is currently being considered for the SWMU list. [page 3-136].

Type of Release: Used batteries, paints, paint thinner, and solvents including methyl ethyl ketone (LANL 1992, page 3-136).

Justification: RCRA constituents potentially exist at this site. An investigation has not been conducted at this site, therefore nature and extent of contamination has not been defined. The site should be included on the permit until all necessary investigation and remediation are completed. Additionally, this site is listed on the "Under Investigation" lists in the 2000 Installation Work Plan.

References:

1) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for Operable Unit 1129.* Environmental Restoration Project. May 1992. Pages 3-136.
2) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8.* LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

72-001 – Firing Range

Background: SWMU Report: An active firing range used by Mason and Hangar, the LANL security force, is located in Sandia Canyon at TA-72-11, formerly TA-0-247, just south of TA-53. The range is 175-ft x 250-ft and is surrounded by earthern berms to prevent bullets from exiting the site.

RFI Work Plan: Since 1966, TA-72 has been used as a small-arms firing range by the Laboratory's protective force contractor. It includes PRS 72-001, a 175-ft x 250-ft firing range surrounded by earth berms; and adjacent skeet range; and some administrative buildings. PRS 72-001 is located at the west end of TA-72 in Sandia Canyon [page 5-17].

Type of Release: Lead and HE (LANL 1994, page 5-17)

Justification: According to the RFI Report, only eight samples were collected and they were not analyzed for organics or radionuclides. There was insufficient sampling to determine nature and extent of contamination at this site. Furthermore, the Permittees recommended deferred action until decommissioning of the firing range, which suggests that the site has not been fully investigated. Potential contaminants of concern exist at this site and no actual investigation or remediation activities have been completed. The site should be included on the permit until investigation and remediation occur. Additionally, this site is listed in the 1990 SWMU Report and on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51 - TA-74*. Revised November 1990.
2) LANL 1994. Los Alamos National Laboratory. *RFI Work Plan for OU 1100*. Environmental Restoration Project. LA-UR-94-1097. May 1994. Page 5-17.
3) LANL 1996. Los Alamos National Laboratory. *RFI Report for Potential Release Sites at TA's-20, -53,and -72 (located in former Operable Unit 1100) Field Unit 2*. Environmental Restoration Project. LA-UR-96-906. March 1996. Pages i, 5-39-5-42.
4) LANL 1998a. Los Alamos National Laboratory. Environmental Restoration Project. *Letter: Temporary Cessation of Document Review*. August 24, 1998.
5) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.

73-003 - Steam Cleaning Plant

Background: SWMU Report: A garbage truck and can cleaning plant was located about 30-ft south of the incinerator building, TA-73-2, formerly TA-0-1123. It is assumed that the trucks and cans were from the townsite or from non-contaminated areas of the lab. According to a 1949 engineering drawing (Z-436), this plant consisted of an open-sided truck cleaning area, a concrete-block enclosed can cleaning area, and an open storage yard. The storage yard was surrounded by a 6-in. concrete curb and a 4.5-ft-high wood fence. The wash areas had no concrete curbs, gutters, catch basins, or storm sewers. The washwater discharged to a septic tank.

RFI Work Plan: The trucks were cleaned in the east side of the plant and garbage cans in a concrete-block-enclosed area to the west. An open storage yard, approximately 50-ft by 18-ft with a 6-in. curb, was also located on the west side of the plant. The wash water from the plant discharged to a septic tank [SWMU 73-004(b)][pages 5-191].

Type of Release: Pesticides, PAHs, RCRA metals (LANL 1998, page 16)

Justification: RCRA constituents exist at this site. The Permittees submitted a Sampling and Analysis Plan for this site in November 1998. It was approved February 28, 2000. Results from the SAP have not been submitted or reviewed by NMED. The site should be included on the permit until all necessary investigation and remediation are complete. Additionally, this site is listed in the 1990 SWMU Report and on the "Under Investigation" lists in the 1998 and 2000 Installation Work Plans.

References:

1) LANL 1990. Los Alamos National Laboratory. *Solid Waste Management Unit Report, Vol. IV of IV, TA-51-TA*-74. LA-UR-90-3400. Revised November 1990.
2) LANL 1992. Los Alamos National Laboratory. *RFI Work Plan for OU 1071*. Environmental Restoration Project. LA-UR-93-810. May 1992. Pages 5-191.
3) LANL 1998a. Los Alamos National Laboratory. *Sampling and Analysis Plan for SWMU Group 73-2, 73-003, 73-004(a), 73-004(b), 73-005, 73-006, 73-007, C-73-005(a through f)*. LAUR-98-4076. November 30, 1998. Page 20.
4) LANL 1998b. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 7*. LA-UR-98-4652. November 1998. Appendix B – Potential Release Sites at Los Alamos National Laboratory.
5) NMED 2000. New Mexico Environment Department. *Letter from NMED to LANL: Approval of Sampling and Analysis Plan Group 73-2*. Environmental Restoration Project. February 28, 2000.
6) LANL 2000. Los Alamos National Laboratory. *Installation Work Plan for Environmental Restoration Project, Revision 8*. LA-UR-00-1336. March 2000. Appendix B – Potential Release Sites at Los Alamos National Laboratory.