

**Completion of Corrective Action
at Site 50-009
in T-SMA-1**

October 31, 2013

NPDES PERMIT NO. NM0030759

LA-UR-13-28345

**LOS ALAMOS NATIONAL LABORATORY
CERTIFICATION OF COMPLETION OF CORRECTIVE ACTION**

PF: T002

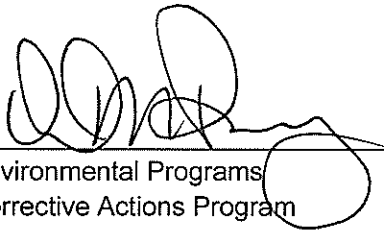
T-SMA-1

Site: 50-009

The following certification was performed in accordance with NPDES Permit No. NM0030759, Part I.E.2, which requires the Permittees (i.e., DOE and LANS) to certify the completion of corrective action.

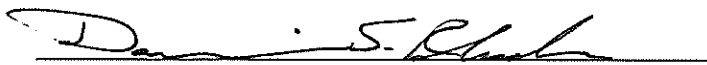
CERTIFICATION STATEMENT OF AUTHORIZATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations."



Environmental Programs
Corrective Actions Program
Los Alamos National Laboratory

10/30/2013
Date



Los Alamos Field Office
National Nuclear Security Administration

10-30-2013
Date

**LOS ALAMOS NATIONAL LABORATORY
CERTIFICATION OF COMPLETION OF CORRECTIVE ACTION**

PF: T002**T-SMA-1****Site: 50-009****Introduction**

This certification documents the no exposure condition of Site 50-009 (referred to as Solid Waste Management Unit [SWMU] 50-009 under the New Mexico Environment Department [NMED] Compliance Order on Consent [Consent Order]) for completion of corrective action at site monitoring area (SMA) T-SMA-1 under Part 1.E.2(c) of National Pollutant Discharge Elimination System (NPDES) Permit No. NM0030759 (the Individual Permit or Permit), issued by the U.S. Environmental Protection Agency (EPA) to the U.S. Department of Energy (DOE) and Los Alamos National Security, LLC (LANS), collectively, the Permittees. Site 50-009 is associated with site monitoring area (SMA) T-SMA-1 and is a High Priority Site. Storm water samples collected from T-SMA-1 on July 30, 2011, and August 15, 2011, exceeded target action levels (TALs) for copper, zinc, and polychlorinated biphenyls (PCBs). Corrective action is to be certified complete within 3 yr of the effective date of the Individual Permit (i.e., November 1, 2013). T-SMA-1 also contains High Priority Site 50-006(a), for which the Permittees are pursuing a certificate of completion under Part 1.E.2(d) of the Permit. A request for extension for completion of corrective action for Site 50-006(a) resulting from a force majeure event was submitted to EPA by the Permittees on September 23, 2013 (LANL 2013).

The T-SMA-1 drainage area is located within the northern portion of Los Alamos National Laboratory's (the Laboratory's) Technical Area 50 (TA-50). The T-SMA-1 drainage area includes portions of Site 50-009, which consists of a closed landfill comprised of subsurface disposal pits and shafts. Within Site 50-009, the SMA drainage area overlies two entire pits (Pit 6 and the Chemical Pit), shaft group 1 and portions of five other pits (Pits 1 through 5), and shaft groups 2 and 3. Currently, the area overlying operational and interim cover layers at Site 50-009 is undeveloped, vegetated, and stabilized. Figure 1 provides a 2011 aerial photograph depicting developed conditions within T-SMA-1 and the extent of the subsurface disposal units of Site 50-009.

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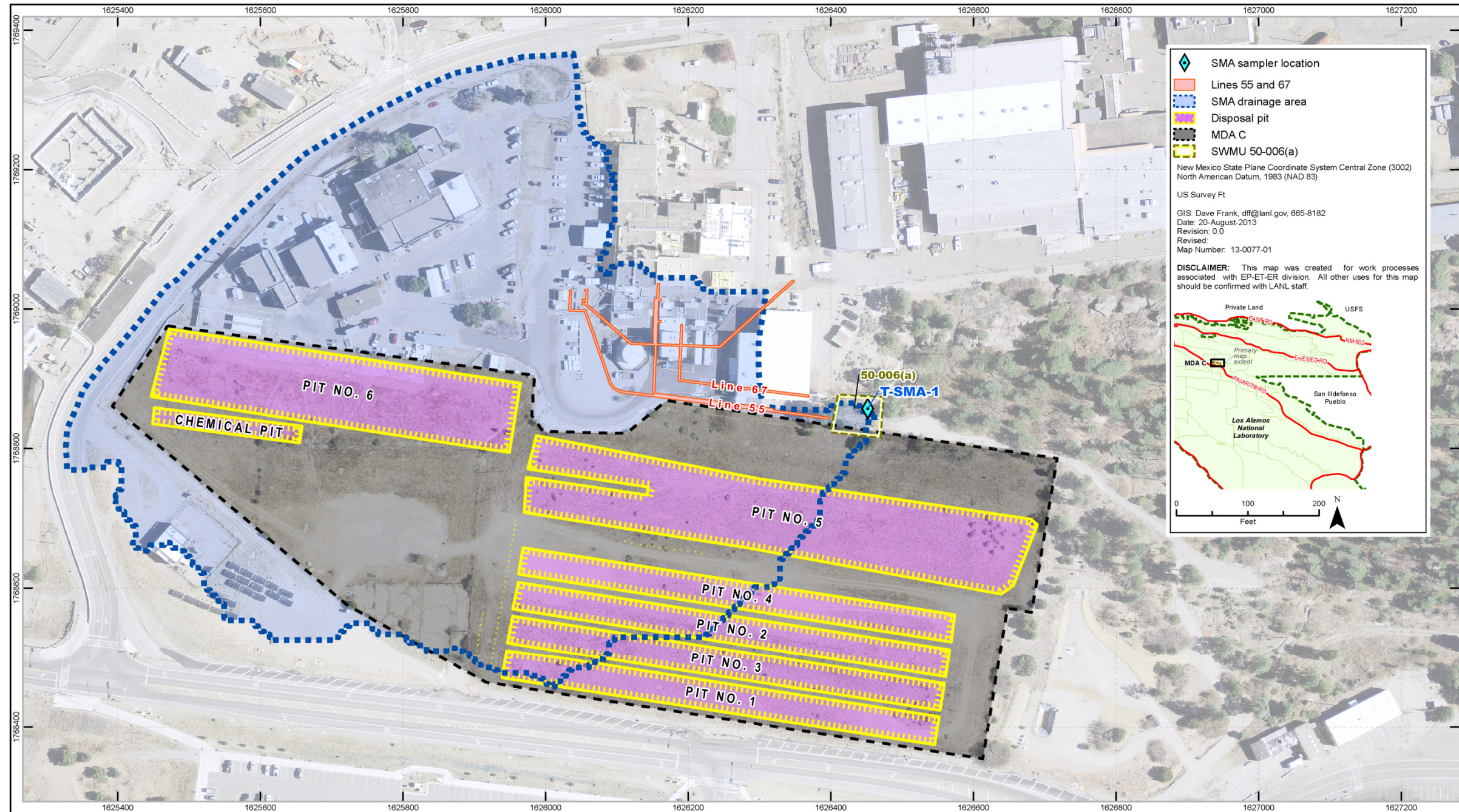


Figure 1 Original T-SMA-1 boundary

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PF: T002**T-SMA-1****Site: 50-009**

Site 50-009 consists of seven former disposal pits and 108 shafts [also referred to as Material Disposal Area C (MDA C)]. The depths of the seven pits range from 12 to 25 ft below the original ground surface. The depths of the 108 shafts range from 10 to 25 ft below the original ground surface. Wastes within these pits are not exposed to storm water because of the placement of crushed Bandelier Tuff in both operational cover and interim cover layers. Similarly, wastes placed in disposal shafts were covered with crushed tuff, and the tops of the shafts were filled with concrete to prevent exposure to the wastes. The site description provides additional details related to the existing cover over the pits/shafts. Attachment 1 provides the as-built drawings of the no exposure condition.

Site Description

T-SMA-1 is located at the head of Ten Site Canyon on welded Bandelier Tuff in a ponderosa pine/piñon-juniper overstory vegetation zone. The mesa top was covered with a thin layer of soil underlain by Bandelier Tuff bedrock. The Bandelier Tuff was deposited during volcanic eruptions and is composed of pumice, minor rock fragments, and crystals supported in an ashy matrix.

Site 50-009 is an inactive 11.8-acre landfill consisting of seven subsurface disposal pits and 108 shafts known as MDA C, located at TA-50. The topography of MDA C is relatively flat, although the slope descends to the north where the northeast corner of MDA C abuts the south wall of Ten Site Canyon. Solid waste containing hazardous constituents as well as radionuclides was disposed of in the landfill between 1948 and 1974. The depths of the seven pits at MDA C range from 12 to 25 ft below the original ground surface, and the depths of the 108 shafts range from 10 to 25 ft below the original ground surface. The original ground surface is defined as the surface beneath the cover that was placed over the site in 1984, as discussed below. The pits and shafts are constructed in unit 3 of the Tshirege Member of the Bandelier Tuff (Qbt 3).

Wastes routinely disposed of in the pits consisted of boxes and bags of trash from chemistry laboratories and containerized sludge from wastewater treatment plants. The general operating procedure at MDA C was to deposit a single layer of waste over the course of several days and then cover the waste with crushed tuff. Another layer of waste would be emplaced, covered, and the process repeated until the capacity of the pit was reached (Rogers 1977). The crushed tuff acted as a temporary cover to prevent exposure of the waste to workers and to protect wastes from fire. Placement of all waste in the pit below the original land surface ensured the waste was contained within the disposal pit and prevented exposure to storm water runoff during the operational life of each pit. When MDA C was decommissioned in 1974, most of the surface was covered with crushed tuff and fill. The new surface was recontoured and seeded. In 1984, approximately 1.5 ft of crushed tuff, followed by 0.5 to 3 ft of topsoil, was placed over the surface of the pits. The original ground surface previously referenced consists of the base of this 1984 fill layer. The surface of the site is currently covered with native grasses. The thickness of the fill was verified by reviewing borehole logs from investigations conducted at MDA C in 2004–2007 and 2008–2009 (LANL 2006, LANL 2007, LANL 2009). Figure 2 shows the locations of investigation boreholes, and Table 1 presents the thickness of fill above tuff observed at each borehole.

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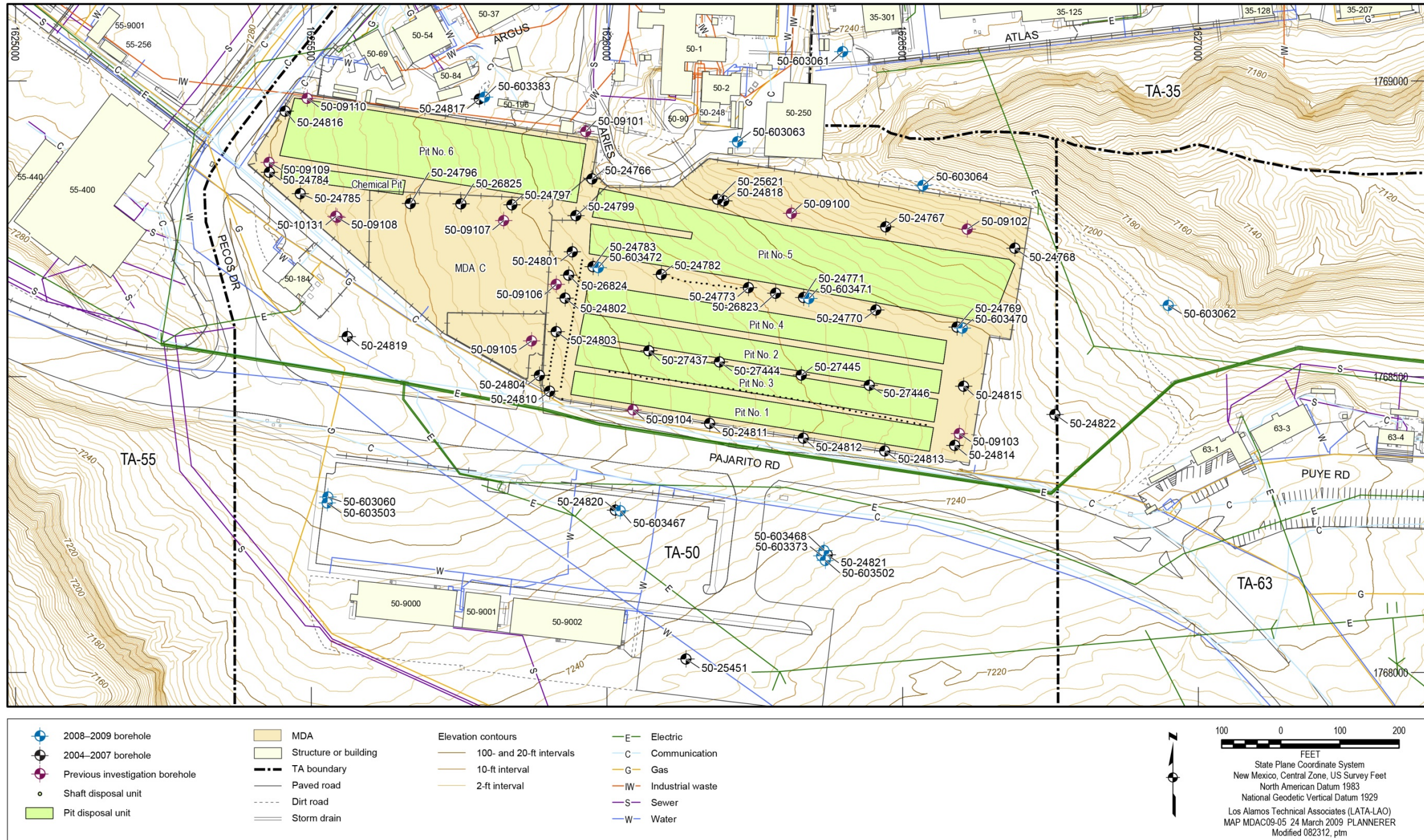


Figure 2 Locations of boreholes at MDA C

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**Table 1
Thickness of Fill Observed
at MDA C Investigation Boreholes**

Borehole No.	Fill Thickness (ft)
2004–2007 Boreholes	
50-09100	5.0
50-10131	4.1
50-24766	5.6
50-24767	2.8
50-24768	4.5
50-24769	11.3
50-24770	9.5
50-24771	11.2
50-24773	6.0
50-24782	8.8
50-24783	7.0
50-24784	5.0
50-24785	4.1
50-24796	6.0
50-24797	6.4
50-24799	5.4
50-24801	6.1
50-24802	8.8
50-24803	9.8
50-24804	6.8
50-24810	9.0
50-24811	12.2
50-24812	6.4
50-24813	4.1
50-24814	4.8
50-24815	10.0
50-24816	22.5
50-24817	6.4
50-24818	5.0
50-24819	15.5
50-24820	3.7
50-24821	4.7

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Borehole No.	Fill Thickness (ft)
50-24822	4.7
50-25451	4.2
50-25621	5.0
50-27437	7.5
50-27444	9.2
50-27445	8.9
50-27446	8.5
2008–2009 Boreholes	
50-603470	11.3
50-603471	11.2
50-603472	7.0
50-603383	6.4
50-603463	6.0
50-603468	10.4
50-603503	7.5
50-603061	9.0
50-603062	2.0
50-603063	8.0
50-603064	3.0

The shafts were used to dispose of wastes having higher radiation dose rates that required greater isolation. These wastes were containerized and transported to the shafts in shielded transport vessels. The waste containers were lowered into the shafts, and soil/crushed tuff was placed on top of the waste until the dose rate at the ground surface was reduced to less than 1 mR/h. Metal covers were placed over the shafts between disposals to provide shielding and to keep water out of the shafts. Once the disposal capacity of the shafts was reached, the shafts were backfilled with concrete to prevent exposure of the wastes (Rogers 1977).

Since the wastes disposed at MDA C and associated potential releases are in the subsurface, industrial materials historically managed at MDA C are not exposed to storm water and, therefore, could not result in contaminant discharges to receiving waters. As described below, this conclusion is supported by the results of Individual Permit storm water monitoring.

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Individual Permit Storm Water Monitoring

Storm water runoff from the area above portions of and upstream of Site 50-009 is monitored by T-SMA-1. Following the installation of baseline control measures, two baseline storm water samples were collected on July 30, 2011, and August 15, 2011. Analytical results from this sample yielded three TAL exceedances (Table 2).

**Table 2
TAL Exceedances in Storm Water Samples Collected at Site 50-009**

Analyte	Results	MTAL/ATAL	Exceedance Ratio	Date
Copper	12.6 µg/L	4.3 µg/L (MTAL)	2.9	8/15/2011
	21.2 µg/L		4.9	7/30/2011
Zinc	103 µg/L	42 µg/L (MTAL)	2.5	8/15/2011
	324 µg/L		7.7	7/30/2011
PCBs	0.06 µg/L	0.0006 µg/L (ATAL)	94	8/15/2011
	0.01 µg/L		16	7/30/2011

Notes: MTAL = Maximum TAL; ATAL = average TAL.

Potential contaminants associated with industrial materials historically managed at Site 50-009 are various chemicals, including metals, volatile organic compounds, semivolatile organic compounds, and radionuclides. These materials could potentially have included copper, zinc, and PCBs. These materials, however, were placed in subsurface disposal pits and shafts and subsequently covered with crushed tuff. Therefore, these materials are not, nor have they ever been, exposed to storm water.

TAL exceedances were evaluated against the appropriate storm water background values, which consist of "Bandelier Tuff background" for undisturbed SMAs or "developed background" for SMAs in urban settings. Background values are expressed as upper tolerance limits (UTLs) determined using the recommendations provided in ProUCL 4.1, an EPA developed statistical software package (<http://www.epa.gov/nerlesd1/databases/datahome.htm>). UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figures 3 and 4. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figures 3 and 4.

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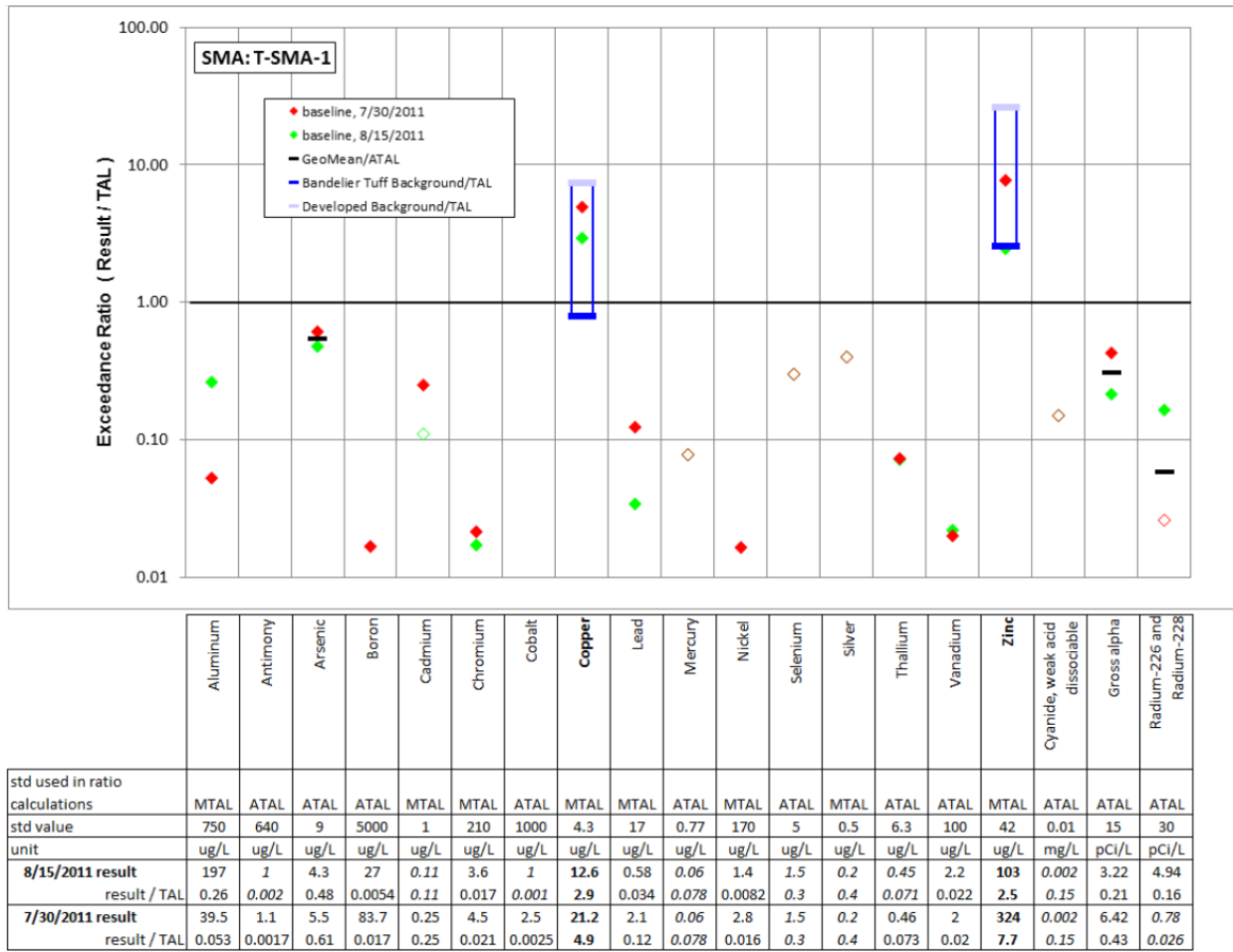


Figure 3 Inorganic analytical results summary plot for T-SMA-1

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Site: 50-009

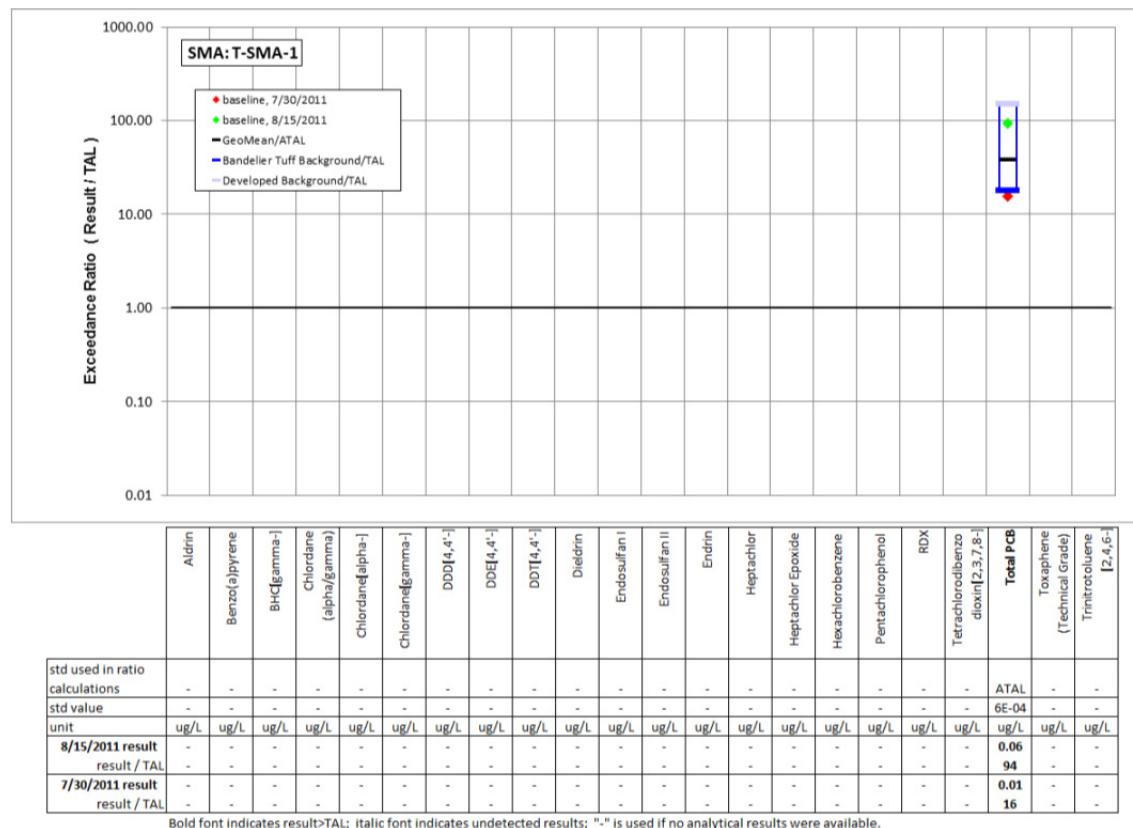


Figure 4 Organic analytical results summary plot for T-SMA-1

Monitoring location T-SMA-1 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediment derived from Bandelier Tuff, as indicated in Figure 1. Thus, background levels of copper at T-SMA-1 would be expected to be between the Bandelier Tuff background and the developed sites background.

Copper is associated with building materials, parking lots, and automobiles and also occurs naturally at low concentrations in the Bandelier Tuff. The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper results from 2011 are between these values and, therefore, are within the range of background values expected for this site.

Zinc is associated with building materials, storm drain galvanized pipes, and galvanized fences, all of which present within T-SMA-1. Zinc also occurs naturally at low concentrations in the Bandelier Tuff. The zinc UTL from developed urban landscape storm water run-on is 1120 µg/L; the zinc UTL for background storm water containing sediment derived from Bandelier Tuff is 109 µg/L. The zinc results from 2011 were either below or between these values and, therefore, are within the range of background values expected for this site.

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PCBs are ubiquitous and are found in precipitation, snowpack, and storm water in undeveloped watersheds and in urban runoff. The PCB UTL from developed urban landscape storm water run-on is 0.098 µg/L; the PCB UTL for background storm water containing sediment derived from Bandelier Tuff is 0.0117 µg/L. The PCB results from 2011 were either below or between these values and, therefore, are within the range of background values expected for this site.

In summary, the results of the SMA samples support the conclusion that Site-related industrial materials containing copper, zinc, and PCBs are not exposed to storm water.

Corrective Action Control Measure Description

Because of the nature of the wastes disposed of at Site 50-009, no exposure has been a key element of radiological protection and nuclear safety requirements since disposal began. In addition to being a SWMU, the inactive, subsurface disposal pits and shafts comprising Site 50-009 are regulated by DOE because of their radionuclide inventory. The radiological protection requirements that have been established for these inactive pits essentially require no exposure of potential receptors (e.g., members of the public) to the radionuclides in the wastes disposed of in the pits and shafts. As explained in more detail below, these “no exposure” requirements under DOE regulations are fundamentally identical to the corrective action requirements for storm water control measures that prevent contamination of storm water by eliminating exposure to pollutants.

Because of the radionuclide inventory in the pits and shafts, Site 50-009 has been identified as a “Radiological Facility” based on a facility hazard categorization performed in accordance with DOE Technical Standard DOE-STD-1027-92 (DOE 1997). Site 50-009 is, therefore, subject to DOE safety basis requirements for nonnuclear (i.e., radiological) facilities. In accordance with these requirements, the Laboratory performed a hazard analysis to evaluate potential release scenarios and their resultant radiological exposure to potential receptors. This hazard analysis is documented in the Facility Safety Plan for Material Disposal Area C, NES-MDAC-PLAN-00001, R.0 (LANL 2010). Based on the results of the hazard analysis, the Laboratory identified specific hazard controls that are applicable to activities at Site 50-009 to ensure the waste inventory does not become exposed and radiological dose to workers and members of the public meets limits established by DOE. These hazard controls are also documented in the facility safety plan. The hazard controls include a requirement for protective overburden that specifies the protective overburden (i.e., soil and crushed tuff) over the disposed waste in the pits and shafts must be maintained at a minimum thickness of 3 ft. The hazard controls implemented at Site 50-009 in accordance with DOE radiological safety requirements, therefore, also ensure Site 50-009 meets the requirement for control measures that totally eliminate exposure of pollutants to storm water specified in Part I.E.2(c) of the Individual Permit.

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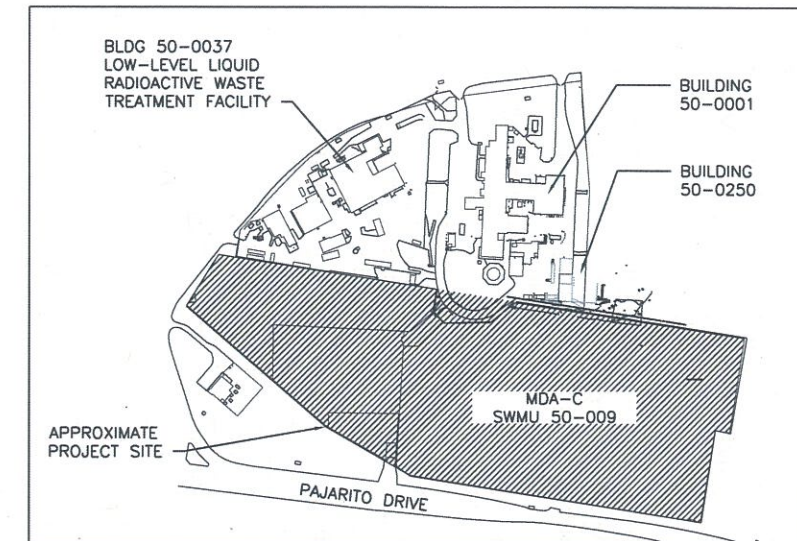
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- LANL (Los Alamos National Laboratory), October 2005. "Investigation Work Plan for Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50, Revision 2," Los Alamos National Laboratory document LA-UR-05-7363, Los Alamos, New Mexico.
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- LANL (Los Alamos National Laboratory), April 19, 2007. "Submittal of Drilling and Sampling Results from Boreholes Between Pit 2 and Pit 3 at Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50," Los Alamos National Laboratory letter (EP2007-0231) to J.P. Bearzi (NMED –HWB) from C.A. Mangeng (LANL) and G.J. Rael (DOE-LASO), Los Alamos, New Mexico.
- LANL (Los Alamos National Laboratory), October 2009. "Phase II Investigation Report for Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50, Revision 1," Los Alamos National Laboratory document LA-UR-09-6266, Los Alamos, New Mexico.
- LANL (Los Alamos National Laboratory), October 2010. "Facility Safety Plan for Material Disposal Area C," Los Alamos National Laboratory document NES-MDAC-PLAN-00001, R.0, Los Alamos, New Mexico.
- LANL (Los Alamos National Laboratory), September 23, 2013. "NPDES Permit No. NM0030759 — Request for an Extension Due to Force Majeure under Part I.E.4(c) for Sites in Upper Mortandad Canyon," Los Alamos National Laboratory letter (EP2013-0213) to J. Walker and D. McDonald (EPA) from J. Mousseau (LANL) and P. Maggiore (DOE-NA-00-LA), Los Alamos, New Mexico.
- LASL (Los Alamos Scientific Laboratory), December 22, 1970. "Materials Disposal Areas, Area 'C'," Engineering Drawing ENG-R-1264, sheet number 3 of 5, Los Alamos, New Mexico.
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- Rogers, M.A., June 1977a. "History and Environmental Setting of LASL Near-Surface Land Disposal Facilities for Radioactive Wastes (Areas A, B, C, D, E, F, G, and T)," Vol. I, Los Alamos Scientific Laboratory report LA-6848-MS, Los Alamos, New Mexico.
- Rogers, M.A., June 1977b. "History and Environmental Setting of LASL Near-Surface Land Disposal Facilities for Radioactive Wastes (Areas A, B, C, D, E, F, G, and T)," Vol. II, Los Alamos Scientific Laboratory report LA-6848-MS, Los Alamos, New Mexico.

Attachment 1

As-Built Drawings

SWMU 50-009 (PART OF T-SMA-1) AS-BUILT DRAWINGS

SWMU 50-009 TA-50



LOCATION PLAN
SCALE: NONE TA-50

GENERAL NOTE

THIS DRAWING SET REPRESENTS "AS-FOUND" CONDITIONS THAT WERE IN PLACE PRIOR TO THE NOVEMBER 1, 2010, EFFECTIVE DATE OF THE LOS ALAMOS NATIONAL LABORATORY NPDES INDIVIDUAL PERMIT, PERMIT NO. NM0030759 (IP). "AS-FOUND" CONDITIONS DESCRIBED IN THIS DRAWING SET ARE BASED ON FIELD-VERIFIED LAND CLASSIFICATION/DEVELOPMENT, GIS AERIAL PHOTOGRAPHY, AND HISTORICAL DOCUMENTATION THAT INCLUDES ENGINEERING DRAWINGS, LAND SURVEYS, LETTERS, MEMORANDUMS AND OTHER DOCUMENTS THAT DESCRIBE PAST AND PRESENT CONDITIONS. THIS DRAWING SET IS BEING PREPARED TO SATISFY PART.I.E.1(B) OF THE IP.

LIST OF DRAWINGS

REVISION NUMBER	SHEET NUMBER	DISCIPLINE SHEET NUMBER	DRAWING TITLE
0	1	G-0001	TITLE SHEET
0	2	C-0001	LEGEND, ABBREVIATION, AND GENERAL NOTES
0	3	C-1000	PLAN VIEW
0	4	C-1001	LAND CLASSIFICATION ABOVE MDA-C PITS AND SHAFTS WITHIN T-SMA-1
0	5	C-3000	PIT SECTION VIEW
0	6	C-3001	SHAFT SECTION VIEW

ECN # CAPSW-102761-ECN-0030

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DES	CHKD	SUB	APP	
ENVIRONMENTAL PROGRAMS										
SWMU 50-009 (T-SMA-1) AS-BUILT DRAWINGS					DRAWN 10/29/13 DESIGN 10/29/13 CHECKED 10/30/13 DATE 10/28/2013	E. MARTIN for W. FOLEY R. RAGER R. RAGER				
TITLE SHEET										
BLDG NA SUBMITTED					TA-50 APPROVED FOR RELEASE					
					SHEET G-0001					
Los Alamos NATIONAL LABORATORY PO Box 1663 Los Alamos, New Mexico 87545					1 OF 6					
CLASSIFICATION PROJECT ID					REVIEWER DRAWING NO					
102761					C-56075					
					DATE 10.29.13 REV 0					

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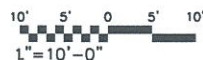
LEGEND

ABBREVIATIONS

GENERAL NOTES



NORTH ORIENTATION SYMBOL



GRAPHIC SCALE



SECTION TAG



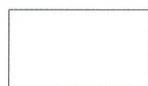
SECTION END LINE



EXISTING CONTOUR



WASTE SHAFT



MISC EXISTING STRUCTURE



SWMU BOUNDARY



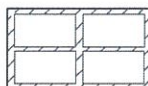
EXISTING EARTH/TUFF



INTERIM COVER



OPERATIONAL COVER



CONTAMINATED MATERIAL



SOIL

- BLDG - BUILDING
- DWG - DRAWING
- E - EASTING
- EL - ELEVATION
- FT - FOOT OR FEET
- INV - INVERT
- LF - LINEAR FEET
- MAX - MAXIMUM
- MIN - MINIMUM
- N - NORTHING
- NAD - NORTH AMERICAN DATUM
- NGVD - NATIONAL GEODETIC VERTICAL DATUM
- NMDDOT - NEW MEXICO DEPARTMENT OF TRANSPORTATION
- SMA - SITE MONITORING AREA
- SWMU - SOLID WASTE MANAGEMENT UNIT
- TYP - TYPICAL

LIST OF REFERENCES

- LANL (LOS ALAMOS NATIONAL LABORATORY), OCTOBER 2005. "INVESTIGATION WORK PLAN FOR MATERIAL DISPOSAL AREA C, SOLID WASTE MANAGEMENT UNIT 50-009, AT TECHNICAL AREA 50, REVISION 2," LOS ALAMOS NATIONAL LABORATORY DOCUMENT LA-UR-05-7363, LOS ALAMOS, NEW MEXICO.
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- ROGERS, M.A., JUNE 1977B. "HISTORY AND ENVIRONMENTAL SETTING OF LASL NEAR-SURFACE LAND DISPOSAL FACILITIES FOR RADIOACTIVE WASTES (AREAS A, B, C, D, E, F, G, AND T)," VOL. II, LOS ALAMOS SCIENTIFIC LABORATORY REPORT LA-6848-MS, LOS ALAMOS, NEW MEXICO.

- 1. IF THIS SHEET IS NOT 24" X 36" IT IS A REDUCED-SIZE PLOT.

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ECN # CAPSW-102761-ECN-0030

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DES	CHKD	SUB	APP

ENVIRONMENTAL PROGRAMS

SWMU 50-009 (T-SMA-1)
AS-BUILT DRAWINGS

LEGEND, ABBREVIATIONS, REFERENCES,
AND GENERAL NOTES

DRAWN	E MARTIN
DESIGN	W EDLEY
CHECKED	R RAGER
DATE	10/28/2013

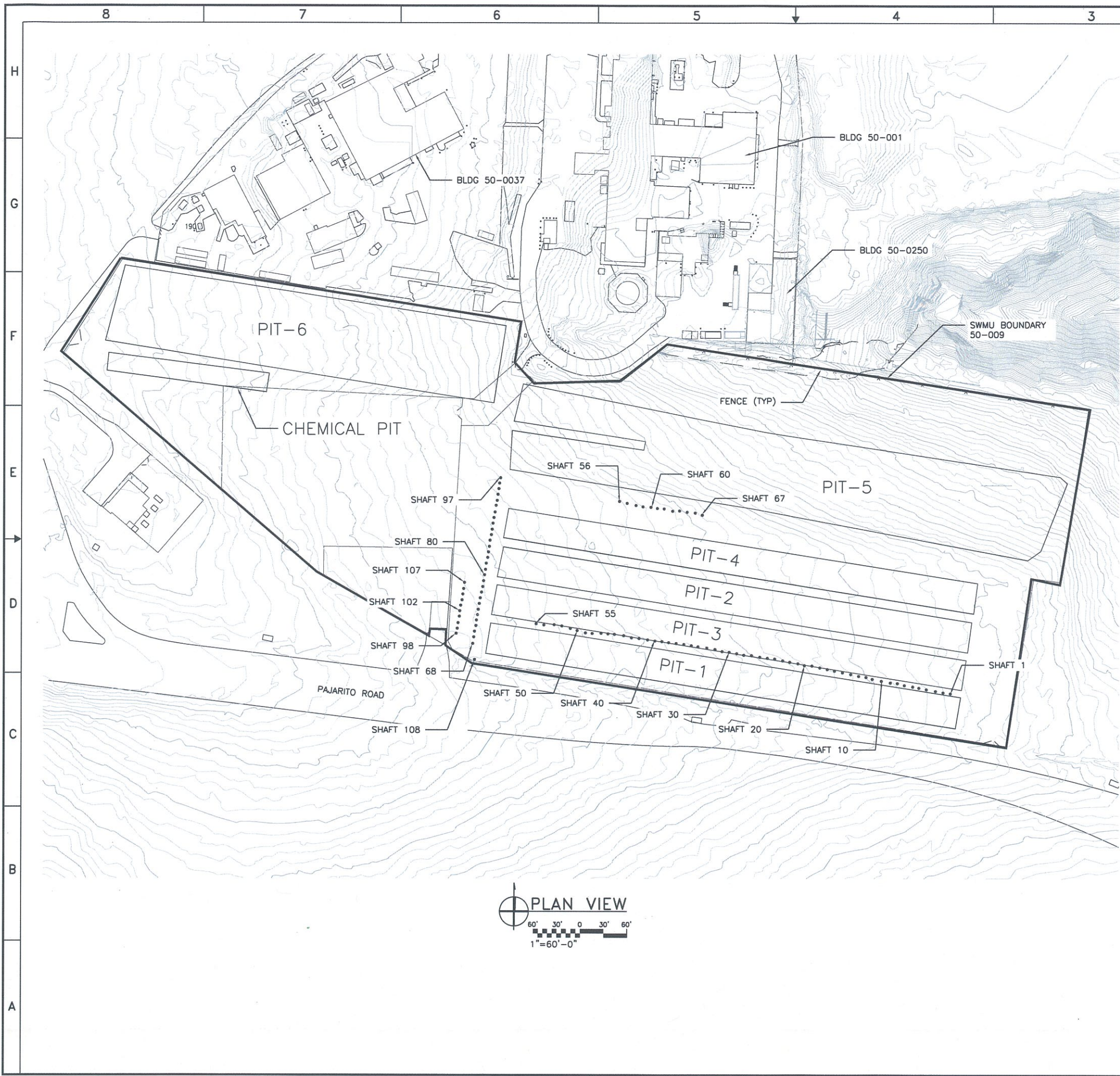
BLDG NA TA-50
SUBMITTED *Will D* APPROVED FOR RELEASE *Steve Velms*

Los Alamos NATIONAL LABORATORY PO Box 1663 Los Alamos, New Mexico 87545

SHEET **C-0001** 2 OF 6

CLASSIFICATION *Unclassified* REVIEWER *Deby Jermey* DATE *10/29/13*

PROJECT ID **102761** DRAWING NO **C-56075** REV **0**



GENERAL NOTES

1. IF THIS SHEET IS NOT 24" X 36" THEN IT IS A REDUCED-SIZE PLOT.
2. SHAFT NUMBERING IS SEQUENTIAL. NOT ALL SHAFT NUMBERS ARE SHOWN.
3. SHAFT GROUP 1 - SHAFTS 56-67
4. SHAFT GROUP 2 - SHAFTS 1-55
5. SHAFT GROUP 3 - SHAFTS 68-107

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ECN # CAPSW-102761-ECN-0030

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DES	CHKD	SUB	APP

ENVIRONMENTAL PROGRAMS

SWMU 50-009 (T-SMA-1)
AS-BUILT DRAWINGS

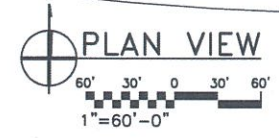
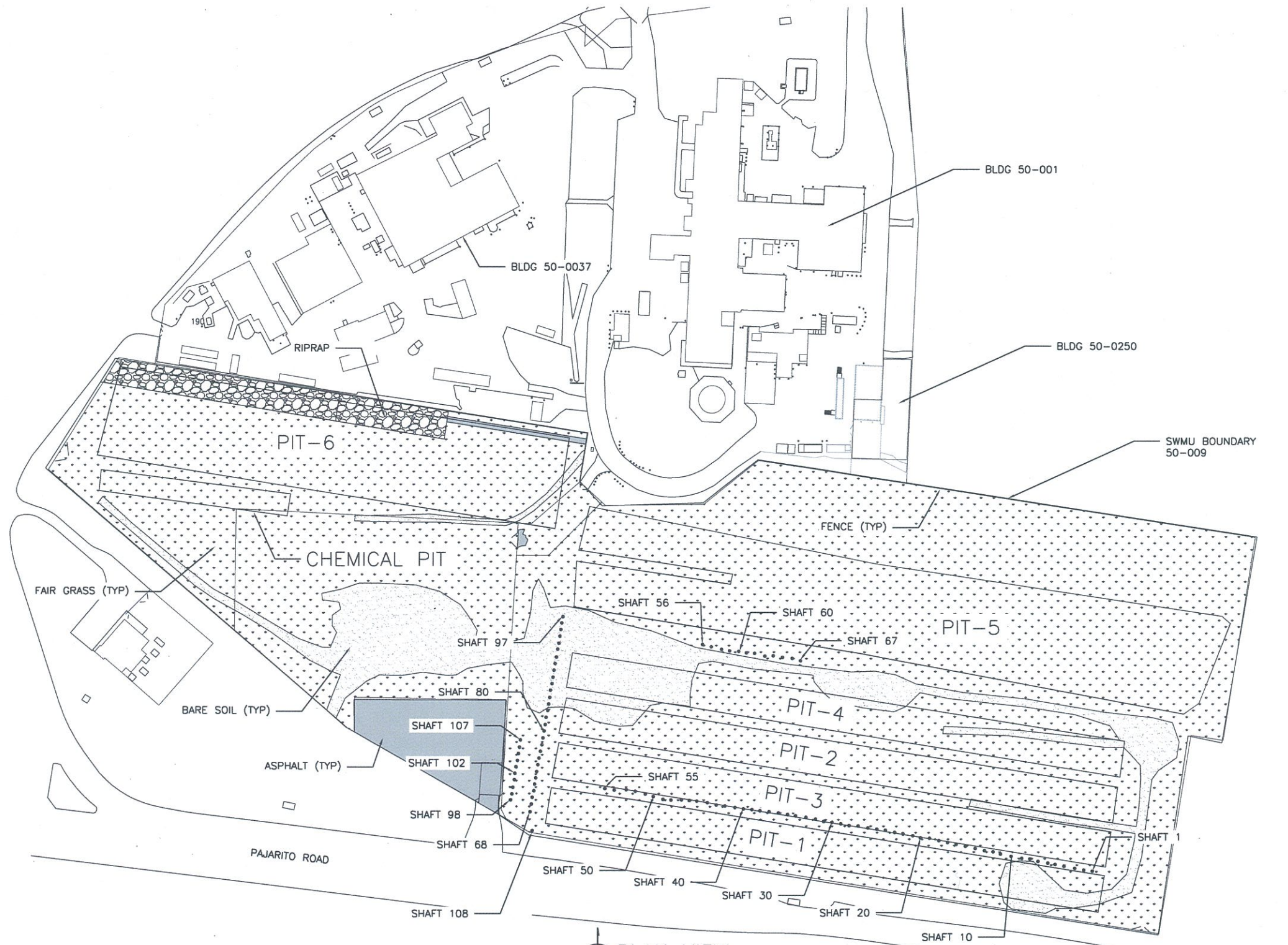
PLAN VIEW

DRAWN	E. MARTIN
DESIGN	J. EDNEY
CHECKED	R. RAGER
DATE	10/28/2013

BLDG NA SUBMITTED	TA-50 APPROVED FOR RELEASE	DATE	10/28/2013
		SHEET	
Los Alamos NATIONAL LABORATORY <small>PO Box 1663 Los Alamos, New Mexico 87545</small>		C-1000	
CLASSIFICATION <i>Unclassified</i>		3 OF 6	
PROJECT ID	DRAWING NO	DATE	REV
102761	C-56075	10-29-13	0

GENERAL NOTES

1. IF THIS SHEET IS NOT 24" X 36" THEN IT IS A REDUCED-SIZE PLOT.
2. LAND COVER INITIALLY DEVELOPED USING HIGHEST RESOLUTION ORTHOPHOTOS IN ARCGIS AND FIELD VERIFIED BY LANL ENVIRONMENTAL PROGRAMS STAFF SEPTEMBER 2013.
3. THE SEVEN PITS ARE BELOW THE ORIGINAL GROUND SURFACE AND ARE COVERED WITH CRUSHED BANDELIER TUFF AND A VEGETATED SOIL LAYER. THE 108 SHAFTS ARE BELOW THE ORIGINAL GROUND SURFACE. THESE WERE CAPPED WITH CONCRETE AND COVERED WITH CRUSHED BANDELIER TUFF AND OVERLAIN WITH A VEGETATED SOIL LAYER.



ECN # CAPSW-102761-ECN-0030

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DES	CHKD	SUB	APP

ENVIRONMENTAL PROGRAMS

SWMU 50-009 (T-SMA-1)
AS-BUILT DRAWINGS

LAND CLASSIFICATION ABOVE MDA C PITS AND SHAFTS WITHIN T-SMA-1

BLDG NA SUBMITTED: *WJD* TA-50 APPROVED FOR RELEASE: *Steve Jensen* DATE: 10/28/2013

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SHEET: C-1001
4 OF 6

CLASSIFICATION: *Unclassified* REVIEWER: *Billy Jeremy* DATE: 10/29/13
PROJECT ID: 102761 DRAWING NO: C-56075 REV: 0

LAND CLASSIFICATION ABOVE PITS AND SHAFTS WITHIN SWMU 50-009

SURFACE TYPE	PIT-1 (AREA %)	PIT-2 (AREA %)	PIT-3 (AREA %)	PIT-4 (AREA %)	PIT-5 (AREA %)	PIT-6 (AREA %)	CHEMICAL PIT (AREA %)	SHAFTS 1-83 (AREA %)	SHAFTS 84-97 (AREA %)	SHAFTS 98-107 (AREA %)
ASPHALT	0	0	0	0	0	2	0	0	0	0
BARE SOIL	12	6	0	31	0	0	0	0	100	0
FAIR GRASS	88	94	100	69	100	82	100	100	0	100
RIPRAP	0	0	0	0	0	16	0	0	0	0

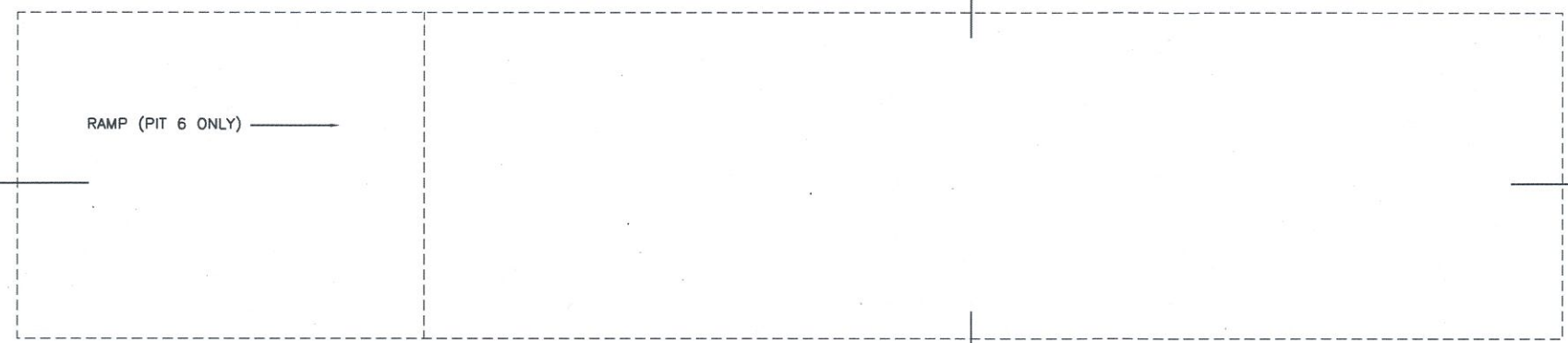
8 7 6 5 4 3 2 1

H
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D
C
B
A

B
C-3000

A
C-3000

RAMP (PIT 6 ONLY)



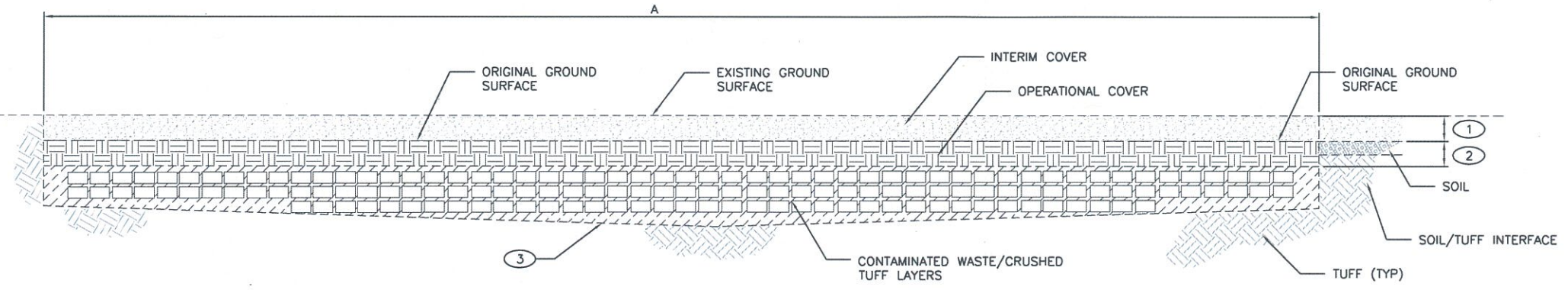
STANDARD PIT PLAN

GENERAL NOTES

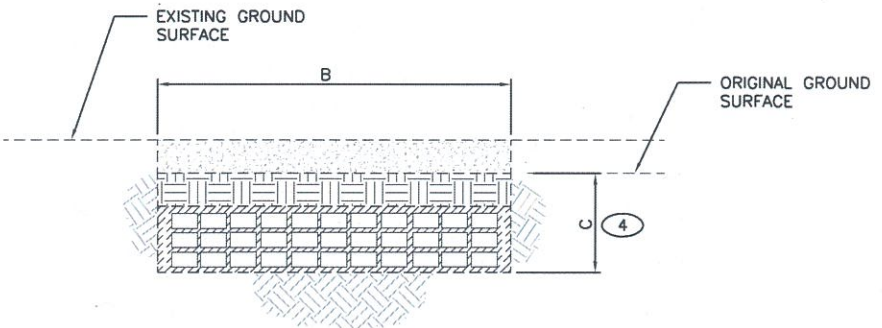
1. IF THIS SHEET IS NOT 24" X 36" THEN IT IS A REDUCED-SIZE PLOT.
2. STANDARD PIT LAYOUT AND SECTION VIEW FROM LANL ENGINEERING DRAWING R-1264 AND MDA C INVESTIGATION WORK PLAN (LANL 2005).
3. PIT DIMENSIONS ESTABLISHED FROM LANL ENGINEERING DRAWING R-1264. SEE DIMENSION TABLE FOR DRAWING REFERENCE.

KEYED NOTES

- 1 INTERIM COVER CONSISTS OF 1.5 FT OF CRUSHED TUFF COVERED BY 0.5 TO 3 FT OF TOPSOIL. DEPTH FROM EXISTING GROUND SURFACE MAY BE DEFINED BY COVER SOIL OR ROCK. SEE SHEET C-1000 FOR DETAILS.
- 2 OPERATIONAL COVER CONSISTS OF CRUSHED TUFF. DEPTH FROM ORIGINAL GROUND SURFACE TO CONTAMINATED WASTE / CRUSHED TUFF LAYERS NOT IDENTIFIED.
- 3 PIT BOTTOM SLOPE VARIES.
- 4 DIMENSION "C" IS THE MAXIMUM DIMENSION AS MEASURED FROM THE PIT BOTTOM TO THE ORIGINAL GROUND SURFACE.



SECTION VIEW A
SCALE: NONE



SECTION VIEW B
SCALE: NONE

PIT DIMENSION TABLE (FT)								
DIMENSION ID	PIT-1	PIT-2	PIT-3	PIT-4	PIT-5	PIT-6	CHEMICAL PIT	
A	610	610	610	610	705	505	180	
B	40	40	40	40	110	100	25	
C	25	25	25	25	18	23	12	
SOURCE:	ENGINEERING DRAWING R-1264, MDA C INVESTIGATION WORK PLAN (LANL 2005)						MDA C INVESTIGATION WORK PLAN (LANL 2005)	

ECN # CAPSW-102761-ECN-0030

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DES	CHKD	SUB	APP

ENVIRONMENTAL PROGRAMS

SWMU 50-009 (T-SMA-1)
AS-BUILT DRAWINGS

PIT SECTION VIEW

BLDG NA SUBMITTED: *[Signature]* APPROVED FOR RELEASE: *[Signature]*

DATE: 10/28/2013

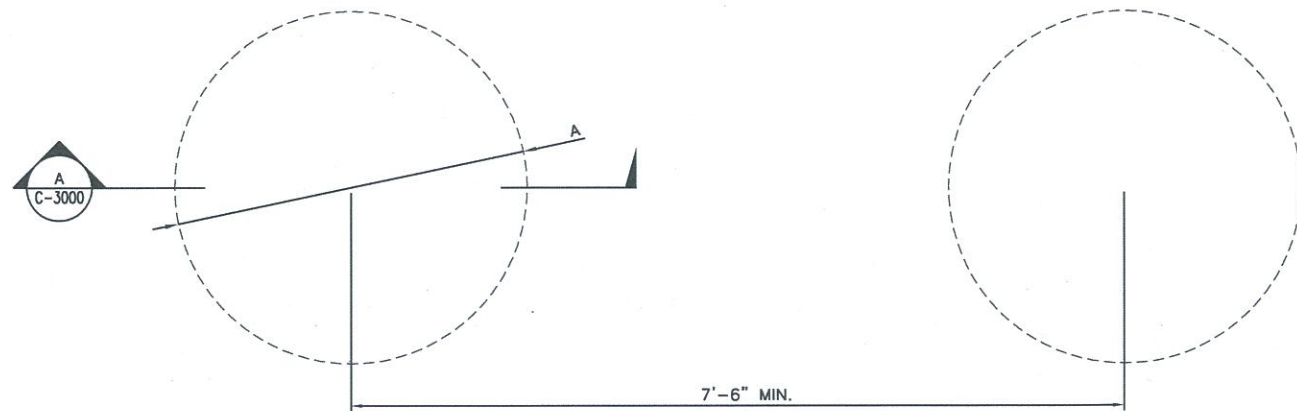
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SHEET C-3000
5 OF 6

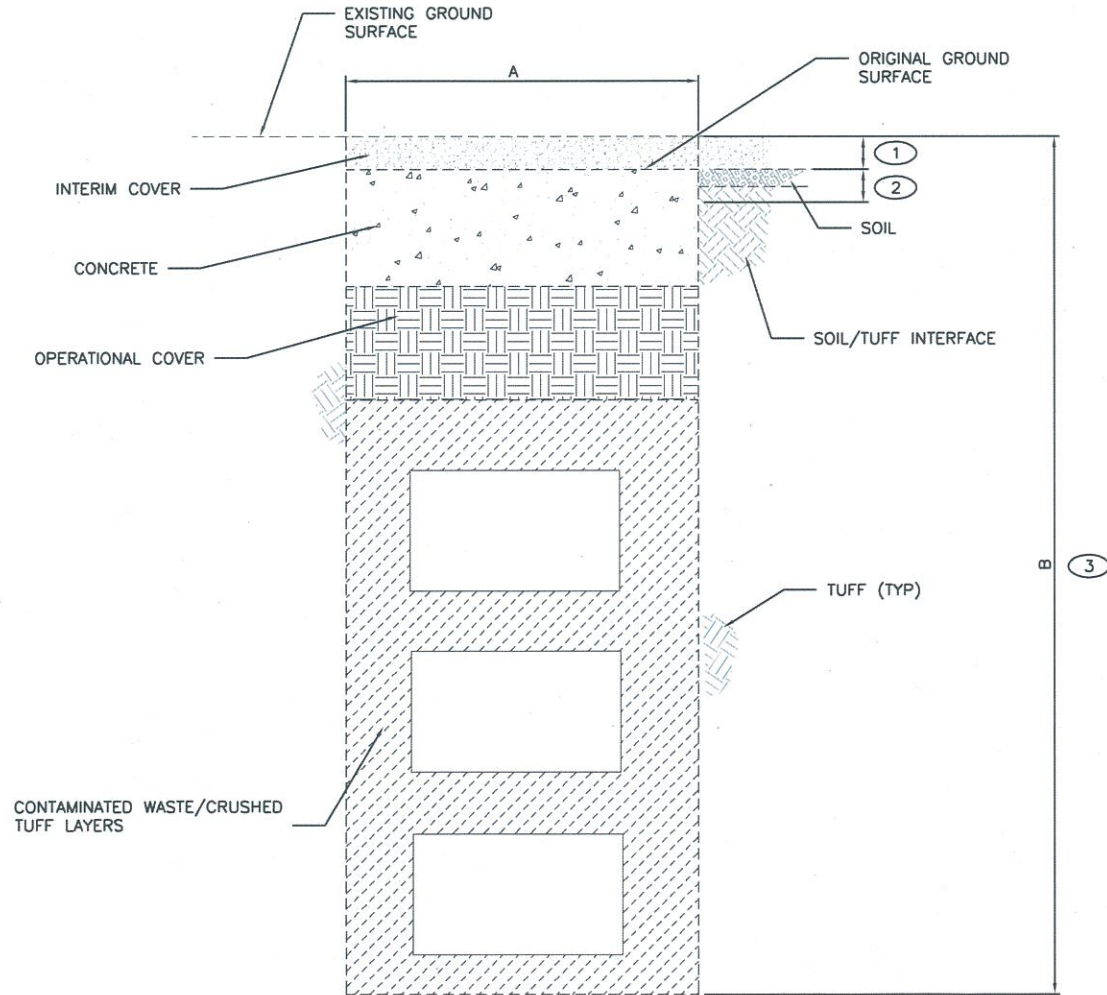
CLASSIFICATION: <i>[Handwritten]</i>	REVIEWER: <i>[Handwritten]</i>	DATE: 10-29-13
PROJECT ID: 102761	DRAWING NO: C-56075	REV: 0

Path: P:\CAD\06\os Alamos\107931\T-SMA-1_MDA-C\3-Sheets Filename: C-3000.dwg Plot Date: October 28, 2013 - 4:25 PM CADD User: Martin, Edgar

H
G
F
E
D
C
B
A



STANDARD SHAFT PLAN



SECTION VIEW
SCALE: NONE

SHAFT DIMENSION TABLE (FT)				
DIMENSION ID	GROUP-1 SHAFTS 55-67	GROUP-2 SHAFTS 1-55	GROUP-3 SHAFTS 68-107	SHAFT 108
A	2	2	2	SEE NOTE 2
B	10	15	20-25	SEE NOTE 2
SOURCE:	ENGINEERING DRAWING R-1264, MDA C INVESTIGATION WORK PLAN (LANL 2005)			

NOTES:
 1. FOR GROUPS 1-3, DIMENSIONS A=DIAMETER AND DIMENSIONS B=DEPTH.
 2. SHAFT 108 WAS IDENTIFIED AS BEING 4' HIGH x 4' WIDE x 4' DEEP SQUARE SHAFT.

GENERAL NOTES

- IF THIS SHEET IS NOT 24" X 36" THEN IT IS A REDUCED-SIZE PLOT.
- STANDARD SHAFT LAYOUT AND SECTION VIEW FROM LANL ENGINEERING DRAWING R-1264 AND MDA C INVESTIGATION WORK PLAN (LANL 2005).
- SHAFT DIMENSIONS ESTABLISHED FROM LANL ENGINEERING DRAWING R-1264. SEE DIMENSION TABLE FOR REFERENCE.

KEYED NOTES

- INTERIM COVER CONSISTS OF 1.5 FT OF CRUSHED TUFF COVERED BY 0.5 TO 3 FT OF TOPSOIL. DEPTH FROM EXISTING GROUND SURFACE MAY BE DEFINED BY COVER SOIL OR ROCK. SEE SHEET C-1000 FOR DETAILS.
- OPERATIONAL COVER CONSISTS OF CONCRETE, SOIL, AND CRUSHED TUFF. DEPTH FROM EXISTING GROUND SURFACE MAY BE DEFINED BY COVER SOIL OR ROCK. SEE SHEET C-1000 FOR DETAILS.
- DIMENSION "B" IS THE MAXIMUM DIMENSION AS MEASURED FROM THE SHAFT BOTTOM TO THE ORIGINAL GROUND SURFACE.

ECN # CAPSW-102761-ECN-0030

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DES	CHKD	SUB	APP

ENVIRONMENTAL PROGRAMS

SWMU 50-009 (T-SMA-1)
 AS-BUILT DRAWINGS
 SHAFT SECTION VIEW

BLDG NA SUBMITTED: 10/29/13
 APPROVED FOR RELEASE: [Signature]
 TA-50 SHEET: C-3001

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 PO Box 1663, Los Alamos, New Mexico 87545
 CLASSIFICATION: Unclassified
 PROJECT ID: 102761
 DRAWING NO: C-56075
 REVIEWER: [Signature]
 DATE: 10-29-13
 SHEET: 6 OF 6
 REV: 0