LA-UR-11-10768
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Title:	Supplemental Discharge Permit Application--Part "A", Domestic Septic Tank/Leachfield Systems, DP-1589
Author(s):	Beers, Robert S.
Intended for:	NMED Report Waste management Reading Room NM WQCC

GROUNDWATER DISCHARGE PERMIT DP-1589
RESUBMITTED APPLICATION—PART A

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SEPTIC TANK/LEACHFIELD SYSTEMS

Submitted by

LOS ALAMOS NATIONAL SECURITY, LLC

And the

NATIONAL NUCLEAR SECURITY ADMINISTRATION

JUNE xx, 2011

LA-UR-11-xxxx

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Los Alamos
NATIONAL LABORATORY
EST. 1943

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Environmental Protection Division
Water Quality & RCRA Group (ENV-RCRA)
P.O. Box 1663, Mail Stop K490
Los Alamos, New Mexico 87545
(505) 667-7969/FAX: (505) 665-9344

Date: June xx, 2011
Refer To: ENV-RCRA-11-
LA-UR: 11-

Mr. William C. Olson, Bureau Chief
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, Room N2261
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502

Dear Mr. Olson:

SUBJECT: SUPPLEMENTAL DISCHARGE PERMIT APPLICATION—PART "A", DOMESTIC SEPTIC TANK/LEACHFIELD SYSTEMS, DP-1589

In accordance with the direction provided by the New Mexico Environment Department (NMED) Ground Water Quality Bureau staff (Enclosure 1), provided are three copies of a supplemental Discharge Permit application—Part "A" for domestic septic tank/leachfield systems at Los Alamos National Laboratory (LANL or the Laboratory). On June 25, 2010, the Laboratory and the National Nuclear Security Administration (NNSA) submitted a Discharge Permit application (DP-1589) for 15 domestic septic tank/leachfield systems (ENV-RCRA-010-106). It is necessary for LANL to update the Discharge Permit application for DP-1589 for the following two reasons: (1) Because of operational changes that occurred at LANL since June 2010, and (2) Direction from NMED Ground Water Quality Bureau staff that Discharge Permit application DP-1589 must include all septic tank/leachfield systems on the LANL site, including those owned and operated by others. Updating Part "A" of the Laboratory and NNSA's June 25, 2010, Discharge Permit application was the method recommended by your staff for incorporating the following changes:

- Removal of three systems: TA-15-0569, TA-66-003, and TA-69-0010,
- Modification of one system: TA-33-0031,
- Addition of one newly constructed system: TA-33-0375, and
- Addition of three systems owned and operated by others: TA-49-0172 and the Los Alamos Sportsmen's Club—Clubhouse and Caretaker's Trailer.

Additional information on each of these changes is presented below.

1. Removal of three systems: TA-15-0569, TA-66-003, and TA-69-0010

   - TA-15-569. In October 2010, all wastewater discharges to this system were bypassed to the TA-46 Sanitary Wastewater Systems (SWWS) Plant. The septic tank was closed in accordance with New Mexico Liquid Waste Regulations (20.7.3.307 NMAC).

   - TA-66-0003. The discharge line from the septic tank to the leachfield is plugged. As a result, the septic tank is functioning as a holding tank; septage is routinely pumped from the tank and hauled to the TA-46 SWWS Plant for disposal.

   - TA-69-0010. In 2010, the only building discharging to this septic system—TA-69-0002— was demolished.

2. Modification of one system: TA-33-0031

   - TA-33-0031. In December 2010, after the new TA-33-0375 septic system was placed into service, the number of buildings discharging to the TA-33-0031 septic system was reduced from five to two.

3. Addition of one newly constructed system: TA-33-0375

   - TA-33-0375. In December 2010, LANL completed construction of a new septic tank/leachfield system. This system receives wastewater from three buildings previously discharging to the TA-33-0031 system and from one new building. The NMED granted LANL temporary permission to discharge from this system on December 9, 2010 (William C. Olson, NMED, to Robert Beers, LANL). On March 23, 2011, LANL submitted a request for renewal of the previously issued temporary permission (ENV-RCRA-11-0055). Record drawings of the TA-33-0375 system were submitted to the NMED on January 28, 2011 (ENV-RCRA-11-0017).

4. Addition of three systems owned and operated by others: TA-49-0172 and the Los Alamos Sportsmen's Club—Clubhouse and Caretaker's Trailer.

   The June 2010 Discharge Permit application for domestic septic tank/leachfield systems included only those systems owned by the NNSA and operated by LANL; septic tank/leachfield systems located on the LANL site but owned by others were not included. Subsequently, at a March 30, 2011 meeting with NMED Ground Water Quality Bureau staff, the Laboratory was directed to add to the Discharge Permit application all those systems owned and operated by others. Accordingly, the following three systems are being added to the application.

   - TA-49-0172: This septic tank/leachfield system is owned and operated by Bandelier National Monument under an interagency permit with the U.S.

Department of Energy. The NMED issued a permit for this system—ES020211—on June 10, 2002.

- Los Alamos Sportsmen's Club—Clubhouse and Caretaker's Trailer: The Los Alamos Sportsmen's Club, a private organization operating under a license from the U.S. Department of Energy, owns and operates two septic tank/leachfield systems in Rendija Canyon for their Clubhouse and Caretaker's trailer. No records are available on the age, size, type of system, or maintenance history. A search of the NMED's on-line Liquid Waste Database (http://www.nmenv.state.nm.us/fod/liquidwaste/dbasegateway.html) did not show any permit records for the Los Alamos Sportsmen's Club.

Please call me at (505) 667-7969 if you have questions regarding this supplemental Discharge Permit application.

Sincerely,

Robert Beers
Water Quality & RCRA Group

BB/lm

Enclosure: a/s

Cy: James Bearzi, NMED SWQB, Santa Fe, NM, w/enc.
John Kieling, NMED HWB, Santa Fe, NM, w/enc.
Steve Yanicak, LASO-GOV, w/enc., M894
Hai Shen, LASO-EO, w/enc., A316
Gene Turner, LASO-EO, w/enc., A316
Carl A. Beard, PADOPS, w/o enc., E585
Chris Cantwell, ADESHQ, w/o enc., K491
Mike Saladen, ENV-RCRA, w/enc., K490
Andy Erickson, UI-DO, w/enc., K760
Walter E. Atencio, ESHQ-DR, w/enc., P908
Mell Smithour, ES-UI, w/enc., K718
Charles Barnett, UI-OPS, w/enc., J972
ENV-DO, w/o enc., J978
ENV-RCRA File, w/enc., K490
IRM-RMMSO, w/enc., A150

NEW MEXICO ENVIRONMENT DEPARTMENT
GROUND WATER QUALITY BUREAU

DISCHARGE PERMIT APPLICATION

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Type of Application. Check appropriate box.

☐ Application for new Discharge Permit -- new facility

☒ Application for new Discharge Permit -- existing ~~(unpermitted)~~** facility

****Managed previously under the NM Liquid Waste Regulations and Discharge Permit Application DP-1589, submitted in April 2006. See Appendix E.**

☐ Application for Discharge Permit Renewal

☐ Application for Discharge Permit Modification
"Modification" is defined as a change to the permit requirements that result from a change in the location of the discharge, a significant increase in the quantity of the discharge, or a significant change in the quality of the discharge.

☐ Application for Discharge Permit Renewal and Modification

For an existing Discharge Permit, please indicate: DP Number **1589** Expiration date **NA**

Checklist of Application Components.

☒ Part A: Administrative Completeness.	*Instructions for completing the application are included on the form itself and on Supplemental Instructions for Parts A and B.* *You may fill out the application manually, or a Microsoft Word version may be downloaded from www.nmenv.state.nm.us (Ground Water Quality) and filled out electronically.*
❑ Part B: Operational, Monitoring, Contingency and Closure Plans, with required attachments. *Choose appropriate option*: ❑ Septic Tank System ☐ General – Various Facility Types	
❑Part C: Site Information, with required attachments.	
❑ $100 Filing Fee, payable to the New Mexico Environment Department. *Required from all applicants.* An additional fee will be assessed prior to permit issuance. Permit fees are listed in Section 20.6.2.3114 NMAC.	

Certification. Signature must be that of the person named in Item A-3 of Part A of the application.
I certify under penalty of law that I am knowledgeable about the information contained in this application. The information is, to the best of my knowledge and belief, true, accurate and complete.

Signatures: _____ Date: _____

_____ Date: _____

Printed Names: **James C. Cantwell, Associate Director, ESH&Q, LANS**

Titles: **Kevin W. Smith, Manager, Los Alamos Site Office, NNSA**

Send three complete copies of this application and the filing fee to:
Program Manager, Ground Water Pollution Prevention Section
New Mexico Environment Department
PO Box 5469
Santa Fe, NM 87502

GROUND WATER DISCHARGE PERMIT APPLICATION
PART A: ADMINISTRATIVE COMPLETENESS
All Facilities

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A-1. **Facility Information.** See Supplemental Instructions to determine what constitutes the "facility." The physical location of the facility must be provided. If the facility does not have an address, the location can be described by road intersections, mile posts, or landmarks, as appropriate.

Facility Name	**Los Alamos National Laboratory**
Former Names (if any)	**NA**
Physical address/location *(mandatory)*	**Los Alamos, New Mexico**
	County **Los Alamos**
Mailing address	**P.O. Box 1663 MS K490**
	Los Alamos, NM 87544
Contact person	**James C. Cantwell**
Title	**Associate Director, Environment, Safety, Health & Quality, LANS, LLC**
Telephone number	**(505) 667-5491**
Fax number	**(505) 665-3811** **E-mail address** **cantwe@lanl.gov**

A-2. **Type of Discharge and Type of Facility.** See Supplemental Instructions.

Type of discharge: ☒ Domestic ☐ Agricultural ☐ Industrial ☐ Mining

Type of facility: **16 domestic wastewater septic tank/leachfield systems**

A-3. **Applicant Information.** The applicant is the person or entity (e.g., corporation, partnership, organization, municipality, etc.) legally responsible for the discharge and for complying with the terms of the Discharge Permit. If the applicant is an entity, then the name and title of a contact person must be provided. This application must be signed by the applicant or contact person named here.

Applicant Name	**National Nuclear Security Administration (NNSA)[1]**
	Los Alamos National Security, LLC (LANS)[2]
Mailing address	**[1]3747 West Jemez Road, Los Alamos, NM 87544**
	[2]P.O. Box 1663, MS K491, Los Alamos, NM 87544
Contact persons	**Kevin W. Smith[1], Manager, Los Alamos Site Office, NNSA**
	James C. Cantwell[2], Associate Director, ESH&Q, LANS
Telephone numbers	**[1](505) 667-5105** **[2](505) 667-4218**
Fax numbers	**[1]665-3811** **[2]845-5942** **E-mail address** **cantwe@lanl.gov** **ksmith2@doeal.gov**

A-4. Consultant Information (if applicable). If the consultant is a company or organization, then the name and title of a contact person must be provided.

Consultant/Firm Name **NA**

A-5. Permit Contact Information (if applicable). If someone other the applicant listed in Item A-3 or a consultant listed in Item A-4 is a primary contact for this application and/or facility, list here.

Permit Contact Name **Robert Beers**

Title **Environmental Professional, Water Quality & RCRA Group, LANS**

Mailing address **P.O. Box 1663 MS K490**

Los Alamos, NM 87544

Telephone number(s) **(505) 667-7969**

Fax number **(505) 665-9344** E-mail address **bbeers@lanl.gov**

A-6. Ownership.

The applicant owns (check as appropriate): ☒ the facility* ☐ some discharge sites ☐ all discharge sites

*** National Nuclear Security Administration (NNSA) Facility**

If other parties own the facility or any of the discharge sites, attach their names and contact information.

A-7. Discharge Quantity.

Your Discharge Permit will specify a maximum discharge volume, which is typically expressed as the maximum number of gallons per day that may be treated and/or disposed of. Please indicate below the maximum discharge volume for your facility. You must show how it was determined in Part B of your application. For further explanation, see Supplemental Instructions for Part B.

Maximum discharge volume: **4840** gallons per day (or other units: _____)

A-8. Processing, Treatment, Storage and Disposal System. Briefly describe how wastewater, sludge, etc. is processed, treated, stored, and/or disposed of at your facility. See Supplemental Instructions for examples of system components.

See Table 1 for a list of the 16 domestic septic tank/leachfield systems operating at the Los Alamos National Laboratory (the Laboratory) site. These septic systems receive domestic wastewater from the buildings listed in Table 1 via collection system piping. A septic tank/leachfield system consists of two components, the septic tank and the disposal system. Each component is described briefly below.

- **The septic tank is a liquid waste treatment unit designed to provide primary treatment by separating the settleable and floatable solids from the water being discharged (effluent). The Laboratory's septic tanks range in size from 380 gal to 5000 gal.**
- **The disposal system is a subsurface, gravity distributed system to dispose of effluent from the septic tank. Disposal systems at the Laboratory include seepage pits, leach fields, evaporation beds, and evapotranspiration beds.**

A-9. Discharge Locations. List the locations of your facility and of all components of your processing, treatment, storage and/or disposal system. Examples of components include septic tanks, lagoons, leachfields, irrigation sites, mine stockpiles, etc. Additional examples are listed in the Supplemental Instructions. Latitude and longitude are optional unless township, range and section are not available.

Appendix A of the June 30, 2010, Discharge Permit application contains locations maps for septic systems 1 through 12 listed below.

In this document:

- **Enclosure 1 contains location maps for septic systems 13 through 16.**
- **Enclosure 2 contains an updated site map.**
- **Enclosure 3 contains an updated soils map.**

	Components	Township	Range	Section(s)	Latitude	Longitude
	Systems Included in the June 30, 2010, Discharge Permit Application					
1	TA-15-0205	19N	6E	34	35.8321	-106.2960
2	TA-16-0178	19N	6E	30	35.8508	-106.3500
3	TA-16-1194/1195	19N	6E	30	35.8474	-106.3510
4	TA-33-0031	19N	6E	24	35.7834	-106.2560
5	TA-33-0096	18N	7E	20	35.7728	-106.2317
6	TA-33-0161	18N	6E	13	35.7870	-106.2510
7	TA-33-0179	18N	7E	19	35.7753	-106.2450
8	TA-36-0274	19N	6E	36	35.8277	-106.2630
9	TA-39-0132	18N	6E	13	35.7949	-106.2550
10	TA-40-0025	19N	6E	21	35.8571	-106.3189
11	TA-49-0119	18N	6E	04	35.8255	-106.3090
12	TA-58-0052	19N	6E	18	35.8727	-106.3447
	Systems Being Added to the June 30, 2010, Discharge Permit Application					
13	Sportsmen's Club-Clubhouse	18N	6E	2	35.909330	-106.277488
14	Sportsmen's Club-Caretaker	18N	6E	2	35.908743	-106.277511
15	TA-33-0375	18N	6E	24	35.781917	-106.256031
16	TA-49-0172	18N	6E	04	35.827165	-106.317256

A-10. Discharge Quality.

Indicate the expected quality of the discharge -- wastewater, leachate, sludge, etc. -- generated, stored, treated, processed and/or discharged at your facility. List the contaminants of concern and the expected concentrations. *Not all facilities need to characterize influent quality.* See Supplemental Instructions for typical contaminants and additional guidance.

Expected or Known Contaminants	Expected or Known Contaminants Incoming (Influent)				
	TA-16-1194/1195	TA-33-0031	TA-33-0161	TA-33-0179	TA-49-0119
NO_3+NO_2-N	0.219	0.029J	0.029J	0.095	16.0
TKN	3.56	47.2	73.5	47.9	56.7
TDS	157	329	375	335	491
Cl	10.2	29.2	46.3	33.2	78.1

J means the reported results is greater than the Method Detection Limit but less than the Reporting Limit.
All analytical results from sampling conducted on April 6, 2006.

Copies of the analytical reports are contained in Appendix D of the June 30, 2010 application.

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For **new** septic tank systems, you may either fill out the chart above or simply check one of the following options:

☒typical domestic wastewater:

☐ low-strength domestic wastewater (large gray water component; e.g., laundromat, spa, etc.)

☐ high-strength domestic wastewater (low water use; e.g., RV park, low-flow toilets at campground, etc.)

A-11. Ground Water Conditions.

All applicants must provide the depth to and pre-discharge TDS concentration of the ground water that could be affected by the discharge. Refer to Supplemental Instructions for details on how to obtain these values.

Indicate the depth to the most shallow ground water beneath the discharge site. If there are multiple discharge sites, indicate the range of depths.	Indicate pre-discharge total dissolved solids (TDS) concentration of most shallow ground water beneath the discharge site. Attach copies of analyses.
Depth to water (feet): **Max=1266 ft** **Min=486 ft** **See Enclosure 4 of this document for an updated water level map. Note that no data are available for Rendija Canyon.** Reference: ☒ Measurement, nearby monitoring well ☐ Measurement, nearby supply well ☐ Well log from nearby well (attach copy) ☐ Office of the State Engineer http://www.ose.state.nm.us/ ☐ Report or study (give citation here and attach relevant portion): ☐ Other (describe):	**TDS (mg/L)** **Intermediate**: **Avg=282**, **Max=1050**, **Min=97** **Regional**: **Avg=150**, **Max=309**, **Min=94** Reference: **2008 LANL Environmental Surveillance Report** ☒ Analysis from upgradient monitoring well ☒ Analysis from on-site supply well ☐ Analysis from shallow nearby supply well ☐ Concentration provided in previous Discharge Permit application ☐ Report or study (give citation here and attach relevant portion): ☐ Other (describe):

A-12. Public Notice. See Supplemental Instructions.

a) The public notice packet including instructions and materials should be sent to:

☐ Applicant ☐ Consultant ☒ Other: **Permit Contact (A-5)**

b) Copies of the public notice packet (excluding sign) should be sent to:

☐ Applicant ☐ Consultant ☒ Other: **Permit Contact (A-5)**

c) The applicant is required to provide public notice of this application by placing a display ad in a newspaper of general circulation near the location of the proposed discharge. Indicate newspaper you intend to place the ad in:

Newspaper: **Los Alamos Monitor**

d) *For new or modification applications only:* The applicant must post a sign for 30 days in a conspicuous location at or near the facility, as approved by NMED. One sign must be posted for each 640 contiguous acres or less of the discharge site. An additional notice must be posted at an off-site location conspicuous to the public. Describe the locations below where you intend to post the notices. You may also attach sketches or photographs.

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At or near facility:	**1 sign—2 by 3 ft in size—will be posted within Township 19N, Range 6E, Section 2 to provide notification for the Sportsmen's Club and Caretaker's Trailer. The other new locations—TA-33-0375 and TA-49-0172—were captured by the October 30, 2010, PN-1.**
Off-site location:	**A flyer size notice will be posted at the LANL Public Reading Room at the J. Robert Oppenheimer Study Center and Research Library, located on West Jemez Road at Casa Grande, Los Alamos, NM**

Table 1. Septic Tank/Leachfield Systems, System Design and Permitting

	Septic System Name	Tank Size (gal.)	Disposal System	Design Flow[1] (gpd)	Install Date	Registration/Permit Date	NM Liquid Waste Reg./Permit No.
Systems Included in the June 30, 2010, Discharge Permit Application							
1	TA-15-0205	605	Leach Field	160	1961	2/4/1987	LA-21
2	TA-16-0178	380	Leach Field	20	1952	2/4/1987	LA39
3	TA-16-1194/1195	1500	Leach Field	40	1988	2/5/1987	LA-38
4	TA-33-0031	1360	Seepage Pit	480[8]	1949	2/5/1987	LA-32
5	TA-33-0096	768	Leach Field	20	1955	2/5/1987	LA-34
6	TA-33-0161[3]	2500	Evaporation Bed	1200	1952	2/5/1987	LA-44
7	TA-33-0179	1000	Leach Field	30	1987	12/7/1989	SF89032R
8	TA-36-0274[4]	1000	Leach Field	50	2003	8/19/2003	ES030243
9	TA-39-0132	1000	Leach Field	150	1985	1/20/1989	SF890024
10	TA-40-0025	540	Leach Field	100	1949	2/5/1987	LA-46
11	TA-49-0119	1000	ET Bed	90	1990	11/16/1990	LA-50
12	TA-58-0052	1000	Leach Field	180	2006	6/8/2006[5]	DP-1589[7]
Systems Being Added to the June 30, 2010, Discharge Permit Application							
1	Sportsmen's Club-Clubhouse[2]	unknown	unknown	unk	unknown	unknown	unknown
2	Sportsmen's Club-Caretaker's Trailer[2]	unknown	unknown	unk	unknown	unknown	unknown
3	TA-33-0375	5000	Leach Field	1600	2010	1/28/2011	DP-1589[6]
4	TA-49-0172[5]	1500	Leach Field	120	2002	6/10/2002	ES020211

Notes

[1]Design Flow source: NM Liquid Waste Disposal Permit/Registration Applications for each system. See Appendix B.

[2]System is owned and operated by the Los Alamos Sportsmen's Club, a private organization with no affiliation to LANL or DOE.

[3]This system was originally registered as TA-39-12. The tank was replaced and the system was renamed.

[4]This system was originally registered as TA-36-0078.

[5]This system is owned and operated by Bandelier National Monument (National Park Service).

[6]On January 28, 2011, LANL submitted final record drawings to the NMED-GWQB for this system.

[7]On June 8, 2006, LANL submitted plans & specs to the NMED-GWQB for the permitting of this system.

[8]The design flow cited in the June 30, 2010, application of 1200 gpd has been reduced to 480 gpd due to the redirection of flows to TA-33-375.

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Table 2. Septic Tank/Leachfield Systems, Occupant Loading and Estimated Discharge Volumes

	System Name	Buildings Connected	No. of Full-Time Occupants	Discharge Volume (gpd)[1]
Systems Included in the June 30, 2010, Discharge Permit Application				
1	TA-15-0205	TA-15-184, 185, 186, 310	0	160[4]
2	TA-16-0178	TA-16-210	0	20[4]
3	TA-16-1194/1195	TA-16-54	0	40[4]
4	TA-33-0031	TA-33-39, 113	24	480
5	TA-33-0096	TA-33-87	0	20[4]
6	TA-33-0161	TA-39-2, 98, 62	35	700
7	TA-33-0179	TA-33-178	0	30[4]
8	TA-36-0274	TA-36-78	0	50[4]
9	TA-39-0132	TA-39-111	0	150[4]
10	TA-40-0025	TA-40-11	0	100[4]
11	TA-49-0119	TA-49-115	0	90[4]
12	TA-58-0052	TA-58-49	0	180[4]
Systems Being Added to the June 30, 2010, Discharge Permit Application				
1	Sportsmen's Club	Clubhouse	0	149[2]
2	Sportsmen's Club	Caretaker's Trailer	5	375[3]
3	TA-33-0375	TA-33-19, 114, 168, 280	80	1600
4	TA-49-0172	Bandelier Office Building	4-full time, 8-seasonal	133

Notes

[1]Estimated volume, based upon the flow rate of 20 gallons per day for offices per 20.7.3.201 NMAC, unless otherwise noted.

[2]Clubhouse and Caretaker's trailer share a water meter. Avg daily use from 2008-10 was 149 gpd. Conservatively, 100% has been assigned to the C

[3]Caretaker's trailer is a 3-bedroom residence. Per 20.7.3.201 NMAC, for residential sources use a flow rate of 5 occupants at 75 gpd.

[4]Based upon design flow listed in NM Liquid Waste Disposal Permit/Registration Applications for each system. See Appendix B.

ENCLOSURE 1

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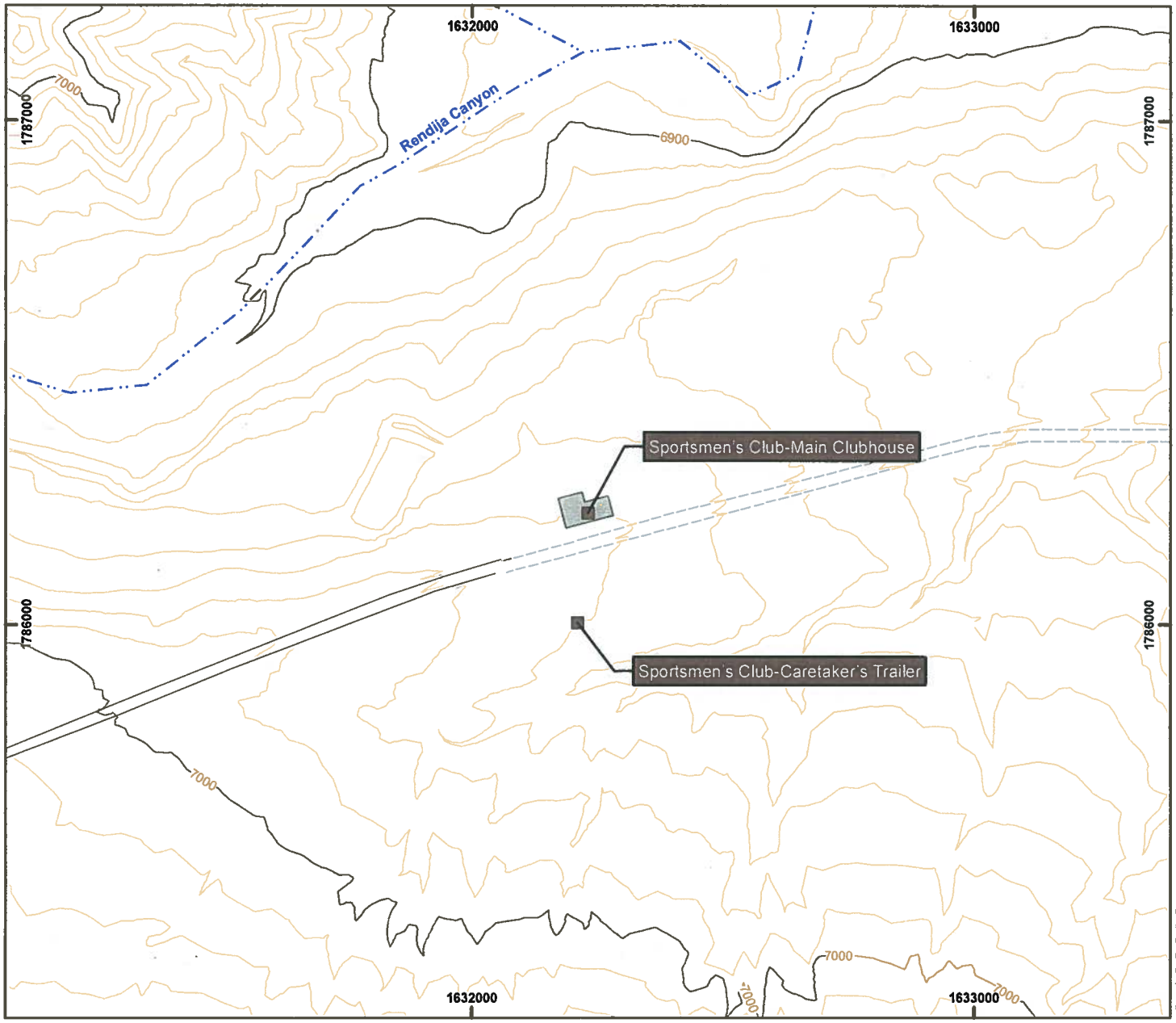
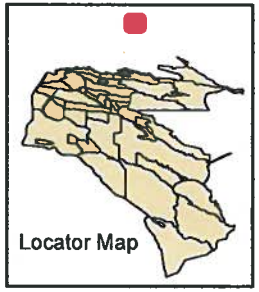
Location of Septic Systems at Sportsmen's Club

Main Clubhouse & Caretaker's Trailer





- Septic tank
- Paved road
- Dirt road
- TA boundary
- Structure

Map created by Brad McKown
EP-ET-ER GIS Team
June 1, 2011
Map #11-0061-01

N

Meters
0 25 50 100

0 100 200 400
Feet

State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 1000 ft
Contour Interval = 10 ft

Data Sources:

Septic tank locations; Unpublished 2011 project data. Digitized from 200 aerial photo, Project 11-0061.
Paved Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.
Dirt Road Arcs, Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.
Hypsography, 10, 20 & 100 Foot Contour Intervals; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.
Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Intssinuchare Planning Office; September 2007; as published 04 December 2008.
Structures; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.

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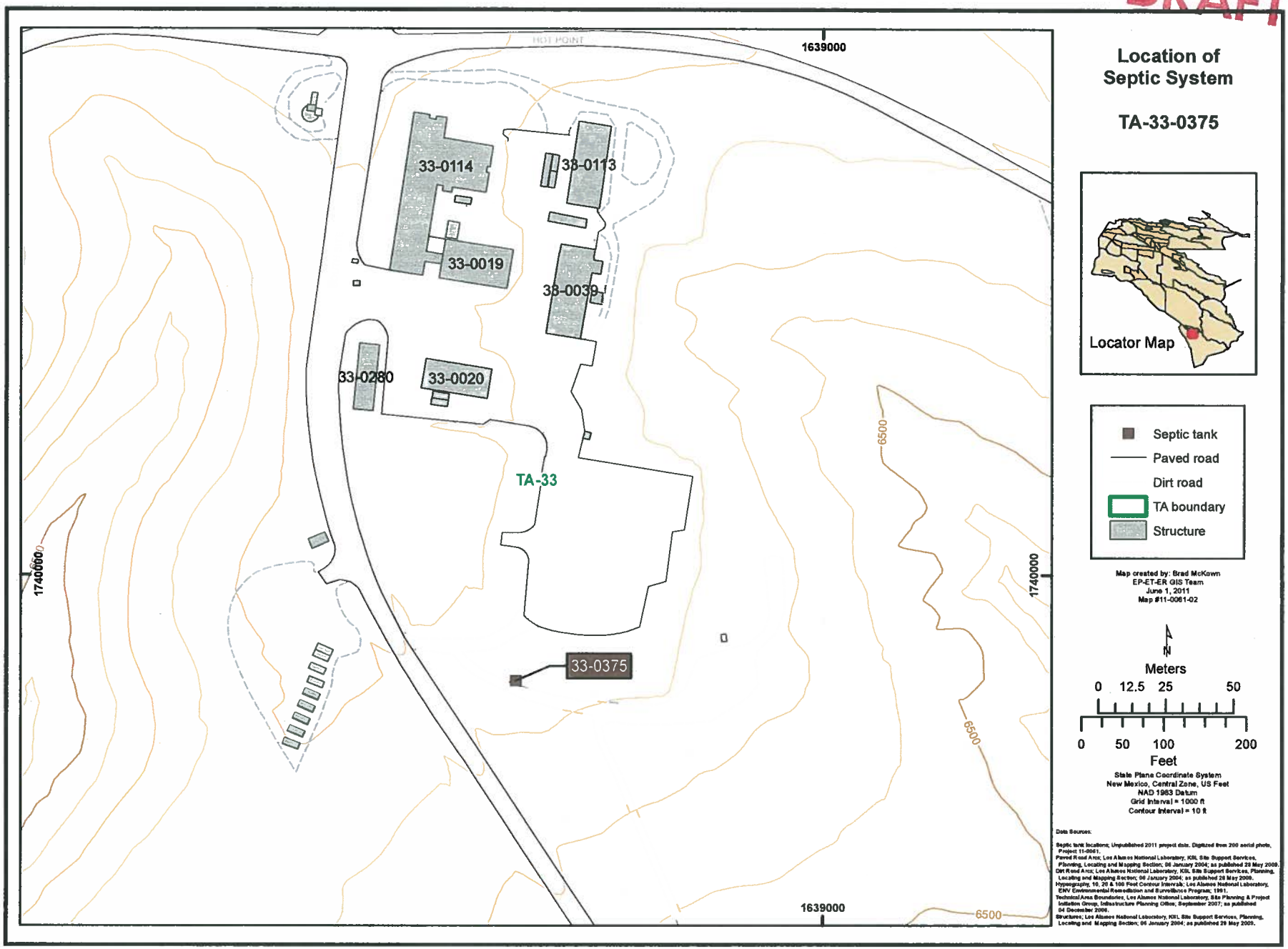
HOT POINT
1639000
33-0114
33-0113
33-0019
33-0039
33-0280
33-0020
TA-33
33-0375
1740000
6500
1639000
Location of Septic System
TA-33-0375
Locator Map
Septic tank
Paved road
Dirt road
TA boundary
Structure
Map created by: Brad McKown
EP-ET-ER GIS Team
June 1, 2011
Map #11-0061-02
Meters
0 12.5 25 50
0 50 100 200
Feet
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 1000 ft
Contour Interval = 10 ft
Data Sources:
Septic tank locations; Unpublished 2011 project data. Digitized from 200 aerial photo, Project 11-0061.
Paved Road Arcs; Los Alamos National Laboratory, KRL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.
Dirt Road Arcs; Los Alamos National Laboratory, KRL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.
Hypsography, 10, 20 & 100 Foot Contour Intervals; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.
Technical Area Boundaries, Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; September 2007; as published 04 December 2008.
Structures; Los Alamos National Laboratory, KRL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.

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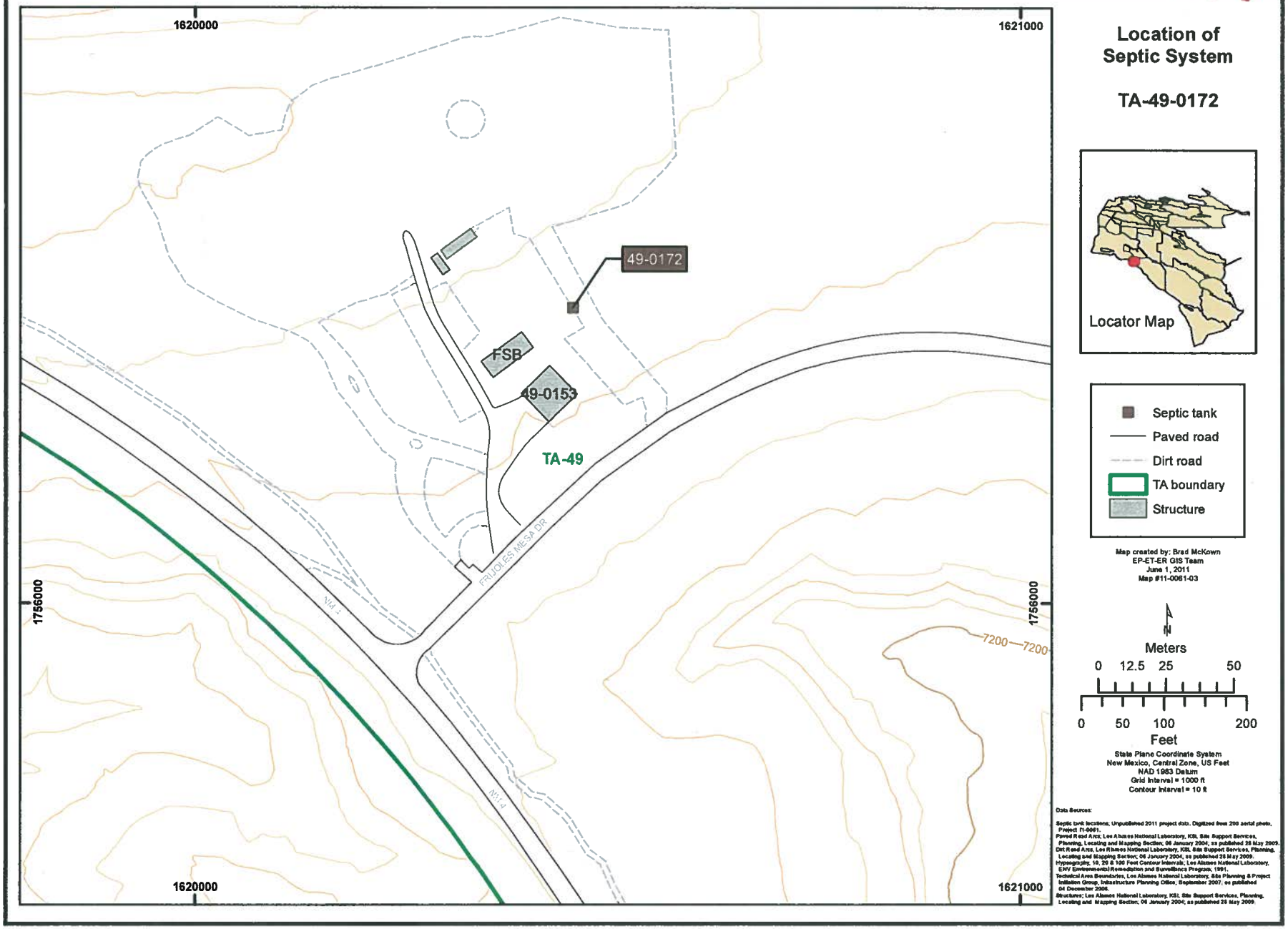


Location of Septic System

TA-49-0172

- Septic tank
- Paved road
- Dirt road
- TA boundary
- Structure

Map created by: Brad McKown
EP-ET-ER GIS Team
June 1, 2011
Map #11-0061-03

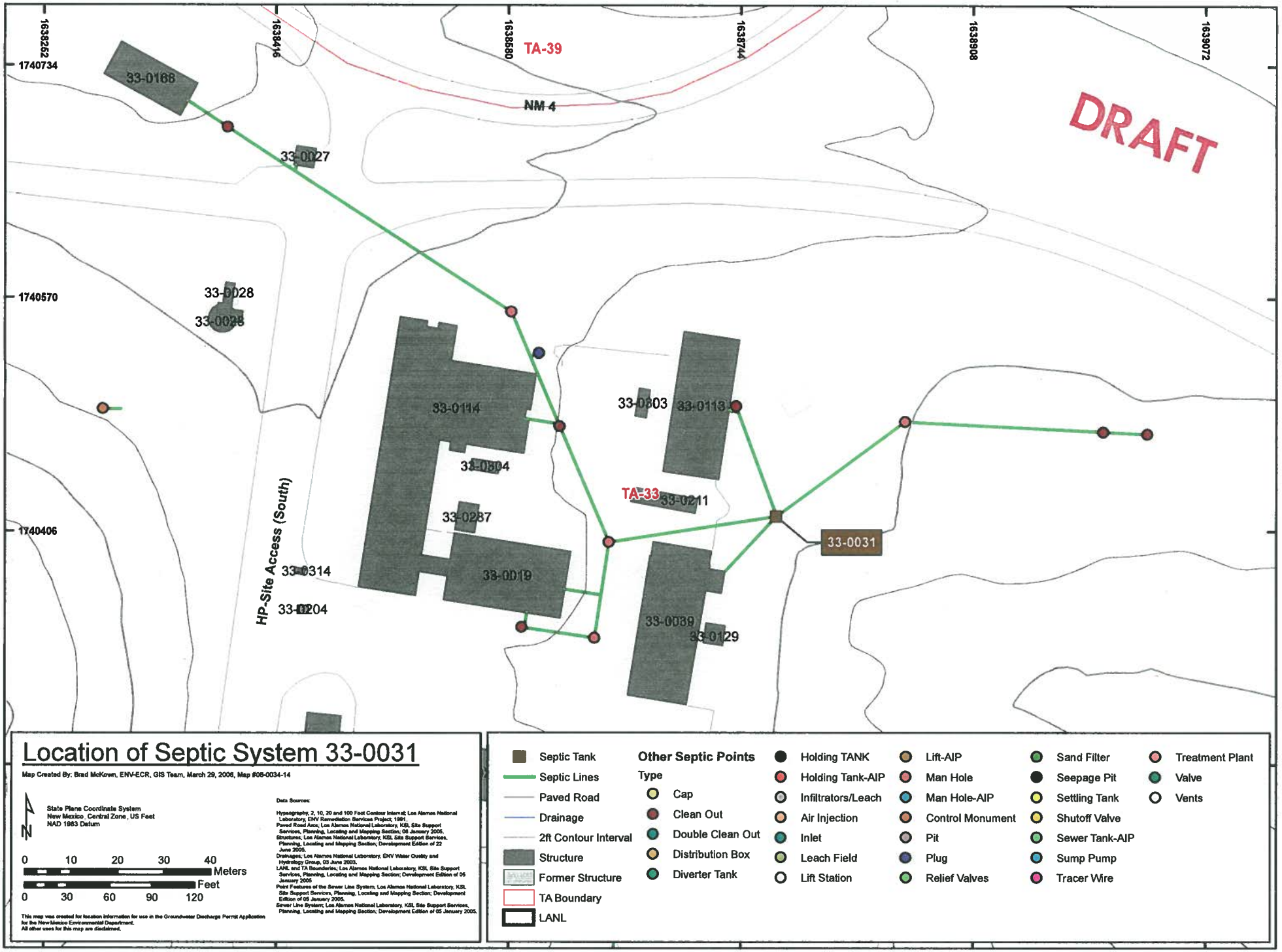
Meters
0 12.5 25 50

0 50 100 200
Feet

State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 1000 ft
Contour Interval = 10 ft

Data Sources:

Septic tank locations; Unpublished 2011 project data. Digitized from 200 aerial photo, Project 11-0061.
Paved Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 25 May 2009.
Dirt Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 25 May 2009.
Hypsography, 10, 20 & 100 Foot Contour Intervals; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.
Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; September 2007; as published 04 December 2008.
Structures; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 25 May 2009.


1638252
1638416
1638580
1638744
1638908
1639072
1740734
1740570
1740406
TA-39
NM 4
DRAFT
33-0168
33-0027
33-0028
33-0026
33-0114
33-0303
33-0113
33-0304
TA-33
33-0211
33-0287
33-0031
33-0314
33-0019
33-0204
33-0039
33-0129
HP-Site Access (South)
Location of Septic System 33-0031
Map Created By: Brad McKown, ENV-ECR, GIS Team, March 29, 2006, Map #06-0034-14
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
0 10 20 30 40
Meters
Feet
0 30 60 90 120
Data Sources:
Hypsography, 2, 10, 20 and 100 Foot Contour Interval; Los Alamos National Laboratory, ENV Remediation Services Project; 1991
Paved Road Axis, Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 05 January 2005.
Structures, Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; Development Edition of 22 June 2005.
Drainages, Los Alamos National Laboratory, ENV Water Quality and Hydrology Group, 03 June 2003.
LANL and TA Boundaries; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; Development Edition of 05 January 2005
Point Features of the Sewer Line System; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; Development Edition of 05 January 2005.
Sewer Line System; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; Development Edition of 05 January 2005.
This map was created for location information for use in the Groundwater Discharge Permit Application for the New Mexico Environmental Department.
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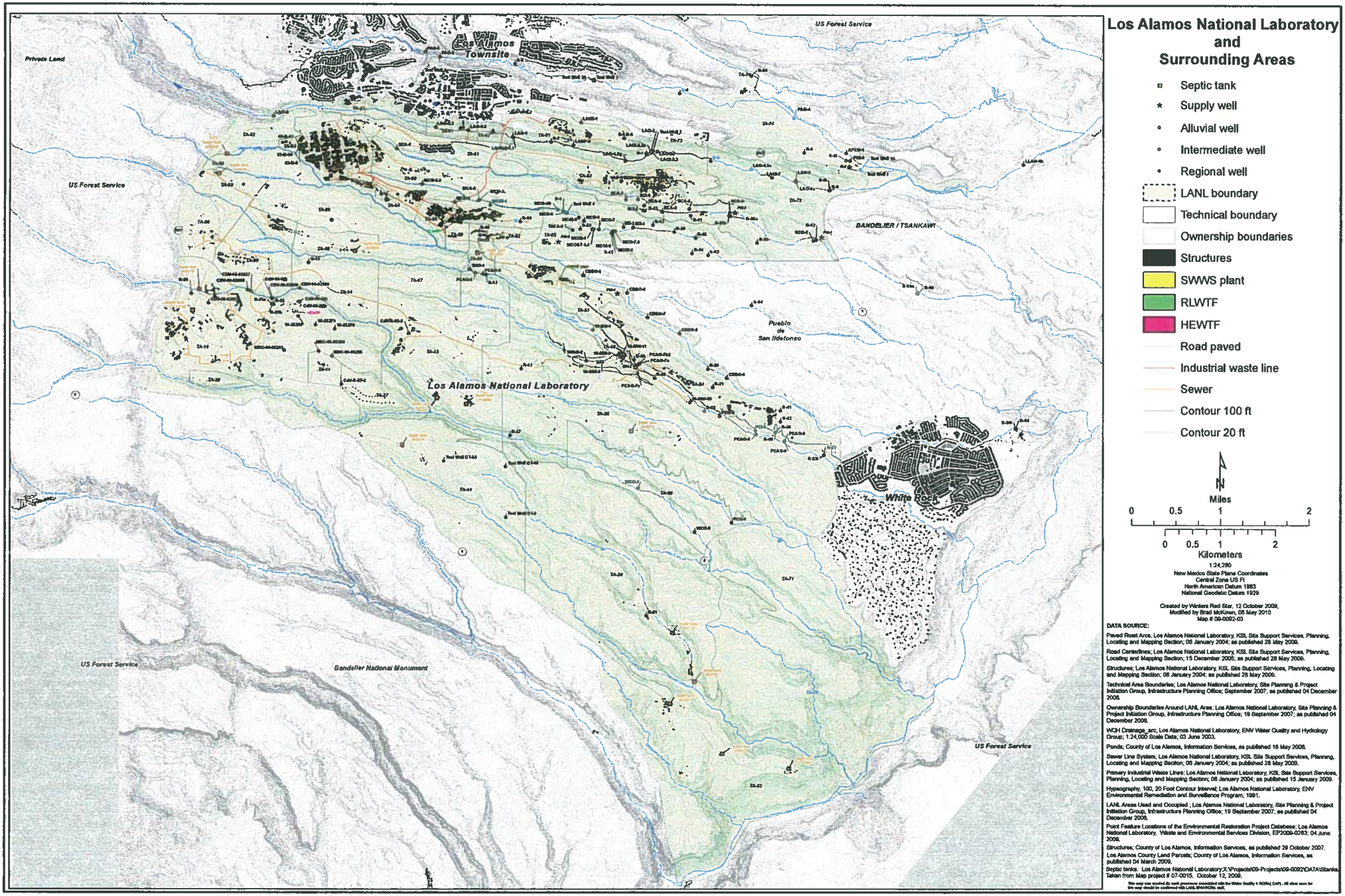
Septic Tank
Septic Lines
Paved Road
Drainage
2ft Contour Interval
Structure
Former Structure
TA Boundary
LANL
Other Septic Points
Type
Cap
Clean Out
Double Clean Out
Distribution Box
Diverter Tank
Holding TANK
Holding Tank-AIP
Infiltrators/Leach
Air Injection
Inlet
Leach Field
Lift Station
Lift-AIP
Man Hole
Man Hole-AIP
Control Monument
Pit
Plug
Relief Valves
Sand Filter
Seepage Pit
Settling Tank
Shutoff Valve
Sewer Tank-AIP
Sump Pump
Tracer Wire
Treatment Plant
Valve
Vents

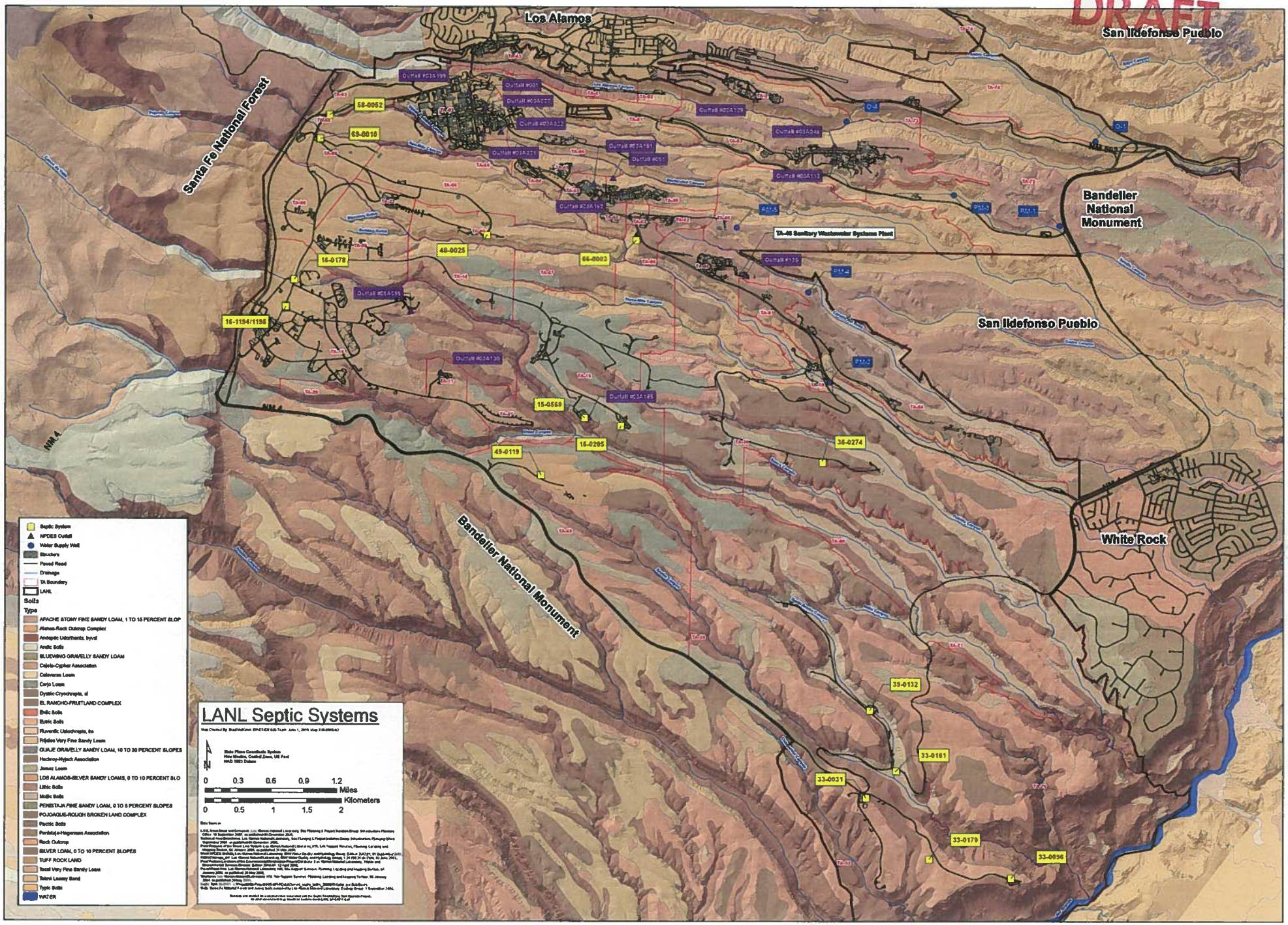
Figure 8.0.

ENCLOSURE 2

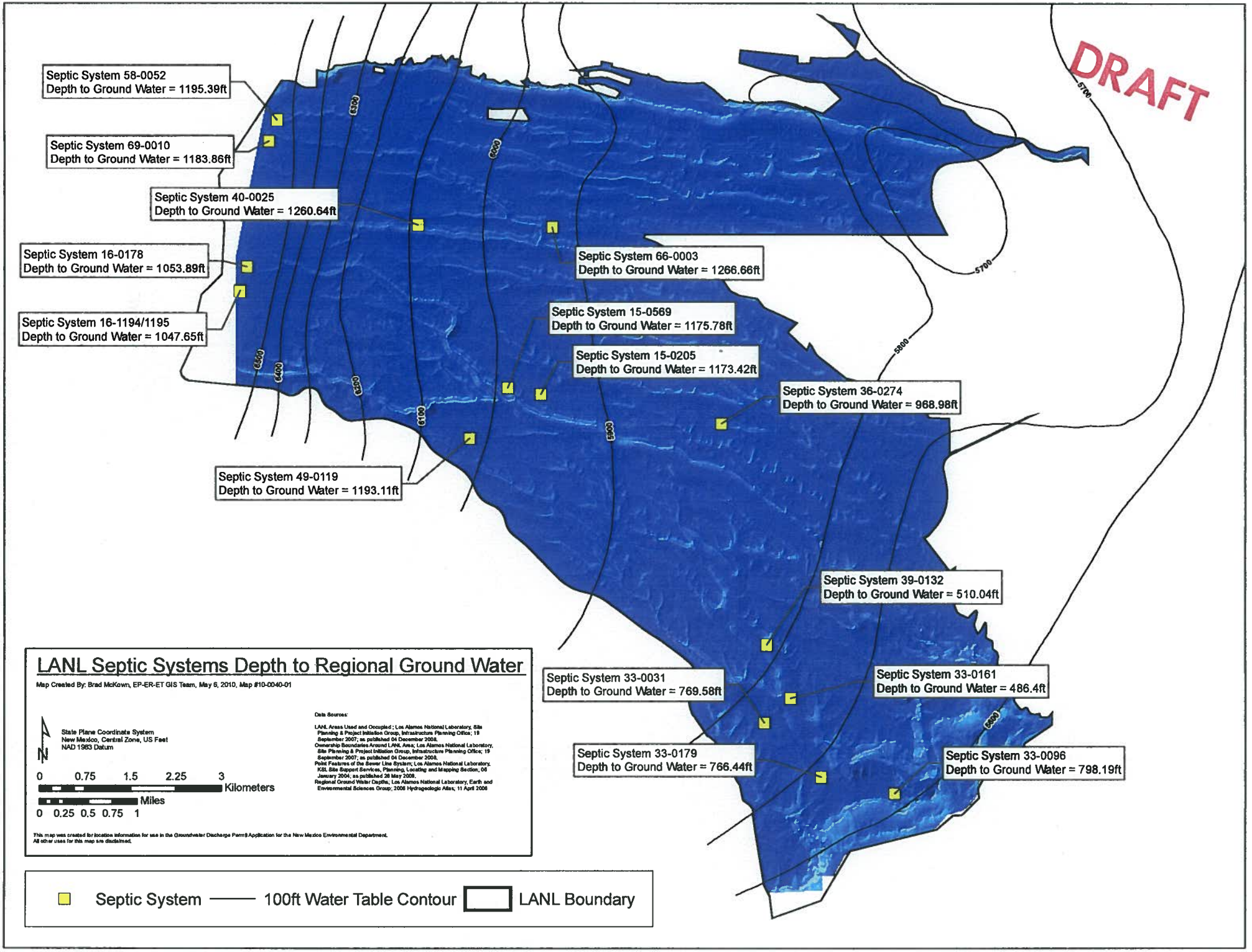
DRAFT


Los Alamos National Laboratory and Surrounding Areas
Septic tank
Supply well
Alluvial well
Intermediate well
Regional well
LANL boundary
Technical boundary
Ownership boundaries
Structures
SWWS plant
RLWTF
HEWTF
Road paved
Industrial waste line
Sewer
Contour 100 ft
Contour 20 ft
Miles
0 0.5 1 2
Kilometers
0 0.5 1 2
1:24,280
New Mexico State Plane Coordinates
Central Zone US Ft
North American Datum 1983
National Geodetic Datum 1929
Created by Winters Red Star, 12 October 2009,
Modified by Brad McKeen, 06 May 2010
Map # 09-0092-03
DATA SOURCE:
Paved Road Arcs, Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.
Road Centerlines; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 15 December 2005; as published 28 May 2009.
Structures; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.
Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; September 2007; as published 04 December 2008.
Ownership Boundaries Around LANL Area; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; 19 September 2007; as published 04 December 2008.
WCH Drainage_arc; Los Alamos National Laboratory, ENV Water Quality and Hydrology Group; 1:24,000 Scale Data; 03 June 2003.
Ponds; County of Los Alamos, Information Services, as published 16 May 2008.
Sewer Line System; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.
Primary Industrial Waste Lines; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 15 January 2009.
Hypsography, 100, 20 Foot Contour Interval; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.
LANL Areas Used and Occupied ; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; 19 September 2007; as published 04 December 2008.
Point Feature Locations of the Environmental Restoration Project Database; Los Alamos National Laboratory, Waste and Environmental Services Division, EP2008-0283; 04 June 2008.
Structures; County of Los Alamos, Information Services, as published 29 October 2007.
Los Alamos County Land Parcels; County of Los Alamos, Information Services, as published 04 March 2009.
Septic tanks: Los Alamos National Laboratory;X:\Projects\09-Projects\09-0092\DATA\Stanley
Taken from Map project # 07-0015. October 12, 2009.
Los Alamos National Laboratory
Los Alamos Townsite
White Rock
Pueblo de San Ildefonso
BANDELIER / TSANKAWI
Bandelier National Monument
US Forest Service
Private Land

ENCLOSURE 3


DRAFT
Los Alamos
San Ildefonso Pueblo
Santa Fe National Forest
Bandelier National Monument
TA-46 Sanitary Wastewater Systems Plant
San Ildefonso Pueblo
White Rock
Bandelier National Monument
NM 4
58-0052
59-0010
18-0178
48-0025
55-0003
16-1194/1196
15-0569
15-0295
49-0119
36-0274
39-0132
33-0161
33-0031
33-0179
33-0056
Septic System
NPDES Outfall
Water Supply Well
Structure
Paved Road
Drainage
TA Boundary
LANL
Soils
Type
APACHE STONY FINE SANDY LOAM, 1 TO 15 PERCENT SLOP
Andic Soils
BLUEWING GRAVELLY SANDY LOAM
Cajete-Cipher Association
Calaveras Loam
Cerjo Loam
Dystric Cryochrepts, al
EL RANCHO-FRUTLAND COMPLEX
Entic Soils
Fluventic Ustochrepts, ita
Frijoles Very Fine Sandy Loam
GUAJE GRAVELLY SANDY LOAM, 10 TO 30 PERCENT SLOPES
Hackroy-Hydack Association
Jemez Loam
LOS ALAMOS-SILVER SANDY LOAMS, 0 TO 10 PERCENT SLO
Lithic Soils
Mollic Soils
PENISTAJA FINE SANDY LOAM, 0 TO 5 PERCENT SLOPES
POJOAQUE-ROUGH BROKEN LAND COMPLEX
Pachic Soils
Penistaja-Hagaman Association
Rock Outcrop
SILVER LOAM, 0 TO 10 PERCENT SLOPES
TUFF ROCK LAND
Tocal Very Fine Sandy Loam
Totavi Loamy Sand
Typic Soils
WATER
LANL Septic Systems
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
0 0.3 0.6 0.9 1.2
Miles
0 0.5 1 1.5 2
Kilometers

ENCLOSURE 4


DRAFT
Septic System 58-0052
Depth to Ground Water = 1195.39ft
Septic System 69-0010
Depth to Ground Water = 1183.86ft
Septic System 40-0025
Depth to Ground Water = 1260.64ft
Septic System 16-0178
Depth to Ground Water = 1053.89ft
Septic System 16-1194/1195
Depth to Ground Water = 1047.65ft
Septic System 66-0003
Depth to Ground Water = 1266.66ft
Septic System 15-0569
Depth to Ground Water = 1175.78ft
Septic System 15-0205
Depth to Ground Water = 1173.42ft
Septic System 36-0274
Depth to Ground Water = 968.98ft
Septic System 49-0119
Depth to Ground Water = 1193.11ft
Septic System 39-0132
Depth to Ground Water = 510.04ft
Septic System 33-0031
Depth to Ground Water = 769.58ft
Septic System 33-0161
Depth to Ground Water = 486.4ft
Septic System 33-0179
Depth to Ground Water = 766.44ft
Septic System 33-0096
Depth to Ground Water = 798.19ft
5700
5800
5900
6000
6100
6200
6300
6400
6500
LANL Septic Systems Depth to Regional Ground Water
Map Created By: Brad McKown, EP-ER-ET GIS Team, May 6, 2010, Map #10-0040-01
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
N
0 0.75 1.5 2.25 3 Kilometers
0 0.25 0.5 0.75 1 Miles
Data Sources:
LANL Areas Used and Occupied ; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; 19 September 2007; as published 04 December 2008.
Ownership Boundaries Around LANL Area; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; 19 September 2007; as published 04 December 2008.
Point Features of the Sewer Line System; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section, 06 January 2004; as published 28 May 2009.
Regional Ground Water Depths, Los Alamos National Laboratory, Earth and Environmental Sciences Group; 2008 Hydrogeologic Atlas, 11 April 2008
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Septic System
100ft Water Table Contour
LANL Boundary