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North Wind

R-47 Drill Plan

Installation of Well R-47, TA 14, Los Alamos National Laboratory

Task Order 2 # 74829-000-09 In accordance with Master Task Order Agreement # 72006-000-09

Revision 2

May 14, 2009

Approved:

Doug Jorgensen — Date: May 14, 2009
NWI Project Manager

LANL STR — Date: May 14, 2009

Technical Lead — Date: 5-14-09

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Approved:

Heather Smith for Doug Jorgensen — May 14, 2009
Doug Jorgensen
NWI Project Manager — Date

Robin P. Reynolds — May 14, 2009
LANL STR — ROBIN P. REYNOLDS — Date

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ACRONYMS

ASTM	American Society for Testing and Materials
bgs	below ground surface
DOE	Department of Energy
EES-14	Earth and Environmental Sciences Division, Hydrology, Geochemistry, & Geology Group
FM	Field Manager
ft	feet
HAZWOPER	Hazardous Waste Operations and Emergency Response
HE	high explosives
HSR	Health and Safety Representative
ID	inner diameter
in.	inch
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security, LLC
Layne	Layne Christensen Company
LWI	LANL work instruction
mL	milliliter
NMED	New Mexico Environment Department
NOI	notice of intent
NTU	nephelometric turbidity unit
NWI	North Wind, Inc.
OD	outer diameter
PIC	person in charge
POC	point of contact
PVC	polyvinyl chloride
RCT	Radiation Control Technician
SMO	Sample Management Office
SOP	standard operating procedure
SSEHASP	Site-Specific Environmental Safety and Health Plan
SSO	Site Safety Officer
STR	Subcontract Technical Representative
SWPPP	Storm Water Pollution Prevention Plan
TOC	total organic carbon
TA	technical area
WCSF	waste characterization strategy form

1. INTRODUCTION

Well R-47 will be installed at Technical Area (TA) 14, approximately 0.87 miles east of Well R-25, between Wells R-18 and CdV-R-15-3. The purpose of Well R-47 is to enhance the TA-16 monitoring well network by providing a regional aquifer well to the northeast of the 260 Outfall. Figure 1 shows the location of Well R-47.

Los Alamos National Security (LANS) Management and Operations contracted North Wind, Inc. (NWI) to manage the installation of Well R-47. The well is being installed to provide hydrogeology and water quality data required by the March 1, 2005, Compliance Order on Consent (Consent Order) agreed to by the New Mexico Environment Department (NMED) and the Department of Energy (DOE) for environmental remediation at Los Alamos National Laboratory (LANL). This work is for LANS Environmental Programs Directorate – Laboratory Water Stewardship Program.

This drilling plan provides guidance for the site preparation, drilling, sampling, installation, testing, and site restoration activities associated with new monitoring Well R-47. The well will be drilled to a depth of approximately 1380 feet (ft) below ground surface (bgs) and completed with a single 20-ft screen within 50 ft of the top of the regional water table. Based on the potentiometric surface in LANL's 3-D regional geo-hydrologic model, the regional water table is anticipated at a depth of approximately 1276 ft bgs.

This drilling plan is in compliance with the scope of work set forth in Task Order 2 #74829-000-09 of Master Task Order Agreement Contract # 72006-000-09 between LANS and NWI. The following sections provide an overview of the program management and operations.

1.1 PROGRAM MANAGEMENT AND OPERATIONS

1.1.1 Project Staff

Table 1 shows the NWI project staff and their respective roles. Table 2 shows the LANL project staff and their respective roles. Figure 2 shows the overall project organization. Additional qualified and experienced staff (existing and new) may be added after submitting this drilling plan. With approval of the LANL Subcontract Technical Representative (STR), staff will be identified and roles assigned before work begins.

Project management, administration, and quality assurance oversight will be conducted out of NWI's office located in Los Alamos, New Mexico. The Field Manager will provide oversight and will review ongoing operations as they relate to this drilling plan and assist the drilling team with any technical, operational, or other project related issues.

During each drilling shift, a minimum of two NWI personnel will be present. The Field Geologist will maintain field notes detailing general drill site activities, compile and

submit daily reports and drilling forms, keep track of down-hole tool types and length, conduct lithologic logging, and conduct daily safety meetings and equipment inspections. The Field Manager and/or Field Geologist will also be responsible for compliance with established health and safety documentation, and serve as Site Safety Officer (SSO) in the absence of the project Health and Safety Officer.

A person in charge (PIC) will be designated at all times during field operations. The PIC is responsible for interaction with LANL personnel and other visitors to the site. Ordinarily the PIC will be the Field Manager. In the event that the field manager is not present, the lead field geologist or then consecutively the assistant NWI geologist will act as the designated PIC. In the absence of NWI personnel on-site, the tool pusher (i.e., driller supervisor) then consecutively the driller will act as the PIC.

1.1.2 Health and Safety Training

A Site-Specific Environmental Health and Safety Plan (SSEHASP) will be prepared for this site. Though not anticipated to be a hazardous waste site, all NWI personnel will be in compliance with Occupational Safety and Health Administration Hazardous Waste Operations and Emergency Response (HAZWOPER) training requirements. At least two people on site will have first aid/CPR training. Before mobilization into the field, all staff will be trained to the Environmental Programs-Wide Health and Safety Master Plan, the SSEHASP, NWI Environmental Programs-Wide standard operating procedures (SOPs), associated LANL work instructions (LWIs), the NWI Quality Assurance Plan, the Operational Security Plan, site-specific security requirements, and general field logging techniques and field operating expectations.

The Field Manager will be responsible for monitoring adherence to the project plans and environmental safety and health requirements. Field personnel at the well site will be required to read and follow NWI-identified SOPs required to meet the scope of work.

Additionally, the following LANL training will be required for key field personnel and managers.

- LANL General Employee Training
- TA-14 security plan (required for everyone who will be on site)
- Emergency Management System Training (TP 7215)
- Annual Security Refresher
- Integrated Work Management Overview (TP 6957)
- Substance Abuse Awareness (TP 458)

- Traffic Safety and Special Materials Convoys (TP 9311)
- EP-DIR-SOP-2011, R4, Personnel Training and Qualification
- EP-DIR-SOP-4004, R1, Records Transmittal and Retrieval Process
- EP-DIR-SOP-8001, R0, Inspection, Test, and Acceptance
- EP-DIR-SOP-5006, R0, Control of Measuring and Testing Equipment
- Occupational Safety and Health Act 29 Code of Federal Regulations 1910.120 HAZWOPER 40-hour training

1.1.3 Security

Well R-47 is located within the limited access area of TA-14. Security escorts will be required for entry (one escort per five individuals on site). Work will be performed in accordance with the "Exhibit G – Security Plan for MTOA 720006-000-09, Task Order 2" (Appendix A).

At least two security escorts per shift will be used to allow drill crews to continue work if deliveries of materials or equipment are required. Site personnel will be required to log in on-site on an uncleared visitors log, maintained by the security escort. For questions regarding TA-15 access control call 667-6742. For questions regarding security procedures contact STR Jim Thomson at 667-1924.

Because the well is located within the TA-14 limited access area, site communications will be conducted through the use of two-way radios provided by the LANL Water Stewardship Program. Government-issued cellular phones and pagers will be provided for emergency use only. However, these cellular phones will be stored with the batteries removed. Strict restriction on smoking, eating, welding, and cellular phone use will be enforced. Equipment will include spark arresters, as necessary.

To facilitate work at the well site, a security zone will be established. The security zone will be constructed of high-visibility safety fencing and will surround the entire drill site. All site personnel will remain within the security zone, and at least one security escort will be present within this area at all times. If site personnel leave the security zone, a security escort must accompany them. Site personnel must always remain within sight of the security escort.

1.1.4 Schedule

Table 3 shows the tentative R-47 drilling schedule. Drilling is planned in 12-hour shifts, typically 0700-1900.

1.1.5 Permits

A National Pollutant Discharge Elimination System Storm Water Pollution Prevention Plan (SWPPP) permit has been implemented. The SWPPP notice of intent (NOI), included in the SSEHASP, has been submitted to the United States Environmental Protection Agency. Other required permits have been obtained through the LANL Permits and Requirements Identification process. The excavation permit is included in Appendix B. Copies of permits, notifications, inspection reports, and site access authorization will be maintained at the drilling site. A traffic control plan is not required for this site. A route map is included in Appendix C for reference only. The LANL-provided Spill Prevention Containment, Control and Countermeasures plan is included in the Site Specific Environmental Health and Safety Plan.

1.1.6 New Mexico Environment Department Field Visits

If for any reason NMED personnel visit the site, the PIC will notify the STR or other LANL personnel as listed in Table 2. The PIC will continue attempts to notify LANL personnel until contact with one of the individuals has been made.

2. FIELD ACTIVITIES

2.1 SITE PREPARATION AND DRILLING SITE MAINTENANCE

Site preparation will be conducted by LANL prior to mobilization and will include preparation of access roads to provide adequate access for transportation of drilling and support equipment to the drill site; construction of drilling pads of sufficient size to provide adequate space for drilling rig, support equipment, temporary storage area for investigation-derived waste, and work areas for drilling and scientific/engineering personnel; and construction and lining of cuttings pits.

NWI will place containment basins beneath the drilling rig and support vehicles/equipment before drilling activities at each location begin. Berms will be constructed to surround the working area to prevent run-on and run-off of precipitation from the site, in accordance with the SWPPP. NWI will install high-visibility safety fencing around cuttings pits, 6 ft back from berms. Rope ladders and life rings will be made accessible near the pits.

During drilling activities, NWI will keep the drilling site and work areas safe, neat, and in orderly condition at all times. NWI will maintain temporary fencing and barricades, and will be responsible for snow removal from the drilling location.

2.1.1 Radiological Screening

LANL will provide high explosives (HE) certifying agents who will screen the work zone and access roads prior to mobilization and site-preparation activities. A Radiation Control

Technician (RCT) from Radiation Protection 1, TA-15 RCT pool will screen the drill site and all equipment prior to entry to TA-15, and prior to leaving LANL upon completion of work.

2.1.2 Field Office and Site Services

A trailer or equivalent shelter will be used as a field office. Potable water will be provided to the drilling site either through hose run from a hydrant to the drill site, or through the use of a water truck to transport water from LANL fire hydrant #535 to the drilling site. Figure 3 shows the water source locations.

2.1.3 Lay-Down Area

A primary lay-down area for all drilling contractors is provided at the northwest corner of the intersection of NM State Highway 4 and Pajarito Road. Another lay-down yard will be provided east of the drill site at the R-Site road intersection, within the limited access area, to minimize the distance crews have to travel to reach their equipment. Figure 4 shows the location of the R-Site lay-down yard.

2.2 WELL DRILLING

Layne Christensen Company (Layne) will drill the R-47 borehole under contract to and direct supervision of NWI. Equipment for the completion of the drilling project will be situated around the drilling site in a safe and secure manner. Figure 5 shows the site layout. Equipment orientation and placement will depend upon physical constraints at the drilling site.

2.2.1 Drilling

2.2.1.1 Dual Rotary Drilling Methods

The R-47 borehole will be drilled using a Schramm Inc. T130XD Rotadrill dual rotary drilling rig with casing rotator. The estimated top of the regional aquifer is approximately 1276 ft bgs. Layne will advance 16-inch- (in.-) diameter casing from ground surface to stabilize unconsolidated and poorly-welded material (to the base of the second cooling unit of the Tshirege Member of the Bandelier Tuff, roughly 150 ft bgs). The dual rotary system will allow for advancement of the 16-in. casing with the casing rotator while drilling with conventional air/mist/foam methods with the drill string. After the 16-in. surface casing is in place, the borehole will be advanced open-hole through competent formation with a 15-in.-diameter down-hole hammer. If unstable formation is encountered, Layne will install a 13 3/8-in. intermediate casing string to stabilize the borehole. The intermediate casing will not be installed deeper than 50 ft above the expected top of the regional aquifer. Below this depth, a 10-in. casing string will be advanced to total depth.

2.2.1.2 *Drilling Additives*

Drilling additives will be available for use, if needed. The use of drilling additives must be stopped 100 ft above the regional aquifer. Only potable water from a municipal source and approved, previously used Baroid brand drilling products will be used during the drilling and completion of R-47. Possible Baroid drilling additives and a brief description of each is included below. Material safety data sheets for the products listed below are included in the SSEHASP.

1. QUIK-FOAM® - added at a rate of 0.5% to 1.0% by volume.
   QUIK-FOAM® provides the surfactant necessary for foam formation.

2. AQF-2® - provides the surfactant necessary for foam formation.

2.2.1.3 *Drilling Contingencies*

NWI will attempt to drill each borehole with the methods described above. However, drilling conditions may require converting to alternative drilling methods. NWI will consult with LANL before modifying the above referenced drilling methods.

Historically, borehole instability and/or the loss drilling fluid circulation have been the most common difficult drilling conditions encountered. In preparation for this possibility, additional tooling will be stored within the Los Alamos area to expedite the change in drilling procedures.

Layne will have a complete mud rotary drilling system available, if needed. The mud system will include bits, pumps, shaker table, and other tools necessary to convert to mud rotary drilling.

2.2.1.4 *Dust Control*

The drilling rig may generate dust during dry drilling operations. Dust control will be implemented by applying potable water to the drilling rig discharge line.

2.3 CORING

Core sampling is not proposed for R-47.

2.4 GROUNDWATER DETECTION

The presence of groundwater will be monitored for continuously, and will be checked at the target depth specified in "Drilling Work Plan, R-47" (LANL 2008). Based on conditions observed in nearby wells, perched groundwater may be present at the top of the Puye Formation, expected at approximately 790 ft bgs. The target depth will be at the top of the regional aquifer, expected at approximately 1276 ft bgs, within the Puye Formation.

If groundwater is encountered at any point, the presence of water will be checked using a water level meter through the drill string. The presence of water will be verified as necessary by LANL personnel.

Depth to water measurements will be conducted in accordance with the following NWI SOPs:

- NWI ENVP-007, Water Level Measurements, Rev. 2
- NWI ENVP-014, Sampling Equipment Decontamination, Rev. 1

2.5 SAMPLE COLLECTION PROCEDURES

2.5.1 Groundwater Sample Collection

Sample collection and handling activities will be conducted in accordance with the following NWI SOPs.

- NWI ENVP-002, Sample Handling, Packaging and Shipping, Rev. 1
- NWI ENVP-004, Collection of Quality Control Samples, Rev. 1
- NWI ENVP-006, Groundwater Sampling, Rev. 3
- NWI ENVP-014, Sampling Equipment Decontamination, Rev. 1
- NWI ENVP-021, Chain of Custody Documentation, Rev. 4
- NWI LWI-010, Filtering and Chemical Preservation of Water Samples, Rev. 0

The details of the analyte suite, container size, and preservation are outlined in sampling and analysis plan in Table 4 for groundwater screening samples collected in the open borehole and in the completed well.

2.5.1.1 Perched Groundwater Sampling

If significant perched water is encountered, a sample will be collected using a bailer or via air lifting. Perched groundwater samples will be analyzed for dissolved metals, total metals, anions including perchlorate, volatile organic compounds and HE (Table 4). The collected groundwater will be placed in appropriate containers as specified in this plan and delivered to the Sample Management Office (SMO). A groundwater sample will not be collected until three consecutive water level readings taken 15 minutes apart are within 0.5 ft of the same depth, or as specified by an alternative method approved by LANL. A groundwater sample will then be collected, if practical, and processed.

2.5.1.2 *Regional Groundwater Sampling*

Screening samples within the regional aquifer will be collected every 20 ft from the open borehole, beginning at the top of the water table (1276 ft bgs) to the total depth of the well (1380 ft bgs) using a bailer or via air lifting. Regional groundwater samples will be analyzed for dissolved metals, total metals and anions including perchlorate. A groundwater sample will not be collected until three consecutive water level readings taken 15 minutes apart are within 0.5 ft of the same depth, or as specified by an alternative method approved by LANL. A groundwater sample will then be collected, if practical, and processed.

A sample will be collected from the discharge of the pumping system at the completion of well development, and at the completion of aquifer testing. Samples will be collected and analyzed for the suite listed in Table 4.

2.5.1.3 *Groundwater Sample Handling Procedures*

Groundwater samples will be kept on ice and delivered to the SMO for processing. After processing, NWI personnel or available LANL personnel will transport the groundwater samples to Earth and Environmental Sciences Division, Hydrology, Geochemistry, & Geology Group (EES-14) for analysis. EES-14 will provide rapid turn-around analyses for the screening analytes listed in Table 4. The results of the analyses will be used to evaluate whether perched water zones should be isolated with casing before the regional aquifer is penetrated.

2.5.1.4 *NMED Split Sampling*

NMED personnel may perform a field visit or collect a split of groundwater sampled during drilling. The procedure for this is as follows.

- NMED personnel will be notified by the STR as far in advance as possible when drilling teams encounter or anticipate encountering water-bearing zones.
- Once on site, NMED personnel will sign the visitor's log.
- Due to restrictions outlined in the Health and Safety Plan, it is necessary that NMED personnel collect a split of the groundwater sample outside of the exclusion zone.
- In the case of limited groundwater volume, the appropriate LANL analyte suite outlined in Table 4 will be given priority.

2.5.2 Cuttings Sampling

Samples of cuttings generated during the drilling of R-47 will be collected from the drilling rig discharge line at 5-ft intervals. The cuttings will be examined to determine lithologic characteristics and to prepare the borehole lithologic log. Sampling details are

outlined in Table 4. Sampling will be conducted in accordance with the following NWI SOPs.

- NWI ENVP-014, Sampling Equipment Decontamination, Rev. 1
- NWI LWI-001, Geologic Logging of Cuttings and Core, Rev. 0
- NWI LWI-002, Core Handling, Rev. 0
- NWI LWI-011, Transportation and Admittance of Borehole Materials to the Field Support Facility, Rev. 0

Portions of the cuttings will be sieved using >#10 and >#35 mesh sieves and placed in chip trays along with a sample of unsieved cuttings. Finer sieved sizes or bulk cuttings will be collected when >#10 mesh materials are absent. The remaining cuttings will be placed in Ziploc® bags (approximately 200 to 300 milliliters [mL]), labeled, and archived in core boxes. Cuttings will be screened by an RCT or HE-certifying agent before being removed from the drilling site.

Zones where no cuttings are returned (e.g., zones of lost circulation) will be indicated by labeling the appropriate depths in the sample trays with "no returns." If foam or drilling mud is used during drilling, cuttings return lag time will be recorded. Up-hole velocities will be calculated based on borehole diameter and fluid volumes used. Physical measurements of lag time may also be made. To do so, the borehole will be circulated clean, a 6-in. interval drilled, and up-hole travel time measured.

2.6 DOWN-HOLE GEOPHYSICS

LANL's borehole video camera, natural gamma, and induction tools will be used if open-hole conditions allow logging in the R-47 borehole before each casing string below surface casing is introduced.

If borehole conditions are stable and open-hole geophysics can be conducted, the 10-in. casing will be pulled back from total depth to expose the entire saturated interval, and the interval logged by Schlumberger, Inc. The open-hole logging suite will consist of caliper, natural and spectral gamma, array induction, combined magnetic resonance, accelerator porosity sonde, and formation micro-imager logs.

If borehole conditions are not stable, cased intervals will be logged by Schlumberger, Inc. The cased-hole logging suite will consist of natural and spectral gamma, triple lithodensity, thermal and epithermal neutron, accelerator porosity sonde, and elemental capture logs.

A NWI field staff member will be present during logging operations to oversee logging runs and calibration checks. NWI will notify the STR at the start and end of geophysical

logging operations, and will provide three hard copies and one electronic copy of unprocessed geophysical logs to the STR. Oversight of geophysical logging will be performed in accordance with NWI LWI-004, Contract Geophysical Logging, Rev. 0.

2.7 WELL INSTALLATION AND COMPLETION

Placement of the screened interval in Well R-47 will follow the design shown in Figure 6. The wells will be designed in accordance with NWI ENVP-005, Design, Installation, and Development of Monitoring Wells, Rev. 2. The LANL STR will provide an approved well design to NWI personnel. Final well design will be based on discussions between NWI, LANL, and NMED.

2.7.1 Well Construction

The well casing and screen will be provided by LANL. The casing and screen will be factory-cleaned before shipment and delivery to LANL. Additional decontamination of the stainless steel components will be performed on site prior to well construction using high pressure, heated water, if necessary. Water used during decontamination will be managed in accordance with the WCSF.

Each well will be constructed of 5.0-in. inside diameter (ID)/5.563-in. outer diameter (OD) type A304 stainless steel casing fabricated to American Society for Testing and Materials (ASTM) standards. The screened intervals of each well are planned to consist of two 12-ft lengths of 5.563-in. OD compatible, 0.020-in. rod-based wire-wrapped well screen. The well screen will have an effective screen length of 20 ft. The screened interval will be placed and constructed based on site-specific information. One screened interval will be installed in R-47 unless otherwise directed by the STR.

Stainless steel casing will be placed below the screen to provide a 30-ft sump (to be determined by LANL). External couplings, also constructed of type A304 stainless steel to ASTM A312 standards, will be used to connect individual casing and screen joints. Centralizers will be placed immediately above and below the screen. The well casing string will be suspended in the borehole during backfill and will not be allowed to rest on the bottom of the borehole at any time.

A 2.5-in. OD steel tremie pipe will be used during well construction to place annular fill materials down-hole. The bottom of the borehole will be tagged prior to well installation and approximately 30 ft of bentonite chips will be placed in the bottom of the borehole around the sump, to within 5 ft of the bottom of the screen.

The primary filter pack will consist of 10/20 sand and will be placed on top of the lower bentonite seal to approximately 5 ft above the top of the screen. The actual primary filter pack interval will be based on site-specific conditions. After placement, the screened interval will be swabbed to promote settling and compaction of the primary filter pack. A 2-ft-thick transition zone of 20/40 sand will be placed above the primary filter pack.

Bentonite chips will be placed on top of the fine sand collar to 75 ft bgs. Potable water will be used to transport the bentonite chips down-hole. The bentonite seal will be allowed to hydrate for at least 4 hours prior to emplacement the cement surface seal. Alternatively, PDSCo TR30 coated bentonite pellets may be used with STR approval in the event of hole stability problems require backfill through casing.

Type I Portland cement with IDP-381 per Baroid specifications, or other approved mix, will be used to fill the borehole annulus from the top of the bentonite seal to roughly 3 ft bgs. The depth to annular materials will be measured periodically to determine that the materials are settling properly. Down-hole video and natural gamma logs will be performed by LANL to confirm well construction.

2.7.2 Well Development

The primary objective of well development is to remove suspended sediment from the water until turbidity is less than 5 nephelometric turbidity units (NTUs) for three consecutive samples. Additional water quality parameters to be measured during development include pH, temperature, specific conductance, and total organic carbon (TOC). If the NTU standard is not attainable, an alternate standard of stabilization of pH, temperature, and conductivity readings combined with TOC levels less than 2.0 parts per million must be achieved before termination of development procedures. Water samples will be collected daily in 40-mL septum vials and 250-mL high-density polyethylene bottles and transferred to EES-14 for TOC and anion analyses. Samples will be submitted unfiltered and without acid preservatives.

A suitable winch line rig, pulling unit, or work over rig will be used for well development. Development of the well will begin by bailing and swabbing the screened interval and sump to remove drilling fluids, formation sands and fines that have been introduced into the well during drilling and installation. Bailing will be conducted using a 3.5-gallon capacity, 3-in. OD by 10-ft-long stainless steel bailer. Bailing will continue until water clarity visibly improves. The screened interval will be swabbed using a surge block to enhance filter pack development. The surge block will consist of a 4.5-in. OD, 1-in.-thick rubber disk attached to drill pipe. The swabbing tool will be lowered into the well and drawn repeatedly across the screened intervals for approximately 1 hour. Water turbidity will not be measured during the bailing and swabbing process. Water produced during swabbing and bailing operations will be discharged to the cuttings pit.

A 4-in.-diameter Grundfos™ submersible pump (or equivalent) with an appropriately sized pump motor will be used for the final stage of well development. The pump intake will be set at multiple depths across the screened interval and in the sump to remove as much suspended sediment as possible from the well, filter pack, and formation immediately surrounding the borehole. Water produced during pumping will be captured and stored in suitable tanks.

Development water will be containerized and managed as described in section 2.8, Investigation-Derived Waste.

2.7.3 Aquifer Testing

Aquifer testing will be conducted by David Schafer and Associates. A NWI field staff member will be present during aquifer testing to oversee and record field activity, and to assist David Schafer and Associates.

Prior to conducting the aquifer test, water level and local barometric data will be collected over a period of two days. Barometric data from LANL's meteorology towers will be used as the source of barometric measurements. An additional day will be allowed to optimize pumping rates, collect additional early test data, and to fill the discharge pipe. A suitable pump and discharge pipe will be installed in the well and the discharge pipe will have check valves installed every 200 ft. An inflatable packer will be installed in the well above the pump to reduce casing storage effects. Non-vented transducers will be used during aquifer testing.

Each aquifer test will last for 24 hours, followed by 24 hours of monitoring of water level recovery.

2.7.4 Sampling System Installation

A dedicated sampling system will be installed in Well R-47 within 20 days of completion of well development. A Grundfos™ submersible pump sampling system will be installed and will be sized to provide 1 to 3 gallons per minute of water flow at ground surface. The pump will have a stainless steel check valve installed to protect it against backflow. All materials that contact the groundwater sample will be constructed of either stainless steel or Teflon, although brass check valves may be used in the discharge pipe above the water table. A string of 1-in. ID, passivated stainless steel pipe will be used for the discharge and will have a weep valve installed approximately 20 ft bgs to prevent freezing. To measure the water level, a 1-in. ID string of polyvinyl chloride (PVC) pipe will be installed to sufficient depth to set a dedicated transducer (In-Situ LevelTrollTM 500) below the anticipated pumping water level. The bottom 6 in. of the PVC pipe will be slotted and will have a closed-end cap installed. A weather-resistant pump control box will be installed next to the wellhead.

2.7.5 Surface Completion

The wellhead completion for the well will include a steel outer casing to protect the stainless steel monitoring well. A weep hole will be drilled in the base of the protective casing to prevent build-up of water inside. The top of the protective casing will be fitted with a tamper-proof well cover plate and will be set in a 10-ft × 10-ft × 6-in-thick reinforced concrete pad (2500 pounds per square in., minimum). The surface pad will be

sloped so that fluids will drain away from the protective casing. A brass survey marker will be placed in the northwest corner of the pad.

Four safety bollards will be set in the pad around the well to protect it from traffic. The bollards will be designed for easy removal and to allow access during well sampling or maintenance.

A New Mexico licensed Professional Land Surveyor will survey the horizontal location and elevation of the permanent brass marker, the top of the well casing, the top of the protective outer casing, and the ground surface of the completed well. Data provided by the surveyor will be in North American Datum of 1983 State Plane Coordinates, latitude and longitude, and elevation in relation to mean sea level (National Geodetic Vertical Datum of 1929). The accuracy of the survey data will be 0.1 ft for horizontal position and to the nearest 0.01 ft for vertical elevations. Survey data will be on file with NWI and provided in the well completion report.

2.8 INVESTIGATION-DERIVED WASTE

Fluids produced during drilling, well development, and testing will be sampled and analyzed in accordance with the waste characterization strategy form (WCSF) (Table 5). Cuttings and water samples will be collected from the cuttings pit and submitted under chain of custody to the SMO.

All water from above and below the regional aquifer produced during the drilling and development of the wells will be containerized separately, sampled, and evaluated for compliance with New Mexico Water Quality Control Commission Regulation 3103 groundwater standards and applicable Resource Conservation and Recovery Act regulatory limits before any discharge occurs. Decisions regarding the discharge of drilling and development water will be made in accordance with the "NOI Decision Tree" (Revised July 26, 2006; NMED-approval received via letter dated November 21, 2006, the "NOI Decision Tree: Drilling, Development, Rehabilitation, and Sampling Purge Water" (November 2006), and/or "NOI Decision Tree for Management of Investigation-Derived Waste Solids from Drilling Operations" (November 2007).

Drilling and development water approved for discharge will be applied to the land surface or used for dust suppression on access roads or the drilling site in accordance with the terms and conditions of "NOI Decision Tree: Drilling, Development, Rehabilitation, and Sampling Purge Water" (November 2006). No water will be discharged until permission is granted through the approval process outlined in the WCSF and by LANL.

Cuttings approved for on-site management will be left in the cuttings pit and buried, after the cuttings pit liner has been removed. Alternatively, cuttings approved for on-site management may be used as fill for site restoration or road maintenance.

2.9 SITE RESTORATION

Site restoration will be performed by LANL.

3. REFERENCES

Los Alamos National Laboratory, 2008. "Drilling Work Plan R-47," Los Alamos National Laboratory report LA-UR-08-1535, Los Alamos, New Mexico.

Los Alamos National Laboratory, 2009. "Exhibit D, Scope of Work and Technical Specifications, Drilling and Installation of Wells CdV-16-3(i) and R-47 at LANL," Task Order 2 # 74829-000-09 in accordance with Master Task Order Agreement # 72006-000-09, Los Alamos, New Mexico.

North Wind, Inc., 2009. "Environmental Programs-Wide Standard Operating Procedures for Los Alamos National Laboratory, Revision 0," January, 2009.

Table 1 NWI Project Staff and Roles

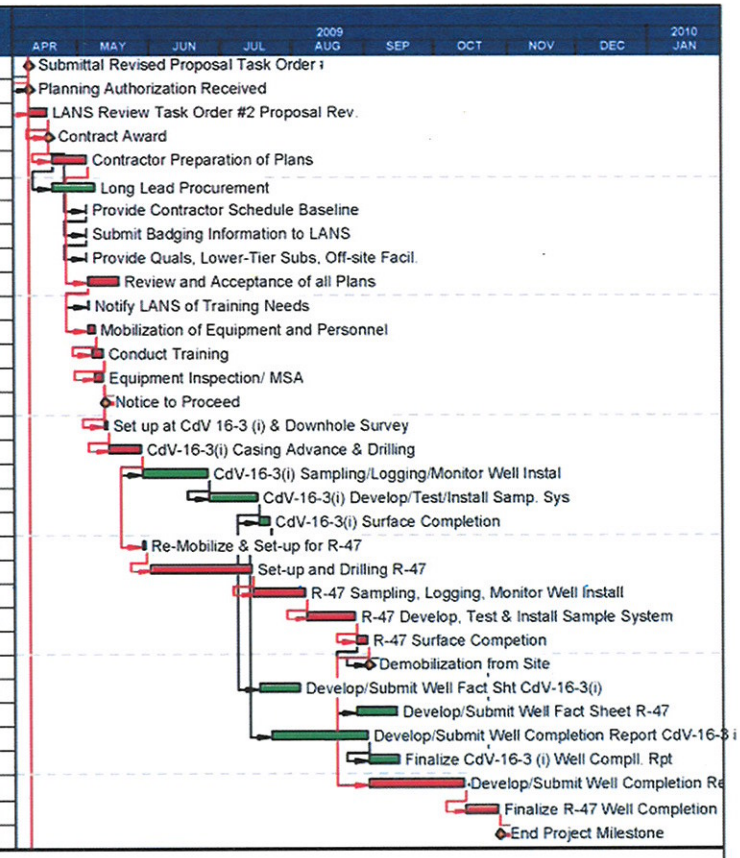
Role	Name	Description
Project Manager	Doug Jorgensen, PMP	Clear and unambiguous lines of authority and responsibility for safety matters are established and maintained at all organizational levels. The Project Manager has the responsibility to ensure that all project activities are performed safely and within applicable requirements.
Field Manager (FM)	Heather Smith, PG	The FM will oversee the day-to-day drilling and drilling related operations. The FM is the primary communicator between the NWI integrated team and LANL STR. The FM will ensure that all personnel under their supervision clearly understand their authority, responsibility, and are accountable with Conduct of Operations requirements. The FM has the responsibility for managing project field drilling operations, executing the work plan and schedule, enforcing safety procedures and site controls, and documenting drilling field activities. As a line manager, the FM is responsible for the protection of employees, the public, and the environment.
Lead Field Geologist	Brian Lucero Dan Osbourne Greg Kinsman	The Lead Geologist provides oversight for drilling activities, monitoring well installation, as well as general site management/oversight services, including monitoring field conditions. In addition to oversight services, the Field Geologist will be responsible for geologic logging and sample collection, waste management, daily field progress reporting, and interacting with the LANL STR.
Environmental Safety & Health (ES&H) Representative	David Frank	The ES&H representative shall be dedicated on-site personnel and shall work closely with CONTRACTOR management personnel to implement and administer SUBCONTRACTOR'S approved SSEHASP.
Environmental Professional	Melanie Lamb	The Environmental Professional will implement and administer SUBCONTRACTOR'S required environmental deliverables and CONTRACTOR'S environmental requirements.
Sample Technician	Stephen Thomas Bill Lazarle Brian Stone Mike Whitsen	General field activities (sampling, logging, documentation, drilling oversight, waste management)

Table 2 LANL Staff and Roles

Role	Name	Description
Procurement Specialist	Terry Forrester	The Procurement Specialist is the authority that directs commercial or technical changes to any subcontract.
STR	Jim Thompson	The STR is the LANS employee with technical and performance oversight of the subcontractor's scope of work including, but not limited to, engineering, procurement, safety, quality, schedule, and coordinated execution of the work that is carried out by the subcontractor. The STR has no authority to direct commercial or technical changes to any subcontract.
Technical Lead	Mark Everett	Technical expert on site
EH&S point of contact (POC)	Dave Dixson and Oliver Wilton	LANS environmental safety oversight
Shift Operations Managers	Steve Pearson & Rich Morely	Logistics oversight
Access Control TA-15 – 14	Dan Taylor and Natalie Montoya (505) 667-6742	Security POC TA-15-14

Table 3 Drilling Schedule

Act ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish
1000	Submittal Revised Proposal Task Order # 2	0	0	10APR09	
1005	Planning Authorization Received	0	0	10APR09	
1010	LANS Review Task Order #2 Proposal Rev.	6	6	10APR09	17APR09
1020	Contract Award	0	0		17APR09
1030	Contractor Preparation of Plans	11	11	20APR09	04MAY09
1050	Long Lead Procuremer	15	15	20APR0	08MAY0
1060	Provide Contractor Schedule Baseline	1	1	04MAY09	04MAY09
1061	Submit Badging Information to LANS	1	1	04MAY09	04MAY09
1062	Provide Quals, Lower-Tier Subs, Off-site Facil.	1	1	04MAY09	04MAY09
1070	Review and Acceptance of all Plans	10	10	05MAY09	18MAY09
1080	Notify LANS of Training Needs	1	1	05MAY09	05MAY09
1090	Mobilization of Equipment and Personnel	4	4	05MAY09	08MAY09
1100	Conduct Training	3	3	07MAY09	11MAY09
1110	Equipment Inspection/ MSA	2	2	08MAY09	11MAY09
1120	Notice to Proceed	0	0		11MAY09
1125	Set up at CdV 16-3 (i) & Downhole Survey	2	2	12MAY09	13MAY09
1180	CdV-16-3(i) Casing Advance & Drilling	10	10	14MAY09	27MAY09
1190	CdV-16-3(i) Sampling/Logging/Monitor Well	21	21	28MAY09	25JUN09
1200	CdV-16-3(i) Develop/Test/Install Samp. Sys	15	15	26JUN09	16JUL09
1205	CdV-16-3(i) Surface Completion	3	3	17JUL09	21JUL09
1206	Re-Mobilize & Set-up for R-47	2	2	28MAY09	29MAY09
1207	Set-up and Drilling R-47	32	32	01JUN09	14JUL09
1208	R-47 Sampling, Logging, Monitor Well Install	17	17	15JUL09	06AUG09
1209	R-47 Develop, Test & Install Sample System	15	15	07AUG09	27AUG09
1210	R-47 Surface Competion	3	3	28AUG09	01SEP09
1211	Demobilization from Site	0	0		01SEP09
1219	Develop/Submit Well Fact Sht CdV-16-3(i)	12	12	17JUL09	03AUG09
1220	Develop/Submit Well Fact Sheet R-47	12	12	28AUG09	14SEP09
1239	Develop/Submit Well Completion Report	30	30	22JUL09	01SEP09
1241	Finalize CdV-16-3 (i) Well Compll. Rpt	10	10	02SEP09	15SEP09
1242	Develop/Submit Well Completion Report R-47	30	30	02SEP09	13OCT09
1260	Finalize R-47 Well Completion Rpt	10	10	14OCT09	27OCT09
1280	End Project Milestone	0	0		27OCT09



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Finish date	27OCT09
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NORTH WIND, INC.
FORM D SUBCONTRACTOR SCHEDULE

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point

Table 4 Sampling and Analysis Plan

Sample Type	Analysis	Lab	Method	Container	Preservative	Interval
Drill cuttings	Lithologic	N/A	grab	chip tray #10 & #35 sieve and whole rock 200 ml to 300 ml plastic bags where sufficient	N/A	Every 5 ft
Perched zone water	Metals/anions including Perchlorate	EES-14	grab/airlift	1-liter poly	4°C	Any perched aquifer or every 20 ft in aquifer when drilling with case advance
	High explosives	Gel	grab/airlift	3 1-liter amber	4°C	Any perched aquifer or every 20 ft in aquifer when drilling with case advance
	Volatile organic compounds	Gel	grab/airlift	2 40ml VOAs	HCL	Any perched aquifer or every 20 ft in aquifer when drilling with case advance
Regional aquifer zone water	Metals/Anions including Perchlorate	EES-14	grab/airlift	2 40 ml VOAs	4°C	Every 20 ft from top of aquifer to total depth of well
Well development screening (confirmation sample everyday)	PH	Field	grab		N/A	At the screen interval
	Specific conductance	Field	grab		N/A	At the screen interval
	Temperature	Field	grab		N/A	At the screen interval
	Dissolved oxygen	Field	grab		N/A	At the screen interval
	Oxygen reduction potential	Field	grab		N/A	At the screen interval
	Turbidity	Field	grab		N/A	At the screen interval
Daily	Total organic compounds	EES-14	grab	2 40ml VOAs	4°C	At the screen interval
Final well development water	Metals/anions including Perchlorate	EES-14	grab	2 40ml VOAs	4°C	At the screen interval
	Total organic compounds	EES-14	grab	2 40ml VOAs	4°C	At the screen interval
Final aquifer test	Metals/anions including Perchlorate	EES-14	grab	2 40ml VOAs	4°C	At the screen interval
	Total organic compounds	EES-14	grab	2 40ml VOAs	4°C	At the screen interval

Notes: RAD swipes will be collected on all equipment downhole and parked on-site screened entering and leaving.
Rinsate samples will be collected on tanks not certified as clean.

Table 5 Waste Characterization

Waste Description	Waste # 1 Contact Waste	Waste #2 Borehole cuttings	Waste #3 Drilling Fluids	Waste #4 Purge Water	Waste #5 Decon-Fluids	Waste #6 Municipal Solid Waste
Volume						
Packaging	Drums or Roll-off bins	Roll-off bins	Lined pit, Poly Tanks, or drums	Frac and/or Poly Tanks	Drums or Tanks	Plastic-Lined Can
Regulatory classification:						
Radioactive	X	X	X	X	X	—
Solid	X	X	X	X	X	X
Hazardous	X	X	X	X	X	—
Mixed (hazardous and radioactive)	—	—	—	—	—	—
Toxic Substances Control Act	—	—	—	—	—	—
New Mexico Special Waste	—	—	—	—	—	—
Industrial	—	X	X	X	—	X
Characterization Method						
Acceptable knowledge (AK): Existing Data/Documentation	X	X	X	X	—	X
AK: Site Characterization	—	—	—	—	—	—
Direct Sampling of Containerized Waste	—	X	X	X	X	—
Analytical Testing						
Volatile Organic Compounds (EPA 8260-B)	—	X	X	X	X	—
Semivolatile Organic Compounds (EPA 8270-C)	—	X	X	X	X	—
Organic Pesticides (EPA 8081-A)	—	X	X	X	X	—
Organic Herbicides (EPA 8151-A)	—	X	X	X	X	—
PCBs (EPA 8082)	—	X	X	X	—	—
Total Metals (EPA 6010-B/7471-A)	—	X	X1	X1	X	—
Total Cyanide (EPA 9012-A)	—	X	X2	X2	X	—
General (NO3+NO2, F, Cl, SO4, TDS, pH)	—	—	X	X	—	—
Perchlorates	—	X	—	—	—	—
Total petroleum hydrocarbon (TPH)-GRO (EPA 8015-M)	—	X	—	—	X	—
TPH-DRO (EPA 8015-M)	—	X	—	—	X	—
Toxicity characteristic leaching procedure (TCLP) Metals (EPA 1311/6010-B)	—	—	—	—	—	—
TCLP Organics (EPA 1311/8260-B & 1311/8270-C)	—	—	—	—	—	—
Radium 226 & 228 (EPA 9320)	—	X	X	X	—	—
Gross Alpha (alpha counting) (EPA 900)	—	X	X	X	X	—
Gross Beta (beta counting) (EPA 900)	—	X	X	X	X	—
Tritium (liquid scintillation) (EPA 906.0)	—	X	X	X	X	—

Table 5 Waste Characterization (continued)

Waste Description	Waste # 1 Contact Waste	Waste #2 Borehole cuttings	Waste #3 Drilling Fluids	Waste #4 Purge Water	Waste #5 Decon-Fluids	Waste #6 Municipal Solid Waste
Gamma spectroscopy (EPA 901.1)	—	X	X	X	X	—
Isotopic plutonium (chem. separation/alpha spec.) (HASL-300)	—	X	X	X	X	—
Isotopic uranium (chem. separation/alpha spec.) (HASL-300)	—	X	X	X	X	—
Total uranium (6020 inductively coupled plasma mass spectroscopy)	—	—	X	X	—	—
Strontium-90 (EPA 905)	—	X	X	X	—	—
Americium-241 (Separation/alpha spec.) (HASL-300)	X	—	—	—	—	—

Waste Description	Waste #7 NMSW/PCS	Waste #8 Excess Grout	Waste #9 Sand Filter Pack	Waste #10 Casing, Pipe, Pumps	Waste #11 Fencing and Posts	Waste #12 Concrete Rubble
Volume	I					
Packaging	Drums	Drums	Drums or bins	Bins	Bins	Bins
Regulatory classification:						
Radioactive	—	—	X	X	X	X
Solid	X	X	X	X	X	X
Hazardous	—	—	X	X	X	X
Mixed (hazardous and radioactive)	—	—	—	—	—	—
Toxic Substances Control Act	—	—	—	—	—	—
New Mexico Special Waste	X	—	—	—	—	—
Industrial	X	X	X	X	X	X
Characterization Method						
Acceptable knowledge: Existing Data/Documentation	X	X	X	X	X	X
Acceptable knowledge: Site Characterization	—	—	—	—	—	—
Direct Sampling of Containerized Waste	X	—	X	—	—	X
Analytical Testing						
Volatile Organic Compounds (EPA 8260-B)	—	—	X	—	—	X
Semivolatile Organic Compounds (EPA 8270-C)	—	—	X	—	—	X
Organic Pesticides (EPA 8081-A)	—	—	X	—	—	X
Organic Herbicides (EPA 8151-A)	—	—	X	—	—	X

Table 5 Waste Characterization (continued)

Waste Description	Waste #7 NMSW/PCS	Waste #8 Excess Grout	Waste #9 Sand Filter Pack	Waste #10 Casing, Pipe, Pumps	Waste #11 Fencing and Posts	Waste #12 Concrete Rubble
PCBs (EPA 8082)	—	—	X	—	—	X
Total Metals (EPA 6010-B/7471-A)	X	—	X	—	—	X
Total Cyanide (EPA 9012-A)	—	—	X	—	—	X
High Explosives Constituents (EPA 8330/8321-A)	—	—	—	—	—	—
Asbestos	—	—	—	—	—	—
Tot.pet. hydrocarbon (TPH)-GRO (EPA 8015-M) TPH-DRO (EPA 8015-M)	X	—	X	—	—	X
BTEX (EPA-8021b)	X	—	X	—	—	X
TCLP Metals (EPA 1311/6010-B)	—	—	—	—	—	—
TCLP Organics (EPA 1311/8260-B & 1311/8270-C)	—	—	—	—	—	—
TCLP Pest. & Herb. (EPA 1311/8081-A/1311/8151-A)	—	—	X	—	—	X
Gross Alpha (alpha counting) (EPA 900)	—	—	X	—	—	X
Gross Beta (beta counting) (EPA 900)	—	—	X	—	—	X
Tritium (liquid scintillation) (EPA 906.0)	—	—	X	—	—	X
Gamma spectroscopy (EPA 901.1)	—	—	X	—	—	X
Isotopic plutonium (□hem. Separation/alpha spec.) (HASL-300)	—	—	X	—	—	X
Isotopic uranium (□hem. Separation/alpha spec.) (HASL-300)	—	—	X	—	—	X
Total uranium (6020 inductively coupled plasma mass spectroscopy)	—	—	—	—	—	—
Strontium-90 (EPA 905)	—	—	X	—	—	X
Americium-241 (□hem. Separation/alpha spec.) (HASL-300)	—	—	—	—	—	—

1 -- Filtered metals required for land application (except Hg).

2 – Filtered Cyanide for Land Application.

Note: Section 1.2 of the TCLP method 1311 states "If a total analysis of the waste demonstrates that individual analytes are not present in the waste, or that they are present but at such low concentrations that the appropriate regulatory levels could not possibly be exceeded, the TCLP need not be run." The methodology for using total waste analyses determination for the 40 TC constituents is as follows;

Liquids – Wastes containing less than 0.5% filterable solids do not require extraction and therefore by filtering the waste and measuring the total constituent levels of the filtrate and comparing those levels to regulatory levels is appropriate.

Solids – Constituent concentrations from the extraction fluid of wastes that are 100% physical solids are divided by 20 (reflecting the 20 to 1 ratio of TCLP extraction) and then compared to the regulatory levels. If the theoretical levels do not equal or exceed the regulatory levels, the TCLP need not be run. If the levels do equal or exceed the regulatory levels, the generator may either declare the waste hazardous or run TCLP analyses.

References:

P-409, Waste Management

ER-ERSS-SOP-5022, *Management of Environmental Restoration Project Waste, August 2008.*

ENV-RCRA-SOP-010.0, Land Application of Groundwater.

ENV-RCRA-SOP-011.1, Land Application of Drill Cutting.

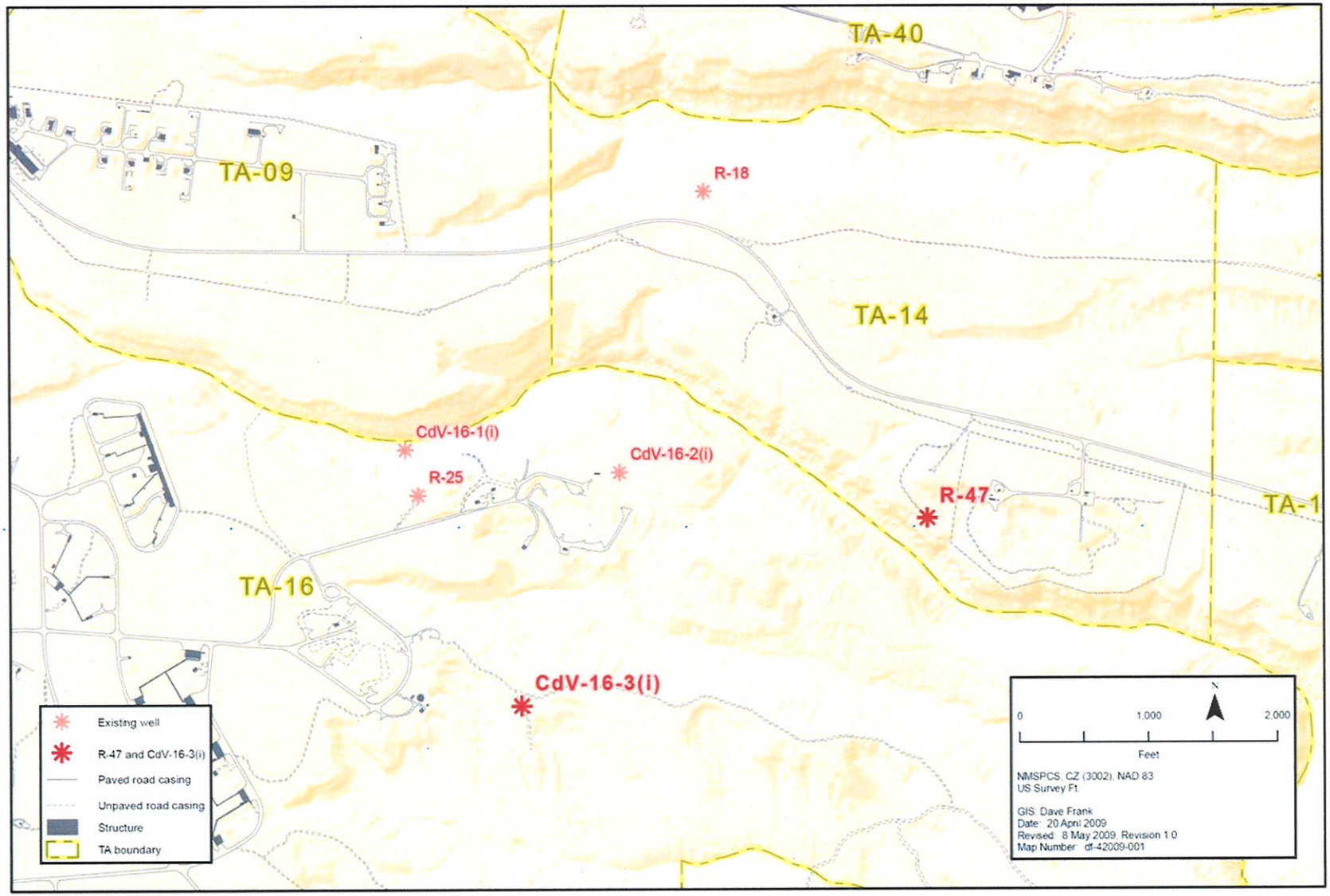


Figure 1 Location of Well R-47

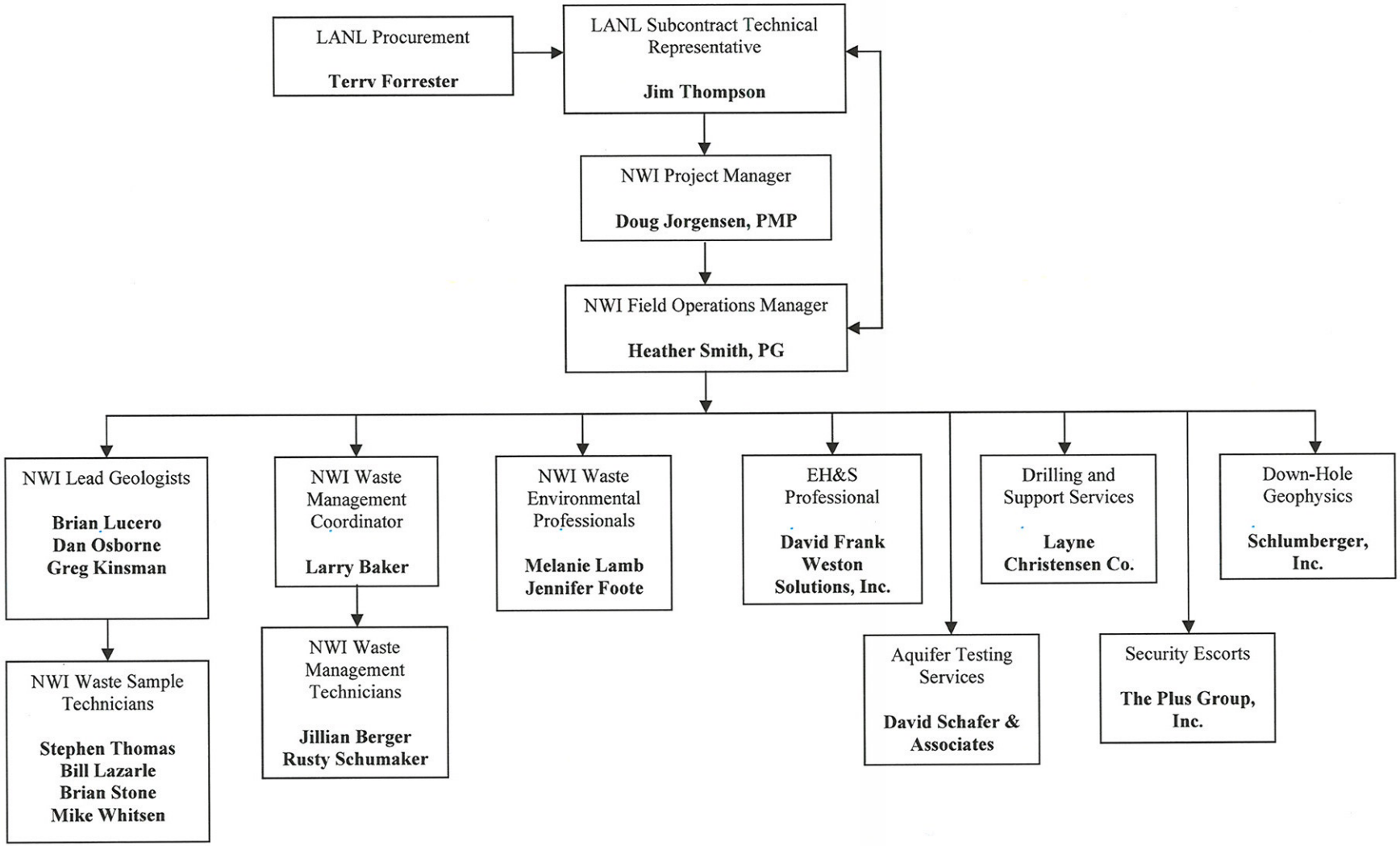


Figure 2 Project field organizational chart

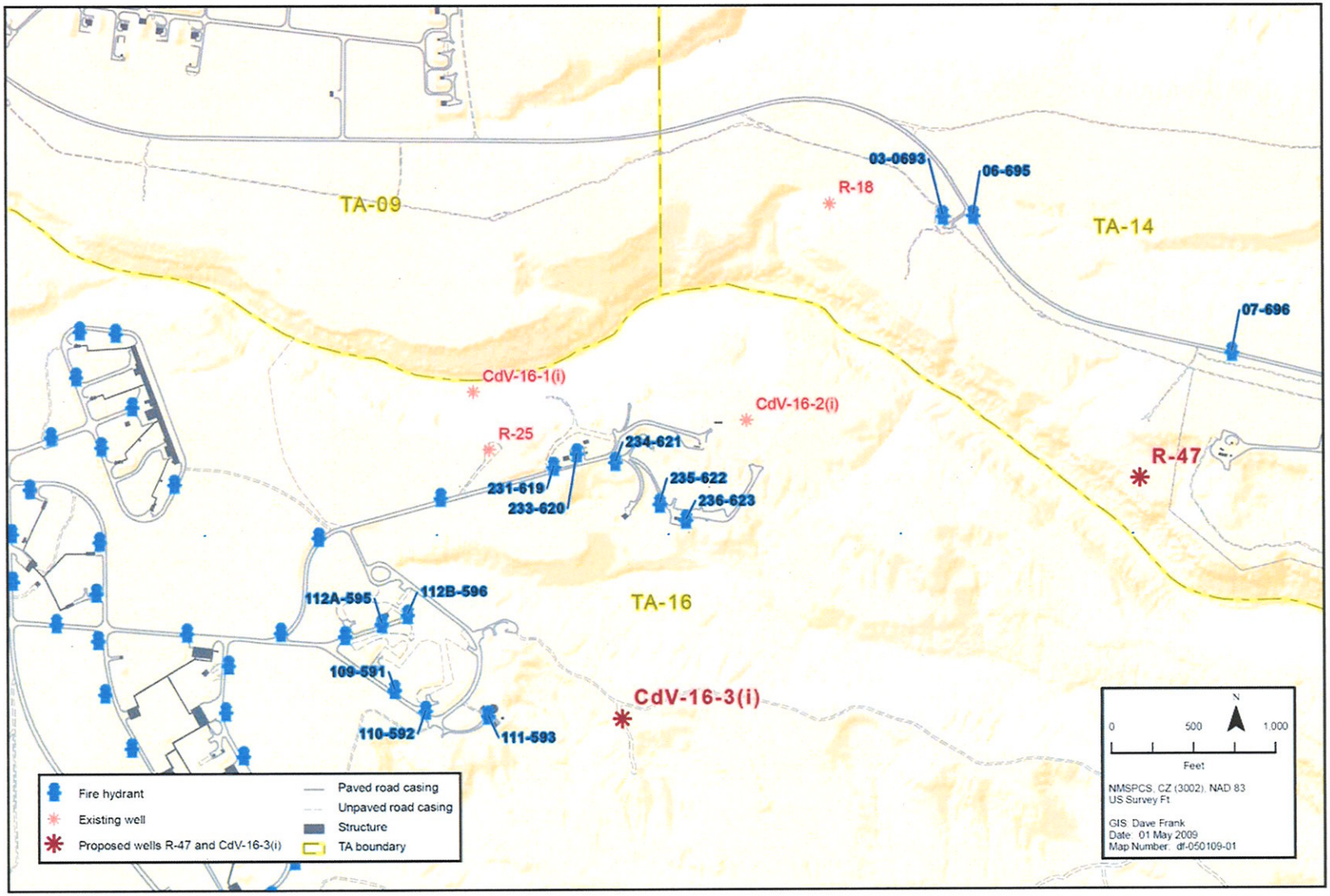


Figure 3 **Water source locations**

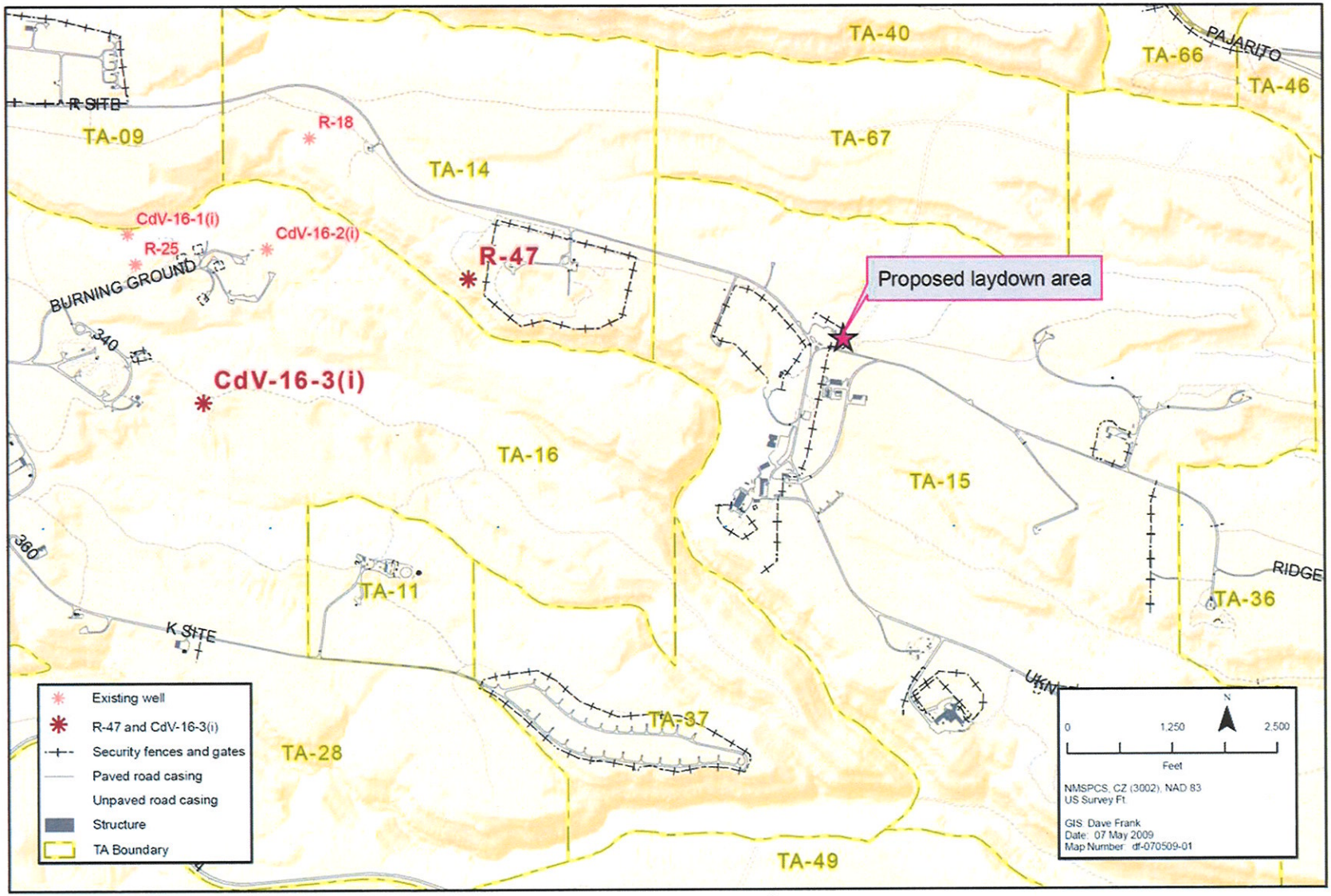


Figure 4 Location of TA-16 lay-down yard

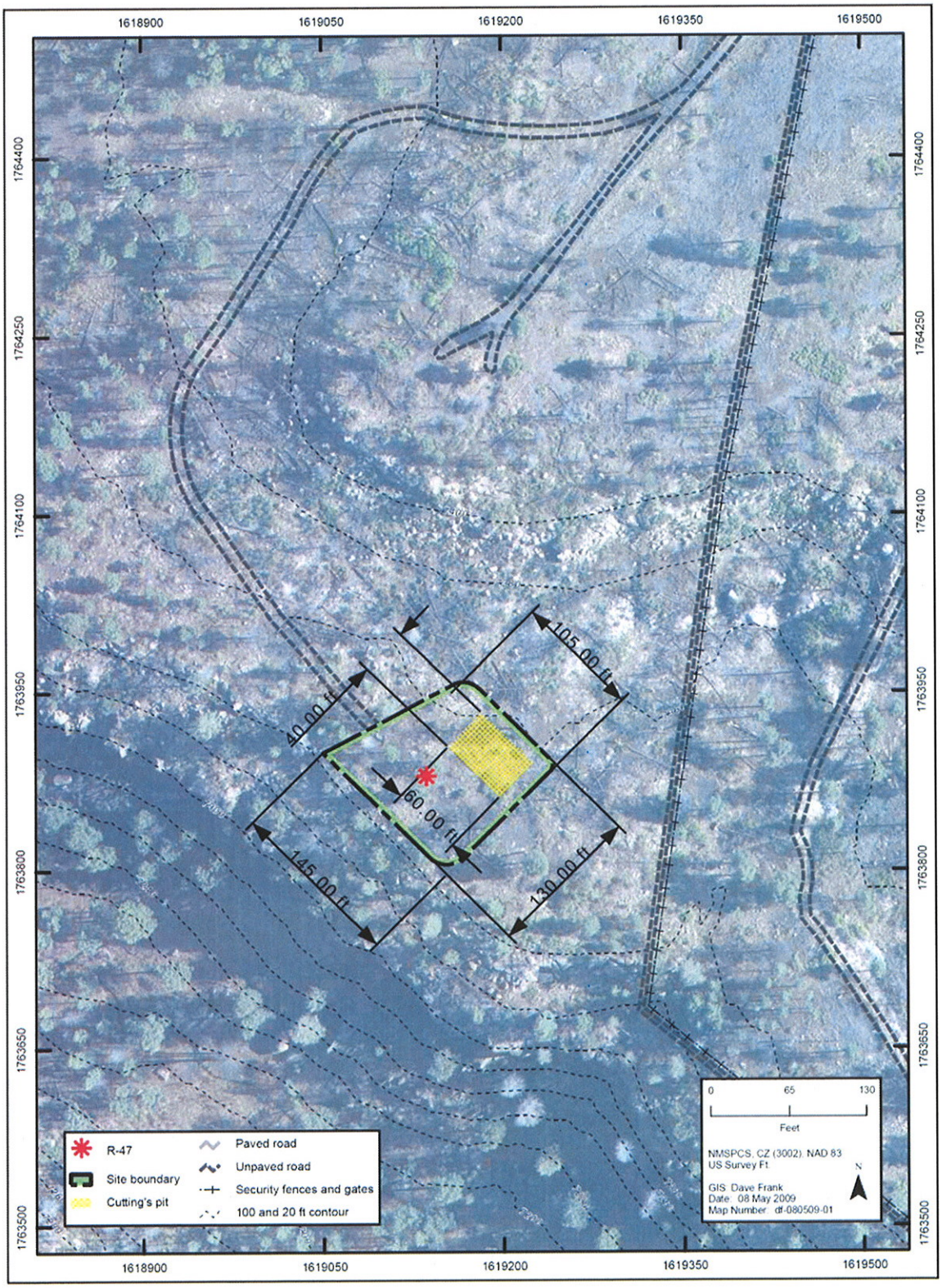
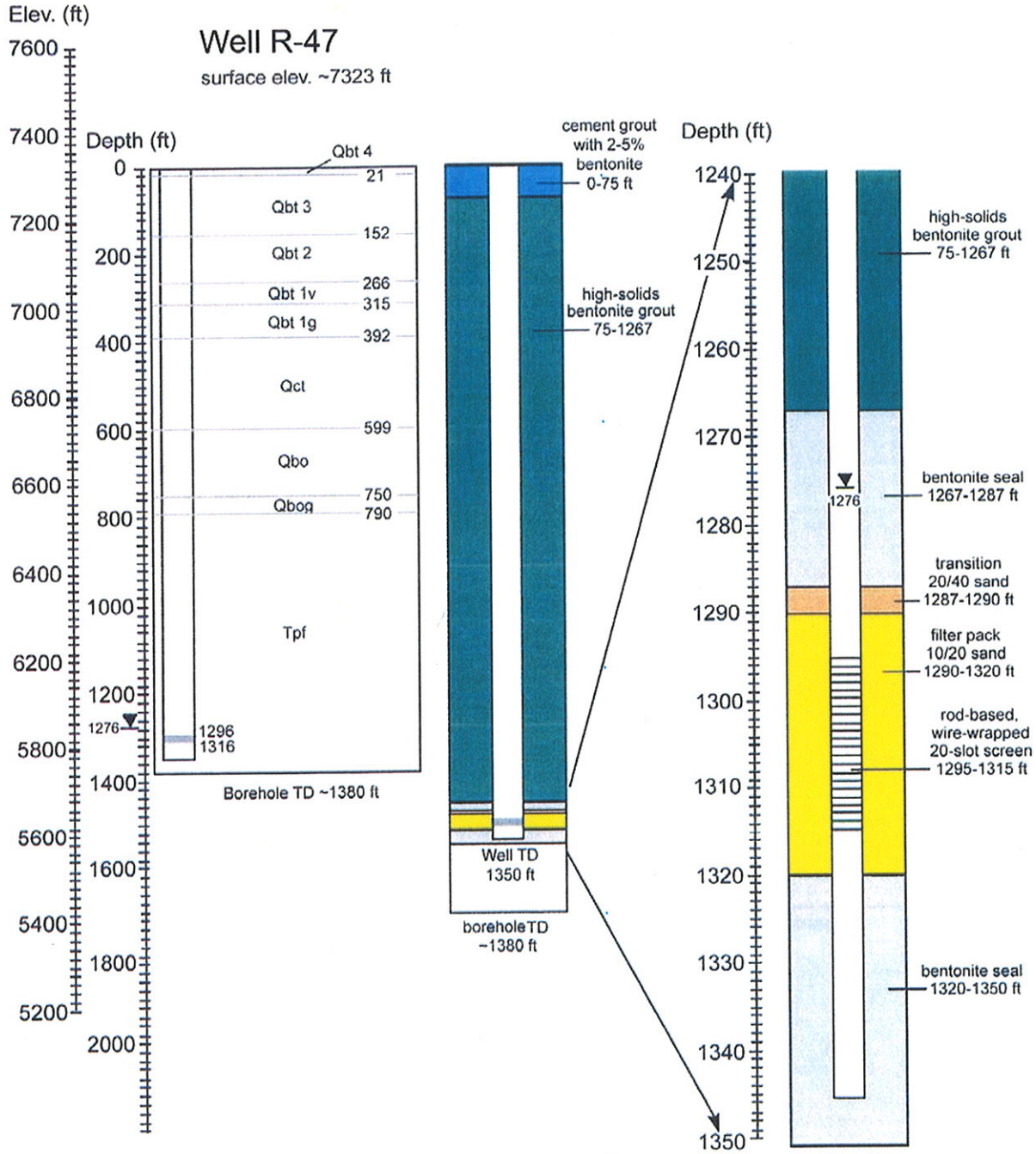


Figure 5 **Well R-47 Site layout**



Notes: Qbt = unit 4, 3t, 3, 2, 1v, or 1g of the Tshirege Member of the Bandelier Tuff; Qbtt = Tsankawi Pumice of the Tshirege Member; Qct = Cerro Toledo Interval; Qbo = Otowi Member of the Bandelier Tuff; Qbog = Guaje Pumice of the Otowi Member of the Bandelier Tuff; Tpf = Puye Formation; TD = total depth.

Figure 6 Proposed well design schematic for Well R-47

APPENDIX A

Exhibit G – Security Plan for MTOA # 72006-000-09

Task Order 2

EXHIBIT G
SECURITY REQUIREMENTS
FOR TASK ORDER / RELEASE

When performing work under this task order release, SUBCONTRACTOR shall comply with all applicable security requirements referenced below which are contained in Exhibit G of Master Task Order Agreement No. 72006-002-09.

The CONTRACTOR represents that all of the statements listed below are factually correct and applicable to the scope of work (SOW) for this task order / release. SUBCONTRACTOR has an affirmative duty to immediately notify the Contract Administrator in writing if any items listed below that are checked "No" are required for performance of the SOW. CONTRACTOR reserves the right to impose additional security requirements on SUBCONTRACTOR as deemed necessary and appropriate, if any items listed below that are checked "No" are required for performance of the SOW.

Location where Scope of Work will be performed	**Security Area Designation for DOE & CONTRACTOR owned/leased facility**	**Badge Type / Clearance Level**
☒ DOE owned/leased facility including LANL; CONTRACTOR (LANS') owned/leased facility	☐ Open Area	☐ LANL Generic Uncleared U.S. Visitor
	☐ Property Protection Area (PPA)	☐ LANL Generic Uncleared U.S. Visitor Escort Required
☐ SUBCONTRACTOR owned/leased facility	☒ Limited Area (LA)	☐ LANL Uncleared Foreign National badge
	☐ Protection Area (PA)	☐ Uncleared DOE badge
	☐ Material Access Area (MAA)	☒ L-Cleared DOE badge
		☐ Q-Cleared DOE badge
		☐ HRP

All requirements in section G2.0, *Security Requirements*, are applicable.

Only the following specified subsections of section G3.0, *General Security*, are applicable.

- Section 3.2, *Integrated Safeguards and Security Management (ISSM)*
- Section 3.3, *Safeguards, Security and Counterintelligence Awareness*
- Is training required? Yes ☒ No ☐ If Yes, Subsection 3.4, *Security Training*, is applicable.
- Section 3.5, *Security Stop Work*
- Section 3.6, *Reporting Security Incidents*

Only the following specified subsections of section G4.0, *Physical Security*, are applicable.

- Subsection 4.1, *Prohibited Articles*
- Will escorting be needed? Yes ☒ No ☐ If Yes, Subsection 4.2, *Escorting*, is applicable.
- Will work be performed within a security area? Yes ☒ No ☐ If yes, subsection 4.3, *Security Areas*, is applicable.
- Will work involve the use of deliver or construction vehicles? Yes ☒ No ☐ If yes, subsection 4.4, *Acknowledgement / Control of Vehicles On Site*, is applicable.

- Will work involve access to enhanced security areas? Yes ☐ No ☒ If yes, subsection 4.5, *Enhanced Security Areas*, is applicable.
- Will work involve temporary access or control involving security fences or barriers? Yes ☐ No ☒ If yes, subsection 4.6, *Security Fences and Barriers*, is applicable.

Only the following specified subsections of section G5.0, *Personnel Security*, are applicable.

- Subsection 5.1, *Substance Abuse*
- Subsection 5.2, *Badges*
- Will Subcontract workers require or hold an "L" or "Q" clearance? Yes ☐ No ☒ If yes, Subsections 5.3, *Clearances,* and 5.4, *Foreign Ownership, Control or Influence*, are applicable.
- Will Subcontract workers be required to be enrolled in Human Reliability Program? Yes ☐ No ☒ If yes, Subsection 5.5, *Human Reliability Program*, is applicable.
- Will any of the Subcontract workers be foreign nationals? Yes ☐ No ☒ If yes, Subsection 5.6, *Foreign Visits and Assignments*, is applicable.

Only the following specified subsections of section G6.0, *Information Security*, are applicable.

- Will OUO information be provided or generated? Yes ☐ No ☒ If Yes, Subsection 6.1, *Official Use Only Information*, is applicable.
- Will UNCI information be provided or generated? Yes ☐ No ☒ If Yes, Subsection 6.2, *Unclassified Controlled Nuclear Information*, is applicable.
- Will classified matter or material be provided or generated? Yes ☐ No ☒ If yes, Subsection 6.3, *Classified Matter and Material*, is applicable.

Only the following specified subsections of section G7.0, *Cyber Security*, are applicable.

- Will Subcontractor collect, create, process, transmit, store or disseminate information for LANS, or have access to LANL data & information? Yes ☒ No ☐ If yes, Subsections 7.1, *Cyber Security Training*, 7.2, *CONTRACTOR Responsibilities*, 7.3, *General Subcontract Worker Responsibilities*, 7.4, *Reporting Requirements*, and 7.9, *Consequences of Noncompliance*, are applicable.
- Will Subcontractor have on-site system and data access? Yes ☐ No ☒ If Yes, Subsection 7.5, *On-site System and Data Access Requirements*, is applicable.
- Will Subcontractor have off-site access to LANL systems? Yes ☒ No ☐ If Yes, Subsection 7.6, *Off-site Access to LANL Systems*, is applicable.
- Will Subcontractor's systems have off-site storage of LANL sensitive data? Yes ☐ No ☒ If Yes, Subsection 7.7, *Off-site Storage of LANL Sensitive Data on Subcontractor's Systems*, is applicable.
- Will classified scanning activities be required? Yes ☐ No ☒ If yes, Subsection 7.8, *Classified Scanning*, is applicable.

All requirements in section G8.0, *Controlled Articles / Wireless Technology,* are applicable.

All requirements in section G9.0, *Contacts,* are applicable.

All requirements in section G10.0, *Required Notifications,* are applicable.

REQUIRED REVIEWS AND APPROVALS

For Exhibit G Security Requirements
Subcontractor Name: North Wind, Inc.
MTOA No. 72006-002-09 Task Order #2

Submitted By:

Name of Requester	Signature	Date
Name of STR	Signature	Date

Sections G1 - G6 & G9 - G10 Reviewed By:

Name of DSO	Signature	Date

OR

Name of SPL	Signature	Date

Section G7 & G8 Reviewed and Approved By:

Name of Cyber Security signatory	Signature	Date

Approved By:

Name of RLM or Designee	Signature	Date

REQUIRED REVIEWS AND APPROVALS

For Exhibit G Security Requirements
Subcontractor Name: North Wind, Inc.
MTOA No. 72006-002-09 Task Order #2

Submitted By:

Theodore Ball	Theodore J. Ball	3/13/09
Name of Requester	Signature	Date
Jim Thomson	J. Thomson	3/13/09
Name of STR	Signature	Date

Sections G1 - G6 & G9 - G10 Reviewed By:

Name of DSO	Signature	Date
OR		
Name of SPL	Signature	Date

Section G7 & G8 Reviewed and Approved By:

Gary W. Webb	Gary W. Webb	3-16-09
Name of Cyber Security signatory	Signature	Date

Approved By:

Name of RLM or Designee	Signature	Date

APPENDIX B

Excavation Permit

LANL EXCAVATION / SOIL DISTURBANCE PERMIT

Authorization No 09X-0168-14

Title: TA-14 Drill Pad and Well for R-47

WorkOrder/Charge Information

TA 14 Bldg/Area 0043 Priority Routine

Requestor Name: GREGORY HELLAND Phone 667-3657

UMAP Secondary Research Date: 4/02/09

UTILITIES LOCATED

Utility Type	# Lines
Water	N/A
Gas	
Sewer	
Steam	
Condensate	
Primary Electric	
Secondary Electric	
Cooling Water	
Storm Drains	
Unknown	
RAD Liquid Waste	
Telephone/Comm.	N/A

LOCATING ORGANIZATIONS

Locating Organizations	Notify Date	Contact Person	Locates Required/Performed? Initial, Z Number, and Date Located
Utilities and Infrastructure UMAP	4/15/2009	Pam Hornsby 665-1051	Yes No [illegible]
Verizon RNS	4/16/09	665-3232 667-8375	Yes No [illegible] 191130 4-17-09
EWMO-RLW	4/15/2009	667-6904	Yes No
New Mexico One Call Agencies Notified: PNM, USWest, Comcast, Los Alamos County, NM Gas		800-321-3537 ID # 2009	Yes No

NM One Call Stake Date: Markings Good Until:

NM One Call Confirmation #:

Dimensions: 500' x 200' Maximum Depth: 1200'

REMARKS:

IMPORTANT NOTES

REVALIDATION OF UTILITY MARKINGS AND/OR SKETCH IS REQUIRED FOR EACH OF THE FOLLOWING

- Project Coordinator has changed
- Utility field markings have changed or have been removed
- 30 days have elapsed from the date the utility locate markings were made (excludes NM One Call)
- 10 working days have elapsed from the date of NM One Call Locates (allow 48 hours for locates)
- An unexpected underground utility or structure is found that was not previously marked

A copy of this permit, the IHS-OS Excavation/Fill/Soil Disturbance Request Form, all SMU Review Comments, and Utility locate sketch must be maintained on-site in a readily accessible protective container or within the work package throughout the excavation/fill/soil activity.

NOTE: The utility review for this excavation/fill/soil disturbance permit has been conducted using all available utility data to ensure that all known primary and secondary utility lines have been identified and located. Appropriate utility-specific PPE must be worn for each utility requiring hand-excavation. If there is an indication that an unidentified utility line is within the area of excavation, the Project Coordinator/Person-in-Charge must **Immediately STOP WORK** and contact the IHS-OS helpline at 5-7845 and UMAP at 5-1051 for further investigation. When all available means to verify the existence and location of the suspected utility line have been utilized, the Project Coordinator/Person-in-Charge is responsible for ensuring the use of appropriate PPE for the safety of the workers. Excavations around building perimeter may involve grounding cables within 3-5 ft from bldg. edge.

Permit expiration date is six (6) months from Review Completion date, found on Permit Request Form.

SIGNATURES

Issued to PIC: [illegible] Z-Number: [illegible] Date: [illegible] Phone #: [illegible]

SIGNATURE IMPLIES AGREEMENT TO COMPLY WITH ALL UTILITY LOCATES AND SITE REVIEW COMMENTS PROVIDED FOR THIS PERMIT

Release from UMAP for Signature: [illegible] Z-Number: [illegible] Date: [illegible]

**FOD Provided Facility Drawings: Yes ___ No ___ FOD UNIT

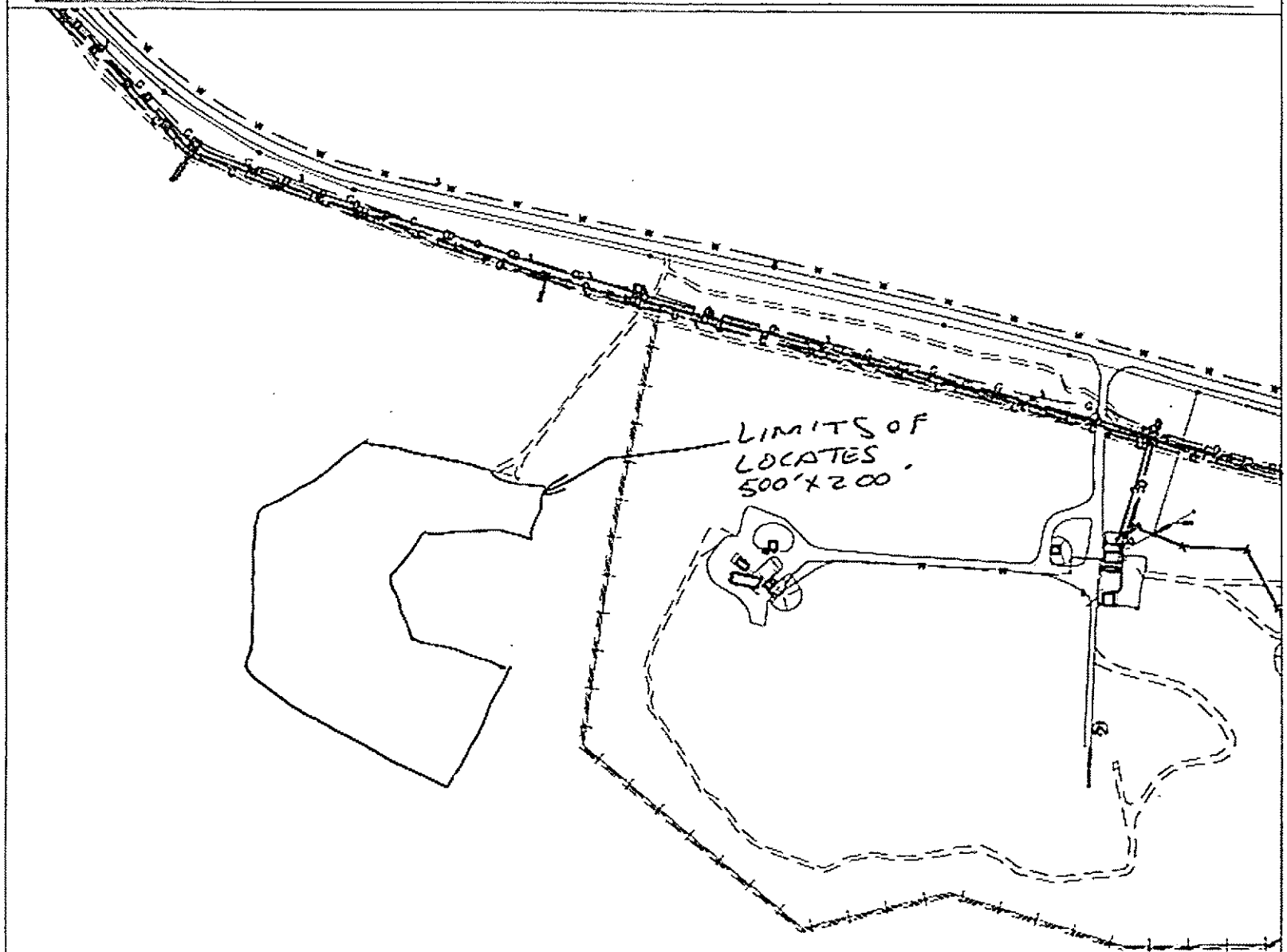
Activity Concurrence FOD/Designee: [illegible] Z-Number: [illegible] Date: [illegible]

IHS-OS Permit Issuance: [illegible] Z-Number: [illegible] Date: [illegible]

EX-ID: 09X-0168-14

COMMENTS:

EXCAVATION PERMIT
09X-0168-14



LEGEND

- BUILDING WITH NUMBER
- PAVED ROAD
- DIRT/GRAVEL ROAD
- EARTH BERM
- RETAINING WALL
- SECURITY FENCE
- INDUSTRIAL FENCE
- TA BOUNDARY LINE
- LIMITS OF LOCATES
- C — COMMUNICATION LINE
- E — ELECTRIC LINE
- G — GAS LINE
- CA — COMPRESSED AIR LINE
- CW — COOLING WATER LINE
- FA — FIRE ALARM LINE
- IW — INDUSTRIAL WASTE LINE
- OIL — OIL LINE
- SS — SANITARY SEWER LINE
- SD — STORM DRAIN LINE
- ST — STEAM-CONDENSATE LINE
- ? — UNKNOWN LINE
- W — WATER LINE

GENERAL NOTES:

1. Prior to the Locating Organizations performing the field locates, the Person-in-Charge shall mark the area representing the locate boundaries of the excavation.
2. If at anytime the copy of the permit and/or AutoCad map sketch showing field locates and locate boundaries becomes faded, damaged or unreadable, an additional copy should be requested from UMAP.
3. A permit revalidation is required for any changes in locate/excavation boundaries and/or excavation depth which are within original permit submission. A permit revalidation is also required for refreshing of existing utility field markings and/or when the Project Coordinator has changed.
4. If at anytime the Excavator becomes unaware of the locate boundaries or utility field locate marking(s) the work should be immediately stopped.
5. Prior to any mechanical excavation, the Contractor shall have in place an approved potholing plan including a sketch clearly indicating the locations of the potholing and the utilities located in the area.
6. Contractor shall maintain existing utility locate markings and potholes.
7. **Note Utilities found during field locating that are not on the drawing provided will be sketched onto the drawing in blue or black ink.**

UTILITIES INFRASTRUCTURE
Telephone (505) 681

STANDARD PAINT COLORS & LETTERING FOR FIELD UTILITY LOCATES

UTILITY DESIGNATION	PAINT PLUS COLOR	LETTER	UTILITY DESIGNATION	PAINT PLUS COLOR	LETTER
COUNTERFORCE GROUND WIRES	RED	GRD	SEWER (E. SANITARY AND STORM)	GREEN	REFERENCE LEGEND
ELECTRICAL LINES	RED	E	STEAM & CONDENSATE	YELLOW	STACON
GASES (E. NATURAL/METHANE/BUTANE PROPANE GASES & COMPRESSED AIR)	YELLOW	G	TELEPHONE/COMMUNICATION (E. CATV, COAXIAL CABLE, FIBER OPTIC)	[illegible]	T
LIQUIDS (E. MINERAL, FUEL AND TRANSFORMER)	YELLOW	O	UNKNOWN UTILITIES		?
PROPOSED EXCAVATION BOUNDARY	WHITE	N.A.	WATER (E. DOMESTIC FIRE PROTECTION & COOLING)		REFERENCE LEGEND

By signing this drawing you acknowledge that you understand the limits of locates and that all lines on the drawing have been field located and discussed with the appropriate Locating Organizations.

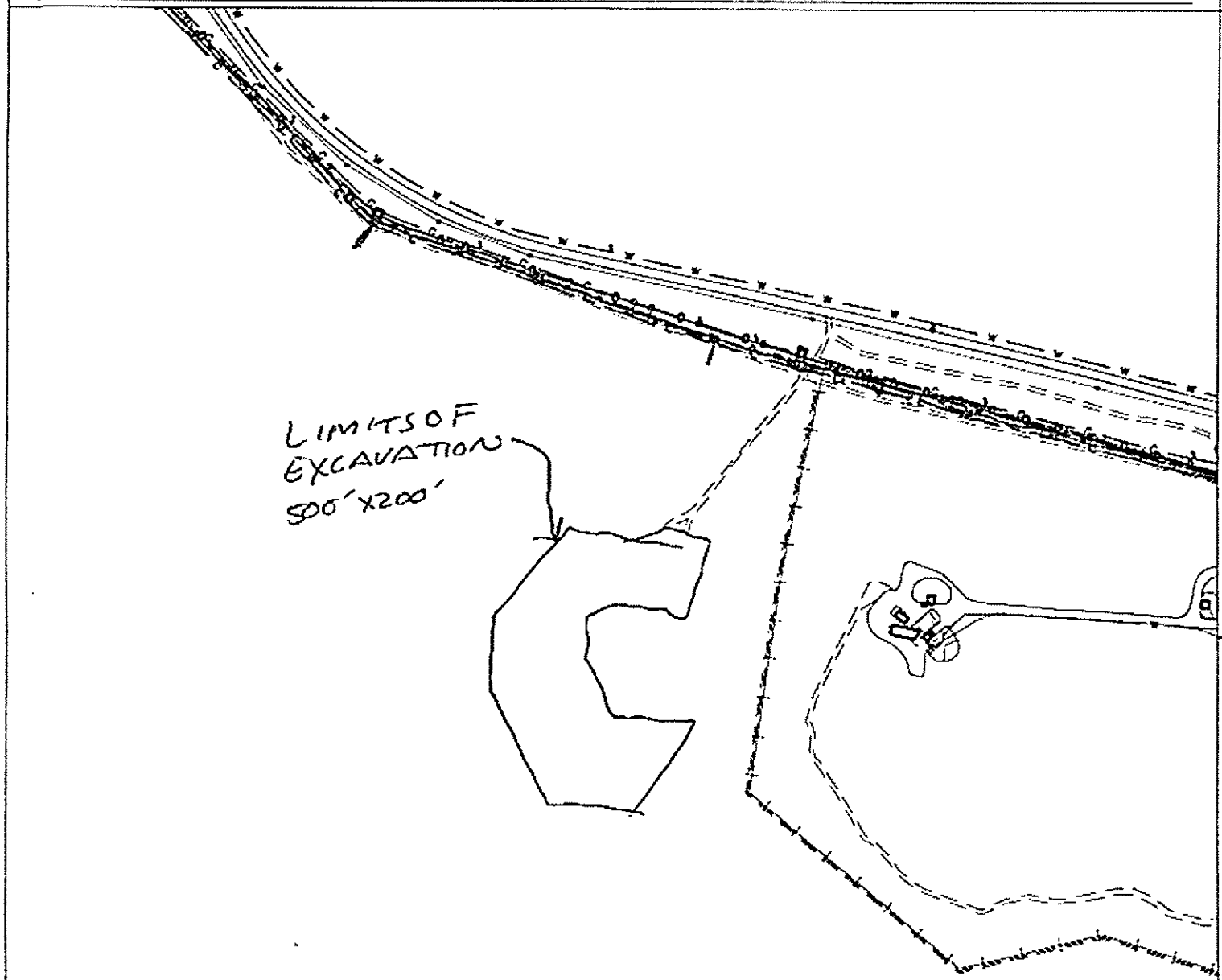
ISSUED TO SIGNATURE — Z Number — DATE

LOCATOR'S SIGNATURE — 10 — 4 — Number — 4/17/09 DATE

POTHOLING INSTRUCTIONS/COMMENTS:

POTHOLING PLAN

EXCAVATION PERMIT No.09X-0168-14



CHECK LIST	Yes	No
1. Are all underground utilities and the excavation boundary sketched?		
2. Are potholes proposed at the utility entrance and horizonal points?		
3. Are potholes proposed for utility lines within 5 feet outside of the excavation?		
4. Are additional potholes required due to the sloped excavation area where utility depth may vary?		
5. Were excavation workers briefed on the pothole plan?		
6. Are potholing plan deviations/exceptions approved and documented?		
7. Do any utility lines parellel the excavation? If yes, refer to Ap-70-10-003		

Project Coordinator
Pothole Plan Approval
Excavation

DATE

UNOCAL Representative
Authorization for Mechanical
Excavation

DATE

Health and Safety Professional
(When required for AP exceptions as documented in comment section above)

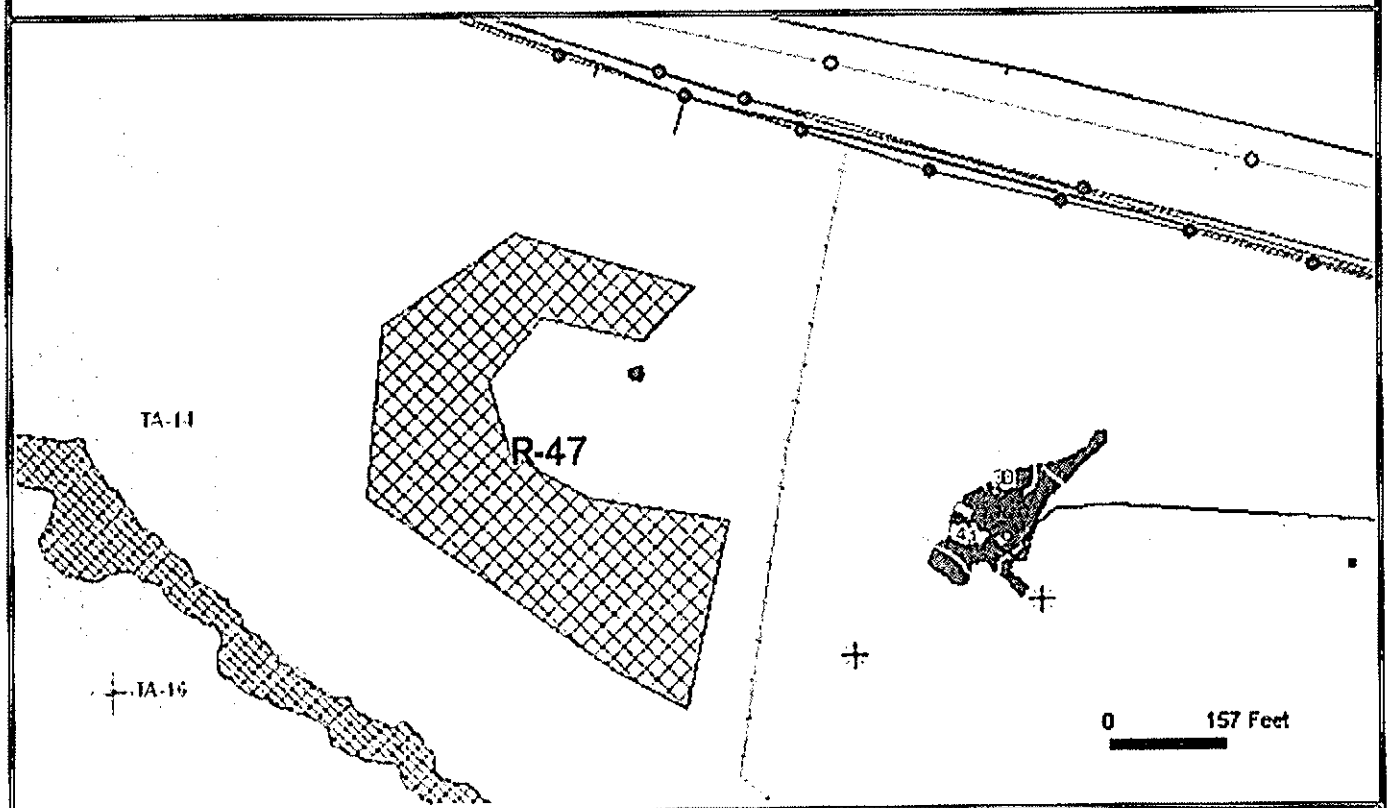
DATE

NORTH

NOT TO SCALE

UTI INFRASTRUCTURE

IHS-OS Excavation Permit Review Mapping. Permit ID: 09X-0168



Utilities
- Electric Points
- Primary Electric Lines
- Gas Points
- Primary Gas Lines
- Sewer Points
- Sanitary Sewer Lines
- Steam Points
- Primary Steam Lines
- Water Points
- Primary Water Lines

Roads
- Dirt Roads
- Lab Road
- State Hwy
- Other

Fences
- Industrial Fence/Gate
- Security Fence/Gate
- Other

Contours
- LANL Contours 100 ft.
- LANL Contours 20 ft.

Environmental Constraints
- Areas Requiring a Cultural Survey
- Developed Core Habitat of Mexican Spotted Owl
- Undeveloped Core Habitat of Mexican Spotted Owl
- Developed Core Habitat of Southwestern Willow Flycatcher
- Undeveloped Core Habitat of Southwestern Willow Flycatcher
- Developed Core Habitat of Bald Eagle
- Undeveloped Core Habitat of Bald Eagle
- Floodplains
- Area of Concern
- PRS
- Buildings
- Historical Buildings
- TA Boundary

4/1/2009 2:54:27 PM	HELP: 665-5715

Disclaimer:

The legend above is a static legend of most of the possible environmental and physical layers. However, this map shows only those layers that the user has selected to display. **Not all relevant layers or environmental constraints may be represented on this map.** Likewise, an environmental layer may be displayed on this map but not represented in the legend.

The GIS application accessed through this web page provides a visual display of data and report generation for the sole purpose of evaluating environmental constraints. This application should not be used for other purposes, such as locating utilities for excavations; such use could expose workers to unexpected safety hazards.

Infrastructure data (buildings, roads, utilities, etc.) included in this application are provided to facilitate placing the proposed project location(s) on the map accurately. The application uses the most recent information available to us, but the data may not always reflect current conditions.

Excavation/Fill/Soil Permit Review Request

Los Alamos National Laboratory
Operation & Facility (IH&S) Support

View Map

Date of Request:	4/1/2009
Date Posted:	4/1/2009
Date Review Due:	4/15/2009
Date Expires:	10/15/2009
Status:	Review Complete

09X-0168, TA-14 Drill Pad and Well for R-47

Contact:	Org:	TA-Bldg:	Phone:	Fax:	E-mail:
Arlene A. Suazo	Operation & Facility (IH&S) Support	59-36	7-5719	7-3805	excavation@lanl.gov

Priority

Priority: Routine

Title & Requester Information

Title: TA-14 Drill Pad and Well for R-47

Requester: GREGORY HELLAND	Org: WES-FFS	TA: 35	Bldg: 0114	MS: E512
	Phone: 667-2657	Fax:	Pager: 412-5651	E-mail: gdh45@lanl.gov
Project Coordinator: JOHNNY SALAZAR	Org: EES-14	TA: 51	Bldg: 0027	MS: J495
	Phone: 667-1997	Fax:	Pager: 699-4058	E-mail: salazar_johnny@lanl.gov
Alternate Contact: GREGORY HELLAND	Org: WES-FFS	TA: 35	Bldg: 0114	MS: E512
	Phone: 667-2657	Fax:	Pager: 412-5651	E-mail: gdh45@lanl.gov

Applicable Identification Numbers

Work Order #: 0

Cost Center #: 6C000A

Program Code #: MR1A

Cost Account #: 0130

Work Package #: DJB0

Funding Organization

Funding Division: LANL WATER STEWARDSHIP PROJECT
Funding Group: LWSP

Project Location(s)

FOD Unit:	TA:	Sub-Area:	Building #:	Anticipated Start Date:
UI Andrew Erickson erickson@lanl.gov	14		0043	4/13/2009

Description of the location of the excavation relative to the nearest building(s) or landmarks:
Drill pad and access road is located on west side of TA-14 Bldg. 43, Pad will be located on the south rim of the canyon. The pad and road will be outside of the firing site boundary fence.

Scope of Project

Drill Pad will be built along the top edge canyon on mesa bench will install BMP to prevent erosion, We will be installing a new road of the exiting R-site road, well pad will contain cutting pit of 40 ft x 60 ft x 10 ft deep it will also have a runoff pit 8 ft x 10 ft x 6 ft deep all area cleared will have erosion controls. Well will be drilled up to approx. 1,800 ft deep.

Purpose of Project

☑ Environmental Restoration
Specify: Regional monitoring well east of MDA-G to meet NMED consent order

Work Requirements

The project will involve or require the following:

☑ Equipment:
Bulldozer, Grader, Loader, backhoe, drill rig, forklift, generator, compressor

☑ Disturbed Area(s): maximum dimensions

AREA #1: TA-14	Description:	R-47
	Side #1:	264 ft
	Side #2:	223 ft
	Side #3:	237 ft
	Side #4:	238 ft
	Side #5:	181 ft
	Side #6:	115 ft
	Side #7:	269 ft
	Side #8:	199 ft
	Side #9:	126 ft
	Side #10:	104 ft
	Side #11:	71 ft
	Side #12:	41 ft
	Side #13:	148 ft
	Side #14:	102 ft
	Depth:	1800 ft
	Total Area:	3.56 acres

Will project involve modification, replacement, and/or installation of a guardrail or sign?	☐ Yes ☑ No
Will the excavated material be placed back in the original place of origin?	☑ Yes ☐ No
Will the work take place inside of a building?	☐ Yes ☑ No

Utility System Impacts

Will project involve modification, replacement, and/or installation of one or more utility lines?	☐ Yes ☑ No

☐ Primary Utilities - natural gas, sanitary sewer, water, steam, condensate and/or primary electric (electrical lines 600 volts and above)

☐ Secondary Utilities - Any utility systems which are not classified as "primary" including compressed air, communication, industrial water, fire alarm, secondary electric (less than 600 volts), cooling water, storm drain, security lighting, street lighting, control wiring, fuel oil, security lines, etc.

For information on the requirements for expediting utility locates please contact UMAP at 5-1051.

Water Quality System Impacts

Will this project implement Best Management Practices (BMPs) for Storm Water Pollution Prevention (SWPP) and/or soil erosion control?	☑ Yes ☐ No
Will the total area for this project, including staging areas, construction areas, and storage areas, exceed 1 acre?	☑ Yes ☐ No
Will the excavation be conducted in or near an arroyo or drainage area?	☐ Yes ☑ No ☐ Unknown
Will the excavation be conducted in or near a wetland?	☐ Yes ☑ No
Will the excavation be conducted in or near a watercourse? Yes, specify which areas: Area #1	☑ Yes ☐ No
Will the excavation be conducted in a floodplain?	☐ Yes ☑ No
Will excavation be conducted in or near a storm drain?	☐ Yes ☑ No
Is it anticipated that other than potable or industrial water, other sources will be used or discharged during soil disturbing activities?	☐ Yes ☑ No
Will this project impact a potable or industrial water supply system?	☐ Yes ☑ No
Will this project impact the sanitary sewer system or a lift station?	☐ Yes ☑ No
Will this project require any building drain modifications?	☐ Yes ☑ No

Solid Waste Impacts

What type of material will be removed from site during this project? Check all that apply. If OTHER, specify:	☐ Soil ☐ Asphalt ☐ Concrete ☐ Other ☑ None

If SOIL, ASPHALT, or CONCRETE will be removed, answer the remainder of the questions in this section. Otherwise, skip to Ecological Impacts.

Will the concrete, asphalt or soil be taken from within or near a treatment, storage, or disposal (TSD) facility?	☐ Yes ☑ No
Is the area where the material originated ever been designated a Radiological Control Area (RCA), Radiological Material Management Area (RMMA), underground radioactive material area, or radiological soil contamination area?	☐ Yes ☐ No

If YES, will material from an RCA, RMMA, underground radioactive material area, or radiological soil contamination area be released in accordance with LIR 404-00-05, Managing Radioactive Waste, LIR 402-700-01, Occupational Radiation Protection Requirements, and/or DOE Order 435.1?	☐ Yes ☐ No ☐ N/A
Have interviews with ES&H specialist, facility staff, workers or others (that may have historical knowledge of the site) been conducted to determine if any contamination or residue could be associated with the materials and whether operational releases have occurred in the material removal area? If YES, provide the information you obtained in the interview(s):	☐ Yes ☐ No
Has the project or activity that is removing the concrete, asphalt or soil undergone a PR-ID review? If YES, specify the PR-ID number:	☐ Yes ☐ No
I am willing to certify, under penalty of law that I am familiar with the operation that generated the asphalt, concrete or soil through personal knowledge as well as information provided to me by other relevant employees, and that to the best of my knowledge and belief, the information provided is accurate and complete and the material contains no constituents that would cause it to be considered a waste or pollutant. **If NO, the asphalt, concrete, or soil CANNOT be removed from the project area until approval is obtained by ENV-SWRC.**	☐ Yes ☐ No

Ecological Impacts

Applicable NEPA Document:
LAN-_____ or
SWEIS Document # _____ Operations Level _____

Has this project been reviewed by an authorized NCB (NEPA, Biological and Cultural Resources LIR 404-30-02.0) reviewer? If YES, specify name of reviewer:	☐ Yes ☑ No

Potential Release Site (PRS) Impacts

Has this excavation activity been reviewed by RRES-RS/ECR prior to this request?	☐ Yes ☑ No
Will the excavation activity be conducted within or near any known PRSs?	☑ Yes ☐ No ☐ Unknown

Cultural Resource Impacts

Will this project be conducted in an unsurveyed Cultural Area?	☐ Yes ☑ No
Will this project be conducted in a Cultural Site?	☐ Yes ☑ No
Will this project be conducted in a Cultural Site buffer?	☐ Yes ☑ No
Will this project be conducted in a Historical Building Site?	☐ Yes ☑ No
Will this project be conducted in a Historical Building Site buffer?	☐ Yes ☑ No

Biological Resource Impacts

Will this project be conducted in a Spotted Owl buffer?	☑ Yes ☐ No
Will this project be conducted in an Undeveloped Spotted Owl core?	☑ Yes ☐ No
Will this project be conducted in a Developed Spotted Owl core?	☐ Yes ☑ No
Will this project be conducted in a Flycatcher buffer?	☐ Yes ☑ No
Will this project be conducted in an Undeveloped Flycatcher core?	☐ Yes ☑ No
Will this project be conducted in a Developed Flycatcher core?	☐ Yes ☑ No
Will this project be conducted in a Bald Eagle buffer?	☐ Yes ☑ No

Will this project be conducted in an Undeveloped Bald Eagle core?	☐ Yes ☑ No
Will this project be conducted in a Developed Bald Eagle core?	☐ Yes ☑ No

Other

The project will involve:

- ☑ Responsible LANL Group - LWSP
- ☑ Responsible LANL Sub-Contractor - KSL
- ☑ Sub-Contractor - Northwind

Comments

No comments

INDEX | REQUEST_A_REVIEW | FRAMES | 09X-0163 | VIEW MAP | REVIEWER_TICKLER | COMMENTS | COMMENT_FORM | REVIEWER_LIST

These pages are maintained by the Operation & Facility (H&S) Support System Software Development Team.
Please contact the Excavation Team with questions regarding the web review process.

Excavation Reviewer Comments

Los Alamos National Laboratory
Operation & Facility (IH&S) Support

Sort Reviewers by: Last Name Organization

09X-0168, TA-14 Drill Pad and Well for R-47

Biological Review, ENV-EAQ

(4/2/2009) by DAVID KELLER
Biological Resources

Issues/Comments: Noise disturbance and habitat degradation of federally-listed threatened or endangered species

Under the federal Endangered Species Act, LANL is required to consult with US Fish and Wildlife Service on any action that falls outside of the guidelines of LANL¿s Threatened and Endangered Species Habitat Management Plan (HMP). Activities fall outside guidelines if they raise noise levels more than 6 A-weighted decibels [dB(A)] or in core habitat for federally-listed species during their breeding season and/or if they include cutting of live or dead trees greater than 9 inches diameter breast height within a federally-listed species¿ core habitat. Our screening of noise levels from this project indicates you are likely to raise noise levels more than 6 dB(A) in core habitat and/or you could be cutting trees in core habitat.

SME Group Actions

¿ We must confirm with you that noise-generating activities associated with your project will occur outside of the species¿ breeding season. Habitats are considered occupied each year from the beginning of the breeding season until either surveys confirm the habitat is unoccupied, or until the breeding season is over. Noise-generating activities for your project are restricted at least until 1 May 2009. If the habitat is occupied (which is not anticipated), restrictions will be extended to 31 August 2009.
¿ We must confirm with you that you will not be cutting live or dead trees greater than 9 inches diameter breast height within core habitat boundaries.
¿ If you can not meet the above requirements, we must prepare a biological assessment for your project (estimated cost between 30 and 100K, estimated time < = 6 months).

Project Leader Actions

¿ (1) Ensure that project activities will not increase noise levels more than 6 dBA in core habitats during the species¿ breeding season as described in SME Group Actions, (2) Ensure that project activities will not include cutting live or dead trees greater than 9 inches diameter breast height within core habitat, and confirm to us (biological resources SME) that both are true, or (3) request and fund a biological assessment.

Feel free to contact me (7-7037, dckeller@lanl.gov) regarding biological issues or to request a site visit.

Construction Safety Review, IH/S-OS

(4/3/2009) by ARLENE SUAZO
During proposed construction activities, all laborers and personnel will abide by the following guidelines for working in a construction area in accordance with Construction safety guidelines for 29 CFR 1926:

- Always wear hard hats
- Always wear safety glasses
- Always wear safety shoes.

Assure the Positive identification of the location of buried utilities in the work area (location of where dirt is to be removed).

If overhead power lines exist and/ or heavy equipment will be used, then maintain at least a 10-foot distance of clearanc personnel and equipment from them and increase the protective boundary as recommended in the OSHA standard.

For the common laborer, stay clear of motor operated equipment, remain out of the operator's blind spots, and don highly

visible vests.

For the incidental visitor, assure the work area is properly barricaded to keep/prevent unauthorized personnel out of harms way by control their access to the work area.

Cultural Review, ENV-EAQ

(4/6/2009) by GERALD MARTINEZ
CULTURAL RESOURCES:
ISSUES: None
ECOLOGY & AIR QUALITY GROUP CULTURAL RESOURCE ACTIONS: None
YOUR ACTIONS: None

NEPA Review, ENV-RRO

(4/3/2009) by MARJORIE WRIGHT
NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)
ISSUES: None-Provided that the biological and/or cultural resource issues can be resolved, the proposed new road is covered under the 2008 SWEIS, Non-key document, Section 1.3 Support Activities, and the drilling of the well is covered under the 2008 SWEIS, Non-key document, Section 2.2 Environmental Research.
RISK REDUCTION OFFICE NEPA ACTION: None
YOUR ACTION: Comply with biological and/or cultural resource restrictions.

Radiation Protection Review, RP-3

(4/1/2009) by VIRGINIA REY
Contact RP-1 team leader Marty Peifer to coordinate environmental work for the TA-14 Drill Pad and Well for R-47. Marty may be reached at 665-4342 or pager 664-6649. RP-1 must review the Health & Safety Plan/Site Specific Health & Safety Plan and other relevant safety documentation. If project work involves the use of sealed sources in geophysical logging activities, consult with RP-3 Accountable Radioactive Sealed Sources/Radiation Generating Devices supervisor John Elliott. Also, please ·fer to Article 1626 of ISD 121-1, Radiation Protection, for the requirements to use subcontractor owned RSS at LANL. Article .626.5 states that the subcontractor must comply with the RSS receipt checklist which may be found below. The subcontractor must notify RP-3 prior to using accountable RSS on LANL. Therefore, contact RP-3 supervisor John Elliott at ph 665-7461/ pg 996-0178 or RCT Gilbert Estrada at ph 665-5298. Copy of EX-ID request and map sent to Marty Peifer and Bob Keys.

REQUIREMENTS FOR ON-SITE SOIL COMPACT TESTING, WELL LOGGING,
AND SEALED SOURCE RADIOGRAPHY BY OFF-SITE CONTRACTORS

• A LANL representative will be on-site at the work location at all times when the Nuclear Density Gauge, Camera or a Well Logging Tool is present.
• Nuclear Density Gauges, and Cameras, and Well Logging Tools will be operated in accordance with the conditions specified in the Contractor's New Mexico Environmental Department (NMED) License (and/or NMED letter of reciprocity and NRC License, if appropriate).
• Contractor employees shall have appropriate training and certifications as required by the contractor's NMED License (and/or NMED letter of reciprocity and NRC License, if appropriate).
• The Contract employees will comply with any and all LANL Radiation Work Permits required by LANL Groups RP-3 and RP-1.
• The Contractor will follow their operating procedures.
• The Contractor shall wear appropriate whole body dosimeters and must possess an operational, calibrated health physics handheld instrument to perform radiation surveys as required by the Contractor's operating procedure.
• The Contractor shall provide the following information for LANL's review and approval to the responsible Project Manager prior to transporting a Nuclear Density Gauge or Sealed Source Camera onto LANL property:

1. A current copy of the Contractor's New Mexico Environmental Department (NMED) License (and/or NMED letter of ciprocity and NRC License, if appropriate).
2. Appropriate DOT Shipping Papers (e.g., Bill of Lading) for the specific Nuclear Density Gauge being transported.
3. A current copy of the source manufacturer's Special Form Certificate
4. A current copy of the package manufacturer's Competent Authority for Package.

5. A current leak test document for the Nuclear Density Gauge or Sealed Sources, which includes the Radionuclide and leak test results.
6. Current training documentation for all employees transporting and using the equipment in question.
7. A current copy of the Contractor's operating procedure.

SECURITY Review, NIE-1

(4/1/2009) by ADRIAN TRUJILLO
No secure communication concerns

SWMU Review, IH&S-OS

(4/15/2009) by ENRICO GARCIA
Based on the provided information the proposed project to install a drill pad at TA-14 will not impact any known Potential Release Sites. The WES-PRS Representative,Lynda Hartman, has concurred with the above mentioned comments. Therefore, the project can proceed as planned.
Note:
Any and all changes or deviations in the proposed scope (length, depth, width, location, etc.) of activity will invalidate the review provided. A re-submittal of all new or changed information from the original scope of activity must be resubmitted for appropriate review and approval.

Solid Waste Review, ENV-RCRA

(4/13/2009) by JOCELYN BUCKLEY
EX-ID 09X-0168, TA-14 Drill Pad and Well for R-47

ENV-RCRA Comments:

Any and all changes or deviations in the proposed scope of activity would invalidate this review. Any new or changed information would have to be resubmitted for appropriate review and approval.

All waste management activities must comply with P-409, Waste Management, EP-ERSS-SOP-5022, Waste Characterization and Management of Environmental Restoration Project Waste, an approved Waste Characterization Strategy Form (WCSF), and approved work plans.

Do not abandon any concrete, soil, asphalt, equipment, materials, product, chemicals, debris or waste on-site.

Waste Management:

EX-ID 09X-0168 indicates that the excavated material will be returned back to the original place of origin. Therefore, there should be no waste management issues associated with this project. However, any material that is not returned to the point of excavation should be considered contaminated, managed as waste, characterized and disposed of in accordance with all applicable LANL waste management procedures (e.g., EP-ERSS-SOP-5022, Waste Characterization and Management of Environmental Restoration Project Waste and the approved Waste Characterization Strategy Form associated with this project). For assistance, contact Holly Wheeler-Benson (ENV-RCRA, hbenson@lanl.gov at 667-1312) or your Waste Management Coordinator.

Stained soils (e.g., gasoline or hydraulic spills), or other indication of soil contamination (e.g., odor), should be sampled in place and managed in accordance with applicable requirements (New Mexico Special Waste, radioactive waste, hazardous waste).

Proof that off-site fill is clean should be maintained by the projects. This proof can be done by sampling and analysis or a letter from the off-site facility certifying the material is clean. It is essential that clean fill has no radioactive or hazardous waste contamination.

Vegetation within areas with historical radionuclide contamination must be sampled and analyzed before clearing from the area, unless data are already available.

Waste Characterization Strategy Form:

Before generating any waste from this project, submit a new, or amended, Waste Characterization Strategy Form (WCSF) to

Jocelyn Buckley (ENV-RCRA, jbuckley@lanl.gov at 665-5209), through Saundra Martinez (WES-RS, saundra@lanl.gov at 665-6771) for review and approval. An amendment to an approved WCSF is required when an unanticipated waste is generated, management of a waste stream significantly changes, or a correction to the approved WCSF is necessary.

The WCSF must identify all potential waste types, as well as storage, disposal, and characterization methods associated with is project. For assistance, contact Jocelyn Buckley (ENV-RCRA) or Ann Sherrard (ENV-RCRA, sherrard@lanl.gov at 665-8968).

Note: ENV-RCRA can assist with waste characterization sampling if requested by submitting a request for analysis at http://hsr-web2.lanl.gov/~esh19/databases/rfa_form.html

Land Application of Drill Cuttings:

Drill cuttings produced during drilling activities may be managed and disposed of in accordance with ENV-RCRA-QP-11.1, Land Application Drill Cuttings. Fluids produced during drilling, development, and purging of groundwater wells may be managed and disposed of in accordance with ENV-RCRA-SOP-010.0, Land Application of Groundwater.

Note: Drill cuttings must not be land applied on an undisturbed area.

Radioactive Waste Management Guidance:

All applicable requirements of DOE Order 435.1, Radioactive Waste Management shall be met for treatment, staging, storage or disposal of radioactive waste, although radioactive waste is not anticipated as a result of project activities. Radioactive waste staging and storage areas must be registered and the approved Radioactive Waste Management Basis (RWMB) shall be followed. In addition, all organizations that generate or dispose of radioactive waste must comply with P 930-2, Waste Certification Program.

For guidance on staging, storage and RWMB go to http://hsr-web2.lanl.gov/~esh19/databases/RCRA-WasteMan_IMP_Tools/Rad-ManTools/IMP409-Gen-Radwaste-Man.pdf. You may also contact Michelle Coriz at 665-6411 (mlrael@lanl.gov) or the Waste Management Coordinator assigned to this project.

Petroleum Contaminated Soils:

.roleum contaminated soils are soils that have a sum of benzene, toluene, ethyl benzene, and xylene isomer concentrations of greater than 50 milligrams per kilogram (mg/kg), or benzene individually greater than 10 mg/kg, or a total petroleum hydrocarbon concentration of greater than 100 mg/kg. Contaminated soil meeting the above criteria is managed as a New Mexico Special Waste.

If oil is spilled onto the soil or oil stained soil is encountered during this project, it may be regulated as New Mexico special waste, if not radioactively-contaminated. Note: Suspect NM special must be sampled in place.
For requirements associated with the management of New Mexico Special Waste, see http://hsr-web2.lanl.gov/~esh19/databases/NonRadTool/Petroleum.pdf

Water Quality Review, ENV-RCRA

(4/14/2009) by JACOB MEADOWS
SWPPP COVERAGE REQUIRED UNDER SWPP PLAN ADDENDUM:
This work may not commence until it is covered under a NPDES (National Pollutant Discharge Elimination System) General Permit for Storm Water Discharge from Construction Activities and an associated SWPPP (Storm Water Pollution Prevention Plan). Work activities shall be covered as an addendum to the R-Wells Project Common Plan of Development SWPP Plan. The SWPP Plan addendum for this project must be properly certified and implemented before soil disturbing activities can begin.

Contact Terrill Lemke, (Office: 665-2397, or Cell: 699-0725, or email: tlemke@lanl.gov) with questions regarding SWPPP development, scheduling of soil disturbing activities, and associated regulatory requirements for this project.

SPCC PLAN REVISION:
The LWSP Spill Prevention Control and Countermeasures (SPCC) Plan must be revised to include changes to the facility's potential to discharge oil associated with work at R-47. New above ground storage tank installation may require notification the New Mexico Environment Department (NMED) in writing at least 30 days before tanks are installed, and registration of storage tank(s) with NMED prior to placing it in service.

Comply with the SPCC requirements to minimize the potential for diesel and oil spills. Should a spill occur, notify Mark

Haagnenstad as soon as practicable to ensure regulatory requirements for reporting and cleanup are met.

Contact ENV-RCRA SME Mark Haagenstad (Office: 665-2014, Cell: 699-1733, Email: mph@lanl.gov) to begin SPCC revision.

NO 401/404 PERMIT REQUIRED:
Proposed activities will not require a New Mexico Section 401 Water Quality Certification or an Army Corps of Engineers 4 Dredge and Fill Permit.

BMPs:
Utilize and maintain appropriate BMPs (Best Management Practices) to contain excavated materials, and all other pollutants, such as oil from machinery/vehicles, within the work site limits and away from potential storm water flow and storm sewer inlets. Provide secondary containment for items such as oil and fuel containers. Provide specific contained areas for concrete washout products as well as for stockpiled materials and waste. Provide measures as needed to prevent vehicles from tracking dirt/mud from the work site onto roadways (i.e., lined and graveled construction site entrance, sweep sediment back onto site on a daily basis). Additionally, utilize non-structural BMPs such as good housekeeping practices, use of properly trained personnel and proper waste materials disposal to help prevent discharge of pollutants from the site. Stabilize disturbed areas (re-vegetate, concrete, asphalt, etc.) as appropriate at end of project. Properly dispose of all wastes generated by this project. Contact Terrill Lemke, (Office: 665-2397, or Cell: 699-0725, or email: tlemke@lanl.gov) or Tim Zimmerly (Office: 664-0105, Cell: 699-7621, or email: tzimmer@lanl.gov) with questions regarding BMP applications, installation, and maintenance.

SITE STABILIZATION:
Stabilize all disturbed areas (re-vegetate, concrete, asphalt, etc.) as appropriate at end of project. With regards to vegetative stabilization, choose seed mix and perform re-vegetation activities in strict accordance with the LANL Seeding Specifications 32 9219. Vegetative stabilization is defined by NPDES regulations as perennial vegetation that has grown to a density of 70 percent of native background vegetative cover. The permitted construction site operator cannot be released from NPDES responsibilities until ENV-RCRA has confirmed that final stabilization has been achieved, or until another NPDES permit holder (i.e., LANL) assumes control over all areas of the site that have not been finally stabilized. Achieving vegetative stabilization may require watering vegetated areas of site, and/or multiple growing seasons, until sufficient growth has occurred. Contact Tim Zimmerly (Office: 664-0105, Cell: 699-7621, or email: tzimmer@lanl.gov) or Terrill Lemke, (Office: 665-2397, or Cell: 699-0725, or email: tlemke@lanl.gov) with questions regarding application of seed, vegetation applications, installation, and maintenance and LANL Seeding Specifications 32 9219.

FFCA Reviewer

(4/14/2009) by LYNDA HARTMAN
Based on a review to identify possible impacts and concerns for ENV-RCRA water quality per Multi-Sector General Permit (MSGP) and Federal Facility Compliance Agreement (FFCA) requirements, your project does not impact an FFCA drainage area, sampler, or FFCA PRS. The project may proceed without further consultation from the FFCA Project staff based on the information provided in your EX/PR-ID.

FYI Reviewers - Comments Not Required

No Comments from Facility Operations Director.

KIRT ANDERSON, IP-SPPI

JAMES HAUGEN, ES-SE

JAMES MORK, IP-SPPI

DAVID SALAZAR, EWMO-RLW

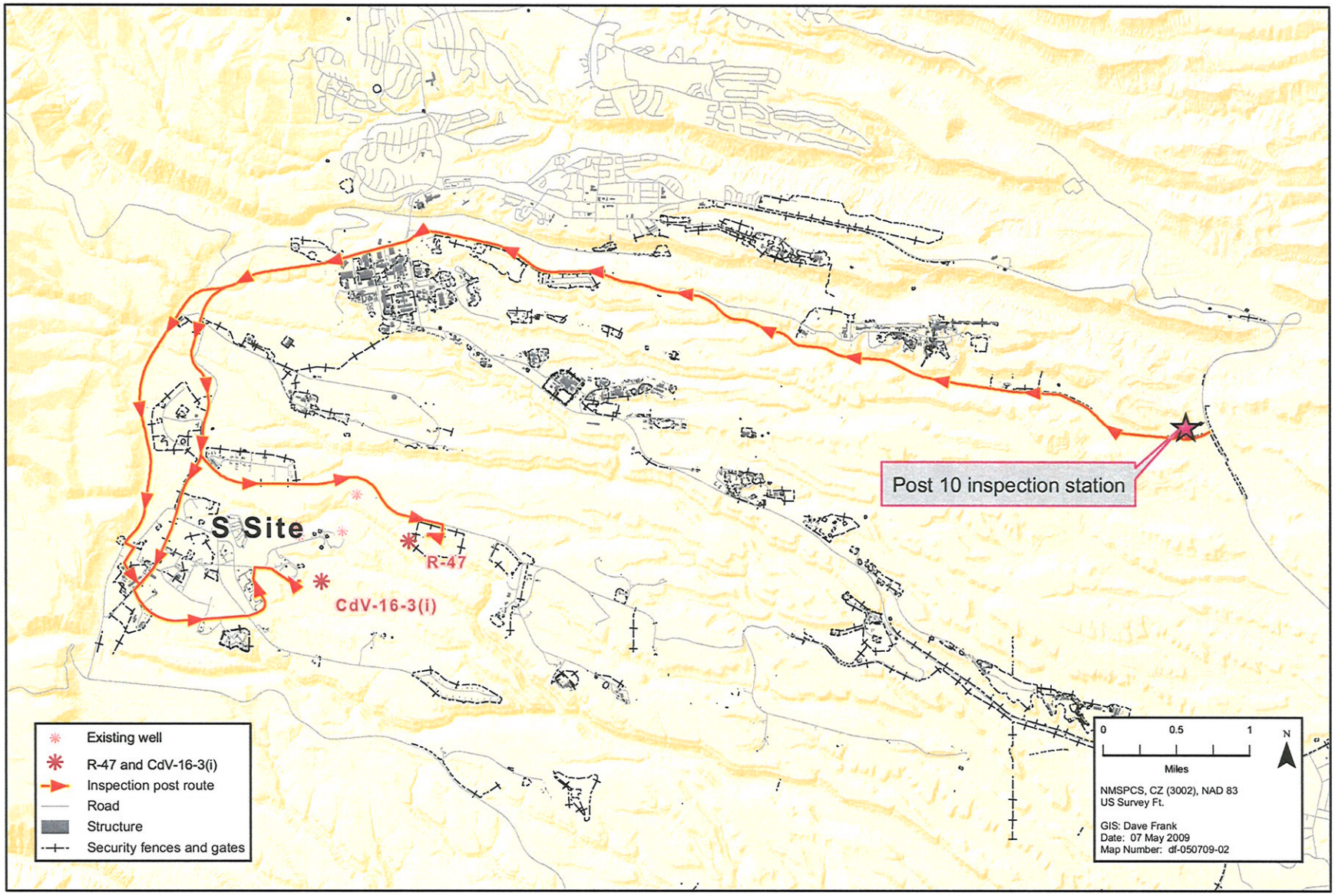
MELL SMITHOUR , ES-SE

These pages are maintained by the Operation & Facility (IH&S) Support System Software Development Team.
Please contact the Excavation Team with questions regarding the web review process.

APPENDIX C

Traffic Control Plan

Per project STR, Jim Thomson, a traffic control plan is not required for this project. The work is being conducted behind the secured fence at TA-14 and TA-16.


Post 10 inspection station
S Site
R-47
CdV-16-3(i)
Existing well
R-47 and CdV-16-3(i)
Inspection post route
Road
Structure
Security fences and gates
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NMSPCS, CZ (3002), NAD 83
US Survey Ft.
GIS: Dave Frank
Date: 07 May 2009
Map Number: df-050709-02