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TADD



**National Nuclear Security Administration**  
 Los Alamos Site Office, MS A316  
 Environmental Restoration Program  
 Los Alamos, New Mexico 87544  
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**LIBRARY COPY**

Date: July 31, 2006  
 Refer to: EP2006-0707

Mr. James Bearzi  
 New Mexico Environment Department  
 Hazardous Waste Bureau  
 2905 Rodeo Park Road, Building 1  
 Santa Fe, NM 87505-6303



**SUBJECT: RESPONSE TO "APPROVAL WITH MODIFICATIONS FOR THE INVESTIGATION WORK PLAN FOR THE NORTH CANYONS, SEPTEMBER 2001, LOS ALAMOS NATIONAL LABORATORY, EPA ID #NM0890010515"**

Dear Mr. Bearzi:

Per discussions with Kathryn Chamberlain of your staff, the Laboratory would like to use this letter to close out remaining issues concerning the Work Plan for North Canyons (LA-UR-01-1316). This approach is consistent with that used to address NMED comments on the Work Plan for Pajarito Canyon and the Work Plan for Sandia Canyon and Cañada del Buey. Formal revision of the Work Plan for North Canyons would not be required, and instead the Laboratory's prior NOD response (LA-UR-05-4495), NMED's "Approval with Modifications" letter of July 19, 2005, and this letter and attachments can be used to provide the complete administrative record.

Several attachments are included with this letter to address specific NMED comments. The remaining comments with required actions are either discussed below or will be addressed during the field investigation and/or in the North Canyons Investigation Report, as appropriate.

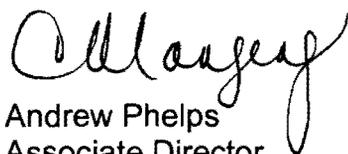
- 1) In response to NMED general comment 1, a table is attached that provides a brief description of standard operating procedures (SOPs) relevant to this investigation.
- 2) In response to NMED general comment 2, Figure A-1 has been modified to add SWMUs 10-003(a-o) and 10-007, and Figure 1.4-1 has been modified to show the correct watershed boundary. These figures are attached.
- 3) In response to NMED specific comment 4, Figure A-1 (attached) has also been modified to reflect the current status of wells.



- 4) In response to NMED specific comment 9, Table A-IV of Mayfield et al. (1979, 11717, p. 57) indicates that values of plutonium-238 and plutonium-239 at Station C, downcanyon from TA-10, are low and within the ranges for samples from Station A, upcanyon from TA-10 (plutonium-238 = 0.002-0.009 pCi/g; plutonium-239 = 0.001-0.004 pCi/g). No analyses for Station D, farther downcanyon, are presented in this report. This information will be included in the appropriate section of the North Canyons Investigation Report.
- 5) In response to NMED specific comment 11, the Laboratory was unable to find any more information on the 1967 test wells in Guaje Canyon (GCTH-1 and GC-TH-2) beyond that previously referenced to Purtymun (1995, 45344, p. 299). A site visit was made to the mapped locations, and no sign of these wells was found. However, since the stream was flowing at this location, it is assumed that the alluvial groundwater level is at or near the stream channel in this part of Guaje Canyon. This information will be included in the appropriate section of the North Canyons Investigation Report.
- 6) In response to NMED specific comment 17 and the related text in NMED's Approval with Modifications letter, the Laboratory recommends that the North Canyons investigation be implemented consistently with field procedures recently approved by NMED for other canyons investigations as followup to NODs (Work Plan for Pajarito Canyon; Work Plan for Sandia Canyon and Cañada del Buey). Specifically, NMED approved the field homogenization of sediment samples (except for VOCs) in these other canyons, and the Laboratory recommends following this process in the North Canyons. To also be consistent with prior approvals, the Laboratory agrees not to sieve sediment samples downgradient from firing sites, which effectively means that no samples will be sieved in the North Canyons as all reaches are downcanyon from firing sites. This adjustment will be incorporated into the field investigation and will be specified in the North Canyons Investigation Report.
- 7) In response to NMED specific comment 19 concerning the 1950 Layne Western well, in a site visit the Laboratory found an old casing, sealed at the top, that may be this well, although it cannot be sampled in its current condition. This information will be included in the appropriate section of the North Canyons Investigation Report.

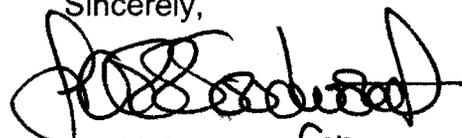
If you have any questions, please contact Danny Katzman at (505) 667-6333 or [katzman@lanl.gov](mailto:katzman@lanl.gov).

Sincerely,



Andrew Phelps  
Associate Director  
Environmental Programs  
Los Alamos National Laboratory

Sincerely,



David Gregory for  
Federal Project Director  
Department of Energy  
Los Alamos Site Office

AP/DG/DK/SR/tml

Enclosure: Summary of Investigation Methods  
Maps of Locations of Bayo, Barrancas, Rendija, and Guaje Canyons and  
Watersheds

Cy: (w/enc.)  
EP-WSP File, MS M992  
IRM-RMMSO, MS A150  
RPF, MS M707  
SAFE-S7, MS F674

Cy: (w/o enc.)  
T. Behr-Andres, EP-WSP, MS M992  
K. Birdsall, EP-WSP, MS M992  
J. Dewart, EP-WSP, MS M992  
A. Dorries, EP-ERSS, MS M992  
D. Gregory, DOE-LASO, MS A316  
M. Johansen, DOE-LASO, MS A316  
C. Mangeng, ADEP, MS J591  
D. Pepe, NMED-OB, Santa Fe, NM  
A. Phelps, ADEP, MS J591  
P. Reneau, EP-ERSS, MS K490  
S. Reneau, EES-EGSA, MS D452  
B. Rich, ADESHQ, MS K491

### Summary of Investigation Methods

Method	Summary
SOP-01.02 Sample Containers and Preservation	Specific requirements/processes for sample containers, preservation techniques, and holding times are based on EPA guidance for environmental sampling, preservation, and quality assurance. Specific requirements for each sample are printed on the sample collection logs provided by the SMO (size and type of container; glass, amber glass, polyethylene, preservative, etc.). All samples are preserved by placing in insulated containers with ice to maintain a temperature of 4°C. Other requirements such as nitric acid or other preservatives may apply to different media or analytical requests.
SOP-01.03 Handling, Packaging, and Shipping of Samples	Field team members seal and label samples before packing, and ensure that the sample containers and the containers used for transport are free of external contamination.  Field team members package all samples so as to minimize the possibility of breakage during transportation.  After all environmental samples are collected, packaged, and preserved, a field team member transports them to either the Sample Management Office (SMO) or an SMO-approved radiation screening laboratory under chain-of-custody. The SMO arranges for shipping of samples to analytical laboratories.  The field team member must inform the SMO and/or the radiation screening laboratory coordinator when levels of radioactivity are in the action-level or limited-quantity ranges.
SOP-01.04 Sample Control and Field Documentation	The collection, screening, and transport of samples is documented on standard forms generated by the SMO. These include sample collection logs, chain-of-custody forms, and sample container labels. Collection logs are completed at the time of sample collection, and are signed by the sampler and a reviewer who verifies the logs for completeness and accuracy. Corresponding labels are initialed and applied to each sample container, and custody seals are placed around container lids or openings. Chain-of-custody forms are completed and assigned to verify that the samples are not left unattended.
SOP-01.05 Field Quality Control Samples	Field quality control samples are collected as directed in the Consent Order as follows:  Field Duplicate: At a frequency of 10% and collected at the same time as a regular sample and submitted for the same analyses.  Equipment Rinsate Blank: At a frequency of 10% and collected by rinsing sampling equipment with deionized water, which is collected in a sample container and submitted for laboratory analysis.  Trip Blanks: Required for all field events that include the collection of samples for volatile organic compound analysis. Trip blanks containers of certified clean sand that are opened and kept with the other sample containers during the sampling process.
SOP-01.08 Field Decontamination of Drilling and Sampling Equipment	Dry decontamination is the preferred method to minimize the generation of liquid waste. Dry decontamination may include the use of a wire brush or other tool for removal of soil or other material adhering to the sampling equipment, followed by use of a commercial cleaning agent (nonacid, waxless cleaners) and paper wipes. Dry decontamination may be followed by wet decontamination if necessary. Wet decontamination may include washing with a nonphosphate detergent and water, followed by a water rinse and a second rinse with deionized water. Alternatively, steam cleaning may be used.
SOP-03.08 Geomorphic Characterization	Geomorphic characterization typically occurs prior to collection of sediment samples to evaluate potential contamination in canyon bottoms. A geomorphic map is first prepared that delineates the extent of geomorphic units with varying characteristics (e.g., active channels, abandoned channels, floodplains). The characteristics of the geomorphic units are then described, including the thickness of fine-grained and

Method	Summary
	coarse-grained sediment deposits that post-date initial Laboratory operations in a watershed. The geomorphic map and information on sediment particle size, thickness, and volume are then used to select representative sample locations.
SOP-06.09 Spade and Scoop Collection of Soil Samples	This method is typically used for collection of shallow (i.e., approximately 0–12 in.) soil or sediment samples. The “spade-and-scoop” method involves digging a hole to the desired depth, as prescribed in the sampling and analysis plan, and collecting a discrete sample. The sample is typically placed in a clean stainless steel bowl for transfer into various sample containers.
ENV-DO-204 Spring and Surface Water Sampling	Surface water will be collected by grab sample using a Teflon, stainless steel, or glass transfer device. Samples may also be collected by directly dipping the collection bottle into the water, filling it, and capping the container.

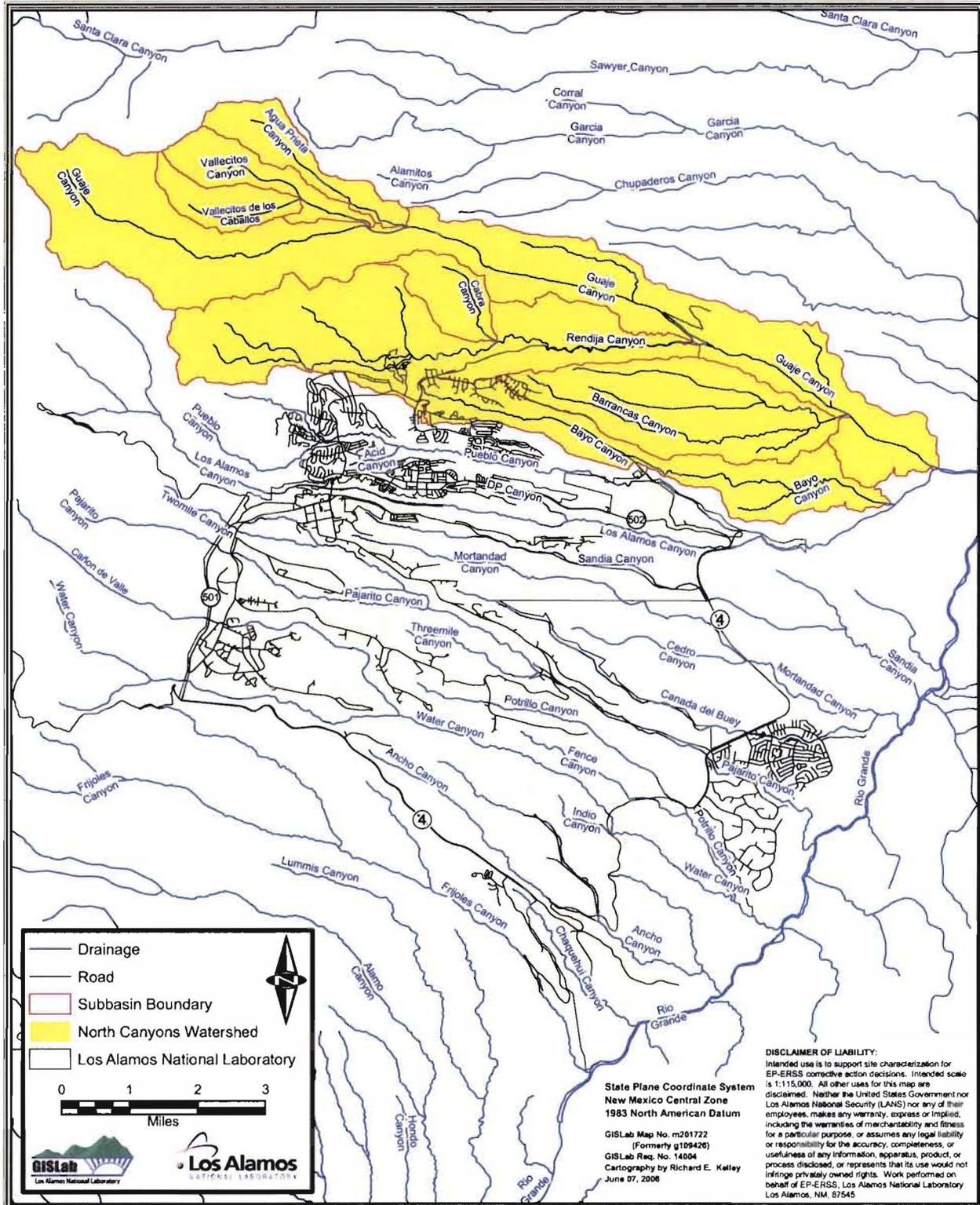
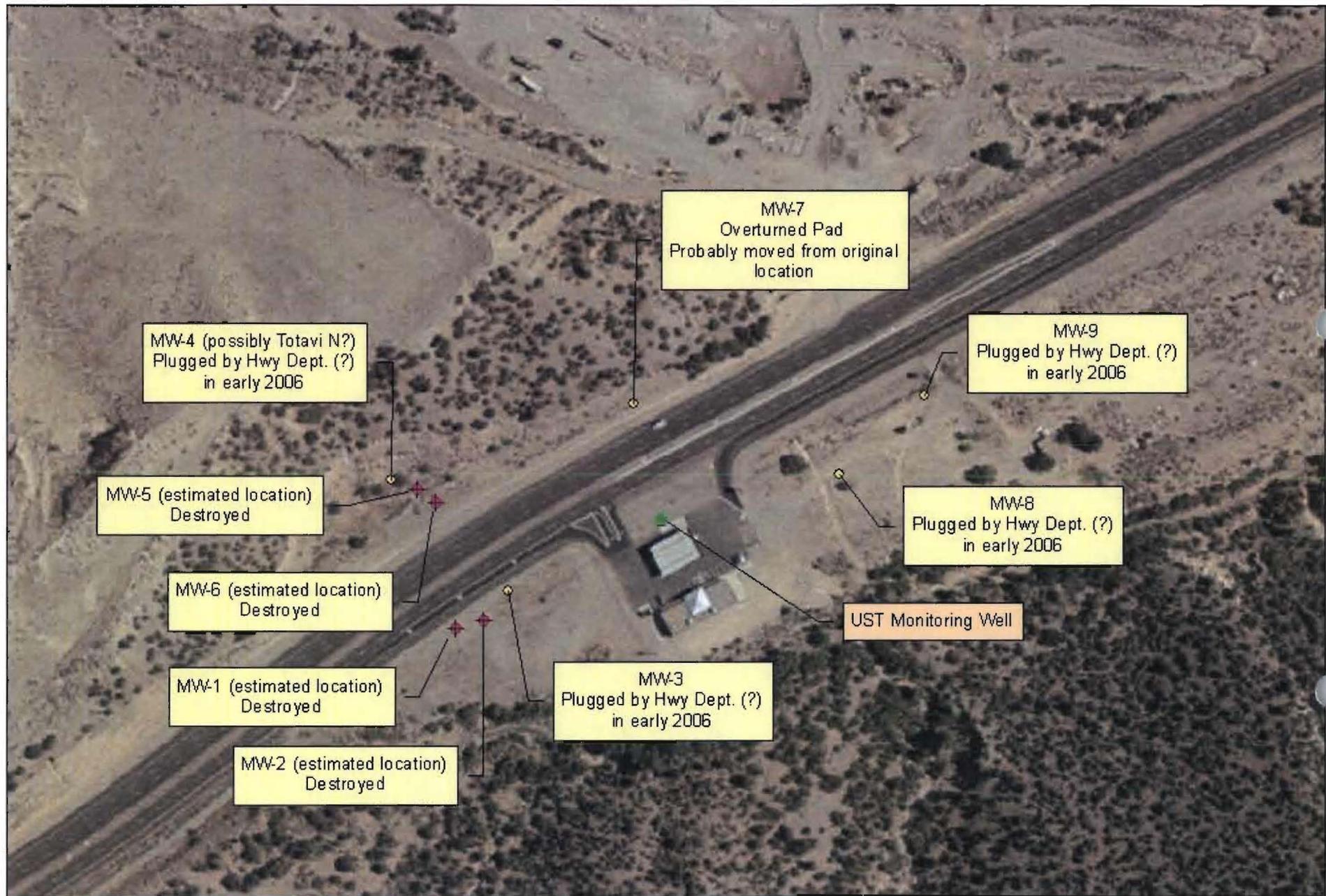


Figure 1.4-1. Locations of Bayo, Barrancas, Rendija, and Guaje Canyons



MW-4 (possibly Totavi N?)  
Plugged by Hwy Dept. (?)  
in early 2006

MW-7  
Overturned Pad  
Probably moved from original  
location

MW-9  
Plugged by Hwy Dept. (?)  
in early 2006

MW-5 (estimated location)  
Destroyed

MW-8  
Plugged by Hwy Dept. (?)  
in early 2006

MW-6 (estimated location)  
Destroyed

UST Monitoring Well

MW-1 (estimated location)  
Destroyed

MW-3  
Plugged by Hwy Dept. (?)  
in early 2006

MW-2 (estimated location)  
Destroyed

- UST Monitoring Well
- Highway Dept. Wells
- ◆ Destroyed Highway Dept. Wells not found during 03-06 Reconnaissance

Totavi Highway Department Monitoring Wells



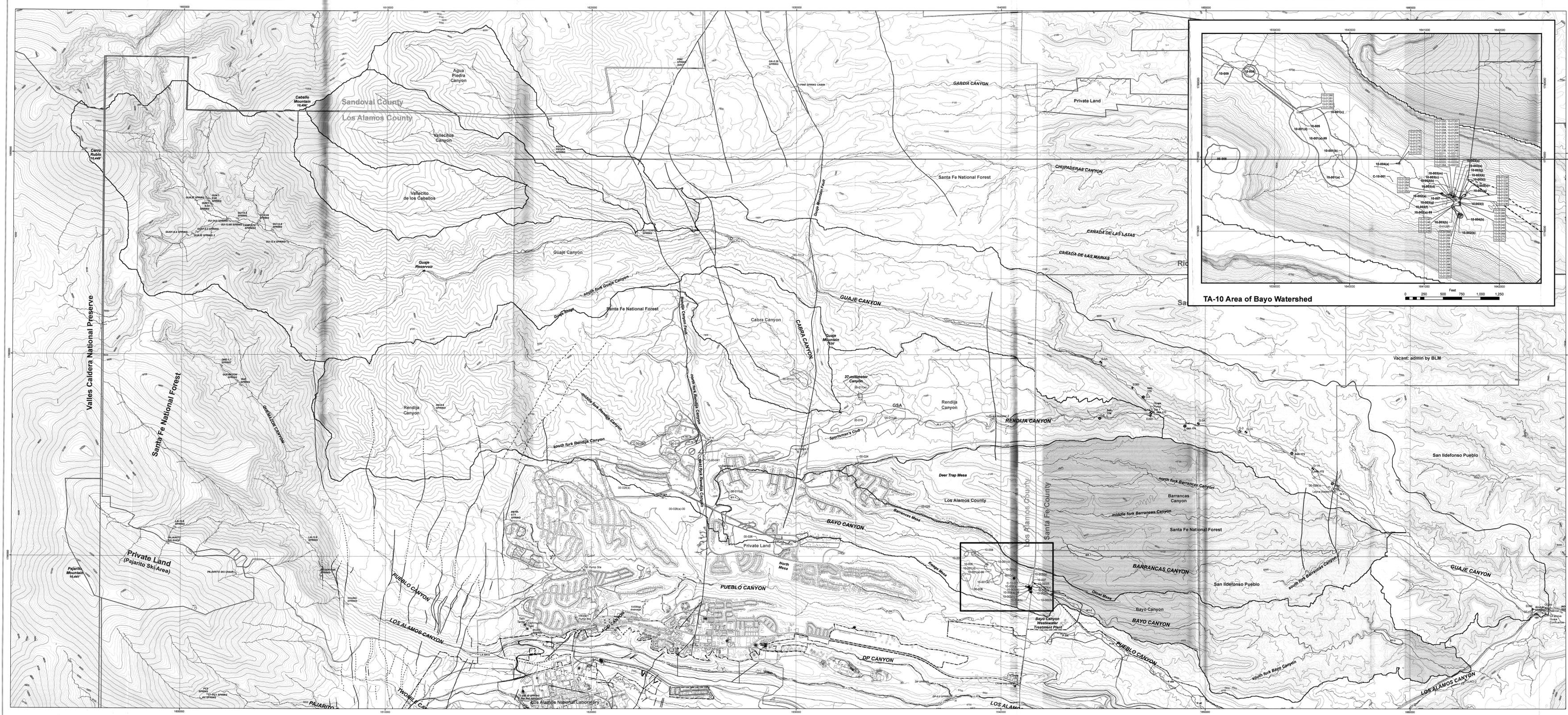
Map Produced by K. G. Razow, March, 2006  
NMED DOE Oversight Area  
134 State Road 1, Suite A  
White Rock, NM 87544



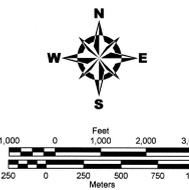
DATA SOURCES:  
RPEC Remediation Project,  
Los Alamos National Laboratory  
NMED DOE Oversight Area  
  
PROJECTION:  
New Mexico State Plane Coordinate System  
Central Zone  
North American Datum, 1983



Figure A-1.  
 Bayo Canyon, Barrancas Canyon, Rendija Canyon, and Guaje Canyon Watersheds



- Monitoring Well
- Test Hole
- Water Supply Well
- Spring
- Plugged & abandoned well
- ◆ Stream gaging station
- ▲ Alluvial groundwater well
- Surface water sampling location
- ▲ Former NPDES outfall
- Pump stations, etc
- Boreholes (inset)
- Water line
- Gas line
- Sewer line
- Drainage
- Perennial Flow
- Faults**
- Known fault
- - - Fault (assumed/uncertain)
- ..... Fault (concealed)
- ..... Fault (located approximately)
- Fault zone
- SWMU or AOC
- LANL boundary
- Technical area boundary
- Land ownership boundary
- County boundary
- Paved road / street
- Unpaved road
- Trail
- Structure
- Topographic contour**
- 10 ft (inset map)
- 20 ft
- 100 ft
- Watersheds**
- Agua Piedra Canyon
- Barrancas Canyon
- Bayo Canyon
- Cabra Canyon
- Guaje Canyon
- Rendija Canyon
- Vallecito de los Caballos
- Vallecito Canyon
- Watershed boundary



State Plane Coordinate System  
 New Mexico Central Zone  
 1983 North American Datum  
 Grid Provides Units in Feet

GISLab Map No. m201676, Rev. 1  
 GISLab Req. No. 14004  
 Cartography by Richard E. Kelley  
 June 01, 2006

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