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Date: March 21, 2007
Refer To: EP2007-0157

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



Subject: Response to the Notice of Disapproval, South Canyons Investigation Work Plan

Dear Mr. Bearzi:

Attached is the response to the Notice of Disapproval (NOD) on the South Canyons Work Plan dated February 19, 2007 (NMED 2007, 095025). In accordance with the NOD, LANL will reissue the South Canyons Work Plan on a schedule specified in NMED's approval of this NOD response.

If you have any questions or concerns please feel free to contact Danny Katzman at (505) 667-6333 (katzman@lanl.gov) or Mathew Johansen at (505) 665-5046 (mjohansen@doeal.gov).

Sincerely,

Carolyn A. Mangeng, Acting Associate Director
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Sincerely,

George Rael, Assistant Manager
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CAM/GR/DK:tml

Enclosure: Two hard copies with electronic files – Response to the Notice of Disapproval on the South Canyons Work Plan (EP2007-0159)

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**Response to the "Notice of Disapproval, South Canyons Investigation Work Plan,
Los Alamos National Laboratory, EPA ID #NM0890010515, HWB-LANL-06-018,"
Dated February 19, 2007**

INTRODUCTION

This submittal is the response by Los Alamos National Laboratory (LANL or the Laboratory) to the "Notice of Disapproval, South Canyons Investigation Work Plan, Los Alamos National Laboratory, EPA ID #NM0890010515, HWB-LANL-06-018," issued by the New Mexico Environment Department (NMED) Hazardous Waste Bureau on February 19, 2007 (NMED 2007, 095025). The work plan was submitted by LANL to NMED on September 29, 2006 (LANL 2006, 093713).

To facilitate review of this response, NMED's comments are included verbatim, and are organized into general and specific categories. The Laboratory's responses follow each NMED comment. Pending agreement from NMED on the responses, LANL will proceed with preparing a revised work plan that will indicate where the text has been revised and a table cross-referencing the revisions to NMED's numbered comments.

This response contains data on radioactive materials, including source, special nuclear, and by-product material. Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to NMED in accordance with U.S. Department of Energy (DOE) policy.

GENERAL COMMENTS

NMED Comment

1. *The Permittees must perform sampling activities at the locations and frequencies described in the approved Interim Facility-Wide Groundwater Monitoring Plan, Revision 1, dated April 2006 and any subsequent updates.*

LANL Response

1. Because the interim facility-wide groundwater monitoring plan (IFGMP) is updated annually, the Laboratory agrees to perform sampling activities in accordance with the version of the IFGMP that is current for each year, as stated in the South Canyons work plan (LANL 2006, 093713, pp. 15–17).

SPECIFIC COMMENTS

1. **Sections 2.3.3 Chaquehui Canyon Watershed, 2.3.4 Indio Canyon Watershed, and 2.3.5 Potrillo and Fence Canyons Watersheds, pgs. 6-7:**

NMED Comment

1. *The Permittees state that several constituents (inorganics, organics, and radionuclides) were detected above background values. The Permittees must rephrase the last sentence of each section*

to clearly state that inorganic chemicals and radionuclides were detected above background or fallout values, and that the other listed constituents were detected above detection limits.

LANL Response

1. The Laboratory will rephrase the sentences as directed.

2. Section 3.1.3 Surface Water, pg. 9:

NMED Comment

2. *The Permittees recently provided photographic evidence to NMED of dramatic changes observed in Pueblo Canyon as a result of unusually heavy precipitation and subsequent flooding. Large amounts of potentially-contaminated sediment migrated downstream, possibly past the Facility's boundary. The Permittees must discuss in this section any changes observed to the channels and floodplains of the South Canyons as a result of heavy precipitation events and any subsequent flooding. The Permittees must also identify and sample reaches with pre- and post-flooding sediment packages to evaluate potential contaminant migration due to recent precipitation.*

LANL Response

2. The Laboratory has made no direct observations of specific changes to channels and floodplains in the south canyons as a result of recent flooding. However, to acknowledge the importance of flooding, the Laboratory proposes to add the following sentence to the end of section 2.2.1.2:

"Runoff as a result of heavy precipitation events can cause changes to channels and floodplains and the remobilization and transport of contaminated sediment."

Sediment deposits that result from recent flood events, as well as from previous flood events, will be identified and sampled in the investigation reaches. This practice is consistent with the approach presented in section 4.1 of the work plan, which "ensure[s] that the range of sediment types and ages are represented in the sampling plan" (LANL 2006, 093713, p. 14).

3. Section 4.1 Sediment Investigation, pg. 14:

NMED Comment

3. *The Permittees discuss how the data collected from reaches "will allow the investigation team to determine the nature, extent, and sources of contaminants," and will allow the team to "evaluate potential human and ecological risks within and between reaches." NMED is concerned that there are not enough reaches to determine extent (if contamination is detected upgradient) and to determine what contaminants may be leaving the Facility boundary. The Permittees must add the following reaches to the investigation:*

- *In Fishladder Canyon upgradient of the confluence with Cañon de Valle.*
- *At the Facility boundary in Fence Canyon.*
- *At State Road 4 in Potrillo Canyon.*
- *In the tributary that drains MDA AB into Water Canyon.*

LANL Response

3. The Laboratory will add a Phase 1 sediment investigation reach in the tributary that drains Material Disposal Area (MDA) AB into Water Canyon. This information will be added to Table 4.1-1 and to Plate 1 and will be designated reach WAB-1.

The Laboratory will add Phase 2 sediment investigation reaches to the following locations: (1) in Fishladder Canyon above the confluence with Cañon de Valle (reach FL-3); (2) in Fence Canyon above State Road 4 (reach F-3); and (3) in Potrillo Canyon above State Road 4 (reach PO-4), contingent on identifying chemicals of potential concern (COPCs) in upcanyon Phase 1 reaches (FL-2, F-2, and PO-3) closer to solid waste management units or areas of concern. Analytical suites will include all COPCs identified in FL-2, F-2, or PO-3, respectively.

4. Section 4.1 Sediment Investigation, pg. 14:

NMED Comment

4. *The sampling plan for the sediment investigation is vague. The Permittees discuss using biased sampling of the geomorphic units to identify contaminants. The Canyons Core Document (which is referenced in this section) discusses using radiological field screening to determine sampling locations. Specifically, this document states "samples will be collected at locations where the highest radioactivity (or contamination) is measured in the contamination survey. If numerous locations with elevated levels of contamination are found in a reach, the technical team may decide to increase the number of samples collected for full-suite analysis to adequately characterize the nature of contamination."*

The sediment investigation in this Work Plan does not address using other field screening methods to determine appropriate sampling locations if radionuclides are not contaminants of concern. The Permittees must discuss the use of other field screening methods as described in Section IX.B.2.d of the Consent Order. The Permittees state in this Work Plan that ten samples are typically collected during an initial phase of a sediment investigation. It is unclear if this is a minimum number of samples expected to be collected from each reach during this investigation, or if the "technical team" will decide to increase the number of samples collected based on a minimum of ten. The Permittees must provide more specific information on sample numbers and decision criteria used to increase or decrease sample numbers. The Permittees must follow the sediment sampling procedures as described in Section IX.B.2.b.iii of the Consent Order

LANL Response

4. The use of field screening in sediment investigations has evolved since the Canyons core document was completed in 1997 (LANL 1997, 055622). Specifically, it has been found that field screening is not useful for guiding sampling in many reaches because of the low levels of contaminants, as discussed in responses to previous NODs (LANL 2005, 089412; LANL 2005, 091287; LANL 2005, 091542) and accepted by NMED (NMED 2005, 091653; NMED 2005, 091689; NMED 2005, 091288). To address this issue, and to be consistent with previous agreements with NMED, the Laboratory proposes to add the following sentences to the third paragraph of Section 4.1 of the work plan:

"The potential utility of field-screening methods in Phase 2 investigations will be considered part of the evaluation of Phase 1 analytical data. No field screening will be proposed if concentrations of COPCs are too low to make these methods useful in meeting investigation goals. Any field screening that is conducted will be in accordance with Section IX.B.2.d of the Consent Order."

The Laboratory proposes to revise the reference to sample numbers in the work plan from "Ten samples are typically collected in Phase 1" to "Ten samples will be collected in Phase 1" to remove uncertainty about sample numbers.

The Laboratory proposes that the sediment sampling procedures described in Section IX.B.2.b.iii of the Consent Order, which refers to "where borings are drilled to explore alluvial subsurface conditions," are not applicable to the surface-based sediment investigations discussed in section 4.1 of the work plan because borings are not proposed. The sediment investigations will be implemented in accordance with the applicable procedures described section 5 of the work plan, specifically Standard Operating Procedure (SOP) 03.08, "Geomorphic Characterization," and SOP-06.09, "Spade and Scoop Method for Collection of Soil Samples."

5. Section 4.1 Sediment Investigation, pgs. 14-15:

NMED Comment

- The Permittees propose to use the results of the Phase I sampling task to "characterize the media and, if necessary, to define the limited-suite analyses for subsequent phases of sampling and analysis." The Permittees must provide the Phase I results to NMED for review prior to using them to determine subsequent additional data needs. The Permittees are reminded that contaminants of concern should be determined based on a comparison to background values or detection limits, their expected presence based on site history, and, when contaminants are infrequently detected, their presence in other media.*

LANL Response

- The Laboratory will provide NMED with Phase 1 data for review along with a proposal for Phase 2 investigations before proceeding with these investigations. The Laboratory now considers it standard practice to provide summary reports between each phase of Canyons sediment investigations. COPCs will also be identified as requested, consistent with other recent documents submitted by the Laboratory to NMED.

6. Section 4.3 Groundwater Investigation, Regional Groundwater, pg. 16:

Permittees' Statement: "As indicated in the 'Work Plan for R-Well Rehabilitation and Replacement' (LANL 2006, 92535), R-25 is currently slated for rehabilitation. Furthermore, a letter to NMED dated July 28, 2006 (LANL 2006, 93258), proposed that a final decision on R-25 will be made after the Laboratory has had some experience with the current well rehabilitation project. As of this writing, the well rehabilitation pilot is still underway, so a recommendation for R-25 is not provided in this work plan."

NMED Comment

- NMED has responded to the Permittees' letter of July 28, 2006. NMED has also provided the Permittees with its comments on the Permittees' Well Screen Analysis Report. The Permittees must refer to these two letters to determine the usefulness of R-25 and all of the monitoring wells discussed in this Work Plan. Also, see general comment #2.*

LANL Response

- The Laboratory is evaluating R-25 as part of an overall wells assessment at the direction of NMED in accordance with the NMED "Notice of Approval with Direction, Investigation Report for Intermediate

and Regional Groundwater, Consolidated Unit 16-021(c)-99" (NMED 2006, 095026). Recommendations for future work associated with R-25 will be addressed in that evaluation. In its evaluation, the Laboratory will address issues and concerns detailed in the NMED response of October 23, 2006 (NMED 2006, 095087), to a July 28, 2006, LANL letter (LANL 2006, 093258) updating the status of R-25. The evaluation will also address concerns about well screen evaluation methodology as expressed in the NMED NOD of September 18, 2006 (NMED 2006, 094373), for the well screen analysis report (LANL 2005, 091121). The wells assessment conducted under NMED's approval with direction for Consolidated Unit 16-021(c)-99 is scheduled for submittal to NMED on April 30, 2007.

7. Section 5.0 Investigation Methods, pg. 17:

NMED Comment

7. *Per Section IX.A of the Consent Order, the Permittees "shall provide a brief description of investigation, sampling or analytical methods and procedures in documents submitted to the Department that includes sufficient detail to evaluate the quality of the acquired data." The Permittees provided only a brief description of investigation methods for water and sediment collection. The Permittees state that "[a]dditional procedures may be added as necessary to describe and document quality-affecting activities." Many of the standard operating procedures referenced in this Work Plan are procedures that could affect data quality and should have been included. The Permittees must describe all of the methods and procedures that will be used during this investigation.*

LANL Response

7. The Laboratory will revise section 5 of the work plan to provide brief descriptions of all SOPs listed on p. 18.

8. Section 5.1.1.1 Hollow-Stem Auger, pg. 19:

NMED Comment

8. *The Permittees must discuss the situations in which the hollow-stem auger method will be used for drilling. The Permittees must discuss the criteria to be used to determine use of the hollow-stem auger method.*

LANL Response

8. The Laboratory proposes to add the following text to section 5.1.1.1: "The hollow-stem auger method is applicable for drilling boreholes in loosely consolidated alluvium and in nonwelded tuffs to depths no greater than about 200 to 300 ft. Hollow-stem augers are most commonly used for the installation of alluvial wells and for collecting core samples in the shallow vadose zone in poorly consolidated units such as the lower Tshirege Member and the Otowi Member."

9. Section 5.1.1.2 Air Rotary, pg. 19:

NMED Comment

9. *The Permittees must discuss the situations in which the air rotary method will be used for drilling. The Permittees must discuss the criteria to be used to determine use of the air rotary method.*

LANL Response

9. The Laboratory proposes to add the following text to section 5.1.1.2: "The air-rotary method is applicable for drilling deep boreholes, particularly in cases where wells are installed in deep perched zones and in the regional aquifer. The use of air-rotary methods is necessary when the depth of the borehole exceeds 200 to 300 ft and/or the rock units penetrated include hard rock formations such as basalt or cobble-rich strata."

10. Section 5.1.1.4 Hand Auger, pg. 20:

NMED Comment

10. *The Permittees should avoid using hand augers for collecting samples in tuff. Recently, the Permittees have provided information to NMED to suggest that detections of certain metals in tuff may be due to spalling of metal fragments into the tuff during the use of a hand auger. NMED recommends using a truck-mounted or skid-mounted drill rig for all drilling.*

LANL Response

10. Hand augers will not be used to collect samples of tuff in this investigation.

11. Section 5.2.2.1 Collection of Surface Water, pg. 20:

Permittees' Statement: "All surface water samples will be collected and handled in accordance with QP-DO-204 R.0, Spring and Surface Water Sampling."

NMED Comment

11. *The Permittees reference a procedure that is neither described in this Work Plan nor is found on the Permittees website (<http://erproject.lanl.gov/documents/procedures/sops/html>). The Permittees must describe this procedure.*

LANL Response

11. The Laboratory will revise section 5.2.2.1 of the work plan to describe Quality Procedure (QP) QP-DO-204, R.0, "Spring and Surface Water Sampling."

12. Section 5.2.2.2 Collection of Groundwater, pg. 21:

NMED Comment

12. *The Permittees must collect groundwater samples in accordance with the procedures set forth in Section IX.B.2.i.ii of the Consent Order and the approved Interim Groundwater Monitoring Plan, in addition to the procedure referenced in this paragraph.*

LANL Response

12. The Laboratory will collect groundwater samples in accordance with the version of the IFGMP that is current for each year and the Consent Order, as stated in section 5.2.2.2 of the work plan (LANL 2006, 093713, p. 21).

13. Table 4.3-1 Comparison of Proposed South Canyons Work Plan Alluvial Wells and Consent Order Wells, pg. 50:

NMED Comment

13. *The WCO alluvial wells were drilled in 1989 during a period of artificially reduced recharge to the alluvium resulting from the collection of water from Water Canyon Gallery (discharges approximately 100 million gallons of water discharged annually). Around 1996, the bypass of water ceased due to an un-repaired break in the collection system. As a result, recharge is now returning to natural conditions and the alluvial wells drilled in 1989 may not be constructed in a manner to intercept alluvial groundwater.*

At this time, NMED agrees that WCO-2 does not have to be replaced; however, WCO-1 and 3 must be replaced. When WCO-1 was completed, near saturated conditions were encountered in weathered, possibly reworked, silt and clay-rich Bandelier Tuff. The screened interval in WCO-1 was placed in a silt- and clay-rich zone, instead of overlying and seemingly more permeable gravels, cobbles and boulders. A replacement well set into the underlying weathered tuff and screened primarily in the alluvium is warranted to provide an increased likelihood of intercepting alluvial groundwater, allow collection of more representative groundwater samples, and increase the chance for successful well development.

The Permittees rationale that the construction of WCO-3 meets the requirements outlined in the HSWA Module is not entirely accurate. The HSWA Module requires that the screen "shall not cross any clay layers which may act as aquitards." WCO-3 was completed with a 5-foot screen across the alluvium - basalt interface (2 feet of screen above in the alluvium and 3 feet into the basalt) leaving the interception of any saturation at this location suspect. Because of the construction issue, it may also provide a conduit for contaminant migration through fractures in the basalt unit. A new well must be installed and screened at and above the alluvium - basalt interface.

If conditions are deemed suitable, the Permittees may utilize direct-push technologies to determine the best locations for any replacement well or additional wells required. Once adequate replacements are completed, WCO-1 and WCO-3 must be plugged and abandoned according to section X.D of the Consent Order.

Rather than install 3 alluvial wells down gradient of operational releases to Cañon de Valle, the Permittees shall include provisions to collect periodic surface water samples from three locations in this segment of Cañon de Valle. At least one location shall be below MDA P, one location between MDA P and Fish Ladder Canyon, and one location between Fish Ladder Canyon and its confluence with Water Canyon. When possible, the sample locations shall remain constant. The Interim Groundwater Monitoring Plan must be updated to include the mandated sampling.

LANL Response

13. The Laboratory will replace alluvial wells WCO-1 and WCO-3. Direct-push technologies will be evaluated along with other appropriate technologies (e.g., hollow-stem augers) for the installation of the replacement wells. WCO-1 and WCO-3 will be plugged and abandoned in accordance with section X.D of the Consent Order.

The work plan will be modified to eliminate the installation of three alluvial wells downgradient of operational releases to Cañon de Valle. Instead, the Laboratory will collect periodic surface water samples from the following three locations in this segment of Cañon de Valle: (1) At a location below

MDA P, (2) at a location between MDA P and Fish Ladder Canyon, and (3) at a location between Fish Ladder Canyon and its confluence with Water Canyon. When possible, the sample locations shall remain constant. The IFGMP will be updated to include the mandated sampling.

14. Table 4.3-2 Comparison of Proposed South Canyons Work Plan Intermediate Wells and Consent Order Wells, pg. 52:

NMED Comment

14. *The Permittees propose to install well R-27i and to use it to monitor potential intermediate groundwater contamination downgradient of MDA AB. NMED believes that the proposed location for R-27i will not be an appropriate location to monitor releases from MDA AB. NMED believes that regional well R-30 may be used to meet this objective. The Permittees must install R-27(i) adjacent to or upgradient of R-27.*

Installation of one intermediate well, R-27(i), shall be completed adjacent to regional well R-27. Drilling activities must also include provisions for the collection of core for contaminant analyses. A drilling plan and schedule for completion must be submitted prior to drilling.

The Permittees must also install one intermediate groundwater well in Water Canyon just below its confluence with Cañon de Valle to identify contamination in intermediate perched groundwater. If contamination is found in intermediate groundwater at this location, NMED may require additional wells to further delineate the extent of contamination. Drilling activities must also include provisions for the collection of core for contaminant analyses. A drilling plan and schedule for completion must be included with the response to this NOD.

LANL Response

14. Because the proposed location for R-27i in the South Canyons work plan (LANL 2006, 093713, Plate 1) is adjacent to R-27, the Laboratory proposes no changes to the location. A well-specific drilling plan for R-27i will be prepared for NMED review and approval.

The Laboratory will drill the additional intermediate well located at the confluence of Water Canyon and Cañon de Valle if field access is available. This work will be implemented as part of the South Canyons work plan scope and reported in the South Canyons investigation report.

15. Table 4.3-3 Comparison of Proposed South Canyons Work Plan Regional Wells and Consent Order Wells, pg. 52:

NMED Comment

15. *The Permittees propose not to install R-24 as a background well for this portion of the Facility and to use R-26 instead. NMED concurs; however, if the Permittees cannot rehabilitate R-26 within the next six months, the Permittees may be required to install R-24. Also, if the well assessment required by the approved Investigation Report for Intermediate and Regional Groundwater, Consolidated Unit 16-021(c)-99 identifies that R-26 needs to be replaced, the Permittees can use R-24 as a replacement well.*

At this time NMED agrees that R-29 does not have to be drilled in lower Water Canyon near its confluence with Potrillo Canyon. However, NMED may require installation of R-29 at the same or

different location depending on the results of the groundwater investigation required in the approved work plan.

The final location of regional well R-30 will be determined based on discussions with NMED. Drilling activities must also include provisions for the collection of core for contaminant analyses. A drilling plan and schedule for completion must be prior to drilling.

LANL Response

15. The Laboratory is evaluating R-26 as part of an overall wells assessment at the direction of NMED in accordance with the NMED "Notice of Approval with Direction, Investigation Report for Intermediate and Regional Groundwater, Consolidated Unit 16-021(c)-99" (NMED 2006, 095026). Recommendations for future work associated with R-26 will be addressed in that evaluation. The wells assessment for that area will also address the need for additional wells, including R-24. The wells assessment being conducted under NMED's approval with direction for Consolidated Unit 16-021(c)-99 is scheduled for submittal to NMED on April 30, 2007.

The Laboratory agrees that the final location of regional well R-30 should be determined based on discussions with NMED. Specifics of the drilling activities, including coring and contaminant analysis, will be addressed in a work plan for R-30.

16. South Canyons Historical Investigation Report:

NMED Comment

16. *In sections 4.1.2.1, 5.1.1.1, and 9.1.1.2, the Permittees state that geomorphic mapping and reach sampling were performed in Cañon de Valle, S-Site Canyon, and North and South Ancho Canyons. However, the Permittees are proposing in their Work Plan to prepare detailed geomorphic maps as an initial step in characterizing sediments. It appears this initial step has already been performed for the aforementioned canyons. The Permittees must provide the geomorphic maps for these canyons as part of this Work Plan or provide rationale for not doing so.*

LANL Response

16. The Laboratory should have stated in section 4.1 that detailed geomorphic maps had been previously prepared for some reaches in Cañon de Valle and S-Site Canyons, and that new mapping in these reaches would not be required. Because these maps have been included in a report previously submitted to NMED (Phase III Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) report for Consolidated Unit 16-021(c)-99 [formerly called Solid Waste Management Unit 16-021(c)-99]; LANL 2003, 077965), the Laboratory proposes that inclusion of these maps in this work plan is not necessary. To address this issue, the Laboratory proposes adding the following sentences to section 4.1:

"Detailed geomorphic maps have been previously prepared for some reaches in Cañon de Valle and S-Site Canyons, as indicated in Table 4.1-1, and were included as Plates 1 and 2 in the Phase III RFI report for Solid Waste Management Unit 16-021(c)-99 (LANL 2003, 077965). New mapping in these reaches will not be required."

The geomorphic mapping that was conducted in Ancho Canyon was not as detailed as currently being performed as part of reach investigations, and is not considered sufficient for the purposes of this investigation. Therefore, new mapping will be conducted in Ancho Canyon. Because the previous

Ancho Canyon geomorphic map is not considered useful for this investigation, the Laboratory proposes to not include it in the work plan.

REFERENCES

- LANL (Los Alamos National Laboratory), April 1997. "Core Document for Canyons Investigations," Los Alamos National Laboratory document LA-UR-96-2083, Los Alamos, New Mexico. (LANL 1997, 055622)
- LANL (Los Alamos National Laboratory), September 2003. "Phase III RFI for Solid Waste Management Unit 16-021(c)-99," Los Alamos National Laboratory document LA-UR-03-5248, Los Alamos, New Mexico. (LANL 2003, 077965)
- LANL (Los Alamos National Laboratory), June 2005. "Response to Notice of Disapproval, Work Plan the North Canyons," Los Alamos National Laboratory document LA-UR-05-4495, Los Alamos, New Mexico. (LANL 2005, 089412)
- LANL (Los Alamos National Laboratory), July 27, 2005. "Response to the Notice of Disapproval for the Work Plan for Pajarito Canyon," Los Alamos National Laboratory document LA-UR-05-5600, Los Alamos, New Mexico. (LANL 2005, 091287)
- LANL (Los Alamos National Laboratory), July 29, 2005. "Response to the Notice of Disapproval for the Work Plan for Sandia Canyon and Cañada del Buey," Los Alamos National Laboratory document LA-UR-05-5776, Los Alamos, New Mexico. (LANL 2005, 091542)
- LANL (Los Alamos National Laboratory), November 2005. "Well Screen Analysis Report," Los Alamos National Laboratory document LA-UR-05-8615, Los Alamos, New Mexico. (LANL 2005, 091121)
- LANL (Los Alamos National Laboratory), July 28, 2006. "Update on Status of Groundwater Well R-25," Los Alamos National Laboratory letter (EP2006-0699) to J. Bearzi (NMED-HWB) from A. Phelps (LANL) and D. Gregory (DOE-LASO). (LANL 2006, 093258)
- LANL (Los Alamos National Laboratory), September 2006. "South Canyons Investigation Work Plan," Los Alamos National Laboratory document LA-UR-06-5979, Los Alamos, New Mexico. (LANL 2006, 093713)
- NMED (New Mexico Environment Department), July 19, 2005. "Approval with Modifications for the Investigation Work Plan for the North Canyons, September 2001," New Mexico Environment Department letter to D. Gregory (DOE Federal Project Director) and G.P. Nanos (LANL Director) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2005, 091653)
- NMED (New Mexico Environment Department), September 23, 2005. "Approval, Sandia Canyon and Cañada del Buey Work Plan," New Mexico Environment Department letter to D. Gregory (DOE LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2005, 091689)
- NMED (New Mexico Environment Department), October 11, 2005. "Approval with Modifications, Pajarito Canyon Work Plan," New Mexico Environment Department letter to D. Gregory (DOE LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2005, 091288)

NMED (New Mexico Environment Department), September 18, 2006. "Notice of Disapproval, Well Screen Analysis Report," New Mexico Environment Department letter to M. Johansen (DOE LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2006, 094373)

NMED (New Mexico Environment Department), October 23, 2006. "Response to July 28, 2006 Update on Status of Well R-25," New Mexico Environment Department letter to D. Gregory (DOE LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2006, 095087)

NMED (New Mexico Environment Department), November 29, 2006. "Notice of Approval with Direction, Investigation Report for Intermediate and Regional Groundwater, Consolidated Unit 16-021(c)-99," New Mexico Environment Department letter to D. Gregory (DOE LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2006, 095026)

NMED (New Mexico Environment Department), February 19, 2007. "Notice of Disapproval, South Canyons Investigation Work Plan," New Mexico Environment Department letter to D. Gregory (DOE LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2007, 095025)