

TA-OC



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Date: April 27, 2004
Refer to: ER2004-0225

Ms. Sandra Martin
NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, NM 87505-6303



SUBJECT: RESPONSE TO YOUR NOTICE OF DEFICIENCY (NOD) FOR THE COMPLETION REPORT FOR THE VOLUNTARY CORRECTIVE ACTION AT SOLID WASTE MANAGEMENT UNITS (SWMUs) 0-030(I), 0-033(a), AND 0-030(a) AND AOCs 0-004, 0-010(b), 0-033(b), AND 0-029(a,b,c).

Dear Ms. Martin:

Attached please find the Laboratory's response to your Notice of Deficiency for the Completion Report for the Voluntary Corrective Action at SWMUs 0-030(I), 0-033(a), and 0-030(a) and AOCs 0-004, 0-010(b), 0-033(b), and 0-029(a,b,c). Also attached in the response are the Laboratory responses to both of Hazardous Waste Bureau (HWB's) sets of comments addressed under separate letters to Ted Taylor of Department of Energy (DOE) regarding work associated with Land Transfer Tract A-8. These comments are included as part of the NOD response as requested in the NOD cover letter, but are presented separately from the NOD responses.

If you have any questions regarding these responses or to arrange a site visit, please contact Terry rust at (505) 665 8843.

Sincerely,

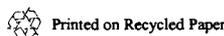
David McInroy, Deputy Project Director
Remediation Services
Los Alamos National Laboratory

Sincerely,

David Gregory, Federal Project Director
Department of Energy
Los Alamos Site Operations



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DM/DG/TR/jr

Attachment:

Cy:(w/attachment)

D. Gregory, LASO, MS A316

T. Taylor, DOE/LASO, MS M316

L. Woodworth, LASO, MS A316

T. Trujillo, DOE-AL, MS A906

S. Voorhees, NMED-OB, MS J993

P. Bacon, Los Alamos County

M. Moes, Los Alamos County

L. King, EPA Region 6

RRES-RS File, MS M992

IM-5, MS A150

RPF MS M707

Cy:(w/o attachment)

D. McInroy, RRES-RS, MS M992

**Response to Notice of Deficiency on the Completion Report for the Voluntary Corrective Action at
SWMUs 0-030(a), 0-030(b)-00, and 0-033(a), and AOCs 0-029(a,b,c), and 0-010(a,b), and for the
Interim Action at SWMU 21-021-99
Los Alamos National Laboratory, EPA ID# NM0890010515**

These comments are provided for SWMUs 0-030(a), 0-033(a), 0-030(a), and AOCs 0-004, 0010(b), 0-033(b), and 0-029(a, b, c). SWMU 0-030(a) and AOCs 0-004 and 0-033(b) are part of consolidated unit 0-030(b)-00.

To facilitate review of these responses, the New Mexico Environment Department's (NMED's) comments are included verbatim. Los Alamos National Laboratory's (LANL's) responses follow each NMED comment.

NMED Comment

1. *NMED cannot approve the Permittees' request for NFA for AOC 0-004 at this time because the extent of contamination at the site has not been adequately determined and the ecological risk screening assessment was biased. The highest DDT detection was at the sample location 00-04223 at the far southeast corner of the site. Mercury was also detected in the tuff at a depth of 5-6 feet at this location. Appendix F of this completion report notes that contaminants (specifically DDD, DDE, and DDT) are concentrated in the drainages, there are dirt channels at the end of the man-made drainages, and drainage into Los Alamos Canyon is evident. Consequently, NMED is concerned that contaminants may be migrating from the site or into Los Alamos Canyon.*

The Permittees must either remove the area of elevated concentrations of DDE/DDT at the southeast corner of the site or conduct additional sampling to determine the extent of contamination associated with the site. Based on the risk screening conducted for the site, removal of the surface soil within the drainage channel near the edge of the mesa (in the vicinity of sample locations 00-04223 and 00-04224) appears to be the most efficient corrective action alternative for the site. The ecological risk screening excluded this location from consideration in order to enable the site to pass the screening. If the Permittees propose to conduct additional sampling instead of site remediation, then shallow soil samples (0-1 ft) must be collected down gradient of the boundaries of the site where elevated concentrations of contaminants were detected, specifically at the southeast corner of the site. After conducting the required remediation or additional investigation at the site, then it will be appropriate to conduct a risk screening assessment for the site.

LANL Response

1. Sample locations were not excluded from the ecological screening assessment, and the screening assessment is not biased. All sample results for soil and fill from this aggregate were used to calculate the exposure concentration (95% upper confidence limit [UCL] of the mean) for the ecological screening assessment. The results of the tuff samples were excluded from the 95% UCL calculations, in accordance with NMED and EPA Region 6 guidance that the tuff matrix does not represent a significant pathway to ecological receptors (LANL 2002, 73870). Exclusion of the tuff data produced 95% UCLs for DDT and DDE that were higher (by a factor of approximately 2) than the 95% UCLs calculated using all of the data. In addition, sample locations 00-04223 and 00-04224 were specifically assessed to determine whether the concentrations of DDT and DDE could potentially affect receptor populations (see Appendix F). The population assessment indicated that

the maximum detected concentrations of DDT and DDE did not present a potential adverse impact to avian populations.

DDT and its breakdown products DDE and DDD are ubiquitous across the Pajarito Plateau because of numerous aggressive spraying programs conducted in the 1950s and early 1960s (LASL 1963, 64879). There is a high probability that the pesticide residues migrated into the canyon from the mesa tops and hillslopes over time. These facts are supported by the detection of DDT and DDE in all of the reaches of Los Alamos (LA) Canyon, including the reach at the head of the canyon upstream of LANL. Concentrations are relatively consistent throughout the upper portion of LA Canyon and decrease to at or below detection limits in the lower part of the canyon. Sample locations 00-04223 and 00-04224 have the highest detected concentrations of DDT and DDE within the aggregate of AOC 0-003, AOC 0-033(b), and SWMU 0-030(l) and will be removed during the 2004 field season. Confirmatory samples will be collected, analyzed for pesticides, and reported to NMED in a subsequent communication.

Sample location 00-04423 in Figure 2.4-2 was incorrectly located in the southeast corner of the aggregate. Sample location 00-04423 is actually part of SWMU 0-030(l). The figure has been revised and is provided as Attachment 1 to this notice of deficiency (NOD) response. Sample location 00-04423 will be sampled at depth at the same time as the soil removal and confirmatory sampling described above. The additional sampling will address the mercury concentration detected at 5–6 ft at this location (0.21 mg/kg) as well as other COPCs detected in this sample.

Following receipt of the sample results, the data will be evaluated to determine whether the ecological screening should be redone. The results and any assessment of the data will be reported to NMED in a subsequent communication.

NMED Comment

- 2. NMED cannot approve the Permittees' request for NFA for AOC 0-033(b) at this time because the extent of contamination at the site has not been determined and the ecological risk screening assessment was biased. The 2002 VCA plan states that contamination is not expected above 2 feet or below 5 feet. However, all of the samples were collected from 1-1.5 feet. To properly investigate the site, the Permittees must collect samples between 2 and 5 feet, the depth at which the contaminants are likely to be found. The Permittees must also consider soil removal in the area of elevated concentrations of contaminants in the central portion of the site (in the vicinity of sample locations 00-02-19623 through 00-02-19627) as a corrective action for the site. The ecological risk screening excluded the central location of this site from consideration in order to enable the site to pass the screening. After conducting the required additional investigation and/or remediation at the site, then it will be appropriate to conduct a risk screening assessment for the site.*

LANL Response

2. Sample locations were not excluded from the ecological screening assessment, and the screening assessment is not biased. All sample results for soil and fill from this aggregate were used to calculate the exposure concentration (95% upper confidence limit [UCL] of the mean) for the ecological screening assessment. The results of the tuff samples were excluded from the 95% UCL calculations, in accordance with NMED and EPA Region 6 guidance that the tuff matrix does not

represent a significant pathway to ecological receptors (LANL 2002, 73870). Exclusion of the tuff from the 95% UCLs calculations for cadmium, lead, mercury zinc, and trichloroethene resulted in higher 95% UCLs than were calculated when including the tuff. The exposure concentration used in the ecological screening assessment for benzene was the maximum detected concentration because only one detect was reported, while 4-isopropyltoluene was evaluated qualitatively because no screening values are available. The results of the ecological screening demonstrated that these COPECs did not pose potential adverse effects to receptors.

Samples were collected in 2002 were from 1 to 1.5 ft depth (sample locations 00-02-19622 to 00-02-19627 to provide a second depth for samples collected from 0 to 0.5 in. in 1996 (sample locations 00-05758 to 00-05763). Concentrations of inorganic chemicals (cadmium, lead, mercury and zinc) were found above their soil BVs in the 2002 sampling locations. The inorganic chemical concentrations for cadmium are within the range of soil background concentrations (LANL 1998, 59730). The concentrations of lead and zinc are either within the range of background concentrations or slightly above the maximum background concentrations (LANL 1998, 59730). The mercury concentrations ranged from 0.2 mg/kg to 0.35 mg/kg, which exceed the background value (0.1 mg/kg), but do not present a potential risk to human and ecological receptors. Three volatile organic chemicals (VOCs) (benzene, 4-isopropyltoluene, and trichloroethene) were also detected in one to four samples collected at these locations at trace levels (below or near the estimated quantitation limits). Based on past NMED guidance, it is unnecessary to conduct additional sampling for extent of VOCs when they are present at such low levels. Therefore, the "elevated concentrations" referred to in NMED's comment do not require soil removal. However, LANL agrees to collect additional samples from this area at depth and analyze them for metals to address NMED's concerns regarding extent.

Four other samples were collected in 1996 (00-05754 to 00-05757) from either 4 to 4.5 ft or 5 to 5.5 ft. Two of the latter sample locations (00-05756 and 00-05757) had detected concentrations of alpha- and gamma-chlordane. These two sample locations will be sampled for pesticides at depth to delineate the extent of the chlordane.

Following receipt of the sample results, the data will be evaluated to determine whether the ecological screening needs to be redone. The results and any assessment of the data will be reported to NMED in a subsequent communication.

NMED Comment

- NMED cannot approve the Permittees' request for NFA for SWMU 0-030(1) at this time because the extent of contamination at the site has not been determined. The two planned surface outfall samples were not collected. The 2002 VCA Plan states that these samples are necessary for determining the nature and extent of contamination. The Permittees' stated reasons for not collecting samples (the presence of welded tuff at the surface and the lack of access due to the existence of a fence) are not acceptable to NMED. Effluent discharges likely eroded the soil at the outfall, leaving tuff at the surface. Samples must be collected down gradient of the outfall to determine the extent of contamination at the site and whether contaminants have migrated into Los Alamos Canyon. After conducting the required additional investigation at the site, then it will be appropriate to conduct a risk screening assessment for the site.*

LANL Response

3. The field team judged that the degree of welding of the tuff and the overall site conditions would not have permitted significant infiltration into the tuff. Further, there were no physical indications in the field that "Effluent discharges likely eroded the soil at the outfall." Rather, actual site topography suggests that effluent from the outfall would more likely have been diverted westward and converged with the western drainage associated with AOC 00-004. This apparent effluent routing coupled with the approximately 40-ft vertical rock wall immediately beyond the fence drove the collection of the samples at the southwest corner of the site to capture potential contaminants in that area. Photographs of the area are included as Attachment 2. Regardless, the Permittees will attempt to collect the additional samples requested by the NMED from SWMU 0-030(I) during the effort to remove the elevated DDT and DDE concentrations mentioned in Comment 1 and the sampling effort mentioned in Comment 2. If no recoverable media can be collected between the existing sample locations and the cliff edge, however, none will be collected from the cliff face. The additional sampling will address the mercury concentration detected at 5–6 ft at this location (0.21 mg/kg) as well as other COPCs detected here. The results and any assessment of the data will be reported to NMED in a subsequent communication.

NMED Comment

4. *NMED does not require further investigation of AOC 0-010(b) at this time and grants the Permittees' request for No Further Action based on NFA Criterion 2. However, if evidence of contamination or the existence of a disposal area/landfill is discovered at this site during future excavation, construction, or other activities, then NMED will require the Permittees to notify NMED and investigate the site.*

LANL Response

4. Noted.

NMED Comment

5. *NMED does not require further investigation of SWMU 0-033(a) at this time. It is acknowledged that the NMED's UST Bureau approved the request for NFA for the site on January 23, 1996. NMED also notes that the samples collected from this site were analyzed in LANL's mobile lab for total TPH (Method 418.1), while proper confirmatory samples should have been analyzed in an off-site analytical lab for TPH/diesel range organics (Method 8015M).*

Although no additional investigation is presently needed at this site, NMED cannot concur with the NFA request for this site until a proper risk screening assessment has been conducted. The Permittees' January 6, 2003 response to NMED's Request for Supplemental Information for the 2002 VCA plan states that, ". . .potential ecological exposure will be addressed in detail, as appropriate, in the final VCA Report." The 1996 VCA Completion Report for this SWMU states that a "larger ecological exposure unit" will be considered once all the information is obtained from the surrounding PRSs." However, based on the information provided in the 2003 completion report, the area around SWMU 0-033(a) was not considered in the risk screening process. NMED requires further investigation and/or remediation at the surrounding sites (refer to Comments 1, 2, and 3 for

AOCs 0-004 and 0033(b) and SWMU 0-030(1)) and additional risk screening after that additional work is satisfactorily completed. The risk screening for AOCs 0-004 and 0033(b) and SWMU 0030(1) must include SWMU 0-033(a). In addition, if evidence of contamination is discovered during future excavation, construction, or other activities at SWMU 0-033(a), then NMED will require the Permittees to notify NMED and investigate the site.

LANL Response

5. SWMU 00-033(a) was excluded from the risk screening as a result of conversations with the NMED HWB related to the Laboratory's June 2000 Permit Modification request. The parties agreed that 00-033(a) was complete and, more importantly, that SWMU 0-033(a) would not be included in the risk screening assessments for AOC 0-004, AOC 0-033(b), and SWMU 0-030(l) because SWMU 00-033(a) is not adjacent to or associated with the other sites. As depicted in Figure 2.1-1, SWMU 0-033(a) is located between Warehouses 1 and 2 and Warehouses 3 and 4 and is separated from the other AOCs and the SWMU by Warehouse 3 and 4. Therefore, simultaneous exposure to SWMU 0-033(a) and the other sites is not possible. In addition, the depth of residual contamination at SWMU 00-033(a) is 10 ft below ground surface and exposure to BTEX is, therefore, unlikely, especially for ecological receptors. As a result, inclusion of SWMU 0-033(a) in the assessments for the other sites is not representative of potential exposures.

A comparison of the BTEX concentrations to screening action levels (SALs) and ecological screening levels (ESLs) is presented in the following table. Based on the comparisons, the concentrations for the BTEX compounds do not exceed the screening levels and therefore do not pose a potential unacceptable risk to human and ecological receptors. Therefore, additional evaluations are not warranted.

Analyte	Concentration (mg/kg)	SAL (mg/kg)	Ratio	Final ESL (mg/kg)	Ratio
Benzene	0.041	0.64	0.064	55	0.0007
Toluene	0.061	180	0.0003	70	0.0009
Ethylbenzene	0.123	68	0.002	55	0.002
Xylene	0.157	63	0.002	5.4	0.03

NMED Comment 6

6. NMED does not require further investigation of AOC 0-029(a) at this time and grants the Permittees' request for NFA based on NFA Criterion 5. However, if evidence of PCBs or other contamination is discovered at this site during future excavation, construction, or other activities, then NMED will require the Permittees to notify NMED and investigate the site.

LANL Response

6. Noted.

NMED Comment

7. NMED cannot approve the Permittees' request for NFA for AOC 0-029(b) at this time because the extent of contamination at the site has not been adequately determined. According to Table C-5.0-3 in Appendix C, the samples collected during the 2002 VCA from locations 00-02-20063 through 00-02-20072 and from location 00-02-20080 were extracted outside the appropriate holding times. The accuracy and validity of this data is questionable. These samples represent the data from the entire southern and eastern portions of the site. Consequently, NMED requires the Permittees to collect additional samples from these locations. Proper QA/QC procedures, including the requirement to meet appropriate holding times, must be followed.

In addition, NMED cannot assess the data as it is currently presented. The two sample location maps in the document (Figure 4.3-2: previous investigation sample locations and Figure 4.4-2: RFI and VCA sample locations) do not match. Neither the coordinates of the AOC nor the shape of the AOC are the same on the two figures. The Permittees must provide maps with accurate sample collection locations to NMED. The Permittees must provide the coordinates of the sample locations and the structure locations (pump house and transformer). NMED cannot determine from the information presented in the report whether samples were collected in the proper locations.

After conducting the required additional investigation at the site, and after providing the required information to NMED then it will be appropriate to conduct a risk screening assessment for the site.

LANL Response

7. Proper QA/QC procedures were followed in assessing the Aroclor data from AOC 0-029(b). The samples exceeded the extraction holding time by 5 days were within the analytical holding time. EPA recommends that Aroclors in soil be extracted within 14 days of sample collection and analyzed within 40 days of extraction. The samples were evaluated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (OSWER 9240.1-05A-P, PB99-963506, EPA540/R-99/008, October 1999). The EPA guidance provides that if the holding time is not grossly exceeded (i.e., greater than two times the required holding time) the detected results are estimated (qualified as J) and the sample quantitation limits are estimated (qualified as UJ). The holding time exceedance for the samples from AOC 0-029(b) (5 days) was less than two times the holding time (not grossly exceeded) and the data are usable for risk assessment purposes. The qualifiers applied through the LANL validation process were J- for detects and UJ for nondetects. The J- indicates that the results have a potential low bias due to the holding time. It is unlikely that the 5 days affected the Aroclor concentrations because Aroclors adsorb tightly to soil and are not readily degraded or lost while being stored at 4°C in the dark prior to extraction. Therefore, the data are accurate and valid and no additional samples need to be collected at AOC 0-029(b).

Coordinates on Figure 4.3-2 have been corrected. The shape of the AOC in the two figures reflects the sample locations shown. Figure 4.3-2 shows the previously collected samples, while the shape of Figure 4.4-2 has been revised to show all sample locations. It should be noted that Figure 4.4-2 correctly shows both the recent sample locations and those shown (incorrectly) in Figure 4.3-2. Precise coordinates for the transformer location cannot be provided because it was not surveyed in 1992, and the pole was not present in 2002. A revised Figure 4.3-2 is included as Attachment 3.

NMED Comment

8. *NMED cannot approve the Permittees' request for NFA for AOC 0-029(c) at this time because the extent of contamination at the site has not been adequately determined. No samples were collected during the 2002 VCA from the northern portion of the site. NMED requires the Permittees to collect samples from this part of the site. Proper QA/QC procedures, including the requirement to meet appropriate holding times, must be followed.*

In addition, NMED cannot assess the data as it is currently presented. The two sample location maps in the document (Figure 4.3-3: previous investigation sample locations and Figure 4.4-3: RFI and VCA sample locations) do not match. Neither the coordinates of the AOC nor the shape of the AOC are the same on the two figures. The transformer is not located in the same place in relation to the pump house on the two figures. In Figure 4.3-3, the transformer is located northwest of the pump house, but in Figure 4.4-3 the transformer is located south of the pump house. The Permittees must provide maps with accurate sample collection locations to NMED. The Permittees must provide the coordinates of the sample locations and the structure locations (pump house and transformer). NMED cannot determine from the information presented in the report whether samples were collected in the proper locations.

After conducting the required additional investigation at the site, and after providing the required information to NMED, then it will be appropriate to conduct a risk screening assessment for the site.

LANL Response

8. Twenty-two samples were collected and analyzed for Aroclors during the 1992 investigation of AOC 0-029(c). These included approximately 17 samples from the northern portion of the AOC (see Figure 4.4-3). The 1992 samples included two with reported maximum detected concentrations of PCBs of 0.09 mg/kg. As described in the VCA report on page 4-6, the 1992 samples were excluded from the assessment because of the lack of QA/QC information. No samples from the northern area of the site were collected in 2002 because the 1992 data indicated no elevated concentrations of PCBs in that area. In addition, this portion of the AOC is upgradient from the transformer that released PCBs to the environment so migration of Aroclors in this direction is unlikely. Further, the prevailing winds are toward the southeast, again away from this portion of the site, so deposition is also very unlikely. The samples collected in 2002 were from locations that are 10 to 40 ft from the transformer in all directions, with 11 locations north of the transformer including three locations north of the pump house. Sample results show a slight decrease in concentrations with distance from the transformer in Figure 4.4-6. Therefore, additional samples from the northern portion of the AOC are not required.

Figure 4.3-3 is based on incorrect coordinates that were later corrected and included in Figure 4.4-3. Figure 4.3-3 will be corrected. Figure 4.4-3 is correct as provided, and includes all sample locations and the correct (approximate) locations of the pump house and transformer. Precise coordinates for the pump house and transformer locations cannot be provided because they were not surveyed in 1992, and the structures were not present in 2002. A revised Figure 4.3-3 is included as Attachment 4.

NMED Comment

9. *NMED does not require further investigation of SWMU 0-030(a) at this time and grants the Permittees' request for No Further Action based on NFA Criterion 5. However, if evidence of contamination is discovered at this site during future excavation, construction, or other activities, NMED will require the Permittees to notify NMED and investigate the site.*

LANL Response

9. Noted.

REFERENCES

LANL (Los Alamos National Laboratory), September, 1998. "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory," Draft, Los Alamos National Laboratory document LA-UR-98-4847, Los Alamos, New Mexico. (LANL 1998, 59730)

LANL (Los Alamos National Laboratory), September 2002. "The Approach to Assessment of Ecological Risk for the MDA P Closure Certification Given Findings," telephone record from S. Wirth (MDA P Closure Team) to K. Olson, Los Alamos, New Mexico. (LANL 2002, 73870)

LASL (Los Alamos Scientific Laboratory), June 1963. "DDT and the Spruce Budworm, Insecticide War to be Waged near Los Alamos against Tiny Forest Killers," Los Alamos Scientific Laboratory article, Los Alamos, New Mexico. (LASL 1963, 64879)

December 30, 2003, Letter
Comments and Responses
(Previously Submitted by DOE 2/3/04)

Response to Comments on the Land Transfer Parcel A-8 (DP Road South): SWMU 0-030(b), SWMU 0-030(m), AOC 0-010(a), and the SWMU 21-021 portion of the consolidated SWMU 21-021-99

NMED Comment

1. *NMED cannot approve the Permittees' request for No Further Action (NFA) for SWMU 0-030(b) at this time, because the extent of contamination in the leach field area has not been adequately determined. The 2002 VCA Plan states that data is needed in the leach field area at 2-5 feet for VOCs. However, only four (4) additional surface (0-0.5 feet) samples were collected. No subsurface data were provided for the leach field area, at either 2-5 feet or 5-15 feet. Samples must be collected at 2-5 feet and 5-15 feet in the leach field in order to determine the extent of contamination at the site.*

The data from 0-030 (b) contain numerous radionuclide constituents that are qualified as undetected based on their results having a value of less than three times the total propagated uncertainty (3-sigma). NMED will not accept data that is qualified as undetected (U) if the qualification is based on comparing the result to 3-sigma. The radionuclide data must include the activity concentration and the associated minimum detectable concentration, even when the results are less than zero (negative). The Permittees must not censor the data based on detection limits, quantitation limits, or measurement uncertainty. NMED requires that the radionuclide analysis report the activity concentration with the corresponding MDC (minimum detectable concentration), not the total propagated uncertainty. Detection will be considered an analytical result with no qualifiers "U" (not detected above detection limit) or "UJ" (not detected above detection limit; the value is inaccurate or imprecise) as reported by the analytical laboratory, not including (i.e. not adding or subtracting) the measurement uncertainty. NMED views the use of the 3-sigma uncertainty as a means of discarding data and presenting misleading information regarding the true nature and potential presence of contaminants at a site. The additional required sampling as described above must be conducted using proper QA/QC and data validation procedures. After conducting the required additional investigation at the site, then it will be appropriate to conduct a risk screening assessment for the site.

LANL Response

1. There appears to be some confusion in the comparison of proposed sampling presented in the approved VCA Plan and what was reported in the completion report. Specifically, on page 50 of the VCA Plan the rationale for omitting VOC analysis is presented along with a table that identifies the status of existing PRS data. The rationale for omitting VOC analysis from the 2002 sampling campaign is simply that the leach field area has experienced significant recontouring activities following relocation of the former trailer park which has generally destroyed the continuity of the leach field as evidenced by numerous scraps of previously buried VCP observed on the ground surface throughout the site (appendix D). VOCs are not included in the proposed sampling because the surface soil would no longer contain VOCs associated with Laboratory operations; over 50 years have elapsed since there were any Laboratory activities associated with the septic system and leach field. On page E-13 of the approved VCA plan the depth intervals for proposed, additional, sampling of the leach field area of SWMU 00-030(b) to fully define nature and extent are

specified as 0–0.5 ft, not the 2–5 ft and 5–15 ft indicated in the above comment. The 2002/2003 investigation collected samples from the proposed interval to augment the existing data from the previous investigation of the site. The analytical suites necessary for nature and extent evaluation were also specified on page E-13 of the approved plan and included TAL metals, SVOCs, PCB/Pesticides, and radionuclides. The report describes the execution of the additional sampling proposed on page E-13 of the approved VCA plan. The detailed evaluation of all existing site data collected in 1995, 1996, and 2002 from soil and tuff beside and beneath the septic tank and associated piping and beneath the leach field laterals for SWMU 0-030(b), which is summarized on pages 3-45 and following of the completion report, clearly demonstrates that nature and extent has been defined for this SWMU. The absence of recently collected surface VOC data from the highly disturbed leach field area does not affect the determination of nature and extent at this SWMU and additional sampling is not warranted.

NMED Comment

2. *NMED cannot approve the Permittees' request for No Further Action (NFA) for SWMU 0-030(m) at this time, because the extent of contamination at the site has not been adequately determined. The planned Voluntary Corrective Action essentially was not conducted. Only portions of the piping were removed and many planned samples were not collected. Safety concerns, including the discovery of several active unmarked utility lines in the excavation, precluded the collection of samples around the septic tank. The sample of the outlet pipe's contents was collected as a waste characterization sample, but was used as an investigation sample because the piping was not removed. This is not acceptable to NMED. This sample was only analyzed for TCLP metals, instead of the COPCs for the site, which include VOCs, SVOCs, PCBs, pesticides, isotopic uranium, isotopic plutonium, and gamma-emitting radionuclides. Proper investigation sample(s) must be collected and analyzed for this full suite of analytes.*

The remaining piping at the site must be removed, in order to prevent exposure to any residual concentrations of COPCs within the pipe. After removal of the piping, the soil below must be visually inspected for staining or other evidence of leaks from the pipe and confirmatory samples of the soil must be collected. In addition, further investigatory samples are needed. Sampling outside the tank is essential to determine if the tank leaked laterally. As noted in the 2002 VCA Plan, trenching and sampling south of tank is also needed to determine the extent of contamination.

The data from 0-030 (m) contain numerous radionuclide constituents that are qualified as undetected based on their results having a value of less than three times the total propagated uncertainty (3-sigma). NMED will not accept data that is qualified as undetected (U) if the qualification is based on comparing the result to 3-sigma. The radionuclide data must include the activity concentration and the associated minimum detectable concentration, even when the results are less than zero (negative). The Permittees must not censor the data based on detection limits, quantitation limits, or measurement uncertainty. NMED requires that the radionuclide analysis report the activity concentration with the corresponding MDC (minimum detectable concentration), not the total propagated uncertainty. Detection will be considered an analytical result with no qualifiers "U" (not detected above detection limit) or "UJ" (not detected above detection limit; the value is inaccurate or imprecise) as reported by the analytical laboratory, not including (i.e. not adding or subtracting) the measurement uncertainty. NMED views the use of the 3-sigma uncertainty as a means of discarding data and presenting misleading information regarding the true nature and

potential presence of contaminants at a site. The additional required sampling as described above must be conducted using proper QA/QC and data validation procedures. After conducting the required additional investigation and piping removal at the site, then it will be appropriate to conduct a risk screening assessment for the site.

LANL Response

2. NMED's statement that "this sample was only analyzed for TCLP metals, instead of the COPCs for the site which include VOCs, SVOCs, PCBs, pesticides, isotopic uranium, isotopic plutonium, and gamma-emitting radionuclides" is incorrect. As stated in the completion report on page 3-10, "The sample was submitted to a fixed laboratory for analyses of VOCs, SVOCs, PCBs, pesticides, isotopic uranium, isotopic plutonium, and gamma-emitting radionuclides. Because the sample was collected as a waste characterization sample, only TCLP metals analysis was requested." The last sentence was apparently unclear should have read, ". . . TCLP metals analysis was requested for inorganics," with further clarification that the TCLP data was not used as characterization data as was inferred. The contents of the piping that was removed and sampled did not indicate remnant contaminants at levels that pose an unacceptable human health risk and was at a depth (6.5 ft bgs) that would preclude availability to ecological receptors. Therefore, there is no concern for any exposure, no matter how unlikely, to any residual contamination. The analytical results for the sample (sample RE00-02-45745) of pipe contents in question are presented on pages 3-25 (radionuclides) and 3-38 (detected organics); other pipe content results (inorganics) are intentionally not presented with the soils characterization data because these results are not appropriate for use as characterization data. This is described in the nature and extent discussion on page 3-45 of the completion report. Therefore, removal of the remaining piping is not warranted.

All piping that could safely be removed was removed. In order to remove any remaining pipe as suggested by the Bureau would require extensive utility interruption to eastern Los Alamos, TA-21, DP Road businesses, etc. and would be unlikely to be approved by either Los Alamos County or LANL management due to the interruption of services to the public and potentially significant risk to site workers. The risk evaluation based on the data collected clearly indicates that there is no unacceptable risk to human health and that the potential incremental reduction in the acceptable risk that might result from this additional pipe removal does not justify the cost, hardship to the public, and/or risk to site workers that would be involved.

The 0-030(m) septic tank was removed in 1995 along with approximately 6-8" of surrounding tuff, confirmation sampling at the time, although limited, did not indicate contaminant migration into the underlying or surrounding tuff. Therefore, the extent of contamination around the tank is defined. This data, the fact that the tank, the soil within the tank and the tuff adjacent to the septic tank were all removed during the previous VCA, the lack of lateral head to drive contaminants, the results of excavation where piping was removed and confirmatory samples taken (pipe condition, absence of staining, etc), the active utility density and locating issues, all lead to the decision that the trenching, further pipe removal and associated confirmatory sampling would not significantly reduce future site risk.

NMED Comment

3. *NMED does not require further investigation of AOC 0-010(a) at this time and grants the Permittees' request for No Further Action (NFA) under NFA Criterion 2. However, if evidence of contamination or the existence of a disposal area/landfill is discovered at this site during future excavation, construction, or other activities, then NMED will require the Permittees to notify NMED and investigate the site. It is acknowledged that the Environmental Protection Agency concurred with the Department of Energy's NFA Criterion 2 request in October 1992.*

LANL Response

3. Thank you for your concurrence. It is administratively complete and was included for completeness in evaluating the land transfer parcel.

NMED Comment

4. *NMED cannot approve the Permittees' request for No Further Action (NFA) for the SWMU 21-021 portion of the consolidated SWMU 21-021-99 at this time. Only a portion of SWMU 21-021 was investigated as part of the Interim Action, and NMED does not grant NFA requests on partial SWMUs.*

The data from SWMU 21-021 contain numerous radionuclide constituents that are qualified as undetected based on their results having a value of less than three times the total propagated uncertainty (3-sigma). NMED will not accept data that is qualified as undetected (U) if the qualification is based on comparing the result to 3-sigma. The radionuclide data must include the activity concentration and the associated minimum detectable concentration, even when the results are less than zero (negative). The Permittees must not censor the data based on detection limits, quantitation limits, or measurement uncertainty. NMED requires that the radionuclide analysis report the activity concentration with the corresponding MDC (minimum detectable concentration), not the total propagated uncertainty. Detection will be considered an analytical result with no qualifiers "U" (not detected above detection limit) or "UJ" (not detected above detection limit; the value is inaccurate or imprecise) as reported by the analytical laboratory, not including (i.e. not adding or subtracting) the measurement uncertainty. NMED views the use of the 3-sigma uncertainty as a means of discarding data and presenting misleading information regarding the true nature and potential presence of contaminants at a site.

NMED cannot evaluate the data as it is currently presented. If feasible, the Permittees must re-evaluate the data and present it to NMED as described above. A revised figure presenting this data must also be prepared and submitted to NMED. If the Permittees are unable to re-evaluate this data, then the site must either be re-sampled, and the data must be evaluated using proper data validation procedures, or the contaminated surface soil (0-6 inches deep) must be removed from the site.

Removing the contaminated surface soil is a corrective action that would alleviate future concerns regarding migration of contaminants from the site and potential exposure to receptors. Because this site includes a portion of BV Canyon, a small tributary of Los Alamos Canyon, NMED is concerned about soil erosion and migration of contaminants to Los Alamos Canyon from the site. After the Permittees have removed the soil, then confirmatory samples must be collected to ensure that the

corrective action was successful. After remediation is conducted, then it will be appropriate to conduct a risk screening assessment for the site. Additionally, the data presented for this site do not conclusively show that contaminants from MDA B have not migrated to the surface soil or within the subsurface outside the boundaries of MDA B.

LANL Response

4. The permittees recognize that SWMU 21-021 and consolidated unit 21-021-99 are not complete and that NFA for the entire SWMU or consolidated unit would be inappropriate at this time. The portion of SWMU 21-021 that was investigated was included in this project as an Interim Action (IA) only and identified as such in the approved plan and in the report. No NFA is being requested for either the entire SWMU or consolidated unit. The SWMU 21-021 IA work incorporated in this project was intended to characterize and, if necessary, remediate the portion of the SWMU scheduled to be transferred. The conclusions are only that this portion of SWMU 21-021 does not pose an unacceptable risk to human health and the environment and as such, no additional investigation or remediation is warranted.

There are no present or future concerns regarding migration of contaminants from the site and the potential exposure to receptors. The data presented indicates that there is no potential unacceptable risk to human or ecological receptors at this site. Therefore, soil erosion and the migration of surface soils would also not impact human health and the environment in either BV or Los Alamos Canyon. Given the fact that the residual contamination has been present at this site for decades, the lack of any risk associated with the contamination, and the unlikely probability that contaminants would migrate en masse into the canyons, the soil removal suggested by the NMED is inappropriate and without sound technical basis.

Potential contaminant migration from MDA B was not within the scope of this project and was, therefore, not proposed for investigation in the approved VCA/IA Plan. It is unlikely that significant contaminant migration from MDA B has occurred since BV Canyon effectively provides a physical barrier to migration from MDA B onto tract A 8 along the northeastern boundary of the tract. The short boundary between tract A 8 and MDA B south from DP Road along the utility access road is buffered by a 50-foot wide boundary to allow for the future MDA B investigation and remediation, which will explore the migration issue more fully.

**February 20, 2004 Letter
Comments and Responses**

Response to Second Comments on the Land Transfer Parcel A-8 (DP Road South): SWMU 0-030(b), SWMU 0-030(m), AOC 0-010(a), and the SWMU 21-021 portion of the consolidated SWMU 21-021-99

NMED Comment

1. *NMED understands that sampling of the surface soils for VOCs would probably be a fruitless effort at SWMU 0-030(b). However, a depth of 2-5 feet is considered the subsurface where, the Permittees have admitted, the contaminant releases occurred. In keeping with NMED's position paper entitled "Determination of Extent of Contamination", the Permittees must collect samples deeper than the 2-5 foot depth to adequately determine nature and extent of contamination. According to the VCA Completion Report, contaminants were detected above background levels (inorganics) and practical quantitation limits (organics). Because the source of contamination at this site was a liquid waste and given the characteristics of the tuff (e.g., fractures), contamination is expected at depths below the leachfield and not in the overlying soil and fill. Again, the Permittees must determine the full extent of contamination at this site before drawing conclusions and making recommendations. The Permittees failed to meet their own objectives as stated in Table E-3.2-6 of the VCA Plan, regardless of the identified depths. NMED requires the Permittees to sample the locations previously sampled (see the VCA Completion Report) at the 2-5 foot interval and deeper, if necessary. The samples shall be analyzed for VOCs, SVOCs, metals, PCB, and pesticides.*

(Note: The VCA Completion Report does not indicate that there were samples collected in the leachfield during the previous sampling activities even though the VCA Plan states that this data is available. The Permittees shall include this data, if available, in its assessment.)

LANL Response

1. Assuming the area that NMED is referring to is the leach field, extent has been defined and no additional sampling is warranted. In the leach field, samples were collected in 2002 within a 0–3 ft bgs interval at five locations. As stated on page 3-10 of the report, 10 samples were collected beneath the central leach field line and laterals (samples RE00-02-46478 through RE00-02-46487). Five of these samples were within the 2–3 ft depth interval (2.3 and 2.17 ft bgs) and were the deeper of two sample depths at those locations. At each of the locations with two sample depths beneath the leach field pipes, no contaminants were detected in the deeper sample. Therefore, extent is defined for the leach field.

The note above that the report “does not indicate that there were samples collected in the leachfield during the previous sampling activities” is incorrect. Section 3.3.1, page 3-7, second full paragraph, states that in 1995, three samples were collected from the leach field and were analyzed for SVOCs, PCBs, pesticides, and radionuclides by a fixed analytical laboratory, and for VOCs and metals by the MCAL. These samples are included in Table 3.4-1, and where appropriate in the tables of results above background (Tables 3.4-3 and 3.4-4). The data for those samples were included in the human health and ecological risk assessments. The locations of these samples (sample locations 00-04301, 00-04302 and 00-4303) are included on Figure 3.4-1.

NMED Comment 2

2. *The Permittees cannot conclude that there is no unacceptable risk from residual contamination at SWMU 0-030(m) when all of the appropriate analyses were not performed. The Permittees do not provide data from a metals analysis other than the TCLP metals data. In addition, the usability of the waste characterization sample that was collected is questionable. If this sample was composited (as waste characterization samples tend to be), the results of the analyses may not be used to characterize the site and, therefore, additional samples need to be collected. Alternately, NMED reiterates its recommendation to remove all remaining piping, sample the soil/tuff beneath the removed piping, and complete the remaining sampling and trenching of the tank area (see VCA Plan).*

(Note: If the extent of contamination at tank area was defined, the Permittees would not have identified it as a data gap.)

LANL Response

2. Adequate data was collected to define extent and support the conclusion that there is no unacceptable risk from residual contamination at SWMU 0-030(m). The confirmatory samples collected beneath the removed piping were analyzed for the appropriate suites (including target analyte list [TAL] metals). Because no leaks from the pipes were evident, the area beneath the unremoved pipe would have similar concentrations of COPCs as was found in the characterized areas under the removed pipe. Therefore, additional sampling in the area where the pipe remains in place is not necessary to assess the potential risk to human and ecological receptors.

The sample in question (sample number RE00-02-45745) collected in 2002 was not a composite sample, was not presented as a composite sample but "a single sample" (page 3-10, Section 3.4.1), and was not used in the risk assessments for this SWMU. The only waste characterization samples collected as composites are those collected from waste containers prior to shipment and after excavation (i.e. roll off bins, etc.) and are not discussed in this report. In this particular instance, a "grab" sample of the pipe contents was collected for waste characterization purposes. However, due to the utility and safety concerns discussed in the next paragraph, further sampling and pipe removal was not possible and the pipe content data were used simply to represent the contents of the pipe that was not removed. These data indicate that the remaining pipe does not contain concentrations of organic chemicals and radionuclides at levels of concern. The analytical results for sample RE00-02-45745 are presented on pages 3-25 (radionuclides) and 3-38 (detected organics); the TCLP results for metals are intentionally not presented with the soils characterization data because these results are not appropriate for use as site characterization data. Although total metals data are not available for the pipe contents, soil concentrations of inorganic chemicals beneath the removed pipe indicate that concentrations do not represent an unacceptable risk. Therefore, because the pipe does not contain COPCs at levels that may pose a potential unacceptable risk, the area under the pipe also does not have concentrations of COPCs that exceed the risk levels. As a result, additional data are not required to characterize the site and conduct the risk assessments.

Although utility and safety concerns prevented the completion of some of the sampling for SWMU 0-030(m) in accordance with the approved plan, the fact remains that the data for the soil beneath the removed pipe did not indicate a release. The analysis of the contents of the removed pipe is

provided to illustrate that the remnant piping does not contain contaminants that pose an unacceptable risk. Further, sampling from beneath the removed piping is representative of the levels of contaminants present beneath the unremoved pipe. These levels indicate that no unacceptable risk is present. The difficulty and risk to site worker health and safety involved in removing the remnant piping or trenching for additional sampling are real and significant, given the utility density and demonstrated unreliability of identified utility locations, with minimal potential benefit (decreased human health or ecological risk).

With respect to the Bureau's note above, the VCA plan did identify this data gap and the intent was to collect this data. However, this could not be safely accomplished due to utility and safety concerns discussed previously. Regardless, it can be reasonably extrapolated from the data that was successfully collected over the several investigations/remediations that this SWMU does not pose an unacceptable risk, and that this conclusion would not be significantly affected, one way or the other, with additional sampling or removal.

NMED Comment

- The Permittees must determine the vertical and lateral extent of contamination at this site before drawing conclusions about risk to human and ecological receptors at this site. Many inorganic constituents were detected above their respective background levels. The deepest sample collected was 6 inches below the ground surface in an area that has been recontoured and regraded in the past. NMED questions whether the samples represent the highest levels of contamination at the site and disagrees that the extent of contamination has been determined. The Permittees shall resample the locations in the VCA Report at depth to determine the extent of contamination.*

LANL Response

- Because the source of the contamination is from surface deposition of fallout from stack emissions, the highest concentrations are characterized by the samples collected at and near the surface. Infiltration into the subsurface occurs by diffusion, resulting in a concentration gradient from surface to depth. The semi-arid environment does not promote the infiltration of materials into the subsurface and the concentrations in the subsurface are less than the surface because of the dispersion of materials in the subsurface medium. In addition, the eastern portion of tract A8 was not significantly disturbed by the various developments undertaken in the western half of the tract. Therefore, the risk represented by the surface data reflects the maximum risk expected to be associated with the SWMU.

The entirety of SWMU 21-021 is not, and was not intended to be characterized in this investigation, as noted in the approved work plan (pp E-19) and again in the report (pp 6-1, 6-24, and 6-40) and in the responses to previous HWB comments (T. Taylor 02-03-03 [sic]), but also included again in this response), only the portion of SWMU 21-021 that directly impacts sub parcel A-8 are to be investigated. The characterization of SWMU 21-021 was conducted as an interim action in advance of the site being further disturbed or unavailable for characterization with the remainder of the SWMU. The conclusions are only that this portion of SWMU 21-021, the portion within tract A8, does not pose an unacceptable risk to human health and the environment and that no additional investigation or remediation is warranted in this portion of the SWMU. Despite accomplishing the

sampling described in the approved VCA Plan, the Permittees propose collecting a subset of the 2002 locations that would include 20% (16) locations biased for site coverage and, insofar as possible, towards locations of highest concentrations. For efficiency, this supplemental sampling will be accomplished and reported with that proposed in comments 1, 2, and 3 of the NOD received 3/29/04 entitled "Notice of Deficiency for the Completion Report for the Voluntary Corrective Action at SWMUs 0-030(l), 0-033(a), and AOCs 0-004, 0-010(b), and 0-029(a, b, and c)."

Attachment 1

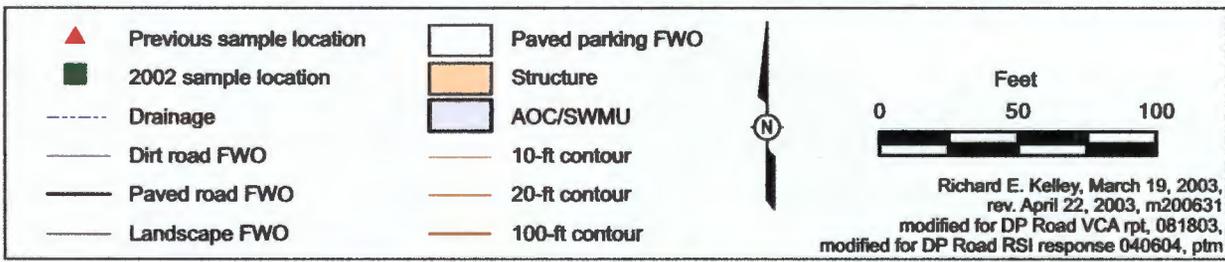
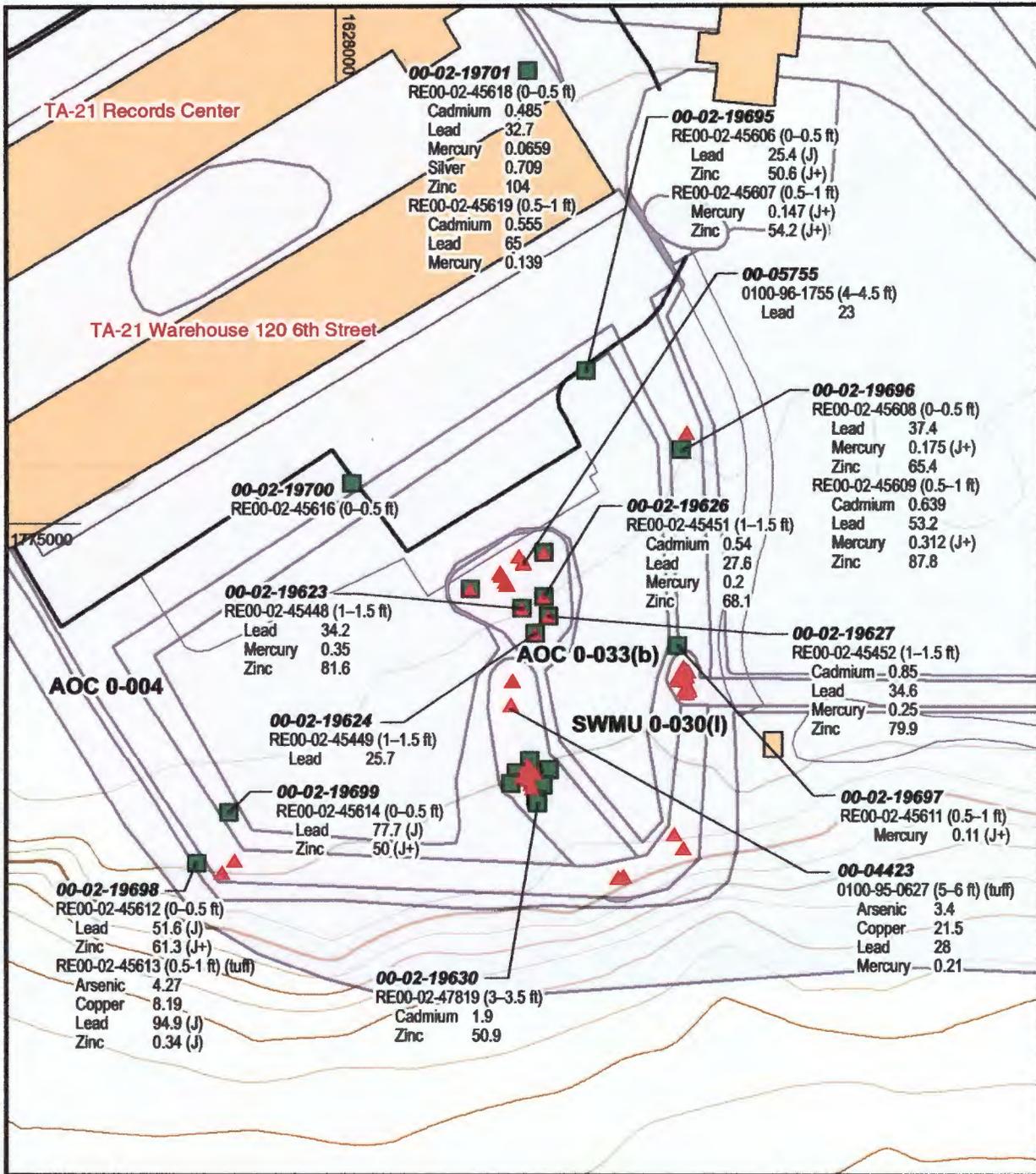
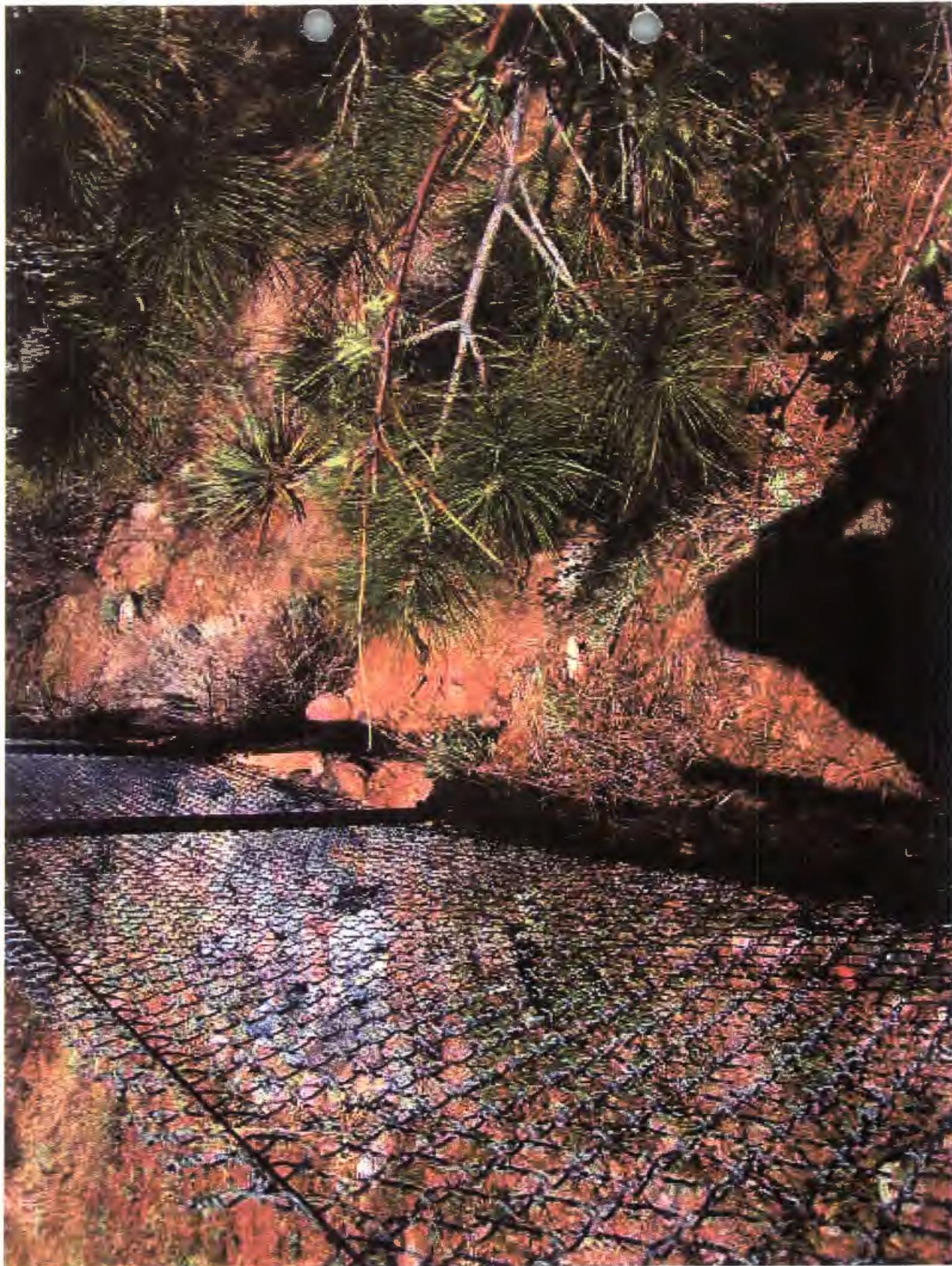
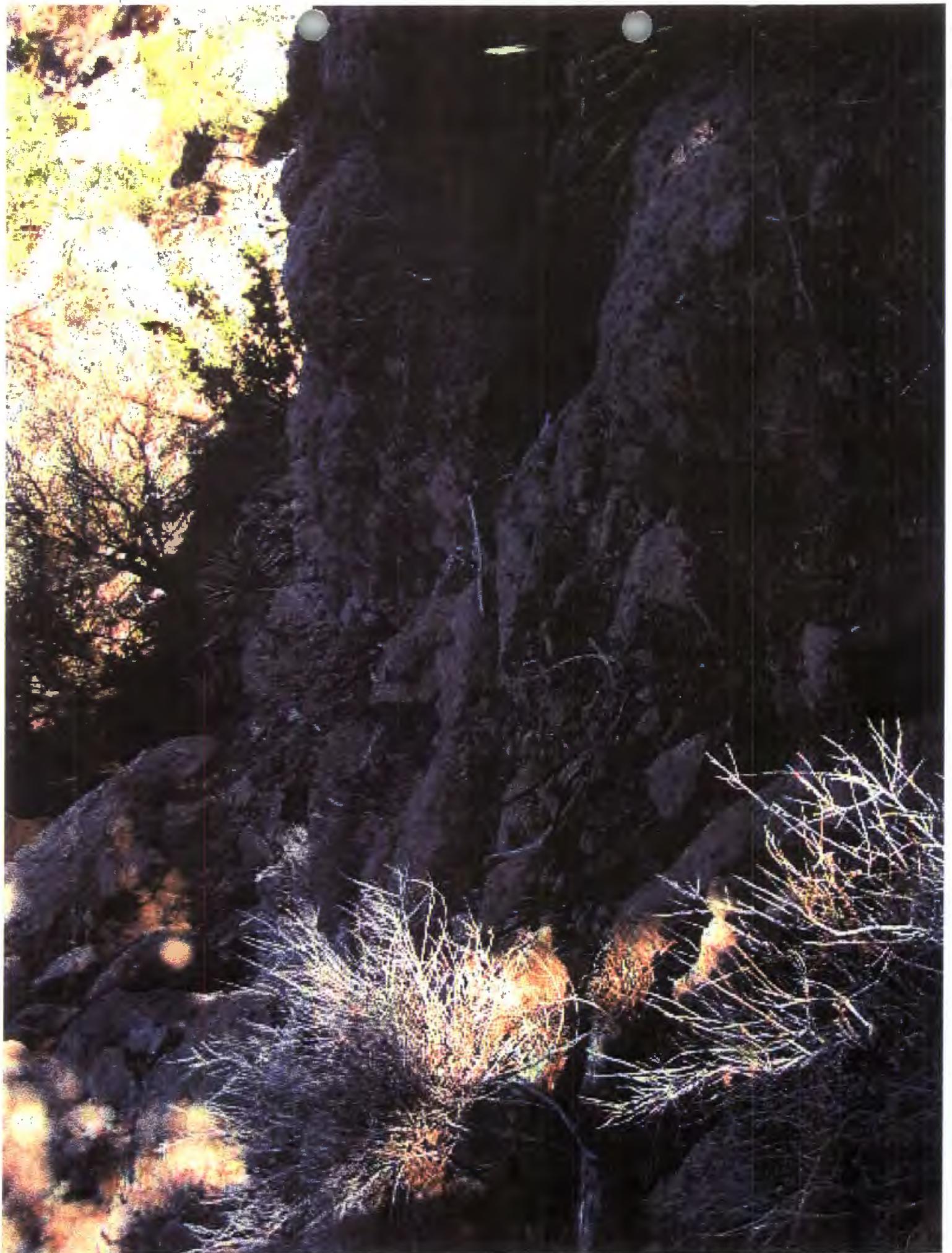


Figure 2.4-2. Inorganic chemicals detected above BVs at AOCs 0-004 and 0-033(b) and SWMU 0-030(I)

Attachment 2







Attachment 3

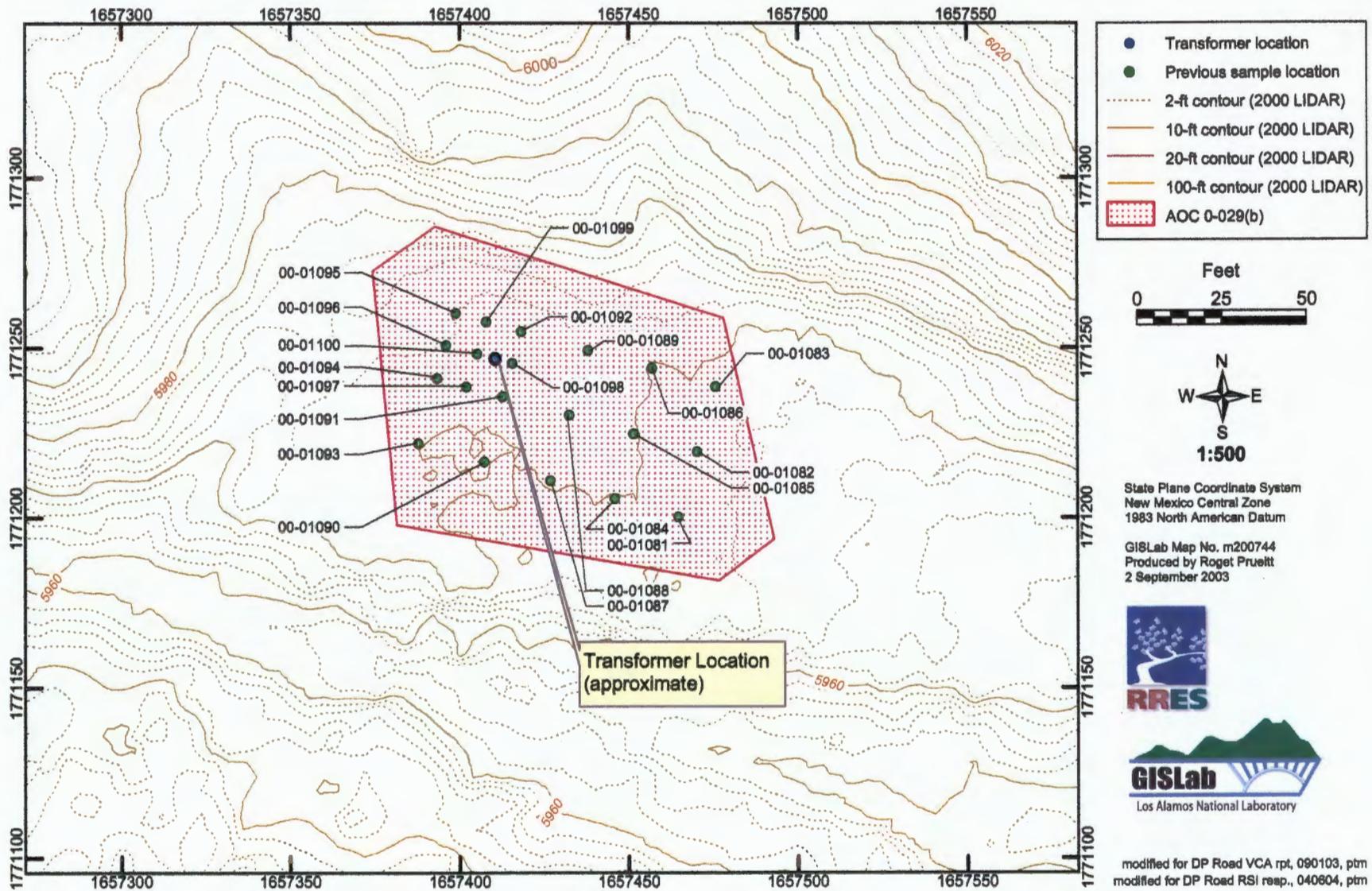


Figure 4.3-2. AOC 0-029(b) previous investigation sample locations

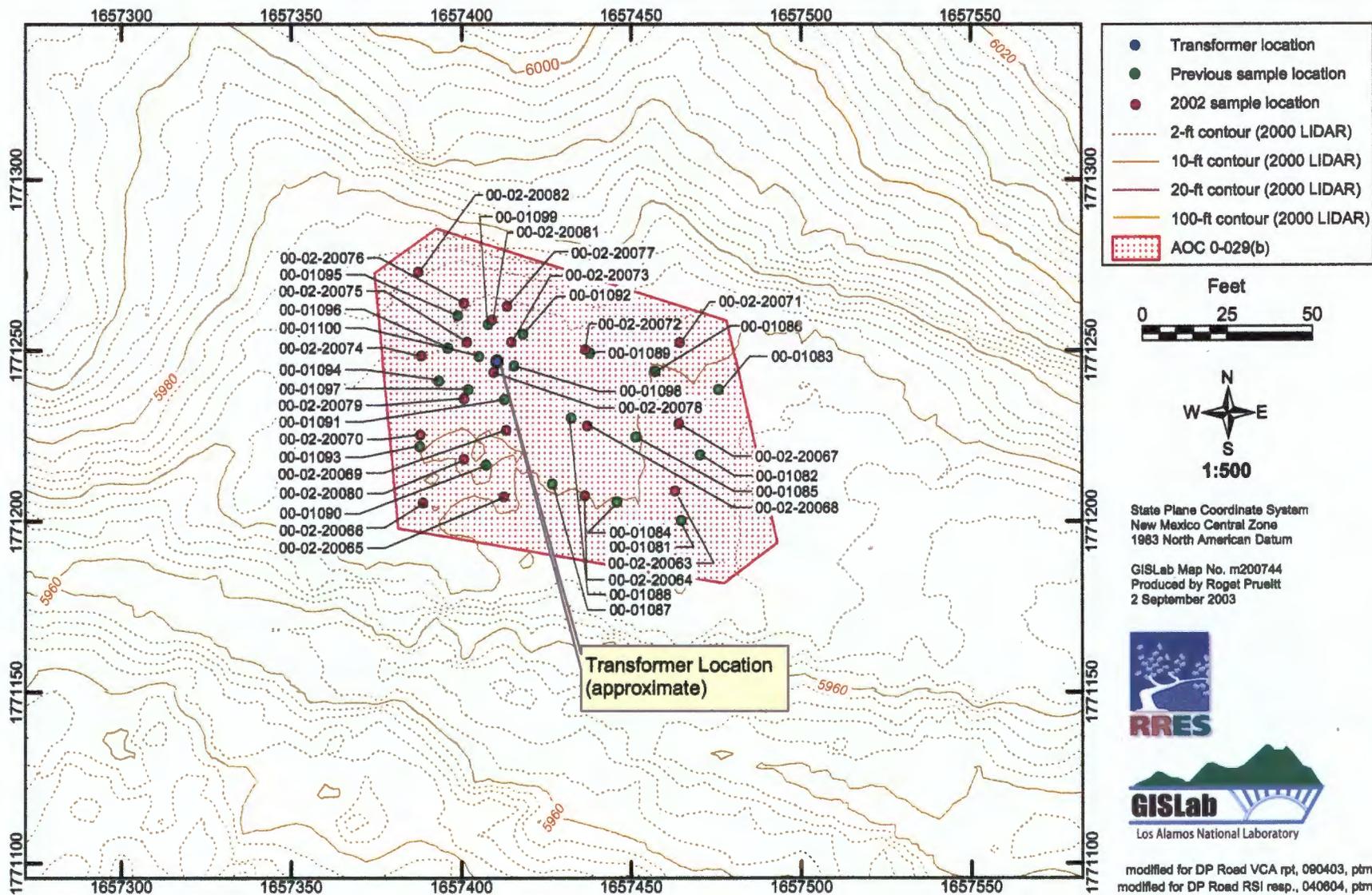


Figure 4.4-2. AOC 0-029(b) RFI and VCA sample locations

Attachment 4

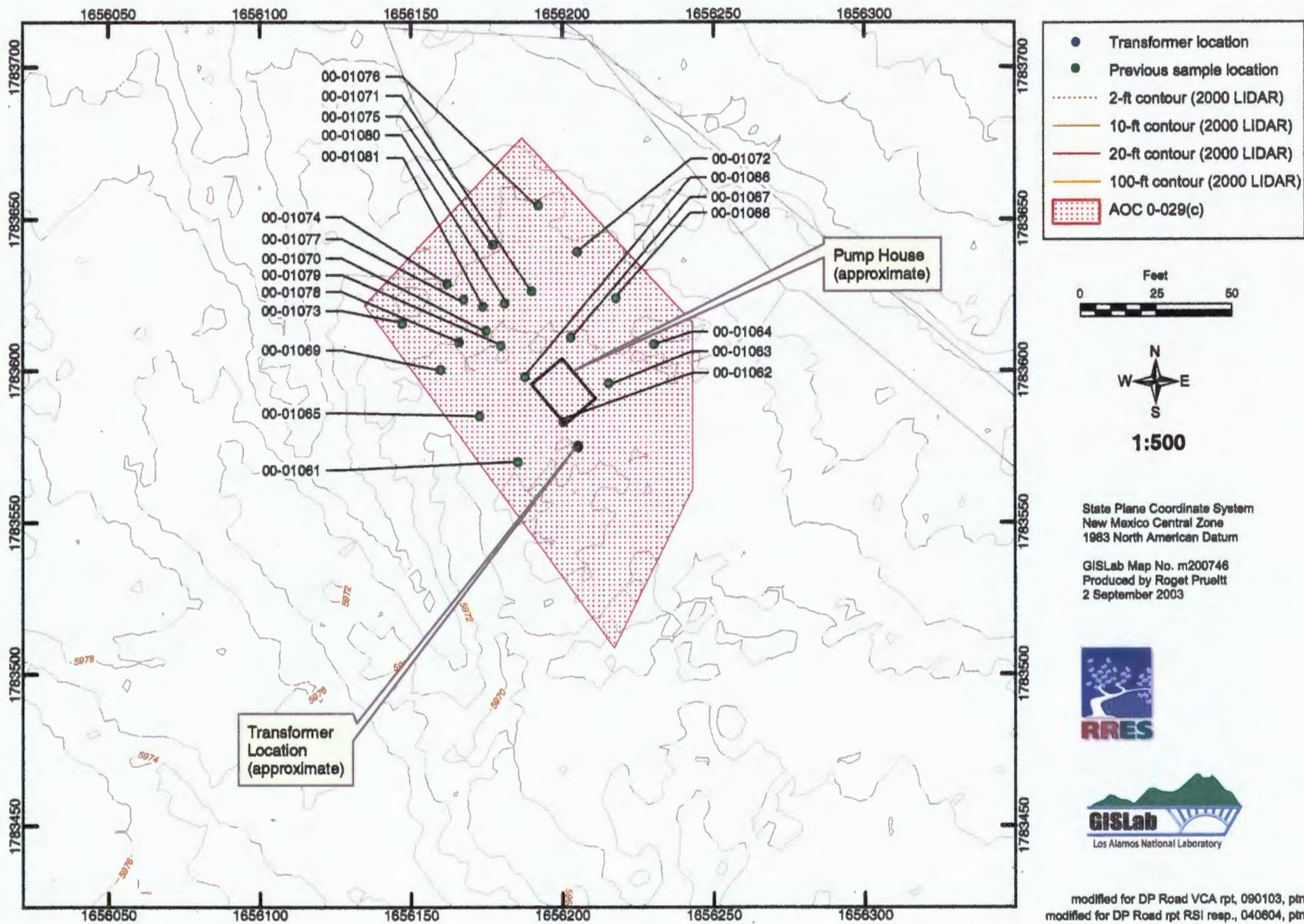


Figure 4.3-3. AOC 0-029(c) previous investigation sample locations

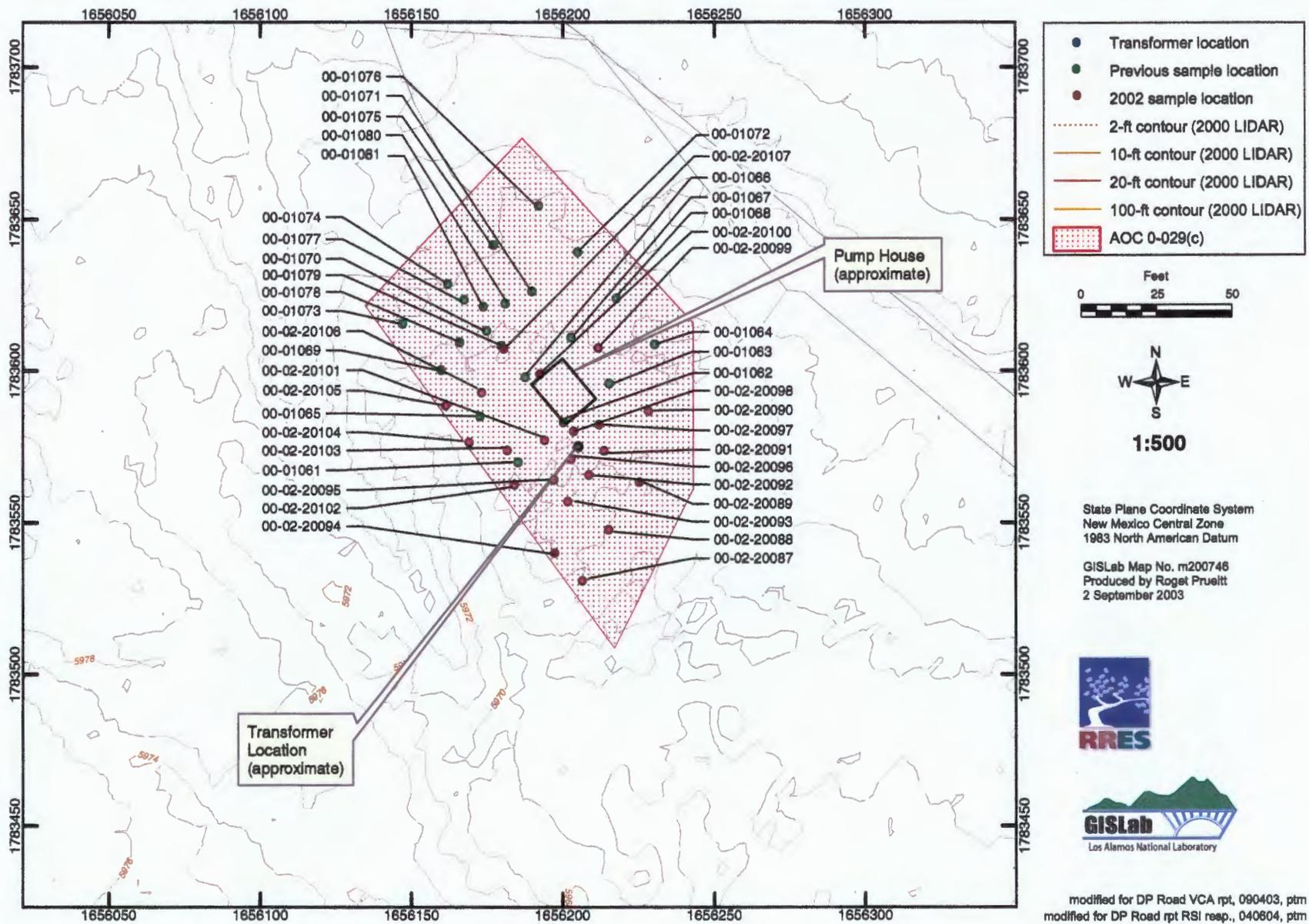


Figure 4.4-3. AOC 0-029(c) RFI and VCA sample locations

Response to Notice of Deficiency on the Completion Report for the Voluntary Corrective Action at SWMUs 0-030(a), 0-030(b)-00, and 0-033(a), and AOCs 0-029(a,b,c), and 0-010(a,b), and for the Interim Action at SWMU 21-021-99

Los Alamos National Laboratory, EPA ID# NM0890010515

These comments are provided for SWMUs 0-030(a), 0-033(a), 0-030(a), and AOCs 0-004, 0010(b), 0-033(b), and 0-029(a, b ,c). SWMU 0-030(a) and AOCs 0-004 and 0-033(b) are part of consolidated unit 0-030(b)-00.

To facilitate review of these responses, the New Mexico Environment Department's (NMED's) comments are included verbatim. Los Alamos National Laboratory's (LANL's) responses follow each NMED comment.

NMED Comment

1. *NMED cannot approve the Permittees' request for NFA for AOC 0-004 at this time because the extent of contamination at the site has not been adequately determined and the ecological risk screening assessment was biased. The highest DDT detection was at the sample location 00-04223 at the far southeast corner of the site. Mercury was also detected in the tuff at a depth of 5-6 feet at this location. Appendix F of this completion report notes that contaminants (specifically DDD, DDE, and DDT) are concentrated in the drainages, there are dirt channels at the end of the man-made drainages, and drainage into Los Alamos Canyon is evident. Consequently, NMED is concerned that contaminants may be migrating from the site or into Los Alamos Canyon.*

The Permittees must either remove the area of elevated concentrations of DDE/DDT at the southeast corner of the site or conduct additional sampling to determine the extent of contamination associated with the site. Based on the risk screening conducted for the site, removal of the surface soil within the drainage channel near the edge of the mesa (in the vicinity of sample locations 00-04223 and 00-04224) appears to be the most efficient corrective action alternative for the site. The ecological risk screening excluded this location from consideration in order to enable the site to pass the screening. If the Permittees propose to conduct additional sampling instead of site remediation, then shallow soil samples (0-1 ft) must be collected down gradient of the boundaries of the site where elevated concentrations of contaminants were detected, specifically at the southeast corner of the site. After conducting the required remediation or additional investigation at the site, then it will be appropriate to conduct a risk screening assessment for the site.

LANL Response

1. Sample locations were not excluded from the ecological screening assessment, and the screening assessment is not biased. All sample results for soil and fill from this aggregate were used to calculate the exposure concentration (95% upper confidence limit [UCL] of the mean) for the ecological screening assessment. The results of the tuff samples were excluded from the 95% UCL calculations, in accordance with NMED and EPA Region 6 guidance that the tuff matrix does not represent a significant pathway to ecological receptors (LANL 2002, 73870). Exclusion of the tuff data produced 95% UCLs for DDT and DDE that were higher (by a factor of approximately 2) than the 95% UCLs calculated using all of the data. In addition, sample locations 00-04223 and 00-04224 were specifically assessed to determine whether the concentrations of DDT and DDE could potentially affect receptor populations (see Appendix F). The population assessment indicated that

the maximum detected concentrations of DDT and DDE did not present a potential adverse impact to avian populations.

DDT and its breakdown products DDE and DDD are ubiquitous across the Pajarito Plateau because of numerous aggressive spraying programs conducted in the 1950s and early 1960s (LASL 1963, 64879). There is a high probability that the pesticide residues migrated into the canyon from the mesa tops and hillslopes over time. These facts are supported by the detection of DDT and DDE in all of the reaches of Los Alamos (LA) Canyon, including the reach at the head of the canyon upstream of LANL. Concentrations are relatively consistent throughout the upper portion of LA Canyon and decrease to at or below detection limits in the lower part of the canyon. Sample locations 00-04223 and 00-04224 have the highest detected concentrations of DDT and DDE within the aggregate of AOC 0-003, AOC 0-033(b), and SWMU 0-030(l) and will be removed during the 2004 field season. Confirmatory samples will be collected, analyzed for pesticides, and reported to NMED in a subsequent communication.

Sample location 00-04423 in Figure 2.4-2 was incorrectly located in the southeast corner of the aggregate. Sample location 00-04423 is actually part of SWMU 0-030(l). The figure has been revised and is provided as Attachment 1 to this notice of deficiency (NOD) response. Sample location 00-04423 will be sampled at depth at the same time as the soil removal and confirmatory sampling described above. The additional sampling will address the mercury concentration detected at 5–6 ft at this location (0.21 mg/kg) as well as other COPCs detected in this sample.

Following receipt of the sample results, the data will be evaluated to determine whether the ecological screening should be redone. The results and any assessment of the data will be reported to NMED in a subsequent communication.

NMED Comment

- NMED cannot approve the Permittees' request for NFA for AOC 0-033(b) at this time because the extent of contamination at the site has not been determined and the ecological risk screening assessment was biased. The 2002 VCA plan states that contamination is not expected above 2 feet or below 5 feet. However, all of the samples were collected from 1-1.5 feet. To properly investigate the site, the Permittees must collect samples between 2 and 5 feet, the depth at which the contaminants are likely to be found. The Permittees must also consider soil removal in the area of elevated concentrations of contaminants in the central portion of the site (in the vicinity of sample locations 00-02-19623 through 00-02-19627) as a corrective action for the site. The ecological risk screening excluded the central location of this site from consideration in order to enable the site to pass the screening. After conducting the required additional investigation and/or remediation at the site, then it will be appropriate to conduct a risk screening assessment for the site.*

LANL Response

- Sample locations were not excluded from the ecological screening assessment, and the screening assessment is not biased. All sample results for soil and fill from this aggregate were used to calculate the exposure concentration (95% upper confidence limit [UCL] of the mean) for the ecological screening assessment. The results of the tuff samples were excluded from the 95% UCL calculations, in accordance with NMED and EPA Region 6 guidance that the tuff matrix does not

represent a significant pathway to ecological receptors (LANL 2002, 73870). Exclusion of the tuff from the 95% UCLs calculations for cadmium, lead, mercury zinc, and trichloroethene resulted in higher 95% UCLs than were calculated when including the tuff. The exposure concentration used in the ecological screening assessment for benzene was the maximum detected concentration because only one detect was reported, while 4-isopropyltoluene was evaluated qualitatively because no screening values are available. The results of the ecological screening demonstrated that these COPECs did not pose potential adverse effects to receptors.

Samples were collected in 2002 were from 1 to 1.5 ft depth (sample locations 00-02-19622 to 00-02-19627 to provide a second depth for samples collected from 0 to 0.5 in. in 1996 (sample locations 00-05758 to 00-05763). Concentrations of inorganic chemicals (cadmium, lead, mercury and zinc) were found above their soil BVs in the 2002 sampling locations. The inorganic chemical concentrations for cadmium are within the range of soil background concentrations (LANL 1998, 59730). The concentrations of lead and zinc are either within the range of background concentrations or slightly above the maximum background concentrations (LANL 1998, 59730). The mercury concentrations ranged from 0.2 mg/kg to 0.35 mg/kg, which exceed the background value (0.1 mg/kg), but do not present a potential risk to human and ecological receptors. Three volatile organic chemicals (VOCs) (benzene, 4-isopropyltoluene, and trichloroethene) were also detected in one to four samples collected at these locations at trace levels (below or near the estimated quantitation limits). Based on past NMED guidance, it is unnecessary to conduct additional sampling for extent of VOCs when they are present at such low levels. Therefore, the "elevated concentrations" referred to in NMED's comment do not require soil removal. However, LANL agrees to collect additional samples from this area at depth and analyze them for metals to address NMED's concerns regarding extent.

Four other samples were collected in 1996 (00-05754 to 00-05757) from either 4 to 4.5 ft or 5 to 5.5 ft. Two of the latter sample locations (00-05756 and 00-05757) had detected concentrations of alpha- and gamma-chlordane. These two sample locations will be sampled for pesticides at depth to delineate the extent of the chlordane.

Following receipt of the sample results, the data will be evaluated to determine whether the ecological screening needs to be redone. The results and any assessment of the data will be reported to NMED in a subsequent communication.

NMED Comment

- 3. NMED cannot approve the Permittees' request for NFA for SWMU 0-030(1) at this time because the extent of contamination at the site has not been determined. The two planned surface outfall samples were not collected. The 2002 VCA Plan states that these samples are necessary for determining the nature and extent of contamination. The Permittees' stated reasons for not collecting samples (the presence of welded tuff at the surface and the lack of access due to the existence of a fence) are not acceptable to NMED. Effluent discharges likely eroded the soil at the outfall, leaving tuff at the surface. Samples must be collected down gradient of the outfall to determine the extent of contamination at the site and whether contaminants have migrated into Los Alamos Canyon. After conducting the required additional investigation at the site, then it will be appropriate to conduct a risk screening assessment for the site.*

LANL Response

3. The field team judged that the degree of welding of the tuff and the overall site conditions would not have permitted significant infiltration into the tuff. Further, there were no physical indications in the field that "Effluent discharges likely eroded the soil at the outfall." Rather, actual site topography suggests that effluent from the outfall would more likely have been diverted westward and converged with the western drainage associated with AOC 00-004. This apparent effluent routing coupled with the approximately 40-ft vertical rock wall immediately beyond the fence drove the collection of the samples at the southwest corner of the site to capture potential contaminants in that area. Photographs of the area are included as Attachment 2. Regardless, the Permittees will attempt to collect the additional samples requested by the NMED from SWMU 0-030(l) during the effort to remove the elevated DDT and DDE concentrations mentioned in Comment 1 and the sampling effort mentioned in Comment 2. If no recoverable media can be collected between the existing sample locations and the cliff edge, however, none will be collected from the cliff face. The additional sampling will address the mercury concentration detected at 5–6 ft at this location (0.21 mg/kg) as well as other COPCs detected here. The results and any assessment of the data will be reported to NMED in a subsequent communication.

NMED Comment

4. *NMED does not require further investigation of AOC 0-010(b) at this time and grants the Permittees' request for No Further Action based on NFA Criterion 2. However, if evidence of contamination or the existence of a disposal area/landfill is discovered at this site during future excavation, construction, or other activities, then NMED will require the Permittees to notify NMED and investigate the site.*

LANL Response

4. Noted.

NMED Comment

5. *NMED does not require further investigation of SWMU 0-033(a) at this time. It is acknowledged that the NMED's UST Bureau approved the request for NFA for the site on January 23, 1996. NMED also notes that the samples collected from this site were analyzed in LANL's mobile lab for total TPH (Method 418.1), while proper confirmatory samples should have been analyzed in an off-site analytical lab for TPH/diesel range organics (Method 8015M).*

Although no additional investigation is presently needed at this site, NMED cannot concur with the NFA request for this site until a proper risk screening assessment has been conducted. The Permittees' January 6, 2003 response to NMED's Request for Supplemental Information for the 2002 VCA plan states that, ". . . potential ecological exposure will be addressed in detail, as appropriate, in the final VCA Report." The 1996 VCA Completion Report for this SWMU states that a "larger ecological exposure unit" will be considered once all the information is obtained from the surrounding PRSs." However, based on the information provided in the 2003 completion report, the area around SWMU 0-033(a) was not considered in the risk screening process. NMED requires further investigation and/or remediation at the surrounding sites (refer to Comments 1, 2, and 3 for

AOCs 0-004 and 0033(b) and SWMU 0-030(1)) and additional risk screening after that additional work is satisfactorily completed. The risk screening for AOCs 0-004 and 0033(b) and SWMU 0030(1) must include SWMU 0-033(a). In addition, if evidence of contamination is discovered during future excavation, construction, or other activities at SWMU 0-033(a), then NMED will require the Permittees to notify NMED and investigate the site.

LANL Response

5. SWMU 00-033(a) was excluded from the risk screening as a result of conversations with the NMED HWB related to the Laboratory's June 2000 Permit Modification request. The parties agreed that 00-033(a) was complete and, more importantly, that SWMU 0-033(a) would not be included in the risk screening assessments for AOC 0-004, AOC 0-033(b), and SWMU 0-030(l) because SWMU 00-033(a) is not adjacent to or associated with the other sites. As depicted in Figure 2.1-1, SWMU 0-033(a) is located between Warehouses 1 and 2 and Warehouses 3 and 4 and is separated from the other AOCs and the SWMU by Warehouse 3 and 4. Therefore, simultaneous exposure to SWMU 0-033(a) and the other sites is not possible. In addition, the depth of residual contamination at SWMU 00-033(a) is 10 ft below ground surface and exposure to BTEX is, therefore, unlikely, especially for ecological receptors. As a result, inclusion of SWMU 0-033(a) in the assessments for the other sites is not representative of potential exposures.

A comparison of the BTEX concentrations to screening action levels (SALs) and ecological screening levels (ESLs) is presented in the following table. Based on the comparisons, the concentrations for the BTEX compounds do not exceed the screening levels and therefore do not pose a potential unacceptable risk to human and ecological receptors. Therefore, additional evaluations are not warranted.

Analyte	Concentration (mg/kg)	SAL (mg/kg)	Ratio	Final ESL (mg/kg)	Ratio
Benzene	0.041	0.64	0.064	55	0.0007
Toluene	0.061	180	0.0003	70	0.0009
Ethylbenzene	0.123	68	0.002	55	0.002
Xylene	0.157	63	0.002	5.4	0.03

NMED Comment 6

6. NMED does not require further investigation of AOC 0-029(a) at this time and grants the Permittees' request for NFA based on NFA Criterion 5. However, if evidence of PCBs or other contamination is discovered at this site during future excavation, construction, or other activities, then NMED will require the Permittees to notify NMED and investigate the site.

LANL Response

6. Noted.

NMED Comment

7. *NMED cannot approve the Permittees' request for NFA for AOC 0-029(b) at this time because the extent of contamination at the site has not been adequately determined. According to Table C-5.0-3 in Appendix C, the samples collected during the 2002 VCA from locations 00-02-20063 through 00-02-20072 and from location 00-02-20080 were extracted outside the appropriate holding times. The accuracy and validity of this data is questionable. These samples represent the data from the entire southern and eastern portions of the site. Consequently, NMED requires the Permittees to collect additional samples from these locations. Proper QA/QC procedures, including the requirement to meet appropriate holding times, must be followed.*

In addition, NMED cannot assess the data as it is currently presented. The two sample location maps in the document (Figure 4.3-2: previous investigation sample locations and Figure 4.4-2: RFI and VCA sample locations) do not match. Neither the coordinates of the AOC nor the shape of the AOC are the same on the two figures. The Permittees must provide maps with accurate sample collection locations to NMED. The Permittees must provide the coordinates of the sample locations and the structure locations (pump house and transformer). NMED cannot determine from the information presented in the report whether samples were collected in the proper locations.

After conducting the required additional investigation at the site, and after providing the required information to NMED then it will be appropriate to conduct a risk screening assessment for the site.

LANL Response

7. Proper QA/QC procedures were followed in assessing the Aroclor data from AOC 0-029(b). The samples exceeded the extraction holding time by 5 days were within the analytical holding time. EPA recommends that Aroclors in soil be extracted within 14 days of sample collection and analyzed within 40 days of extraction. The samples were evaluated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (OSWER 9240.1-05A-P, PB99-963506, EPA540/R-99/008, October 1999). The EPA guidance provides that if the holding time is not grossly exceeded (i.e., greater than two times the required holding time) the detected results are estimated (qualified as J) and the sample quantitation limits are estimated (qualified as UJ). The holding time exceedance for the samples from AOC 0-029(b) (5 days) was less than two times the holding time (not grossly exceeded) and the data are usable for risk assessment purposes. The qualifiers applied through the LANL validation process were J- for detects and UJ for nondetects. The J- indicates that the results have a potential low bias due to the holding time. It is unlikely that the 5 days affected the Aroclor concentrations because Aroclors adsorb tightly to soil and are not readily degraded or lost while being stored at 4°C in the dark prior to extraction. Therefore, the data are accurate and valid and no additional samples need to be collected at AOC 0-029(b).

Coordinates on Figure 4.3-2 have been corrected. The shape of the AOC in the two figures reflects the sample locations shown. Figure 4.3-2 shows the previously collected samples, while the shape of Figure 4.4-2 has been revised to show all sample locations. It should be noted that Figure 4.4-2 correctly shows both the recent sample locations and those shown (incorrectly) in Figure 4.3-2. Precise coordinates for the transformer location cannot be provided because it was not surveyed in 1992, and the pole was not present in 2002. A revised Figure 4.3-2 is included as Attachment 3.

NMED Comment

8. *NMED cannot approve the Permittees' request for NFA for AOC 0-029(c) at this time because the extent of contamination at the site has not been adequately determined. No samples were collected during the 2002 VCA from the northern portion of the site. NMED requires the Permittees to collect samples from this part of the site. Proper QA/QC procedures, including the requirement to meet appropriate holding times, must be followed.*

In addition, NMED cannot assess the data as it is currently presented. The two sample location maps in the document (Figure 4.3-3: previous investigation sample locations and Figure 4.4-3: RFI and VCA sample locations) do not match. Neither the coordinates of the AOC nor the shape of the AOC are the same on the two figures. The transformer is not located in the same place in relation to the pump house on the two figures. In Figure 4.3-3, the transformer is located northwest of the pump house, but in Figure 4.4-3 the transformer is located south of the pump house. The Permittees must provide maps with accurate sample collection locations to NMED. The Permittees must provide the coordinates of the sample locations and the structure locations (pump house and transformer). NMED cannot determine from the information presented in the report whether samples were collected in the proper locations.

After conducting the required additional investigation at the site, and after providing the required information to NMED, then it will be appropriate to conduct a risk screening assessment for the site.

LANL Response

8. Twenty-two samples were collected and analyzed for Aroclors during the 1992 investigation of AOC 0-029(c). These included approximately 17 samples from the northern portion of the AOC (see Figure 4.4-3). The 1992 samples included two with reported maximum detected concentrations of PCBs of 0.09 mg/kg. As described in the VCA report on page 4-6, the 1992 samples were excluded from the assessment because of the lack of QA/QC information. No samples from the northern area of the site were collected in 2002 because the 1992 data indicated no elevated concentrations of PCBs in that area. In addition, this portion of the AOC is upgradient from the transformer that released PCBs to the environment so migration of Aroclors in this direction is unlikely. Further, the prevailing winds are toward the southeast, again away from this portion of the site, so deposition is also very unlikely. The samples collected in 2002 were from locations that are 10 to 40 ft from the transformer in all directions, with 11 locations north of the transformer including three locations north of the pump house. Sample results show a slight decrease in concentrations with distance from the transformer in Figure 4.4-6. Therefore, additional samples from the northern portion of the AOC are not required.

Figure 4.3-3 is based on incorrect coordinates that were later corrected and included in Figure 4.4-3. Figure 4.3-3 will be corrected. Figure 4.4-3 is correct as provided, and includes all sample locations and the correct (approximate) locations of the pump house and transformer. Precise coordinates for the pump house and transformer locations cannot be provided because they were not surveyed in 1992, and the structures were not present in 2002. A revised Figure 4.3-3 is included as Attachment 4.

NMED Comment

9. *NMED does not require further investigation of SWMU 0-030(a) at this time and grants the Permittees' request for No Further Action based on NFA Criterion 5. However, if evidence of contamination is discovered at this site during future excavation, construction, or other activities, NMED will require the Permittees to notify NMED and investigate the site.*

LANL Response

9. Noted.

REFERENCES

LANL (Los Alamos National Laboratory), September, 1998. "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory," Draft, Los Alamos National Laboratory document LA-UR-98-4847, Los Alamos, New Mexico. (LANL 1998, 59730)

LANL (Los Alamos National Laboratory), September 2002. "The Approach to Assessment of Ecological Risk for the MDA P Closure Certification Given Findings," telephone record from S. Wirth (MDA P Closure Team) to K. Olson, Los Alamos, New Mexico. (LANL 2002, 73870)

LASL (Los Alamos Scientific Laboratory), June 1963. "DDT and the Spruce Budworm, Insecticide War to be Waged near Los Alamos against Tiny Forest Killers," Los Alamos Scientific Laboratory article, Los Alamos, New Mexico. (LASL 1963, 64879)

December 30, 2003, Letter

Comments and Responses

(Previously Submitted by DOE 2/3/04)

Response to Comments on the Land Transfer Parcel A-8 (DP Road South): SWMU 0-030(b), SWMU 0-030(m), AOC 0-010(a), and the SWMU 21-021 portion of the consolidated SWMU 21-021-99

NMED Comment

1. *NMED cannot approve the Permittees' request for No Further Action (NFA) for SWMU 0-030(b) at this time, because the extent of contamination in the leach field area has not been adequately determined. The 2002 VCA Plan states that data is needed in the leach field area at 2-5 feet for VOCs. However, only four (4) additional surface (0-0.5 feet) samples were collected. No subsurface data were provided for the leach field area, at either 2-5 feet or 5-15 feet. Samples must be collected at 2-5 feet and 5-15 feet in the leach field in order to determine the extent of contamination at the site.*

The data from 0-030 (b) contain numerous radionuclide constituents that are qualified as undetected based on their results having a value of less than three times the total propagated uncertainty (3-sigma). NMED will not accept data that is qualified as undetected (U) if the qualification is based on comparing the result to 3-sigma. The radionuclide data must include the activity concentration and the associated minimum detectable concentration, even when the results are less than zero (negative). The Permittees must not censor the data based on detection limits, quantitation limits, or measurement uncertainty. NMED requires that the radionuclide analysis report the activity concentration with the corresponding MDC (minimum detectable concentration), not the total propagated uncertainty. Detection will be considered an analytical result with no qualifiers "U" (not detected above detection limit) or "UJ" (not detected above detection limit; the value is inaccurate or imprecise) as reported by the analytical laboratory, not including (i.e. not adding or subtracting) the measurement uncertainty. NMED views the use of the 3-sigma uncertainty as a means of discarding data and presenting misleading information regarding the true nature and potential presence of contaminants at a site. The additional required sampling as described above must be conducted using proper QA/QC and data validation procedures. After conducting the required additional investigation at the site, then it will be appropriate to conduct a risk screening assessment for the site.

LANL Response

1. There appears to be some confusion in the comparison of proposed sampling presented in the approved VCA Plan and what was reported in the completion report. Specifically, on page 50 of the VCA Plan the rationale for omitting VOC analysis is presented along with a table that identifies the status of existing PRS data. The rationale for omitting VOC analysis from the 2002 sampling campaign is simply that the leach field area has experienced significant recontouring activities following relocation of the former trailer park which has generally destroyed the continuity of the leach field as evidenced by numerous scraps of previously buried VCP observed on the ground surface throughout the site (appendix D). VOCs are not included in the proposed sampling because the surface soil would no longer contain VOCs associated with Laboratory operations; over 50 years have elapsed since there were any Laboratory activities associated with the septic system and leach field. On page E-13 of the approved VCA plan the depth intervals for proposed, additional, sampling of the leach field area of SWMU 00-030(b) to fully define nature and extent are

specified as 0–0.5 ft, not the 2–5 ft and 5–15 ft indicated in the above comment. The 2002/2003 investigation collected samples from the proposed interval to augment the existing data from the previous investigation of the site. The analytical suites necessary for nature and extent evaluation were also specified on page E-13 of the approved plan and included TAL metals, SVOCs, PCB/Pesticides, and radionuclides. The report describes the execution of the additional sampling proposed on page E-13 of the approved VCA plan. The detailed evaluation of all existing site data collected in 1995, 1996, and 2002 from soil and tuff beside and beneath the septic tank and associated piping and beneath the leach field laterals for SWMU 0-030(b), which is summarized on pages 3-45 and following of the completion report, clearly demonstrates that nature and extent has been defined for this SWMU. The absence of recently collected surface VOC data from the highly disturbed leach field area does not affect the determination of nature and extent at this SWMU and additional sampling is not warranted.

NMED Comment

- NMED cannot approve the Permittees' request for No Further Action (NFA) for SWMU 0-030(m) at this time, because the extent of contamination at the site has not been adequately determined. The planned Voluntary Corrective Action essentially was not conducted. Only portions of the piping were removed and many planned samples were not collected. Safety concerns, including the discovery of several active unmarked utility lines in the excavation, precluded the collection of samples around the septic tank. The sample of the outlet pipe's contents was collected as a waste characterization sample, but was used as an investigation sample because the piping was not removed. This is not acceptable to NMED. This sample was only analyzed for TCLP metals, instead of the COPCs for the site, which include VOCs, SVOCs, PCBs, pesticides, isotopic uranium, isotopic plutonium, and gamma-emitting radionuclides. Proper investigation sample(s) must be collected and analyzed for this full suite of analytes.*

The remaining piping at the site must be removed, in order to prevent exposure to any residual concentrations of COPCs within the pipe. After removal of the piping, the soil below must be visually inspected for staining or other evidence of leaks from the pipe and confirmatory samples of the soil must be collected. In addition, further investigatory samples are needed. Sampling outside the tank is essential to determine if the tank leaked laterally. As noted in the 2002 VCA Plan, trenching and sampling south of tank is also needed to determine the extent of contamination.

The data from 0-030 (m) contain numerous radionuclide constituents that are qualified as undetected based on their results having a value of less than three times the total propagated uncertainty (3-sigma). NMED will not accept data that is qualified as undetected (U) if the qualification is based on comparing the result to 3-sigma. The radionuclide data must include the activity concentration and the associated minimum detectable concentration, even when the results are less than zero (negative). The Permittees must not censor the data based on detection limits, quantitation limits, or measurement uncertainty. NMED requires that the radionuclide analysis report the activity concentration with the corresponding MDC (minimum detectable concentration), not the total propagated uncertainty. Detection will be considered an analytical result with no qualifiers "U" (not detected above detection limit) or "UJ" (not detected above detection limit; the value is inaccurate or imprecise) as reported by the analytical laboratory, not including (i.e. not adding or subtracting) the measurement uncertainty. NMED views the use of the 3-sigma uncertainty as a means of discarding data and presenting misleading information regarding the true nature and

potential presence of contaminants at a site. The additional required sampling as described above must be conducted using proper QA/QC and data validation procedures. After conducting the required additional investigation and piping removal at the site, then it will be appropriate to conduct a risk screening assessment for the site.

LANL Response

2. NMED's statement that "this sample was only analyzed for TCLP metals, instead of the COPCs for the site which include VOCs, SVOCs, PCBs, pesticides, isotopic uranium, isotopic plutonium, and gamma-emitting radionuclides" is incorrect. As stated in the completion report on page 3-10, "The sample was submitted to a fixed laboratory for analyses of VOCs, SVOCs, PCBs, pesticides, isotopic uranium, isotopic plutonium, and gamma-emitting radionuclides. Because the sample was collected as a waste characterization sample, only TCLP metals analysis was requested." The last sentence was apparently unclear should have read, ". . . TCLP metals analysis was requested for inorganics," with further clarification that the TCLP data was not used as characterization data as was inferred. The contents of the piping that was removed and sampled did not indicate remnant contaminants at levels that pose an unacceptable human health risk and was at a depth (6.5 ft bgs) that would preclude availability to ecological receptors. Therefore, there is no concern for any exposure, no matter how unlikely, to any residual contamination. The analytical results for the sample (sample RE00-02-45745) of pipe contents in question are presented on pages 3-25 (radionuclides) and 3-38 (detected organics); other pipe content results (inorganics) are intentionally not presented with the soils characterization data because these results are not appropriate for use as characterization data. This is described in the nature and extent discussion on page 3-45 of the completion report. Therefore, removal of the remaining piping is not warranted.

All piping that could safely be removed was removed. In order to remove any remaining pipe as suggested by the Bureau would require extensive utility interruption to eastern Los Alamos, TA-21, DP Road businesses, etc. and would be unlikely to be approved by either Los Alamos County or LANL management due to the interruption of services to the public and potentially significant risk to site workers. The risk evaluation based on the data collected clearly indicates that there is no unacceptable risk to human health and that the potential incremental reduction in the acceptable risk that might result from this additional pipe removal does not justify the cost, hardship to the public, and/or risk to site workers that would be involved.

The 0-030(m) septic tank was removed in 1995 along with approximately 6-8" of surrounding tuff, confirmation sampling at the time, although limited, did not indicate contaminant migration into the underlying or surrounding tuff. Therefore, the extent of contamination around the tank is defined. This data, the fact that the tank, the soil within the tank and the tuff adjacent to the septic tank were all removed during the previous VCA, the lack of lateral head to drive contaminants, the results of excavation where piping was removed and confirmatory samples taken (pipe condition, absence of staining, etc), the active utility density and locating issues, all lead to the decision that the trenching, further pipe removal and associated confirmatory sampling would not significantly reduce future site risk.

NMED Comment

3. *NMED does not require further investigation of AOC 0-010(a) at this time and grants the Permittees' request for No Further Action (NFA) under NFA Criterion 2. However, if evidence of contamination or the existence of a disposal area/landfill is discovered at this site during future excavation, construction, or other activities, then NMED will require the Permittees to notify NMED and investigate the site. It is acknowledged that the Environmental Protection Agency concurred with the Department of Energy's NFA Criterion 2 request in October 1992.*

LANL Response

3. Thank you for your concurrence. It is administratively complete and was included for completeness in evaluating the land transfer parcel.

NMED Comment

4. *NMED cannot approve the Permittees' request for No Further Action (NFA) for the SWMU 21-021 portion of the consolidated SWMU 21-021-99 at this time. Only a portion of SWMU 21-021 was investigated as part of the Interim Action, and NMED does not grant NFA requests on partial SWMUs.*

The data from SWMU 21-021 contain numerous radionuclide constituents that are qualified as undetected based on their results having a value of less than three times the total propagated uncertainty (3-sigma). NMED will not accept data that is qualified as undetected (U) if the qualification is based on comparing the result to 3-sigma. The radionuclide data must include the activity concentration and the associated minimum detectable concentration, even when the results are less than zero (negative). The Permittees must not censor the data based on detection limits, quantitation limits, or measurement uncertainty. NMED requires that the radionuclide analysis report the activity concentration with the corresponding MDC (minimum detectable concentration), not the total propagated uncertainty. Detection will be considered an analytical result with no qualifiers "U" (not detected above detection limit) or "UJ" (not detected above detection limit; the value is inaccurate or imprecise) as reported by the analytical laboratory, not including (i.e. not adding or subtracting) the measurement uncertainty. NMED views the use of the 3-sigma uncertainty as a means of discarding data and presenting misleading information regarding the true nature and potential presence of contaminants at a site.

NMED cannot evaluate the data as it is currently presented. If feasible, the Permittees must re-evaluate the data and present it to NMED as described above. A revised figure presenting this data must also be prepared and submitted to NMED. If the Permittees are unable to re-evaluate this data, then the site must either be re-sampled, and the data must be evaluated using proper data validation procedures, or the contaminated surface soil (0-6 inches deep) must be removed from the site.

Removing the contaminated surface soil is a corrective action that would alleviate future concerns regarding migration of contaminants from the site and potential exposure to receptors. Because this site includes a portion of BV Canyon, a small tributary of Los Alamos Canyon, NMED is concerned about soil erosion and migration of contaminants to Los Alamos Canyon from the site. After the Permittees have removed the soil, then confirmatory samples must be collected to ensure that the

corrective action was successful. After remediation is conducted, then it will be appropriate to conduct a risk screening assessment for the site. Additionally, the data presented for this site do not conclusively show that contaminants from MDA B have not migrated to the surface soil or within the subsurface outside the boundaries of MDA B.

LANL Response

4. The permittees recognize that SWMU 21-021 and consolidated unit 21-021-99 are not complete and that NFA for the entire SWMU or consolidated unit would be inappropriate at this time. The portion of SWMU 21-021 that was investigated was included in this project as an Interim Action (IA) only and identified as such in the approved plan and in the report. No NFA is being requested for either the entire SWMU or consolidated unit. The SWMU 21-021 IA work incorporated in this project was intended to characterize and, if necessary, remediate the portion of the SWMU scheduled to be transferred. The conclusions are only that this portion of SWMU 21-021 does not pose an unacceptable risk to human health and the environment and as such, no additional investigation or remediation is warranted.

There are no present or future concerns regarding migration of contaminants from the site and the potential exposure to receptors. The data presented indicates that there is no potential unacceptable risk to human or ecological receptors at this site. Therefore, soil erosion and the migration of surface soils would also not impact human health and the environment in either BV or Los Alamos Canyon. Given the fact that the residual contamination has been present at this site for decades, the lack of any risk associated with the contamination, and the unlikely probability that contaminants would migrate en masse into the canyons, the soil removal suggested by the NMED is inappropriate and without sound technical basis.

Potential contaminant migration from MDA B was not within the scope of this project and was, therefore, not proposed for investigation in the approved VCA/IA Plan. It is unlikely that significant contaminant migration from MDA B has occurred since BV Canyon effectively provides a physical barrier to migration from MDA B onto tract A 8 along the northeastern boundary of the tract. The short boundary between tract A 8 and MDA B south from DP Road along the utility access road is buffered by a 50-foot wide boundary to allow for the future MDA B investigation and remediation, which will explore the migration issue more fully.

**February 20, 2004 Letter
Comments and Responses**

Response to Second Comments on the Land Transfer Parcel A-8 (DP Road South): SWMU 0-030(b), SWMU 0-030(m), AOC 0-010(a), and the SWMU 21-021 portion of the consolidated SWMU 21-021-99

NMED Comment

1. *NMED understands that sampling of the surface soils for VOCs would probably be a fruitless effort at SWMU 0-030(b). However, a depth of 2-5 feet is considered the subsurface where, the Permittees have admitted, the contaminant releases occurred. In keeping with NMED's position paper entitled "Determination of Extent of Contamination", the Permittees must collect samples deeper than the 2-5 foot depth to adequately determine nature and extent of contamination. According to the VCA Completion Report, contaminants were detected above background levels (inorganics) and practical quantitation limits (organics). Because the source of contamination at this site was a liquid waste and given the characteristics of the tuff (e.g., fractures), contamination is expected at depths below the leachfield and not in the overlying soil and fill. Again, the Permittees must determine the full extent of contamination at this site before drawing conclusions and making recommendations. The Permittees failed to meet their own objectives as stated in Table E-3.2-6 of the VCA Plan, regardless of the identified depths. NMED requires the Permittees to sample the locations previously sampled (see the VCA Completion Report) at the 2-5 foot interval and deeper, if necessary. The samples shall be analyzed for VOCs, SVOCs, metals, PCB, and pesticides.*

(Note: The VCA Completion Report does not indicate that there were samples collected in the leachfield during the previous sampling activities even though the VCA Plan states that this data is available. The Permittees shall include this data, if available, in its assessment.)

LANL Response

1. Assuming the area that NMED is referring to is the leach field, extent has been defined and no additional sampling is warranted. In the leach field, samples were collected in 2002 within a 0–3 ft bgs interval at five locations. As stated on page 3-10 of the report, 10 samples were collected beneath the central leach field line and laterals (samples RE00-02-46478 through RE00-02-46487). Five of these samples were within the 2–3 ft depth interval (2.3 and 2.17 ft bgs) and were the deeper of two sample depths at those locations. At each of the locations with two sample depths beneath the leach field pipes, no contaminants were detected in the deeper sample. Therefore, extent is defined for the leach field.

The note above that the report "does not indicate that there were samples collected in the leachfield during the previous sampling activities" is incorrect. Section 3.3.1, page 3-7, second full paragraph, states that in 1995, three samples were collected from the leach field and were analyzed for SVOCs, PCBs, pesticides, and radionuclides by a fixed analytical laboratory, and for VOCs and metals by the MCAL. These samples are included in Table 3.4-1, and where appropriate in the tables of results above background (Tables 3.4-3 and 3.4-4). The data for those samples were included in the human health and ecological risk assessments. The locations of these samples (sample locations 00-04301, 00-04302 and 00-4303) are included on Figure 3.4-1.

NMED Comment 2

- The Permittees cannot conclude that there is no unacceptable risk from residual contamination at SWMU 0-030(m) when all of the appropriate analyses were not performed. The Permittees do not provide data from a metals analysis other than the TCLP metals data. In addition, the usability of the waste characterization sample that was collected is questionable. If this sample was composited (as waste characterization samples tend to be), the results of the analyses may not be used to characterize the site and, therefore, additional samples need to be collected. Alternately, NMED reiterates its recommendation to remove all remaining piping, sample the soil/tuff beneath the removed piping, and complete the remaining sampling and trenching of the tank area (see VCA Plan).*

(Note: If the extent of contamination at tank area was defined, the Permittees would not have identified it as a data gap.)

LANL Response

- Adequate data was collected to define extent and support the conclusion that there is no unacceptable risk from residual contamination at SWMU 0-030(m). The confirmatory samples collected beneath the removed piping were analyzed for the appropriate suites (including target analyte list [TAL] metals). Because no leaks from the pipes were evident, the area beneath the unremoved pipe would have similar concentrations of COPCs as was found in the characterized areas under the removed pipe. Therefore, additional sampling in the area where the pipe remains in place is not necessary to assess the potential risk to human and ecological receptors.

The sample in question (sample number RE00-02-45745) collected in 2002 was not a composite sample, was not presented as a composite sample but "a single sample" (page 3-10, Section 3.4.1), and was not used in the risk assessments for this SWMU. The only waste characterization samples collected as composites are those collected from waste containers prior to shipment and after excavation (i.e. roll off bins, etc.) and are not discussed in this report. In this particular instance, a "grab" sample of the pipe contents was collected for waste characterization purposes. However, due to the utility and safety concerns discussed in the next paragraph, further sampling and pipe removal was not possible and the pipe content data were used simply to represent the contents of the pipe that was not removed. These data indicate that the remaining pipe does not contain concentrations of organic chemicals and radionuclides at levels of concern. The analytical results for sample RE00-02-45745 are presented on pages 3-25 (radionuclides) and 3-38 (detected organics); the TCLP results for metals are intentionally not presented with the soils characterization data because these results are not appropriate for use as site characterization data. Although total metals data are not available for the pipe contents, soil concentrations of inorganic chemicals beneath the removed pipe indicate that concentrations do not represent an unacceptable risk. Therefore, because the pipe does not contain COPCs at levels that may pose a potential unacceptable risk, the area under the pipe also does not have concentrations of COPCs that exceed the risk levels. As a result, additional data are not required to characterize the site and conduct the risk assessments.

Although utility and safety concerns prevented the completion of some of the sampling for SWMU 0-030(m) in accordance with the approved plan, the fact remains that the data for the soil beneath the removed pipe did not indicate a release. The analysis of the contents of the removed pipe is

provided to illustrate that the remnant piping does not contain contaminants that pose an unacceptable risk. Further, sampling from beneath the removed piping is representative of the levels of contaminants present beneath the unremoved pipe. These levels indicate that no unacceptable risk is present. The difficulty and risk to site worker health and safety involved in removing the remnant piping or trenching for additional sampling are real and significant, given the utility density and demonstrated unreliability of identified utility locations, with minimal potential benefit (decreased human health or ecological risk).

With respect to the Bureau's note above, the VCA plan did identify this data gap and the intent was to collect this data. However, this could not be safely accomplished due to utility and safety concerns discussed previously. Regardless, it can be reasonably extrapolated from the data that was successfully collected over the several investigations/remediations that this SWMU does not pose an unacceptable risk, and that this conclusion would not be significantly affected, one way or the other, with additional sampling or removal.

NMED Comment

- 3. The Permittees must determine the vertical and lateral extent of contamination at this site before drawing conclusions about risk to human and ecological receptors at this site. Many inorganic constituents were detected above their respective background levels. The deepest sample collected was 6 inches below the ground surface in an area that has been recontoured and regraded in the past. NMED questions whether the samples represent the highest levels of contamination at the site and disagrees that the extent of contamination has been determined. The Permittees shall resample the locations in the VCA Report at depth to determine the extent of contamination.*

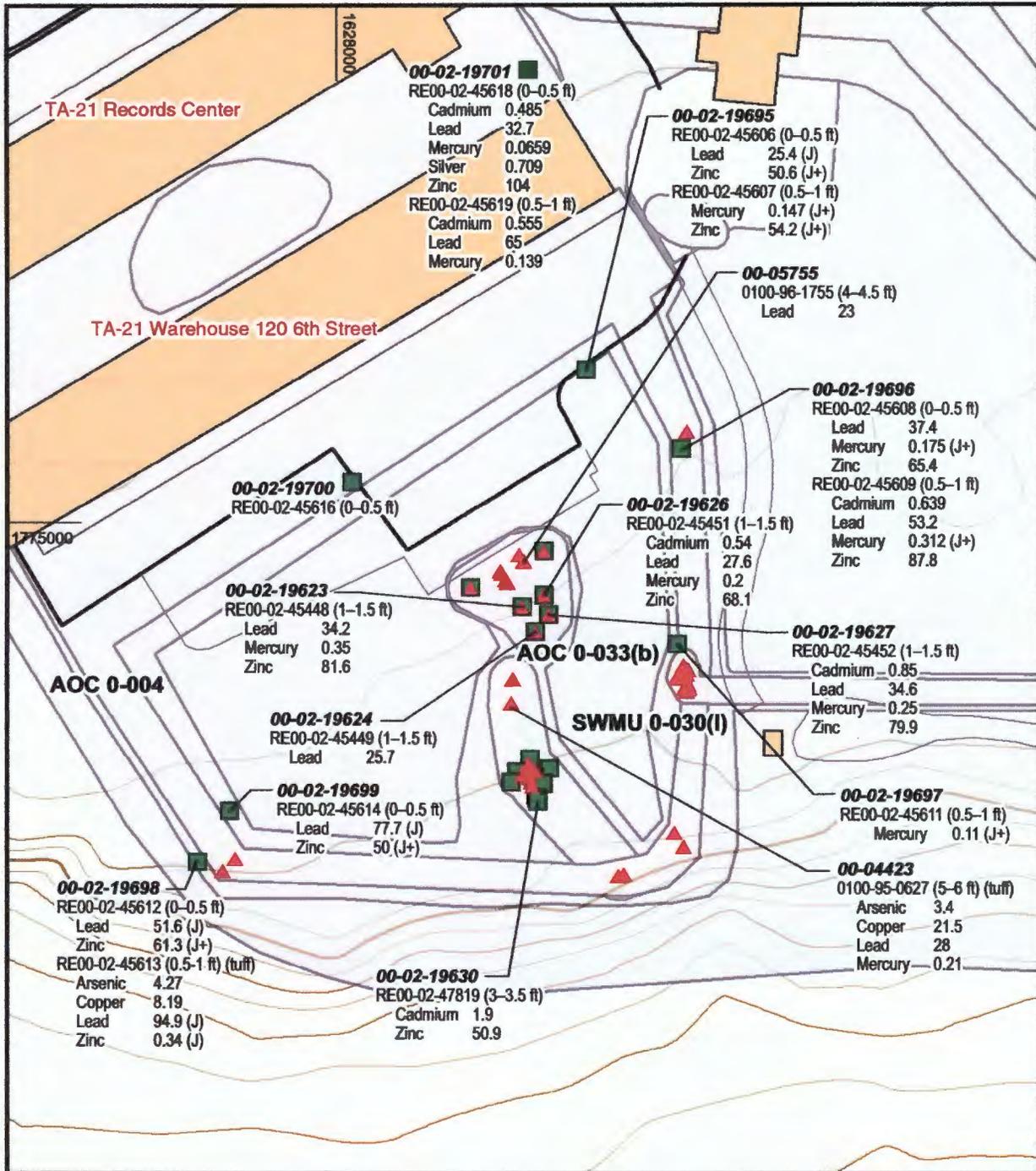
LANL Response

3. Because the source of the contamination is from surface deposition of fallout from stack emissions, the highest concentrations are characterized by the samples collected at and near the surface. Infiltration into the subsurface occurs by diffusion, resulting in a concentration gradient from surface to depth. The semi-arid environment does not promote the infiltration of materials into the subsurface and the concentrations in the subsurface are less than the surface because of the dispersion of materials in the subsurface medium. In addition, the eastern portion of tract A8 was not significantly disturbed by the various developments undertaken in the western half of the tract. Therefore, the risk represented by the surface data reflects the maximum risk expected to be associated with the SWMU.

The entirety of SWMU 21-021 is not, and was not intended to be characterized in this investigation, as noted in the approved work plan (pp E-19) and again in the report (pp 6-1, 6-24, and 6-40) and in the responses to previous HWB comments (T. Taylor 02-03-03 [sic]), but also included again in this response), only the portion of SWMU 21-021 that directly impacts sub parcel A-8 are to be investigated. The characterization of SWMU 21-021 was conducted as an interim action in advance of the site being further disturbed or unavailable for characterization with the remainder of the SWMU. The conclusions are only that this portion of SWMU 21-021, the portion within tract A8, does not pose an unacceptable risk to human health and the environment and that no additional investigation or remediation is warranted in this portion of the SWMU. Despite accomplishing the

sampling described in the approved VCA Plan, the Permittees propose collecting a subset of the 2002 locations that would include 20% (16) locations biased for site coverage and, insofar as possible, towards locations of highest concentrations. For efficiency, this supplemental sampling will be accomplished and reported with that proposed in comments 1, 2, and 3 of the NOD received 3/29/04 entitled "Notice of Deficiency for the Completion Report for the Voluntary Corrective Action at SWMUs 0-030(l), 0-033(a), and AOCs 0-004, 0-010(b), and 0-029(a, b, and c)."

Attachment 1

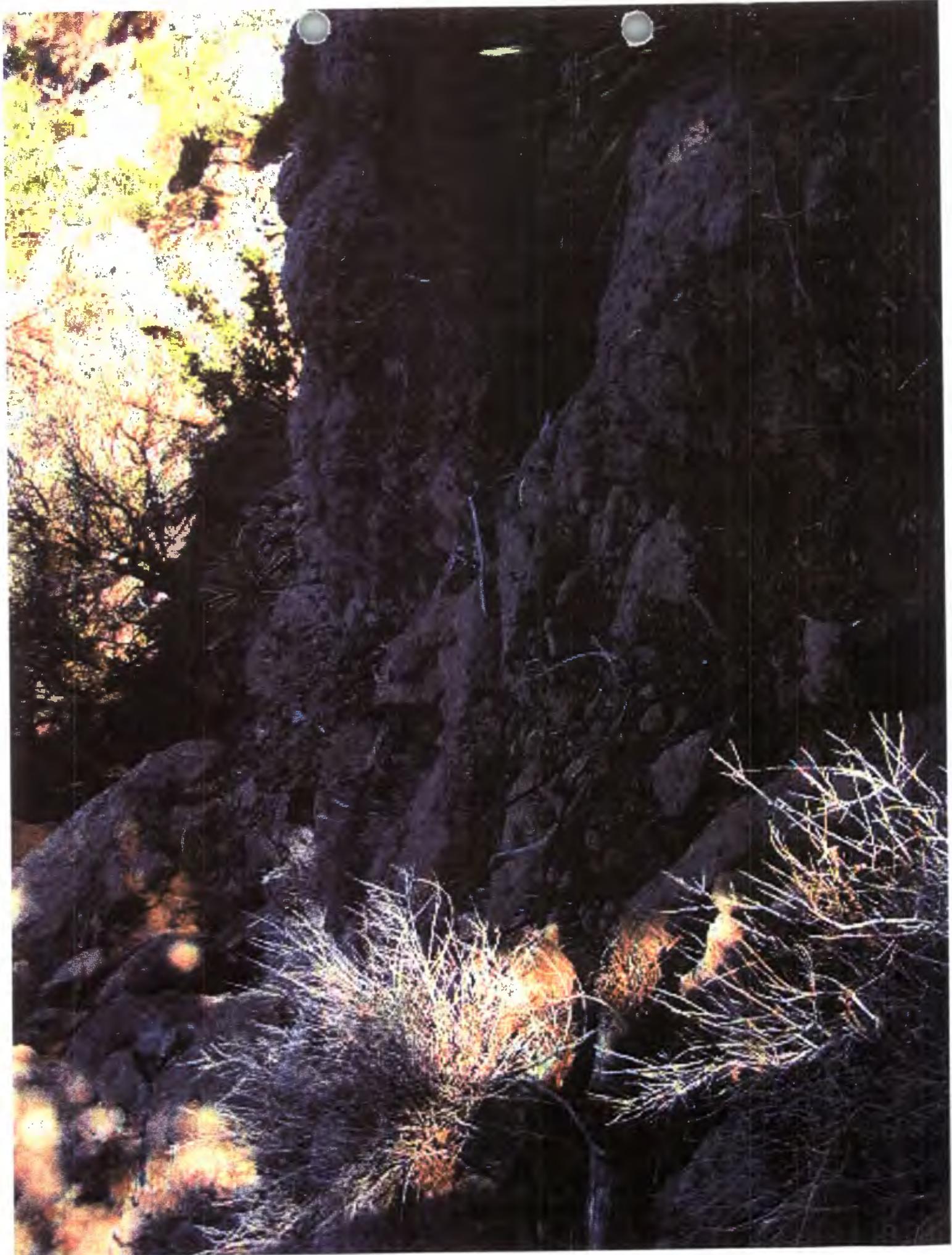


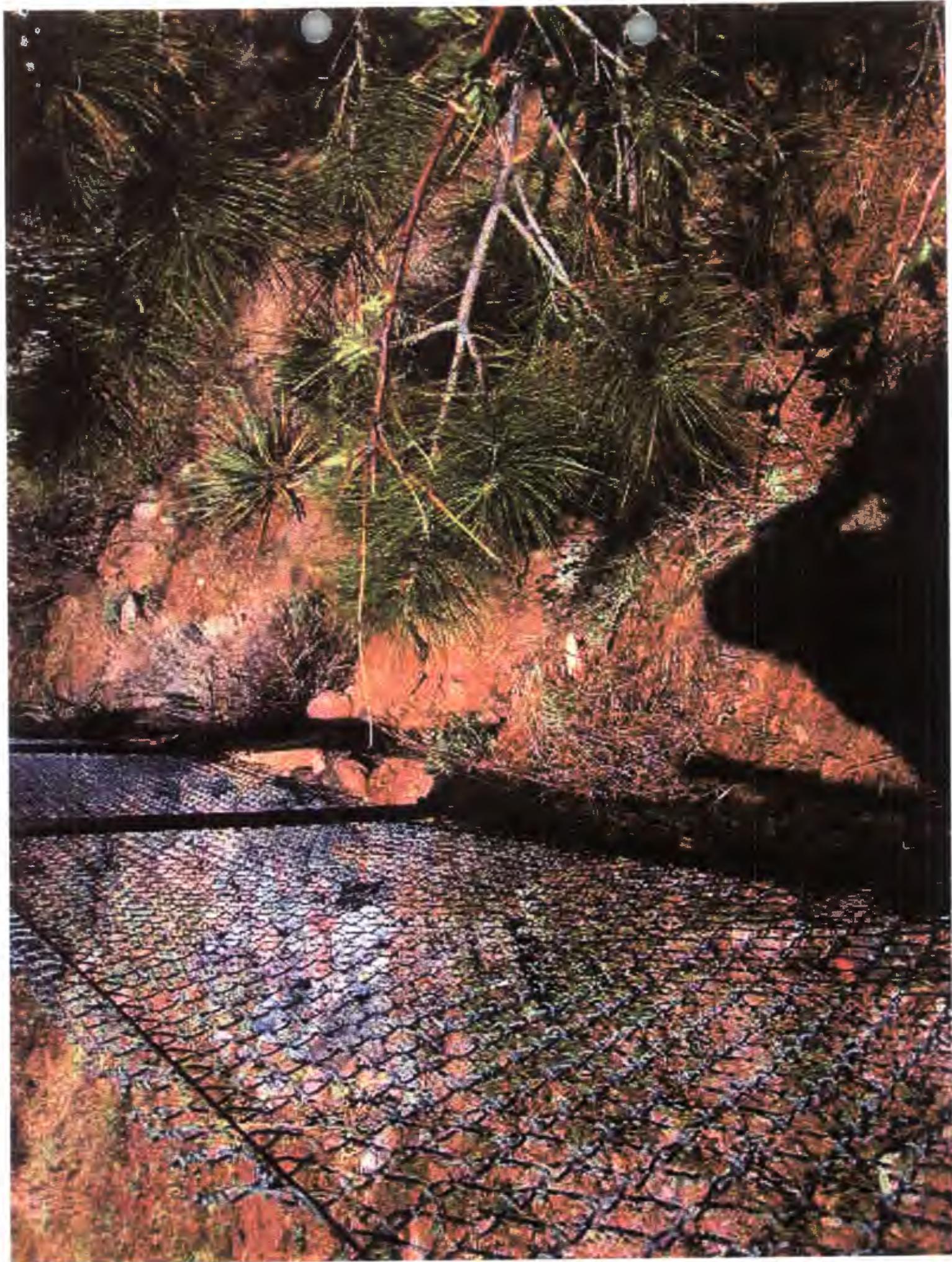
▲ Previous sample location	▭ Paved parking FWO	N	Feet 0 50 100
■ 2002 sample location	▭ Structure		
--- Drainage	▭ AOC/SWMU	Richard E. Kelley, March 19, 2003, rev. April 22, 2003, m200631 modified for DP Road VCA rpt, 081803, modified for DP Road RSI response 040604, ptrn	
— Dirt road FWO	— 10-ft contour		
— Paved road FWO	— 20-ft contour		
— Landscape FWO	— 100-ft contour		

Figure 2.4-2. Inorganic chemicals detected above BVs at AOCs 0-004 and 0-033(b) and SWMU 0-030(I)

Attachment 2







Attachment 3

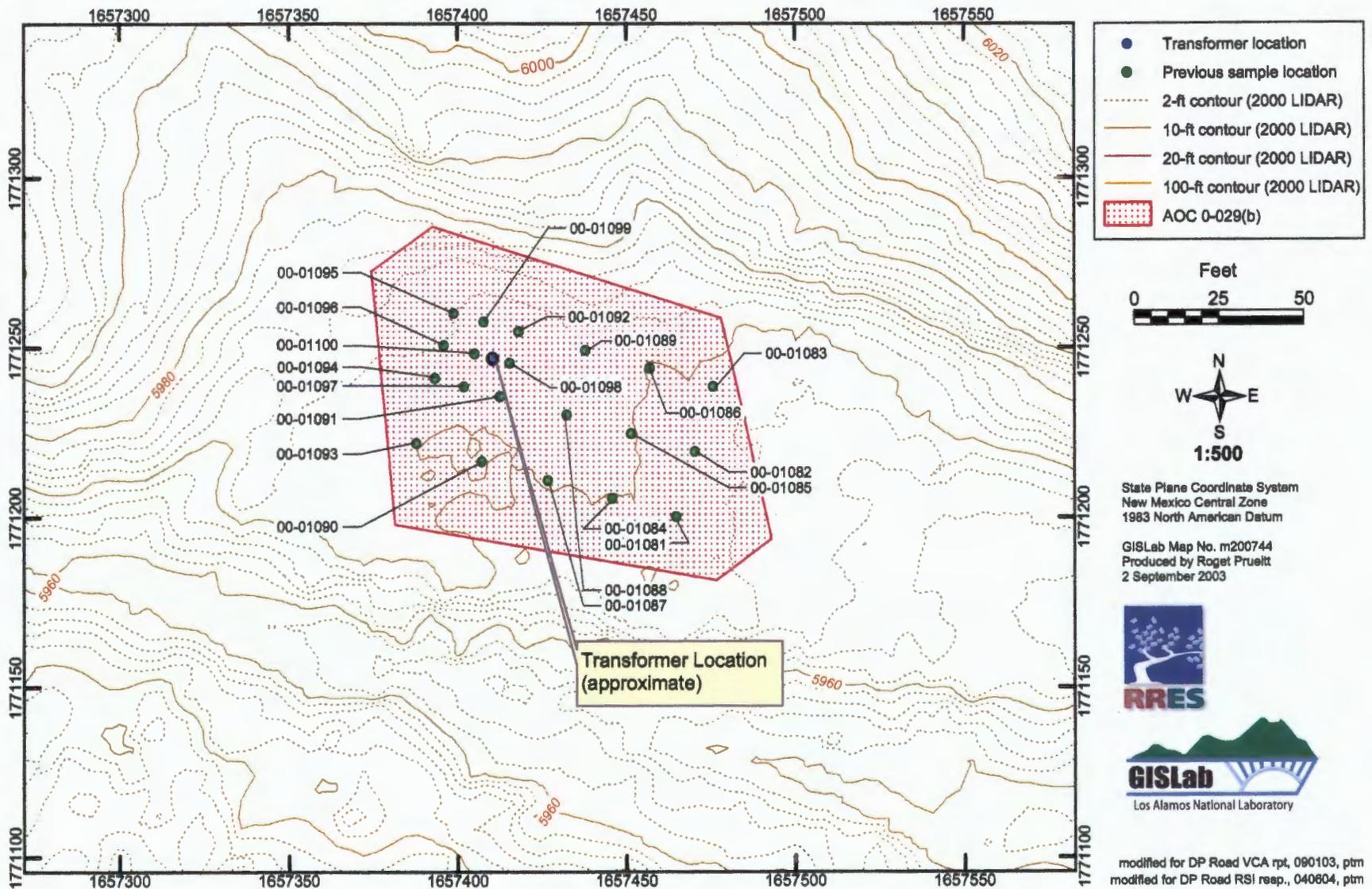


Figure 4.3-2. AOC 0-029(b) previous investigation sample locations

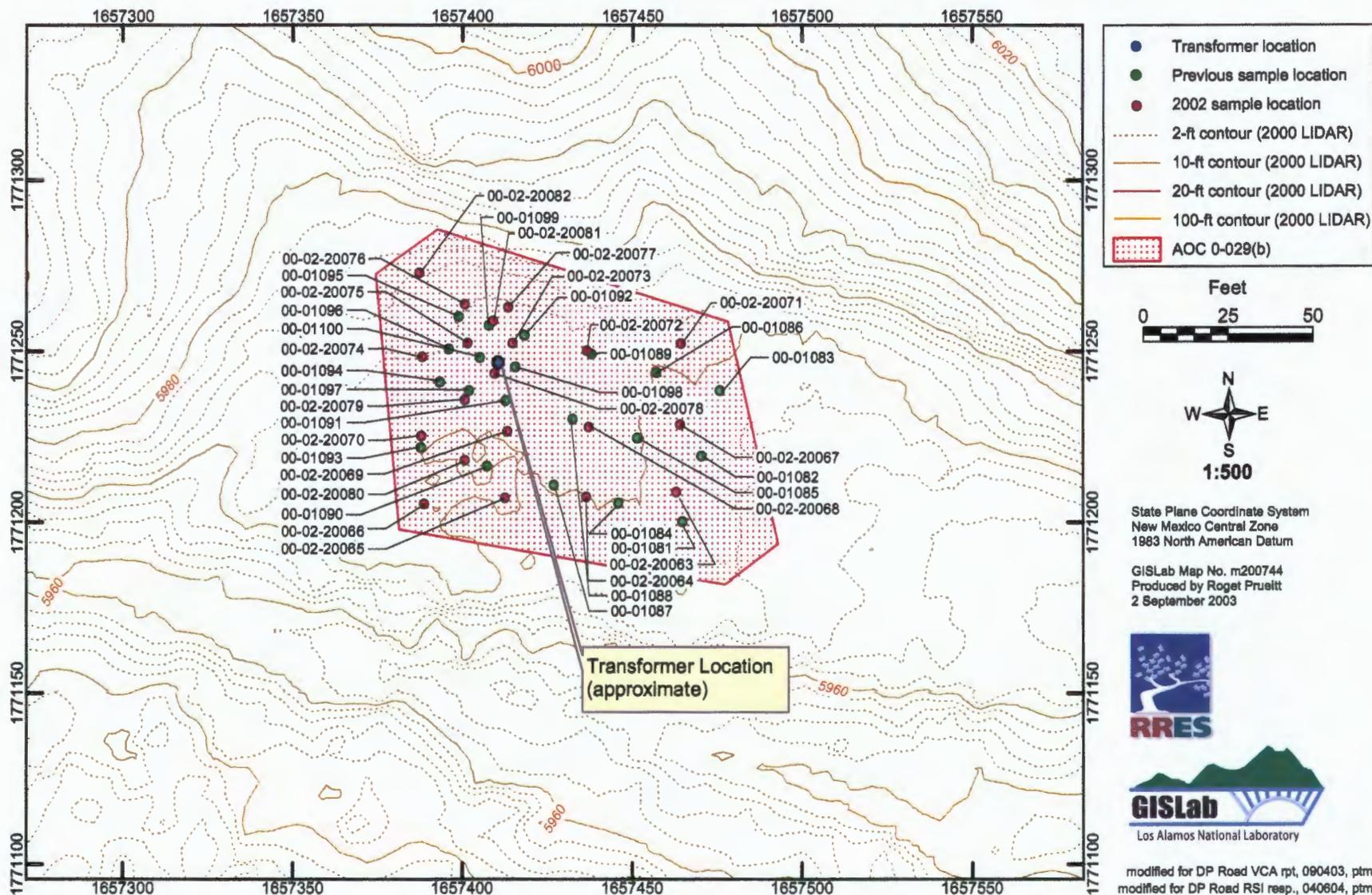


Figure 4.4-2. AOC 0-029(b) RFI and VCA sample locations

Attachment 4

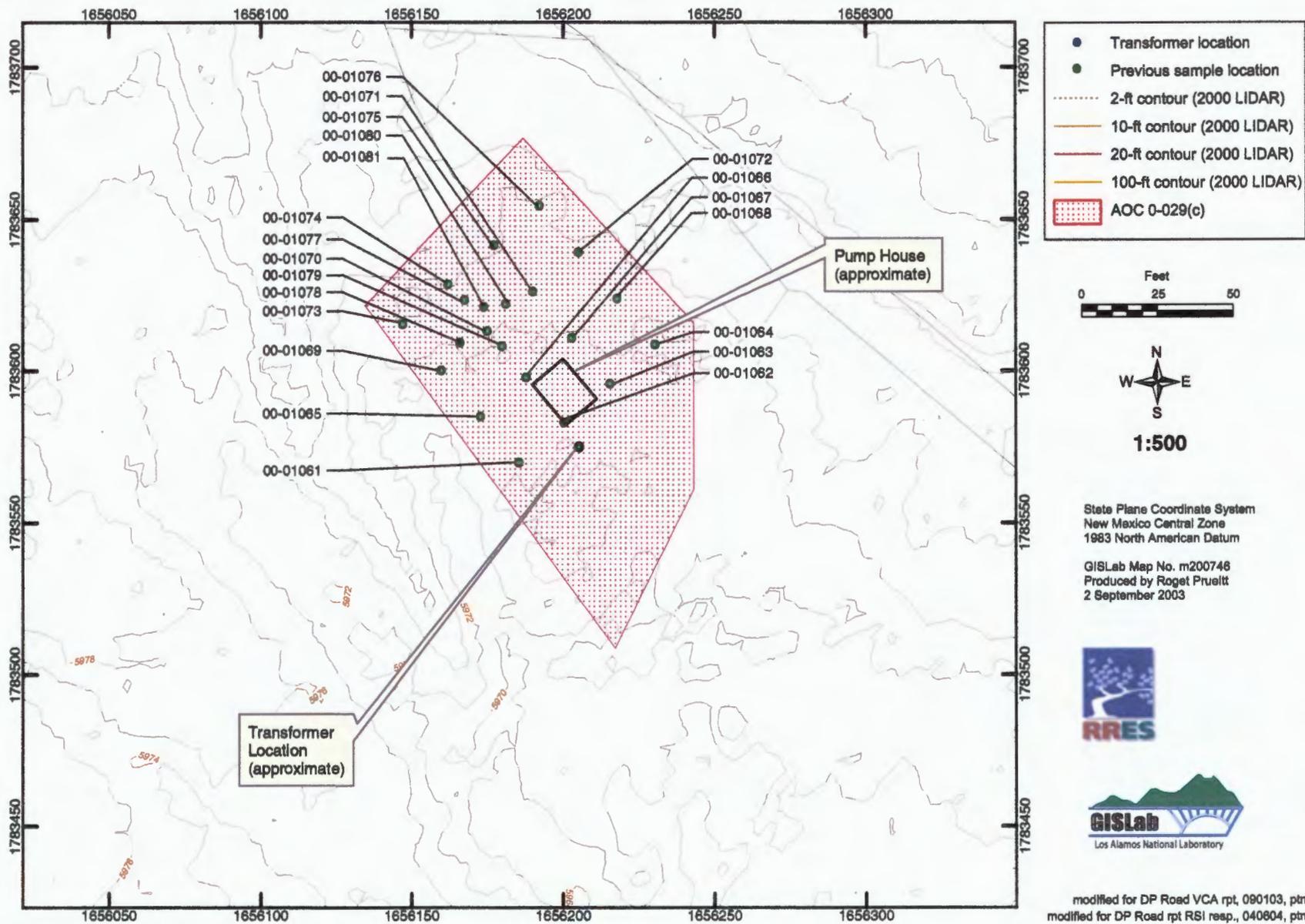


Figure 4.3-3. AOC 0-029(c) previous investigation sample locations

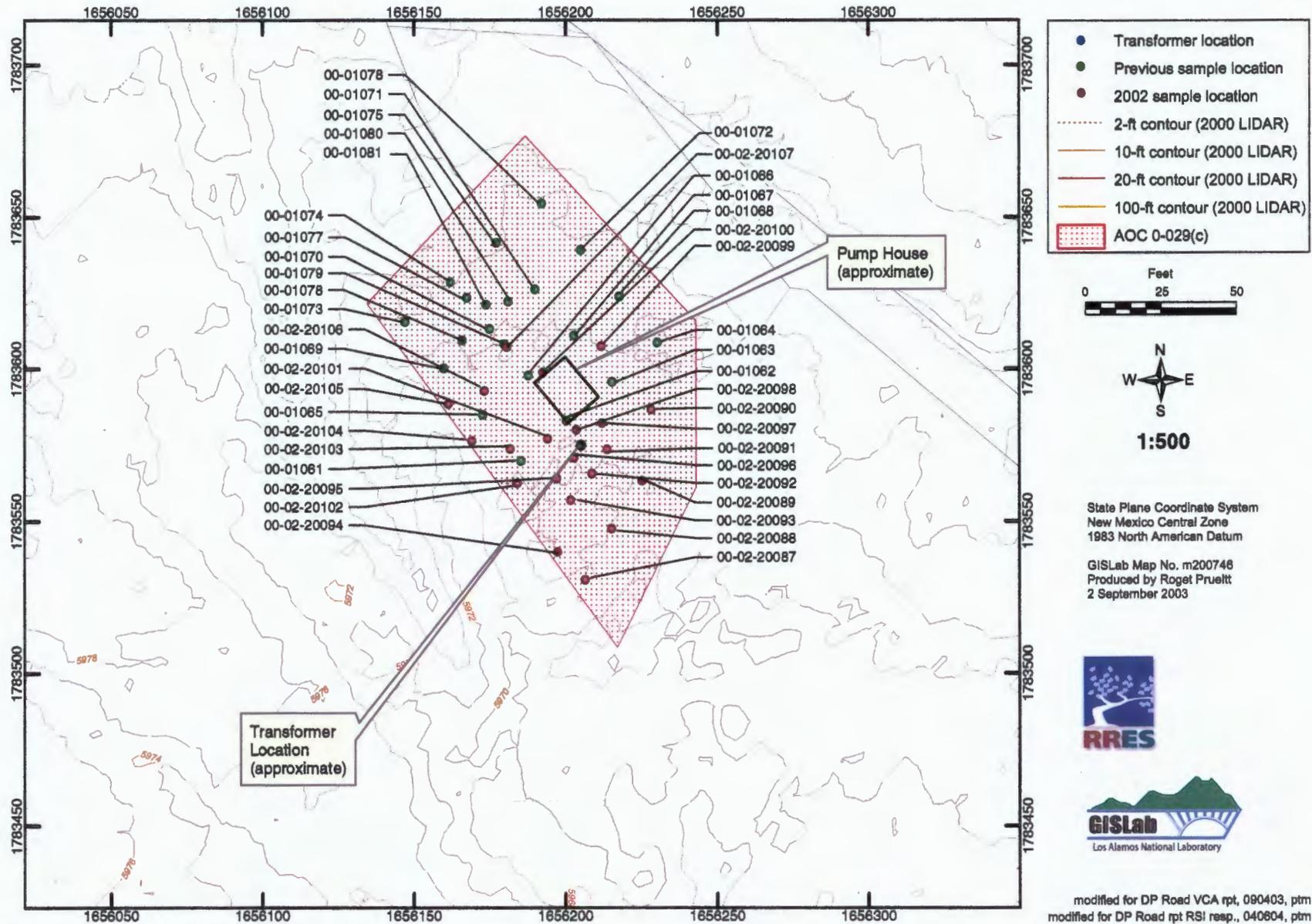


Figure 4.4-3. AOC 0-029(c) RFI and VCA sample locations