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Date: July 17, 2006
Refer to: EP2006-0666

Mr. James Bearzi
NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

SUBJECT: SUBMITTAL OF THE RESPONSE TO THE "NOTICE OF DISAPPROVAL REMEDY COMPLETION REPORT FOR THE INVESTIGATION AND REMEDIATION OF AREA OF CONCERN 03-001(i) AND SOLID WASTE MANAGEMENT UNITS 03-029 AND 61-002"

Dear Mr. Bearzi:

Enclosed please find two hard copies, with electronic files on CD, of the response to the "Notice of Disapproval Remedy Completion Report for the Investigation and Remediation of Area of Concern 03-001(i) and Solid Waste Management Units 03-029 and 61-002."

If you have questions, please contact Melanee Shurter at (505) 667-7369 (mshurter@lanl.gov) or Leonard (Tony) Trujillo at (505) 845-5987 (ltrujillo@doeal.gov).

Sincerely,

Andrew Phelps, Associate Director
Environmental Programs
Los Alamos National Security, LLC

Sincerely,

for

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

5823

AP/DG/MS/jr

Enclosure: Two hard copies with electronic files – Response to the "Notice of Disapproval Remedy Completion Report for the Investigation and Remediation of Area of Concern 03-001(i) and Solid Waste Management Units 03-029 and 61-002" (EP2006-0610)

Cy: (w/enc)
J. Sanders, EP-ERSS, MS M992, (w/CD)
L.T. Trujillo, DOE LASO, MS A316 (w/CD)
S-7, MS F674 (unbound copy)
EP-CAP File, MS M992 (w/CD)
RPF, MS M707 (w/CD)

Cy: (letter and CD)
L. King, EPA Region 6
P. Reneau, EP- ERSS, MS M992

Cy: (w/o enc)
A. Dorries, EP-ERSS, MS M992
G. Dover, EP-CAP, MS M992
D. McInroy, EP-CAP, MS M992
M. Shurter, EP-ERSS, MS M992
C. Mangeng, ADEP, MS J591
A. Phelps, ADEP, MS J591
D. Gregory, DOE LASO, MS A316
T. Skitbiski, NMED OB
IRM-RMMSO, MS A150

Response to the "Notice of Disapproval for the Remedy Completion Report for the Investigation and Remediation of Area of Concern 03-001(i) and Solid Waste Management Units 03-029 and 61-002, at Technical Areas 3 and 61, Los Alamos National Laboratory EPA ID No: NM0890010515, HWB-LANL-03-007," Dated July 11, 2006

INTRODUCTION

This submittal is the response by Los Alamos National Laboratory (LANL or the Laboratory) to the notice of disapproval regarding the "Remedy Completion Report for the Investigation and Remediation of Area of Concern 03-001(i) and Solid Waste Management Units 03-029 and 61-002 at Technical Areas 3 and 61," issued by the New Mexico Environment Department (NMED) Hazardous Waste Bureau on May 12, 2006. LANL submitted the remedy completion report to NMED in December 2005.

To facilitate review of this response, NMED's comments are included verbatim, as presented in the notice of disapproval (NOD). LANL's responses follow each NMED comment. Although a revised report will not be submitted, specific additional information requested by NMED is provided as part of this response. This response contains data on radioactive materials, including source, special nuclear, and by-product material. Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to NMED in accordance with U.S. Department of Energy (DOE) policy.

GENERAL COMMENTS

NMED Comment

1. *(Section 2.0): Figures 4.1-1 through 4.1-5 present the site plan maps and summary data tables for the three sites. Tables 4.1-1 through Tables 4.1-5 also provide a summary of investigation data. The Permittees must revise the Background Section to include references to these Figures and Tables.*

LANL Response

1. In accordance with the annotated remedy completion report format and outline submitted to NMED on August 8, 2005 (LANL 2005, 89553), Section 2.0 of the report contains background information, including the results of previous investigations. The results of sampling performed during the accelerated corrective action (ACA) are presented in Section 4.0, rather than in Section 2.0. Therefore, references to Figures 4.1-1 through 4.1-5 and Tables 4.1-1 through 4.1-5 are not appropriate for Section 2.0, and the report text will not be revised.

NMED Comment

2. *The Report indicates that contaminated soil and tuff were excavated at both AOC 03-001(i) storage areas and SWMU 61-002, but there is insufficient information presented in the report regarding the disposition of other investigation-derived waste (IDW). The Appendix F waste management strategy presented in Appendix F is inadequately referenced and discussed in the Report text. The Permittees must provide a discussion in the Report that explains how IDW was managed stored and disposed. The discussion should also address the disposition of soils removed during soil boring, potholing and trenching.*

LANL Response

2. Waste materials (soil, debris, and investigation-derived waste [IDW]) from all three investigation areas were characterized and disposed of in accordance with the IDW management plan in the original ACA work plan and the waste characterization strategy form developed for these activities. The IDW (e.g., used personal protective equipment, disposable sampling supplies) from each investigation area was stored, managed, and disposed of along with the excavated soils removed from each respective site. The following paragraphs provide information on how the waste management strategy in Appendix F was implemented and includes information on the management, storage, and final disposition for all soils and other IDW.

   Management of Waste Materials. Waste materials (soil, debris, and IDW) were generated during ACA activities at Solid Waste Management Unit (SWMU) 61-002 and Area of Concern (AOC) 03-001(i), Storage Area #1, and AOC 03-001(i), Storage Area #2. In general, in situ soil samples were collected for waste characterization purposes before excavation activities began (i.e., "precharacterization" samples). Excavated soils were direct-loaded for transport to an appropriate authorized disposal facility, based on the waste characterization analytical results. Additional waste materials that were generated after an area of total petroleum hydrocarbons (TPH)-contaminated soil was discovered at SWMU 61-002 were stored and managed on-site until waste characterization was completed. This material had not been precharacterized through in situ sampling and therefore was stored in roll-off containers pending direct waste sample characterization. It was anticipated that this material would be classified as New Mexico Special Waste and disposed of at Rio Rancho; however, trace concentrations of polychlorinated biphenyls (PCBs) were detected in the waste characterization samples, and the waste was ultimately disposed of at Waste Control Specialists located in Andrews County, Texas, as Toxic Substances Control Act (TSCA) PCB remediation waste.

   Precharacterization of Waste Materials: Preremediation waste characterization samples were collected from each SWMU or AOC and were used to determine the preliminary waste type of the soil and debris before they were excavated. These preremediation waste characterization samples were collected using a hand auger or power auger and submitted to a LANL-approved analytical laboratory on a 10-day turnaround. Excavation of soil and debris did not begin until all precharacterization data had been received and the waste documentation approved.

   Disposition of Excavated Soil, Debris, and IDW: Waste materials generated at AOC 03-001(i), Storage Area #1 included TPH-contaminated soil and tuff, debris (asphalt and steel), and IDW. The waste was characterized as New Mexico Special Waste and subsequently was transported and disposed of at the Waste Management Facility in Rio Rancho, New Mexico. Waste materials generated at AOC 03-001, Storage Area #2, included nonhazardous solid waste (soil, debris, and IDW) that was precharacterized and transported directly to the Waste Management Facility in Rio Rancho, New Mexico, for disposal. Waste materials generated at SWMU 61-002 were precharacterized before excavation. The precharacterization sample results indicated low concentrations of PCBs; therefore, the waste streams associated with this investigation were characterized as TSCA-PCB remediation waste. Excavated soil, debris, and IDW were loaded directly for transport and disposal at Waste Control Specialists in Andrews County, Texas. Waste materials associated with an area of TPH-contaminated soil (near the northwest corner of SWMU 61-002) were stored on-site in roll-off bins pending site characterization. Waste materials included TPH-contaminated soil, asphalt debris, steel piping, and IDW, all of which were transported and disposed of at Waste Control Specialists as TSCA-PCB remediation waste.

Potholing was conducted at one of the three investigation areas, AOC 03-001(i), Storage Area #1, to find the lateral extent of TPH-contaminated soil. Pothole locations containing contaminated soil were added to other contaminated soils that were removed and direct-loaded for disposal at Rio Rancho as New Mexico Special Waste. Soil excavated from potholes showed no signs of contamination (based on field screening and visual inspection) was immediately returned to the pothole.

Note: When the remedy completion report was originally submitted, five roll-off containers of waste (soil and debris) were staged on-site awaiting waste characterization at SWMU 61-002. The waste was ultimately transported to Waste Control Specialists and disposed of as TSCA-PCB remediation waste. Copies of these waste manifests not included in Appendix F of the remedy completion report are provided with this submittal as Attachment 1. The final approved copies of all waste profile forms are also provided in Attachment 1.

NMED Comment

3. The Report does not present any drawings illustrating the vertical and horizontal dimensions of the soil excavations conducted at AOC 03-001(i) Storage Areas 1 and 2 and SWMU 61-002. The Permittees must provide a figure(s) depicting the excavated areas.

LANL Response

3. A note has been added to the legends of Figures 2.1-1, 2.1-2, and 2.1-4 stating the dimensions of the final excavated area for SWMU 61-002 and AOC 03-001(i), Storage Areas #1 and #2. The excavated areas in each of these figures are also depicted by either dashed lines or cross-hatching. Copies of the revised figures are provided in Attachment 2.

NMED Comment

4. (Section 3.1.1): The second paragraph indicates that headspace measurement of VOCs was conducted after the sample was placed in a closed container for 10 minutes. In Table 3.0-1, the section entitled "Headspace Vapor Screening" indicates the sample was allowed to equilibrate for 5 minutes prior to headspace measurement for VOCs. The Permittees must explain why there is a difference in equilibration time between the two discussions of headspace screening methodology or correct the incorrect statement.

LANL Response

4. Table 3.0-1 summarizes the investigation methods used during the ACA. Field screening for vapors in headspace was performed in accordance with LANL Standard Operating Procedure (SOP) 06.33, which requires that samples be placed in a closed container and allowed to equilibrate for at least 5 min before making the measurement. The text in Section 3.1.1 describes the field activities conducted at AOC 03-001(i), Storage Area #1. In this case, the field team allowed the samples to equilibrate for 10 min (longer than the minimum 5 min), which conforms with the SOP instructions.

NMED Comment

5. (Section 3.1): Section 3.1 indicates the Standard Operating Procedure SOP 01.08, Field Decontamination of Field drilling and Sampling Equipment, was used during sampling. The descriptions of decontamination activities presented in Section 3.11, 3.12 and 3.14, however, raise questions regarding the exact protocol used during each sampling event. The last paragraph of

Section 3.1.1 states that a dry decontamination procedure was used to clean the core barrel, associated sampling equipment and hollow stem auger sections, but no further discussion is provided. Section 3.1.2 indicates that the decontamination was conducted in accordance with Standard Operating Procedure SOP 1.08, but it is not clear whether a dry decontamination protocol was followed. Section 3.1.4 states that all sampling equipment was decontaminated after each use, but the procedure is not discussed or referenced. Also, Table 3.0-1 provides a description of a dry decontamination procedure, but it does not reference SOP 01.08; it discusses optional activities that allow for inconsistencies in the decontamination procedure. In accordance with Section IX.A of the Consent Order, the Permittees must provide a detailed description of the exact protocol for the decontamination procedure used at AOC 03-001(i) (both storage areas).

LANL Response

5. All decontamination was done using dry decontamination methods. The text currently in Table 3.0-1 summarizes the decontamination procedures in SOP-01.08, "Field Decontamination of Drilling and Sampling Equipment," which allows for the optional use of wet decontamination methods, although these methods were not used during the ACA. Specific references to SOPs have not been included in Table 3.0-1 because NMED previously requested that all references to SOPs be removed from the summary of methods tables. The exact protocols for the decontamination procedures used during the ACA activities are described in the following paragraph.

   All decontamination conducted during the SWMU 61-002 and AOC 03-001(i) investigations was conducted using dry methods, as described in SOP-01.08. The decontaminated sampling equipment included stainless-steel hand augers, spades, scoops, mixing bowls, drill stems, core barrels, and the backhoe bucket that was used for sampling. After each sample was collected, excess soil was removed from the sampling equipment, which was then wiped down with dry paper towels. Fantastik spray cleaner was used in circumstances where a little moisture was needed. During sampling activities, all soil collected was in a dry state, which is essential for conducting dry decontamination. All paper towels used for decontamination were added to the IDW stream for off-site disposal.

NMED Comment

6. *(Section 4.1.2): The second paragraph of Section 4.1.2 states, "Post excavation samples were not analyzed for inorganic chemicals since the results obtained from the preexcavation samples indicated that inorganic chemicals were COPCs [chemicals of potential concern] (see section 4.1.2.1 below)." In reviewing the reference Section 4.1.2.1, barium was noted to exceed background concentrations and a decrease in concentration with depth was not noted. Lead concentrations were noted to decrease with depth. While NMED acknowledges that the concentrations of lead and barium are within residential soil screening levels, the Permittees must demonstrate that the cumulative risk does not exceed the HI of 1 and 10^{-5} for carcinogens while incorporating these inorganic metals in risk calculations.*

LANL Response

6. The barium and lead concentrations were not retained as chemicals of potential concern (COPCs) at Storage Area #1 because, as stated in Section 4.1.2.1, the area where the inorganic chemicals were detected was excavated to 10 ft below ground surface (bgs), more than 3 times deeper than the depths at which barium and lead were detected. Therefore, no exposure to the concentrations is reported, and barium and lead cannot be included in the risk assessment. There are no risk estimates for an industrial receptor at Storage Area #1 because the top 10 ft of contaminated soil was removed

and replaced with clean fill. No cancer risk estimates are available for a construction worker at Storage Area #1 because no carcinogenic COPCs were detected.

NMED Comment

7. *(Section 4.1.3): Section 4.1.3, AOC 03-001(i), Storage Area #2: The postexcavation sampling detected concentrations of inorganics above established background concentrations in the tuff for barium and nickel. Only four feet of surface soil was removed at Storage Area #2, which was reportedly the grade of the road that will be constructed through the area. The Permittees must explain how the depth of soil removal was determined, particularly when confirmation sampling indicated the continued presence of inorganic COPCs at Storage Area #2.*

LANL Response

7. The depth of soil removal at AOC 03-001(i), Storage Area #2, was determined through surveying the AOC boundary and comparing those elevations with the final grade elevations specified in the Security Perimeter Road construction plans. It was determined that the final construction grade was approximately 4 ft lower than the existing AOC elevation.

   Once excavation activities were completed, confirmation samples were collected from the base of the excavation area. Field screening for inorganic chemicals was not conducted. Low-level inorganic chemicals above background value (BV) were detected in the confirmation samples; however, the concentrations were within the range of background concentrations (LANL 1998, 59730).

NMED Comment

8. *An evaluation of the potential for contaminants to migrate to groundwater was not provided with this report. In reviewing the exposure point concentrations for AOC 03-001(i) Storage Area 1 and for SWMU 61-002 it was noted that several constituents had concentrations greater than the soil screening level (SSL) based on a dilution attenuation factor (DAF) of 20. For example, 2-mehtylnapthalene, naphthalene and 1,3,5-trimethylbenzene exceeded the DAF 20 SSL at Storage Area 1. At SWMU 61-002, 2-trimethylbenzene, naphthalene, toluene, 1,3,5-trimethylbenzene, and 1,2,4-trimethybenzene exceeded the 20 DAF SSLs. The Permittees must evaluate the potential for migration of site contaminants to groundwater and include a comparison to the DAF 20 SSLs as appropriate.*

LANL Response

8. COPC concentrations were not screened to the dilution attenuation factor (DAF) or DAF 20 soil screening levels (SSLs). The assumptions under which the DAF and DAF 20 SSLs were calculated include the presence of an infinite source and a uniform contamination distribution from the surface to the water table. These assumptions would not apply to the sites investigated as demonstrated by the sample results because contaminant concentrations extend to a fraction of the thickness of the vadose zone. Other assumptions of no attenuation in soil and receptor well (point of exposure) at the downgradient edge of the source are also not applicable for the sites. In addition, the maximum detected concentrations are not used because the contaminants are either not detected or are detected at lower concentrations in deeper samples than the maximum values. Also, the DAF 20 SSLs were developed to be protective of a 0.5-acre source area. Therefore, comparisons should be made with concentrations that are representative of a source area of that size, not of the maximum concentration. Finally, the DAF is probably much greater

than 20 because the infiltration rate to the aquifer is much less than the 0.13-m/yr value used to calculate the SSLs.

A comparison to these screening levels is not relevant for the sites evaluated and is not necessary to support the conclusion that the potential for migration to groundwater is very low. The low potential for migration is based on the low availability of moisture, the absence of an active source of contamination, and the relative depth between detected contamination and groundwater.

The COPCs above the DAF 20 SSLs at Storage Area #1 that are mentioned in the comment were not detected in deeper samples in the same borehole (i.e., are not migrating vertically to groundwater). The COPCs at SWMU 61-002 that exceed DAF 20 SSLs are all decreasing with depth in the deepest borehole and are within the area that will be characterized and remediated further as recommended in the report. Therefore, the concentrations do not represent final site conditions.

The potential for movement to groundwater is considered in the fate and transport section included in Section D-3 of Appendix D, which summarizes the potential mobility of COPCs, the potential for COPCs to partition or adsorb to soil/tuff, and physical/chemical properties such as water solubility and vapor pressure.

The primary factor that is important with respect to the potential for COPCs to migrate to groundwater is the presence of saturated conditions. Downward migration in the vadose zone is also limited by a lack of hydrostatic pressure as well as the lack of a source for the continued release of contamination. Without sufficient moisture and a source little or no potential migration of materials occurs through the vadose zone to groundwater.

Contamination at depth is addressed in the discussion of nature and extent. The deepest samples were collected from 17.5 ft and 19.5 ft at SWMU 61-002 and from 12.3 ft at AOC 03-001(i), Storage Area #1. Results from the deepest samples collected showed either no detected concentrations of COPCs or low- or trace-level concentrations of only a few inorganic and organic COPCs in tuff. Also, no source(s) continues to release contamination into the subsurface beneath the sites, except for the TPH-contaminated area still undergoing investigation and remediation. Because vertical extent is defined and limited spatially for both storage areas at AOC 03-001(i) (except for the area at SWMU 61-002 that is still undergoing investigation and remediation), no migration to groundwater is apparent. The limited extent of contamination is related to the absence of the key factors that facilitate migration presented in the previous paragraph. Given how long the contamination has been present in the subsurface, the information in the fate and transport section related to soil/tuff partitioning, water solubility, vapor pressure, the lack of a source for continued releases into the subsurface, and the absence of saturated conditions (low percent moisture), the potential for contaminant migration to groundwater is very low.

NMED Comment

9. *Inorganic COPCs were excluded from the risk analysis if they were only detected in a few samples and at concentrations slightly greater than background. The rationale provided was that these constituents were not reflective of site contamination. While this assumption is most likely valid and the inclusion of these metals would most likely not impact the overall conclusion of the risk assessment, a site attribution analysis comparing the background data set to the site data set (e.g., Wilcoxon Rank Sum Test) should have been conducted to verify this assumption. The*

Permittees must provide a site attribution analysis to justify the exclusion of COPCs in the risk assessment.

LANL Response

9. The rationale for excluding inorganic COPCs in the risk assessment is the low-level detections that probably do not reflect the actual site conditions. Statistical tests and comparisons to background were not conducted for the reasons discussed below.

   Concerning Storage Area #1, barium and lead were detected at 1.5 ft bgs to 3 ft bgs in the area excavated to 10 ft bgs. Therefore, these two inorganic chemicals were eliminated as COPCs because the soil in which they were detected is no longer present (see response to Comment #6). As stated in Section 4.1.2.1, no inorganic chemicals above background were reported in the sampling location outside of the excavated area (03-24502). Therefore, statistical tests comparing background data and site data are not possible.

   For Storage Area #2, statistical comparisons of the inorganic chemicals above BVs cannot be done because only four tuff samples are in the site data set. With so few samples of tuff collected, the power of the tests to detect a difference is too low and will not provide a reasonable comparison. In addition, the tuff BVs for antimony and selenium do not have associated data sets to statistically compare with site data. It is not necessary to do a statistical comparison of background data with site data if all of the site concentrations fall within the range of background concentrations used to calculate the BV. This approach has been presented in past reports and has been approved by NMED. Box and whisker plots showing the distributions of site and background concentrations for cadmium and zinc in soil and arsenic, chromium, and vanadium in tuff are provided in Attachment 3 to illustrate the similarity in distributions.

   Because statistical comparisons for aluminum, antimony, beryllium, nickel, and selenium in tuff could not be performed, other less quantitative reasons were given to explain why these inorganic chemicals were not COPCs (i.e., only detected in one or two samples above BV), the concentrations were less than twice the BV or the maximum background concentration, and detections appeared to be random and inconsistent with an operational release.

   As stated in the comment, the assumption that these inorganic chemicals were not reflective of site contamination is probably valid. The exclusion of these inorganic chemicals does not affect the industrial assessment because the concentrations were below 1 ft bgs. Using maximum detected concentrations rather than a 95% UCL for the inorganic chemicals, the hazard index (HI) for a construction worker increases to approximately 1.2, and the HI for a resident increases to 0.4. These results are not indicative of a potential risk and would be lower (HI <1.0 for construction worker) if 95% UCLs were used in the screening comparisons.

   At SWMU 61-002, a statistical comparison of background data with site data is not necessary if all the site concentrations fall within the range of background concentrations used to calculate the BV. This approach has been presented in past reports and has been approved by NMED. Box and whisker plots showing the distributions of site and background concentrations for aluminum, beryllium, cadmium, and nickel in soil and nickel in tuff are provided to illustrate the similarity in distributions (Attachment 3).

   The tuff BV for antimony does not have an associated data set to statistically compare with site data. Because no statistical comparisons for antimony were performed, a less quantitative reason was

given for excluding antimony as a COPC (i.e., its concentrations [detection limits] were less than twice the BV [maximum detection limit of 0.63 mg/kg compared with a tuff BV of 0.5 mg/kg]).

NMED Comment

10. *A depth of 20 feet below ground surface was applied to the exposure interval for the construction scenario. The depth was assumed because the depth of construction excavations required for the construction of the perimeter road was not known. However, it seems unlikely that this is an overestimate of the excavation depths required for road building. There is also concern that use of a larger soil interval results in a lower exposure point concentration, and thus less conservative assessment of risk to the construction worker (It is noted in Section D-1.3.2 of the Report that this interval represents a conservative approach). The Permittees must discuss the trend of contaminant concentrations with depth and discuss why the 20-foot exposure interval is considered "conservative".*

LANL Response

10. The overall trend in concentrations with depth is discussed in Sections 4.1.2.3, 4.1.3.3, and 4.1.4.3 of the report. The COPC concentrations generally decrease with depth or show trace levels (below or near the estimated quantitation limits) at depth. This finding is also true in the area of TPH contamination at SWMU 61-002, although the investigation of this SWMU is not yet completed.

    At Storage Area #1, the 0–20-ft bgs interval for evaluating potential construction worker risk is conservative because it includes more COPCs than the residential assessment. The residential assessment for this area has only 2 COPCs (acetone and methylene chloride) in the 0–12-ft interval, while the construction worker has 16 COPCs in the 0–20-ft interval. The 0–20-ft interval also includes the maximum detected concentrations for all COPCs, except acetone and methylene chloride. Inclusion of deeper samples will not substantially change the exposure concentrations or the associated risk to the construction worker. The sample concentrations below 20 ft bgs at locations 03-25164 decrease from the maximum detected concentrations at 14.5 ft bgs to either nondetects or trace levels.

    Storage Area #2 does not have samples collected below 4 ft, so exposure to the construction worker includes all COPC concentrations reported. The exposure concentrations are therefore the same as those used for the residential exposure.

    At SWMU 61-002 the 0–20-ft bgs interval for evaluating potential construction worker risk is conservative because it includes all the samples collected for the investigation. Only five additional samples are collected from below 12.5 ft that are included in the construction worker exposure concentration calculations. Lead at location 61-24352 is the only inorganic COPC detected above the soil BV in samples below 6 ft bgs at SWMU 61-002. Several organic COPCs were detected in the deeper samples (from 12.5 ft to 19.5 ft bgs).

    The table below summarizes the exposure concentrations for construction worker (0–20 ft) and residential (0–12 ft) and the differences between these concentrations. The maximum difference between 95% upper confidence limits was slightly over 2 mg/kg for the inorganic COPCs (barium and zinc), with most inorganic COPC exposure concentrations differing by approximately 0.1 mg/kg or less. The exposure concentrations for 20 organic COPCs are maximum detected concentrations and are the same for both the construction worker and residential receptors. The exposure concentrations for 20 other organic COPCs differ by less than 1 mg/kg (three concentrations are higher for construction worker exposure than for residential exposure) and the remaining four organic COPC

concentrations differ by less than 6 mg/kg (all concentrations are higher for residential receptors than for construction workers). Based on this comparison, approximately 25 COPCs have slightly lower exposure concentrations for the construction worker compared with the residential exposure concentrations. However, the additional five samples for the 0–20-ft sample interval used for construction worker exposure does not substantially change the exposure concentrations or the potential risk estimates.

Table 1
Comparison of Exposure Concentrations for SWMU 61-002

COPCs	Construction Worker Exposure Concentrations (mg/kg)	Residential Exposure Concentrations (mg/kg)	Difference (mg/kg)
Barium	157.45	155.2	2.25
Cobalt	3.82	3.96	0.14
Copper	6.21	6.34	0.13
Lead	14.11	13.98	0.13
Mercury	0.17	0.18	0.01
Selenium	0.41	0.42	0.01
Zinc	66.6	68.97	2.37
Acenaphthene	0.16 (max)	0.16	0
Acetone	0.84	0.83	0.01
Anthracene	0.3 (max)	0.3	0
Aroclor-1254	0.78	0.83	0.05
Aroclor-1260	0.14	0.15	0.01
Benzene	1.74	1.8	0.06
Benzo(a)anthracene	0.47	0.48	0.01
Benzo(a)pyrene	0.47	0.48	0.01
Benzo(b)fluoranthene	0.39 (max)	0.39	0
Benzo(k)fluoranthene	0.47	0.48	0.01
Benzo(g,h,i)perylene	0.34 (max)	0.34	0
Benzoic acid	0.28 (max)	0.28	0
Bis(2-ethyhexyl)phthalate	0.48	0.49	0.01
2-Butanone	0.17 (max)	0.17	0
n-Butylbenzene	0.00054 (max)	0.00054	0
Butyl benzyl phthalate	0.31 (max)	0.31	0
Chlorobenzene	0.13 (max)	0.13	0
Chloroethane	0.23 (max)	0.23	0
Chloromethane	0.23 (max)	0.23	0
Chrysene	0.47	0.49	0.02
1,2-Dibromo-3-chloropropane	0.0015 (max)	0.0015	0
1,2-Dichlorobenzene	0.066 (max)	0.066	0
1,4-Dichlorobenzene	0.069 (max)	0.069	0
cis/trans-1,2-Dichloroethene	0.0047 (max)	0.0047	0

COPCs	Construction Worker Exposure Concentrations (mg/kg)	Residential Exposure Concentrations (mg/kg)	Difference (mg/kg)
Di-n-octylphthalate	0.075	0.48	0.41
Ethylbenzene	14.65	15.5	0.85
Fluoranthene	0.5	0.52	0.02
Fluorene	0.16 (max)	0.16	0
2-Hexanone	0.047 (max)	0.047	0
Indeno(1,2,3-cd)pyrene	0.37 (max)	0.37	0
Isopropylbenzene	0.65	0.67	0.02
4-Isopropyltoluene	0.35	0.22	0.13
Methylene chloride	0.39	0.0098	0.38
2-Methylnaphthalene	15.2	15.9	0.7
Naphthalene	82.38	87.5	5.12
Phenanthrene	0.5	0.51	0.01
n-Propylbenzene	3.51	3.68	0.17
Pyrene	0.49	0.51	0.02
Styrene	0.12 (max)	0.12	0
Tetrachloroethene	0.011 (max)	0.011	0
Toluene	24.07	25.5	1.43
1,2,4-Trimethylbenzene	40.28	42	1.72
1,3,5-Trimethylbenzene	13.96	14.4	0.44
Xylenes	56.48	59.1	2.62

NMED Comment

11. *The hazard quotient (HQ) was calculated for lead and this HQ was incorporated into the hazard index (HI). This is not correct methodology. Lead is evaluated by relating soil lead intake to blood level concentrations. As such, lead should be evaluated individually and a HQ should not be calculated for this constituent. The permittees must revise the risk table to remove the calculation of a HQ for lead and revise all subsequent HIs.*

LANL Response

11. The screening process involves the comparison of COPC exposure concentrations with their respective SSLs for a given scenario. Lead has SSLs from both NMED and U.S. Environmental Protection Agency (EPA) Region 6, which are based on the blood lead level of 10 µg/dL for residential, industrial worker, and construction worker exposures using the Integrated Exposure Uptake Biokinetic model. These SSLs were calculated to compare with soil concentrations and to determine if the blood lead level is greater than 10 µg/dL for a receptor. A comparison of site concentrations with these screening levels using the ratio or hazard quotient (HQ) approach as the initial step is therefore warranted and appropriate in the screening assessment and is consistent with the use of screening levels as specified in NMED and EPA screening guidance and the Consent Order. The HQ for lead is an indication of whether the blood lead level criterion is exceeded for a

given scenario. Inclusion of the lead HQ in the derivation of an HI is also appropriate for a screening assessment. As long as the HQ and HI are less than 1.0, the blood lead level of 10 µg/dL is not exceeded, and no additional evaluation is necessary. If the HQ for lead exceeds 1.0, then the blood lead level is greater than 10 µg/dL, and corrective action may be warranted. If the HI exceeds 1.0 and lead was a major contributor, separate evaluation of the blood lead level may be warranted in the uncertainty analysis. If the HI without lead does not exceed 1.0 and the lead level is less than the SSL (blood lead level of 10 µg/dL is not exceeded), no corrective action is necessary. For the sites in this report, lead concentrations did not exceed the SSLs and did not substantially contribute to the HI (HQs less than 0.1). Therefore, no revision to the risk assessments and the tables is warranted.

REFERENCES

LANL (Los Alamos National Laboratory), September 22, 1998. "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory," Los Alamos National Laboratory document LA-UR-98-4847, Los Alamos, New Mexico. (LANL 1998, 59730)

LANL (Los Alamos National Laboratory), August 8, 2005. "Proposed Format for Remedy Completion Reports for Accelerated Corrective Actions," Los Alamos National Laboratory letter to J. Bearzi (NMED) from D. McInroy (ENV-ERS) and D. Gregory (DOE), Los Alamos, New Mexico. (LANL 2005, 89553)

Attachment 1

Response to General Comment #2

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. Box 13087
Austin, Texas 78711-3087

06-91104

Bin. 0209.12
9193

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Form approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: NM 0890010515
Manifest Document No.: 06313
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: UofCA LANL for US DOE, Los Alamos National Laboratory, P.O. Box 1663, MS J595, Los Alamos, NM 87545
4. Generator's Phone ( )

A. State Manifest Document Number: 3641223
B. State Generator's ID: 00035

5. Transporter 1 Company Name: Lutrel Trucking Inc
6. US EPA ID Number: KAD053005699
C. State Transporter's ID: 66157016
D. Transporter's Phone: 505 ... 2246

7. Transporter 2 Company Name
8. US EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address: Waste Control Specialists, 9998 Highway 176 West, Andrews County, TX 79714
10. US EPA ID Number: TXD988088464
G. State Facility's ID: 50358
H. Facility's Phone: (505) 394-4300

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
	a. ~~PCB Waste~~ (WW 03-30-06) Poly Chlorinated Biphenyls Solid, 9, UN3432, PG II	1	CM	~~9,109~~ 12026	~~K~~ P	02-23-06 OUTS 3941
	b.					
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above
1/a C06184472
WP-019406, OSD 8/30/05

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Emergency Phone No: (505) 667-6211

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
Deborah Wayman	[signature]			06

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Robert Bond	[signature]	02	21	06

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space: Changes to manifest OK per Victoria ... 03-30-06 WW

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Erin Tipper				

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S COMMISSION ON
VIRONMENTAL QUALITY
P.O. Box 13087
Austin, Texas 78711-3087

06-91175

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BIN IL 0030.20
9247

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UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. NM0890010515 Manifest Document No. 06314	2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: U of CA LANL for US DOE, Los Alamos National Laboratory, P.O. Box 1663, MS J595, Los Alamos, NM 87545

4. Generator's Phone ( )

A. State Manifest Document Number: 3641222

B. State Generator's ID: [illegible]

5. Transporter 1 Company Name: Lidiel Trucking Inc

6. US EPA ID Number: CAD983010369 9

C. State Transporter's ID

D. Transporter's Phone: (661) 399-0246

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address: Waste Control Specialists, 9998 Highway 176 West, Andrews County, TX 79714

10. US EPA ID Number: TXD988088464

G. State Facility's ID: 50358

H. Facility's Phone: (505) 394-4300

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group) *	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
	a. ~~PCB Waste~~ VG 2/23/06 Non Regulated Waste (contains PCB'S)	1	CM	13,490 ~~9150~~	K ~~P~~	OUTS 3941
	b.					
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above: 1a C06184470 WP-019406 OSD 9/2/05

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information: Emergency Phone No: (505) 667-6211

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.

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Printed/Typed Name	Signature	Month Day Year
Deborah Dayan	[signature]	[illegible]

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month Day Year
[illegible]	[signature]	02 21 06

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month Day Year

19. Discrepancy Indication Space: OK to use WCS weight per Victor Alvarado 02-24 CLNW

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date Month Day Year
[illegible]	[signature]	[illegible]

1K705 - K-0 Roll off 9/9(

06-91105

COMMISSION ON
ENVIRONMENTAL QUALITY
P.O. Box 13087
Austin, Texas 78711-3087

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: N M 0 8 9 0 0 1 0 5 1 5
Manifest Document No.: 06315
2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: U of CA LANL for US DOE, Los Alamos National Laboratory, P.O. Box 1663, MS J595, Los Alamos, NM 87545

4. Generator's Phone ( )

A. State Manifest Document Number: 3641221

B. State Generator's ID: 00035

5. Transporter 1 Company Name: Lutrel Trucking Inc
6. US EPA ID Number: C A D 0 5 3 0 0 5 6 9 9

C. State Transporter's ID: 47016

D. Transporter's Phone: 661 397 0246

7. Transporter 2 Company Name:
8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address: Waste Control Specialists, 9998 Highway 176 West, Andrews County, TX 79714

10. US EPA ID Number: T X D 9 8 8 0 8 8 4 6 4

G. State Facility's ID: 50358

H. Facility's Phone: (505) 394-4300

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
	a. ~~PCB Waste~~ WN 02-22-06 Polychlorinated Biphenyls, Solid, 9, UN3432, PG II	1	CM	9236 ~~13072~~	K ~~P~~	02-22-06 WN 0005 3941
	b.					
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above
11a. C06184470
WA 019406 OSD 8/30/05

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Emergency Phone No: (505) 667-6211

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
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Printed/Typed Name	Signature	Month	Day	Year
[illegible]	[signature]	02	21	06

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Rodney [illegible]	[signature]	02	21	[illegible]

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space: Change to manifest OK per Victor Alarde 02-22-06 WN

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Erin Tippett	[signature]	[illegible]	[illegible]	06

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THE STATE OF TEXAS

06-91116 EPA ID

Form approved. OMB No. 2050-0039. 9246

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
N.M.0.8.9.0.0.1.0.5.1.5	0637 6		

3. Generator's Name and Mailing Address: U of CA LANL for US DOE, Los Alamos National Laboratory, P.O. Box 1663, MS J595

4. Generator's Phone: (505) 665-6158 Los Alamos, NM 87545

A. State Manifest Document Number: 3641220

B. State Generator's ID: 30035

5. Transporter 1 Company Name: Lone Star Industries Inc

6. US EPA ID Number: C.A.D.0.8.3.0.0.3.6.9.9

C. State Transporter's ID: 47016

D. Transporter's Phone: (661) 399-0246

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address: Waste Control Specialists, 9998 Highway 176 West, Andrews County, TX 79714

10. US EPA ID Number: T.X.D.9.8.8.0.8.8.4.6.4

G. State Facility's ID: 50358

H. Facility's Phone: (505) 394-4300

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
	a. ~~PCB Waste~~ VG 2/23/06 Non Regulated Waste (contains PCB's)	1	CM	9152 VG 2/21/06 5229	P	D018 D022 D035 D039 D040 D043
	b.			9,336.	K	
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above
1A, ~~C06184469~~ C06184473
VG- 2/21/06
WA-019400 OSD 8/26/05

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Emergency Phone No: (505) 667-6211

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
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GENERATOR

Printed/Typed Name: [illegible] | Signature | Month 02 Day 22 Year 06

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date Month Day Year 02 22 06

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name | Signature | Date Month Day Year

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LOS ALAMOS NATIONAL LABORATORY
WASTE PROFILE SYSTEM

WPF #: 38601

Generator	:	**BOHN, ROY**	MS	:	**C349**	PH	:	**6655138**	Z#: **096379**
WMC	:	**SHEPARD, MARK**	MS	:	**J496**	PH	:	**5056656878**	Z#: **168688**
Contact	:								
RCRA Rev	:	**Elicio Andy U**	MS	:	**J595**	PH	:	**5056676956**	Z#: **118692**
Status	:	**ACTIVE**	Activation Date	:	**07/22/2005**			Expiration Date:	**07/22/2006**
Group	:	**ENV-ECR**	TA	:	**61**	Bldg	:	**000000**	Room : **OUTSIDE**

You are required to keep a copy of the WPF(s) in your files for at least three years. This WPF(s) is valid for one year or as long as the composition of the waste you have characterized remains the same. Should your waste change, please submit a new WPF to NWIS-SWO Customer Service.

Waste Accumu : **None of the Above Site ID#**

Method of Char : Analysis/Documents Attached
Chemical/Physical Analysis Number: SEE SECTION3
PCB Analysis Number: SEE SECTION3
Acceptable Knowledge Documentation Number: SEE SECTION #3

Waste Type : **Process Waste/Spent Chemical/Other**

Waste Classes: RCA Waste - **Not RCA Waste**
RAD Waste - **Non-rad**

Waste Category: **Inorganic**
Organic
Volatile Organics < 500 ppm
PCB >= 50 - < 500 ppm

Waste Sources : **Construction/Upgrades**

Waste Matrix : **Solid**

Matrix Type : **Heterogeneous**

Process Desc :

SOIL WITH MINOR ROCK AND ASPHALT. THIS WASTE IS GENERATED FROM EXCAVATION AND REMOVAL OF SOIL FROM AN INACTIVE MATERIAL AND EQUIPMENT STORAGE AREA AT SWMU 61-002. THE SOIL EXCAVATION IS PART OF PRE-CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE SECURITY PERIMETER ROAD PROJECT.

Waste Desc : N/A

Ignitability : **Not ignitable**

Corrosivity : **Non-aqueous**

Reactivity : **Non-reactive**

Boiling Point : **Not applicable**

Toxicity Characteristic Metals:

Contaminant	Method	Limit	Min	Max	Unit
BARIUM	**TCLP**	**Y**			**ppm**
CADMIUM	**TCLP**	**Y**			**ppm**
LEAD	**TCLP**	**Y**			**ppm**

Toxicity Characteristic Organic Compounds:

Contaminant	Method	Limit	Min	Max	Unit
CHLOROFORM	**TOTA**	**Y**			**ppm**
METHYL ETHYL KETONE	**TOTA**	**Y**			**ppm**

Additional Chemical Constituents and Contaminants:

CAS NO	Constituent	MIN	MAX	UOM
	SOIL AND ROCK	**85**	**100**	**%**
	ASPHALT	**0**	**15**	**%**
	TOTAL PETROLEUM HYDROCARBONS-DIESEL RANGE ORGANICS	**0**	**0.012**	**%**
11097-69-1	**AROCHLOR-1254**	**0**	**0.0029**	**%**
1196-82-5	**AROCHLOR-1260**	**0**	**0.000083**	**%**
67-64-1	**ACETONE**	**0**	**0.0000054**	**%**
76-13-1	**1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE**	**0**	**0.00000015**	**%**
75-09-2	**METHYLENE CHLORIDE**	**0**	**0.00000048**	**%**
117-81-7	**BIS(2-ETHYLHEXYL)PHTHALATE**	**0**	**0.00002**	**%**

Additional Information: THE APPROVED WASTE CHARACTERIZATION STRATEGY FORM (12/03/04), WHICH IS ON FILE AT WASTE SERVICES, PRESENTS HISTORICAL SITE INFORMATION AND THE CHARACTERIZATION APPROACH FOR THIS WASTE STREAM. ATTACHED IS A SUMMARY OF THE RESULTS OF IN-SITU WASTE CHARACERIZTION SAMPLING AT SWMU 61-002. THE SOIL SAMPLE ID#S ARE RE61-05-58761 THROUGH 58767, AND RE61-05-58945. ALL SAMPLES WERE SCREENED IN THE FIELD BY HSR-1 PRIOR TO SHIPPING AND WERE FOUND TO BE AT OR BELOW BACKGROUND RADIATION LEVELS.

WASTE CHARACTERIZATION INFORMATION

Radioactivity Category : **NON-RAD**

RCRA Category : **NON HAZARDOUS**

Secondary Info : N/A

Waste Classification : **SOLID WASTE**

Waste Acceptances :

EPA Hazardous Waste Code : N/A

LOS ALAMOS NATIONAL LABORATORY
WASTE PROFILE SYSTEM

WPF #: 39010

Generator	:	**BOHN, ROY**	MS	:	**C349**	PH	:	**6655138**	Z#: **096379**
WMC	:	**SHEPARD, MARK**	MS	:	**J496**	PH	:	**5056656878**	Z#: **168688**
Contact	:								
RCRA Rev	:	**Elicio Andy U**	MS	:	**J595**	PH	:	**5056676956**	Z#: **118692**
Status	:	**ACTIVE**	Activation Date	:	**01/17/2006**			Expiration Date:	**01/17/2007**
Group	:	**ENV-ECR**	TA	:	**61**	Bldg	:	**000023**	Room : **OUTSIDE**

You are required to keep a copy of the WPF(s) in your files for at least three years. This WPF(s) is valid for one year or as long as the composition of the waste you have characterized remains the same. Should your waste change, please submit a new WPF to NWIS-SWO Customer Service.

Waste Accumu : **PCBs Storage Area Site ID# 3174**
ER Waste PRS# SWMU/AOC#61-002

Method of Char : Chemical/Physical Analysis Number: RE61-05-63536-63550
PCB Analysis Number: RE61-05-63536-63550
Acceptable Knowledge Documentation Number: SEE SECTION 5

Waste Prevention/Minimization

Can hazard segregation, elimination, or material substitution be used?	N
Can any of the materials in the waste stream be recycled or reused?	N
Has waste minimization been incorporated into procedures or other process controls>	Y
Can this waste be generated outside a RCA?	NA

Waste Type : **Process Waste/Spent Chemical/Other**

Waste Classes: RCA Waste - **Not RCA Waste**
RAD Waste - **Non-rad**

Waste Category: **Inorganic**
Organic
PCB >= 50 - < 500 ppm
Other

Waste Sources : **Remediation/Restoration**

Waste Matrix : **Solid**

Matrix Type : **Heterogeneous**

Process Desc :
THIS WASTE STREAM WAS GENERATED FROM SOIL EXCAVATION ACTIVITIES JUST EAST OF THE TA-61-023 RADIO SHOP.

Waste Desc : SOIL AND ROCK, WITH MINOR ASPHALT AND STEEL PIPE.

Ignitability : **Not ignitable**

Corrosivity : **Non-aqueous**

Reactivity : **Non-reactive**

Boiling Point : **Not applicable**

Toxicity Characteristic Metals:

Contaminant	Method	Limit	Min	Max	Unit
BARIUM	**TCLP**		**1.1**	**2.04**	**PPM**

LEAD	**TCLP**		**0**	**1.24**	**PPM**

Toxicity Characteristic Organic Compounds:

Contaminant	Method	Limit	Min	Max	Unit
TETRACHLOROETHYLENE	**TOTA**		**0**	**0.078**	**PPM**
TRICHLOROETHYLENE	**TOTA**		**0**	**0.005**	**PPM**

Additional Chemical Constituents and Contaminants:

CAS NO	Constituent	MIN	MAX	UOM
	SOIL AND ROCK	**99**	**100**	**%**
71-55-6	**1,1,1-TRICHLOROETHANE**	**0**	**0.0000003**	**%**
67-64-1	**ACETONE**	**0**	**0.0000025**	**%**
99-87-6	**4-ISOPROPYLTOLUENE**	**0**	**0.0000011**	**%**
108-88-3	**TOLUENE**	**0**	**0.0000005**	**%**
95-63-6	**1,2,4-TRIMETHYLBENZENE**	**0**	**0.000035**	**%**
108-67-8	**1,3,5-TRIMETHYLBENZENE**	**0**	**0.000017**	**%**
100-41-4	**ETHYLBENZENE**	**0**	**0.0000015**	**%**
103-65-1	**1-PROPYLBENZENE**	**0**	**0.0000009**	**%**
98-82-8	**ISOPROPYLBENZENE**	**0**	**0.0000004**	**%**
1330-20-7	**XYLENE (TOTAL)**	**0**	**0.0000083**	**%**
91-57-6	**2-METHYLNAPHTHALENE**	**0**	**0.00048**	**%**
91-20-3	**NAPHTHALENE**	**0**	**0.0002**	**%**
11096-82-5	**AROCHLOR-1260**	**0**	**0.00059**	**%**
	TPH-GASOLINE RANGE ORGANICS	**0**	**0.022**	**%**
	TPH-DIESEL RANGE ORGANICS	**0**	**0.0091**	**%**
	ASPHALT	**0**	**10**	**%**
	STEEL PIPE	**0**	**10**	**%**

Additional Information: THE APPROVED WASTE CHARACTERIZATION STRATEGY FORM (12/03/04) PRESENTS HISTORICAL SITE INFORMATION AND THE CHARACTERIZATION APPROACH FOR THIS WASTE STREAM. THE TITLE OF THIS WCSF IS: TA-03 SECURITY PERIMETER ROAD PRE-CONSTRUCTION SAMPLING, EXCAVATION, AND REMOVAL. THERE IS NO HISTORY OF SOLVENT DISPOSAL AT THIS TIME. ATTACHED IS A SUMMARY OF THE MAXIMUM AND MINIMUM VALUES OF CONSTITUENTS DETECTED IN THIS WASTE STREAM. THE SAMPLE ID#S REPRESENTING THIS WASTE STREAM ARE RE61-05-63536 THROUGH RE61-05-63550.

Work Control Documentation:

Do the procedures for this process cover how to manage this waste? Y

Do the procedures for this process cover controls to prevent changes to waste constituents and concentrations or addition or removal of waste? Y

Waste Certification Statements:

Waste appears to meet WAC chapter for: PCB WASTE.

WASTE CHARACTERIZATION INFORMATION

Radioactivity Category : **NON-RAD**

RCRA Category : **NON HAZARDOUS**

Secondary Info : N/A

Waste Classification : **PCB WASTE**

Waste Acceptances :

EPA Hazardous Waste Code : N/A

LOS ALAMOS NATIONAL LABORATORY
WASTE PROFILE SYSTEM

WPF #: 38635

Generator :	**BOHN, ROY**	MS :	**C349**	PH :	**6655138**	Z#:	**096379**	
WMC :	**SHEPARD, MARK**	MS :	**J496**	PH :	**5056656878**	Z#:	**168688**	
Contact :								
RCRA Rev :	**Mullen Lori Ann**	MS :	**J595**	PH :	**5056658680**	Z#:	**102337**	
Status :	**ACTIVE**	Activation Date :	**07/12/2005**		Expiration Date:		**07/12/2006**	
Group :	**ENV-ECR**	TA :	**03**	Bldg :	**000000**	Room :	**OUTSIDE**	

You are required to keep a copy of the WPF(s) in your files for at least three years. This WPF(s) is valid for one year or as long as the composition of the waste you have characterized remains the same. Should your waste change, please submit a new WPF to NWIS-SWO Customer Service.

Waste Accumu : **None of the Above Site ID#**
ER Waste PRS# TA3 Sec. Permit

Method of Char : Analysis/Documents Attached
Acceptable Knowledge Documentation Number: SEE SECTION 3

Waste Type : **Process Waste/Spent Chemical/Other**

Waste Classes: RCA Waste - **Not RCA Waste**
RAD Waste - **Non-rad**

Waste Category: **Inorganic**
Organic
Volatile Organics >= 500 ppm

Waste Sources : **Remediation/Restoration**

Waste Matrix : **Solid**

Matrix Type : **Heterogeneous**

Process Desc :

Soil with minor rock and asphalt. This waste is generated from exacvation and removal of an inactive equipment storage/refueling area at AOC 03-001 (i), Storage Area #1. The soil exacvation is part of pre-construction activities associated with the Security perimeter road project.

Waste Desc : N/A

Ignitability : **Not ignitable**

Corrosivity : **Non-aqueous**

Reactivity : **Non-reactive**

Boiling Point : **Not applicable**

Toxicity Characteristic Metals:

Contaminant	Method	Limit	Min	Max	Unit
BARIUM	**AK**	**Y**			**ppm**

Toxicity Characteristic Organic Compounds:

Contaminant	Method	Limit	Min	Max	Unit
BENZENE	**AK**	**Y**			**ppm**
METHYL ETHYL KETONE	**AK**	**Y**			**ppm**

Additional Chemical Constituents and Contaminants:

CAS NO	Constituent	MIN	MAX	UOM
	SOIL AND ROCK	**95**	**100**	**%**
	ASPHALT	**0**	**3**	**%**
68334-30-5	**TPH (AS DIESEL)**	**0**	**1.8**	**%**
	VOLATILE PETROLEUM HYDROCARBONS (TPH-GASOLINE RANGE)	**0**	**1.1**	**%**
95-63-6	**1,2,4-TRIMETHYLBENZENE**	**0**	**0.0022**	**%**
108-67-8	**1,3,5-TRIMETHYLBENZENE**	**0**	**0.0015**	**%**
99-87-6	**4-ISOPROPYLTOLUENE**	**0**	**0.00091**	**%**
1330-20-7	**XYLENES (TOTAL)**	**0**	**0.00086**	**%**
91-57-6	**2-METHYLNAPHTHALENE**	**0**	**0.012**	**%**
91-20-3	**NAPHTHALENE**	**0**	**0.0035**	**%**
132-64-9	**DIBENZOFURAN**	**0**	**0.00076**	**%**
86-73-7	**FLUORENE**	**0**	**0.0006**	**%**
67-64-1	**ACETONE**	**0**	**0.00001**	**%**
74-87-3	**CHLOROMETHANE**	**0**	**0.000000067**	**%**
100-41-4	**ETHYLBENZENE**	**0**	**0.000000085**	**%**
104-51-8	**N-BUTYLBENZENE**	**0**	**0.00000045**	**%**
108-88-3	**TOLUENE**	**0**	**0.00000035**	**%**
76-13-1	**TRICHLOROTRIFLUOROETHANE**	**0**	**0.000000075**	**%**
117-81-7	**BIS(2-ETHYLHEXYL) PHTHALATE**	**0**	**0.000014**	**%**
85-01-8	**PHENANTHRENE**	**0**	**0.0003**	**%**
129-00-0	**PYRENE**	**0**	**0.000028**	**%**

Additional Information: The approved waste Characterization Strategy Form (12/03/04), which is on file at waste Services, presents historical site information and the characterization approach for this waste stream. The TPH concentration of this soil package (approx. 145 cy), by weighted average calculation, is as follows: Total Petroleum Hydrocarbons=2,801 mg/kg. Diesel range organics=1,912 mg/kg. Gasoline range organics=889 mg/kg. Attached is a summary of the results of in-situ waste waste characterization sampling at AOC 03-001(i), Storage Area #1. The soil samle ID#'s are RE03-05-58891 through 58898, RE03 through 58906, and RE03-05-58913. All samples were screened in the field by HSR-1 prior to shipping ans were found to be at or below bacground radiation levels.

WASTE CHARACTERIZATION INFORMATION

Radioactivity Category : **NON-RAD**

RCRA Category : **NON HAZARDOUS**

Secondary Info : **PETROLEUM CONTAMINATED SOILS**

Waste Classification : **NEW MEXICO SPECIAL WASTE**

Waste Acceptances :

EPA Hazardous Waste Code : N/A

LOS ALAMOS NATIONAL LABORATORY
WASTE PROFILE SYSTEM

WPF #: 38600

Generator :	**BOHN, ROY**	MS :	**C349**	PH :	**6655138**	Z#:	**096379**
WMC :	**SHEPARD, MARK**	MS :	**J496**	PH :	**5056656878**	Z#:	**168688**
Contact :							
RCRA Rev :	**Elicio Andy U**	MS :	**J595**	PH :	**5056676956**	Z#:	**118692**
Status :	**EXPIRE**	Activation Date :	**07/07/2005**		Expiration Date:		**07/07/2006**
Group :	**ENV-ECR**	TA :	**03**	Bldg :	**000000**	Room :	**OUTSIDE**

You are required to keep a copy of the WPF(s) in your files for at least three years. This WPF(s) is valid for one year or as long as the composition of the waste you have characterized remains the same. Should your waste change, please submit a new WPF to NWIS-SWO Customer Service.

Waste Accumu : **None of the Above Site ID#**
ER Waste PRS# AOC-03-001(I)

Method of Char : Analysis/Documents Attached
Chemical/Physical Analysis Number: SEE SECTION 3
PCB Analysis Number: SEE SECTION 3
Acceptable Knowledge Documentation Number: SEE SECTION #3

Waste Type : **Process Waste/Spent Chemical/Other**

Waste Classes: RCA Waste - **Not RCA Waste**
RAD Waste - **Non-rad**

Waste Category: **Inorganic**
Organic
Other

Waste Sources : **Construction/Upgrades**

Waste Matrix : **Solid**

Matrix Type : **Heterogeneous**

Process Desc :

Soil with minor rock, asphalt, and tree stumps. This waste is generated from excavation and removal of soil from inactive material and equipment Storage Area #2 at AOC 03-001 (i). The soil excavation is part of pre-construction activities associated with the Security Perimeter Road Project.

Waste Desc : N/A

Ignitability : **Not ignitable**

Corrosivity : **Non-aqueous**

Reactivity : **Non-reactive**

Boiling Point : **Not applicable**

Toxicity Characteristic Metals:

Contaminant	Method	Limit	Min	Max	Unit
BARIUM	**TCLP**	**Y**			**ppm**

Toxicity Characteristic Organic Compounds: N/A

Additional Chemical Constituents and Contaminants:

CAS NO	Constituent	MIN	MAX	UOM
	SOIL AND ROCK	**90**	**100**	**%**
	ASPHALT	**0**	**5**	**%**
	TREE STUMPS	**0**	**5**	**%**

Additional Information: THE APPROVED WASTE CHARACTERIZATION STRATEGY FORM (12/03/04), WHICH IS ON FILE AT WASTE SERVICES, PRESENTS HISTORICAL SITE INFORMATION AND THE CHARACTERIZATION APPROACH FOR THIS WASTE STREAM. ATTACHED IS A SUMMARY OF THE RESULTS OF IN-SITU WASTE CHARACTERIZATION SAMPLING AT AOC 03-001 (I), ID#S ARE RE03-05 57693 THROUGH 57698. ALL SAMPLES WERE SCREENED IN THE FIELD BY HSR-1 PRIOR TO SHIPPING AND WERE FOUND TO BE AT OR BELOW BACKGROUND RADIATION LEVELS.

WASTE CHARACTERIZATION INFORMATION

Radioactivity Category : **NON-RAD**

RCRA Category : **NON HAZARDOUS**

Secondary Info : N/A

Waste Classification : **SOLID WASTE**

Waste Acceptances :

EPA Hazardous Waste Code : N/A

Attachment 2

Response to General Comment #3

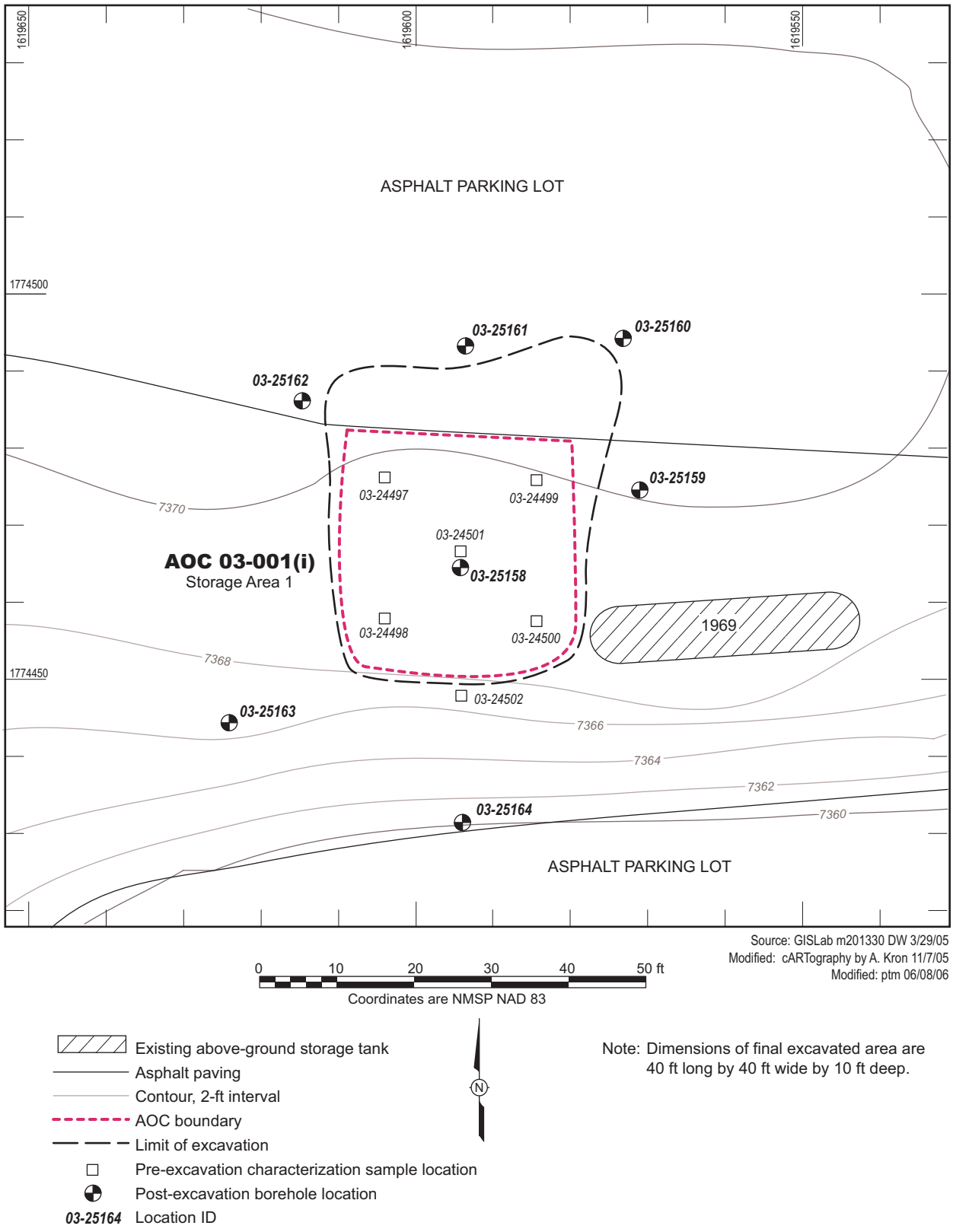


Figure 2.1-1. Site map depicting 2005 ACA sampling locations at AOC 03-001(i), Storage Area 1

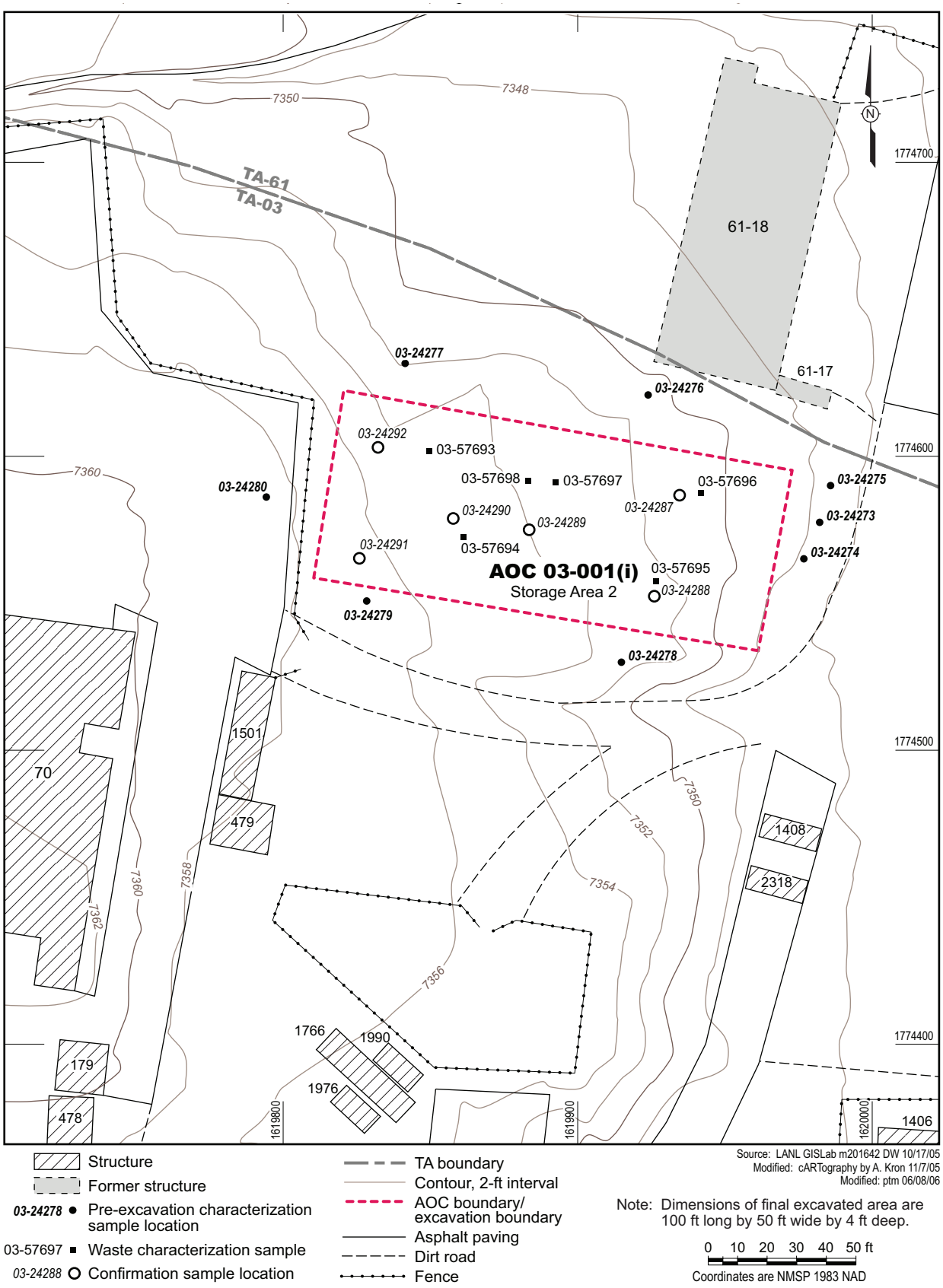


Figure 2.1-2. Site map depicting 2005 ACA sampling locations at AOC 03-001(i), Storage Area 2

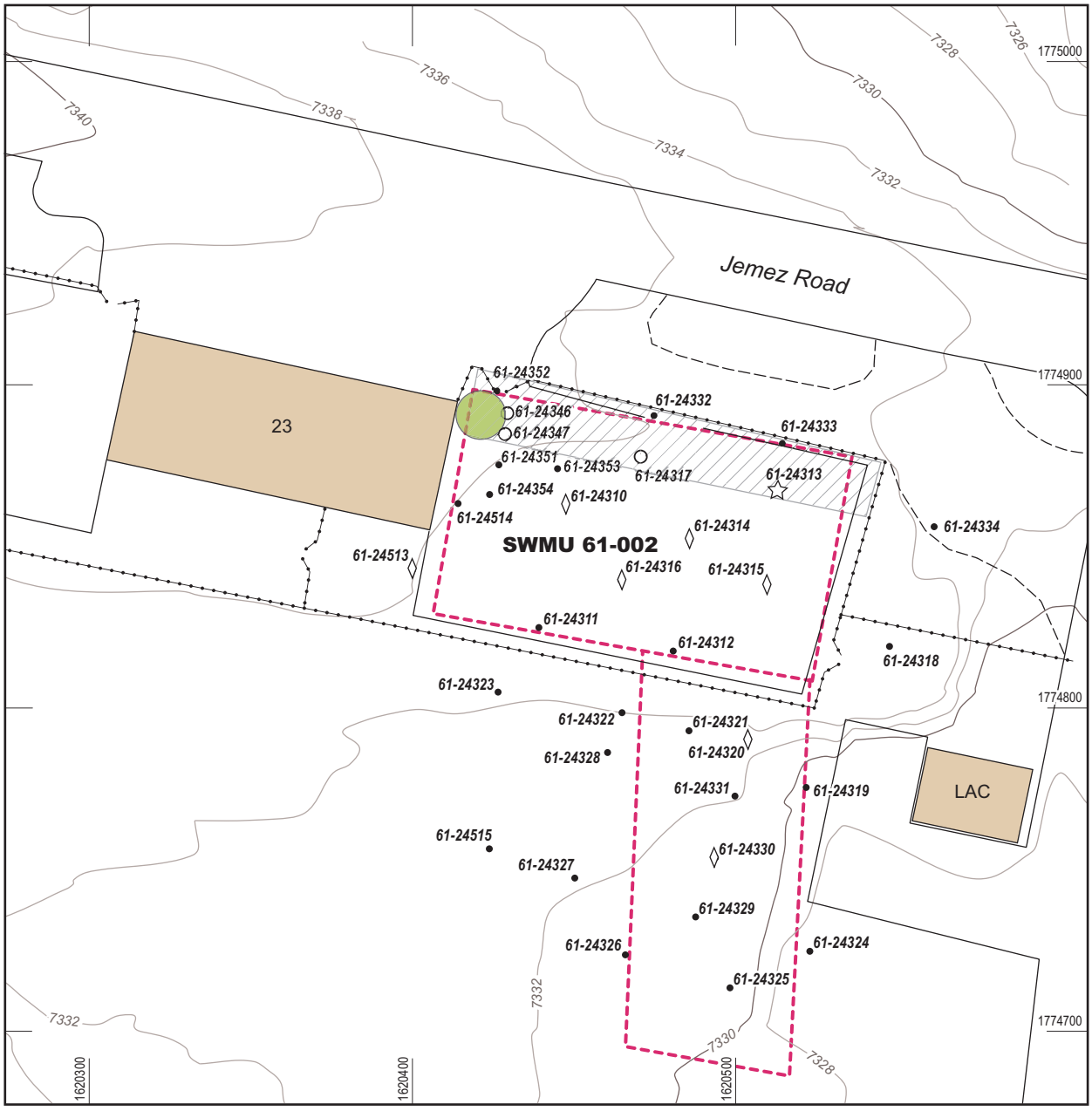
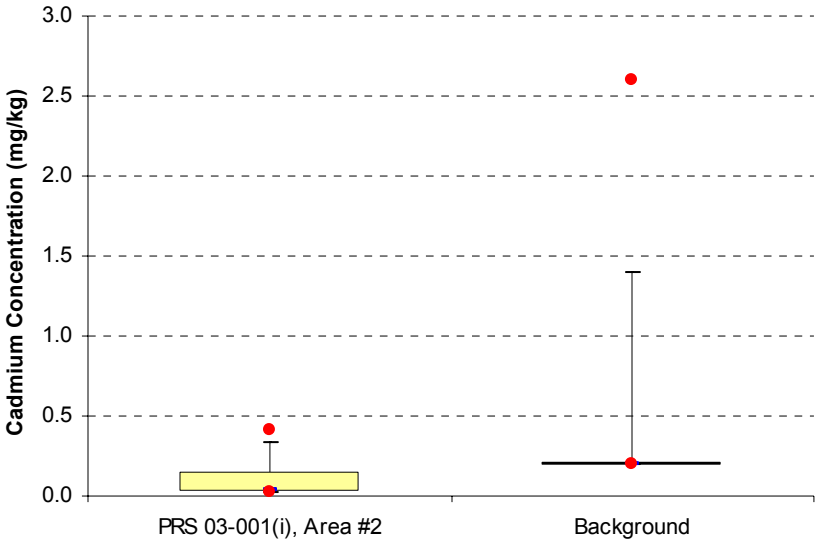


Figure 2.1-4. Site map depicting 2005 ACA sampling locations at SWMU 61-002

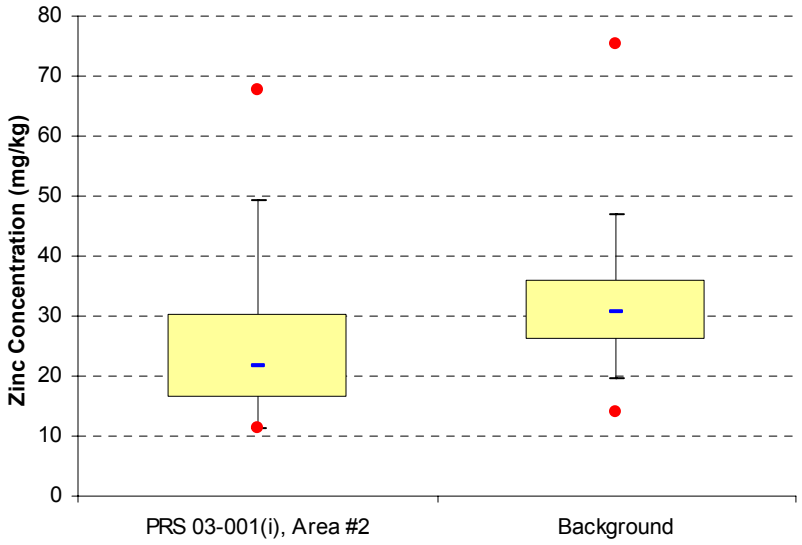
Attachment 3

Response to General Comment #9

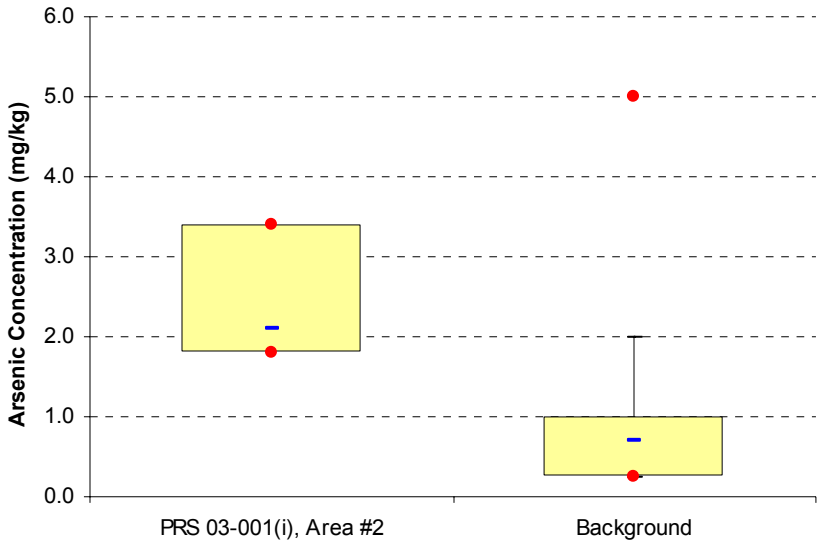
Box and Whisker Plots, AOC 03-001(i), Storage Area 2



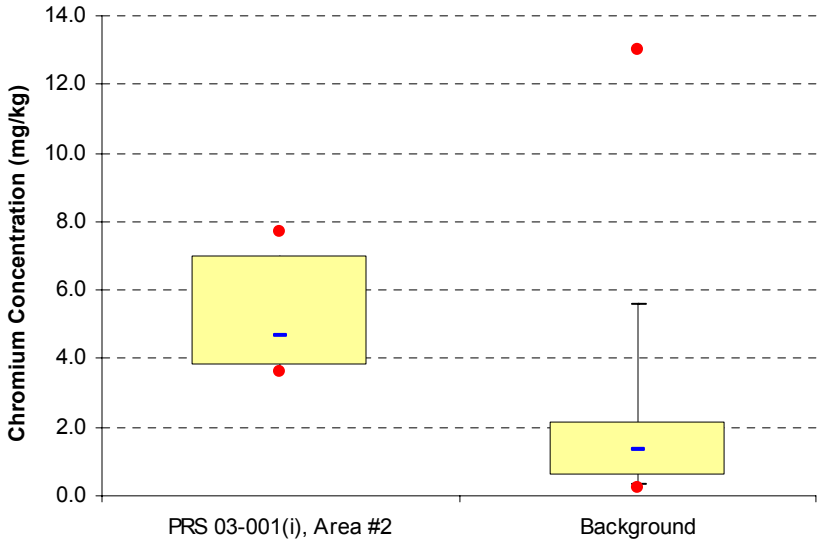
Comparison of cadmium soil concentrations at AOC 03-001(i), Storage Area #2 (n = 26) with background (n = 39)



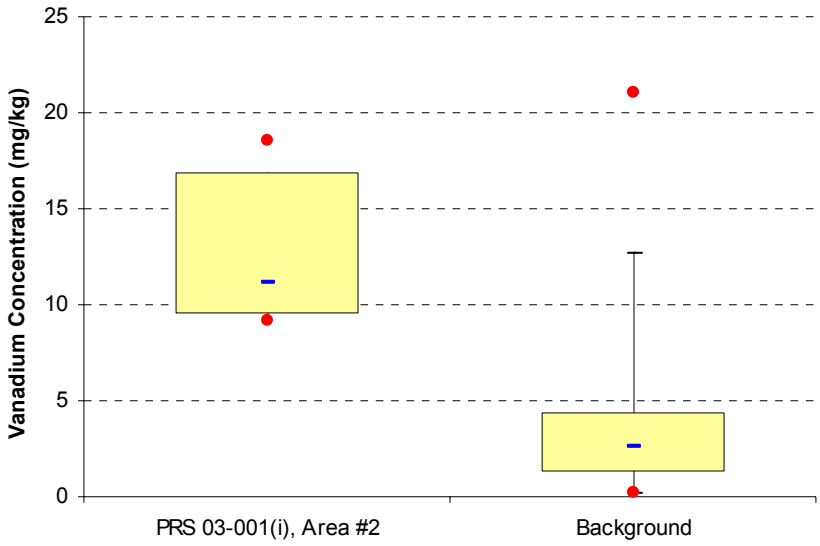
Comparison of zinc soil concentrations at AOC 03-001(i), Storage Area #2 (n = 31) with background (n = 172)



Comparison of arsenic tuff concentrations at AOC 03-001(i), Storage Area #2 (n = 3) with background (n = 64)

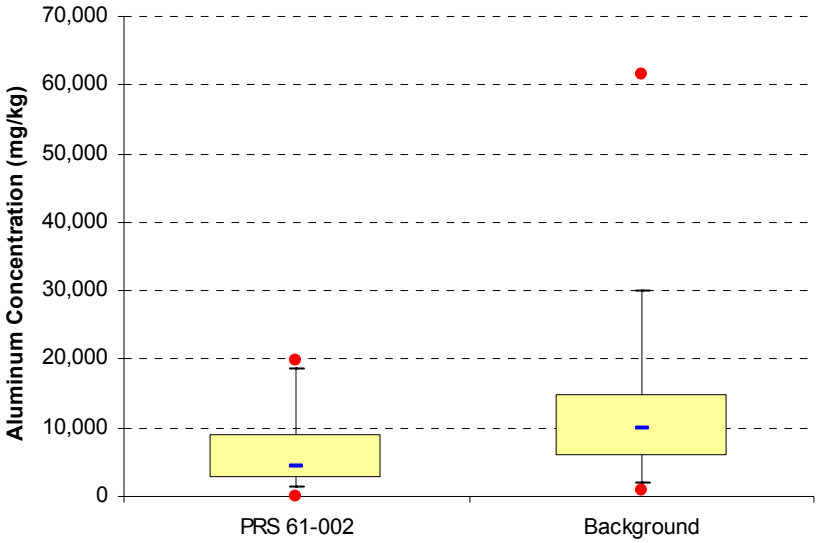


Comparison of chromium tuff concentrations at AOC 03-001(i), Storage Area #2 (n = 4) with background (n = 64)

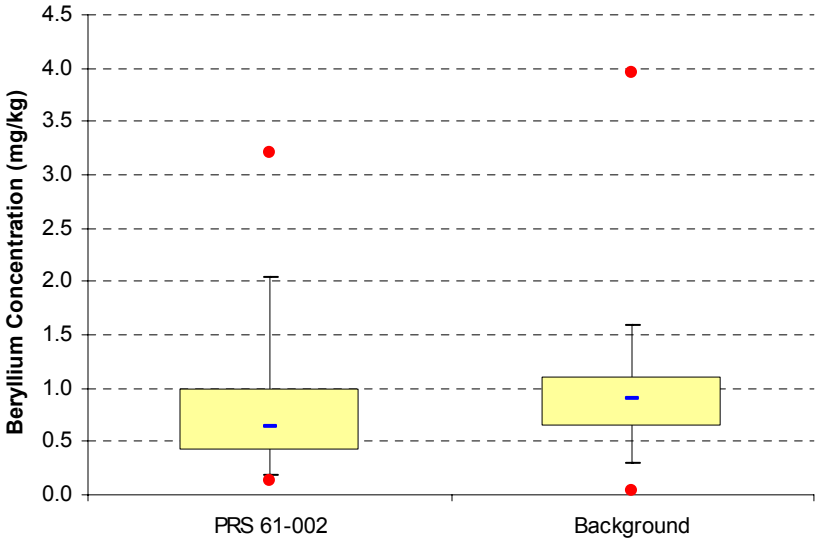


Comparison of vanadium tuff concentrations at AOC 03-001(i), Storage Area #2 (n = 4) with background (n = 64)

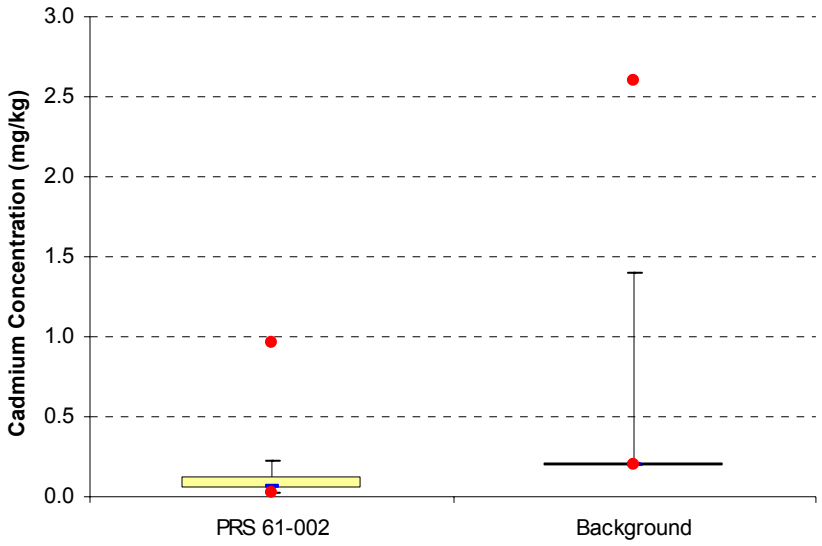
Box and Whisker Plots, SWMU 61-002



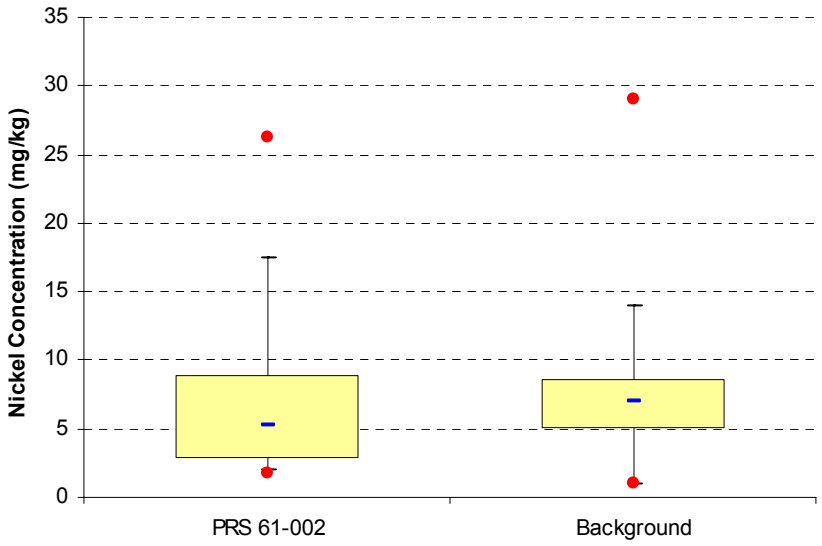
Comparison of aluminum soil concentrations at SWMU 61-002 (n = 74) with background (n = 174)



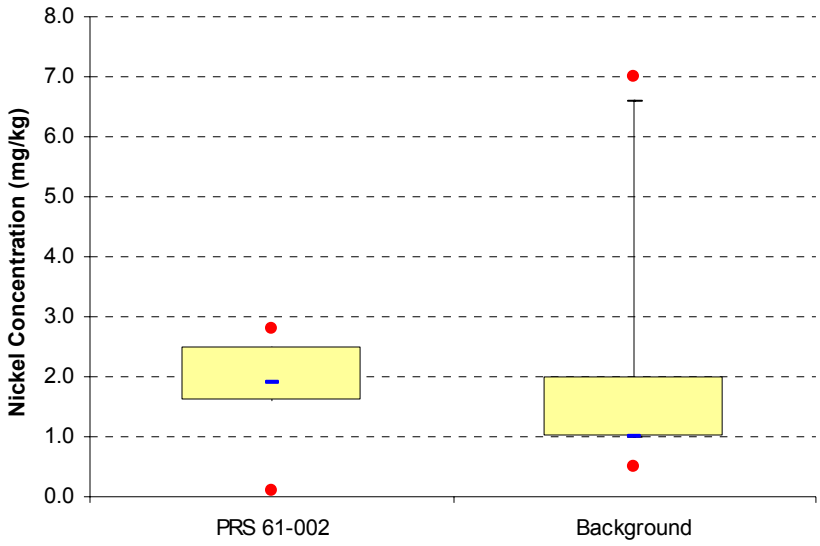
Comparison of beryllium soil concentrations at SWMU 61-002 (n = 74) with background (n = 174)



Comparison of cadmium soil concentrations at SWMU 61-002 (n = 74) with background (n = 39)



Comparison of nickel soil concentrations at SWMU 61-002 (n = 74) with background (n = 174)



Comparison of nickel tuff concentrations at SWMU 61-002 (n = 11) with background (n = 63)