TA-16

Los Alamos
NATIONAL LABORATORY
EST. 1943

Los Alamos National Laboratory/University of California
Environmental Stewardship (ENV)
Remediation Services (RS), MS M992
Los Alamos, New Mexico 87545
(505) 667-0808/FAX (505) 665-4747

National Nuclear Security Administration
Los Alamos Site Operations, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
(505) 667-7203/FAX (505) 665-4504

Date: November 22, 2004
Refer To: ER2004-0666

Mr. John Young, Project Leader
Permits Management Program
NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, NM 87505-6303

SUBJECT: SUBMITTAL OF RESPONSE TO THE NOTICE OF DISAPPROVAL FOR MATERIAL DISPOSAL AREA P SITE CLOSURE CERTIFICATION REPORT, LOS ALAMOS NATIONAL LABORATORY EPA ID No: NM0890010515, HWB-LANL-03-019

Dear Mr. Young:

Enclosed are two copies of the LANL Environmental Stewardship–Remediation Services (ENV–RS) Project's response to your Notice of Disapproval (NOD) for the Material Disposal Area P Site Closure Certification Report. The Department of Energy Los Alamos Site Operations Office received the NOD on October 27, 2004.

If you have any questions, please contact William Criswell at (505) 665-5886 or Lance Woodworth at (505) 665-5820.

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

DM/DG/KV/jr

Enclosure: Response to NOD (ER2004-0655)
Certification

6518

Cy:(w/enc)
A. Dorries, ENV-ECR, MS M992
R. Mirenda, ENV-ECR, MS M992
E. Rainey, ENV-ECR, MS M992
K. VanDerpoel, ENV-ECR, MS M992
W. Criswell, RRES-RS, MS M992
S. Den-Baars, Shaw, MS M892
D. Gregory, LASO, MS A316
L. Woodworth, LASO, MS A316
J. Schoeppner, NMED-GWQB
J. Kieling, NMED-HWB
S. Yanicak, NMED-OB, MS J993
M. Leavitt, NMED-SWQB
L. King, EPA Region 6
ENV-RS File, MS M992
IM-9, MS A150
RPF MS M707

Cy:(w/o enclosure)
D. McInroy, ENV-RS, MS M992
D. Gregory, LASO, MS A316
B. Rich, ADO, MS A104
J. Bearzi, NMED-HWB
C. Voorhees, NMED-OB

CERTIFICATION

CERTIFICATION BY THE ENVIRONMENTAL STEWARDSHIP–REMEDIATION SERVICES (ENV-RS) PROJECT TECHNICAL REPRESENTATIVES

Document Title: **SUBMITTAL OF RESPONSE TO THE NOTICE OF DISAPPROVAL FOR MATERIAL DISPOSAL AREA P SITE CLOSURE CERTIFICATION REPORT, LOS ALAMOS NATIONAL LABORATORY EPA ID No: NM0890010515, HWB-LANL-03-019**

I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Name: _____ Date: 11/22/04

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

or

_____ Date: _____

Ken Hargis, Division Leader
Environmental Stewardship Division
Los Alamos National Laboratory

_____ Date: 11/22/04

David Gregory, Federal Project Director
Environmental Restoration Program
Department Of Energy/Los Alamos Site Office

or

_____ Date: _____

John Ordaz,
Assistant Area Manager of
Environmental Projects
Department Of Energy/Los Alamos Site Office

Response to the
Notice of Disapproval for the Response to the Request for Supplemental Information (RSI)
for the Material Disposal Area P Site
Closure Certification Report, October 2003
Los Alamos National Laboratory

INTRODUCTION

This document is the Los Alamos National Laboratory (LANL or the Laboratory) response to the "Notice of Disapproval for Material Disposal Area P Site Closure Certification Report, Los Alamos National Laboratory, EPA ID No: NM0890010515, HWB-LANL-03-019," dated October 25, 2004, sent from the New Mexico Environment Department (NMED) Hazardous Waste Bureau (HWB) to the Laboratory and the Department of Energy Los Alamos Site Operations office. To facilitate review of this response, NMED comments are included verbatim in italics, with the Laboratory response immediately following.

The Laboratory intends to provide replacement pages for the Material Disposal Area (MDA) P Site closure certification report (LANL 2003, 79563), as indicated in the May 2004 response to the NMED's RSI (LANL 2004, 87059). However, the replacement pages will be provided at the conclusion of NMED's review process in order to ensure that there will be only one comprehensive document revision and replacement page submittal. The Laboratory will provide all required replacement pages, figures, and tables for the closure certification report within 45 days of receiving written confirmation from NMED that all responses have been accepted.

NMED Comment

1. *The Permittees' response to the RSI General Comment 1 is inadequate and confusing. The response contradicts itself both within bullet points and between bullet points. For example, the first bullet point, paragraph one, indicates that there are "no reclaimed areas within the Material Disposal Area (MDA) P footprint". However, the second paragraph states that "reclaimed areas exist in the biological zone" within MDA P. In addition, paragraph one indicates that topsoil at MDA P is either native topsoil or non-native soil brought in during active site operations, but that no clean fill was brought in. Paragraph two indicates that clean fill was brought in. Please revise the response to clarify the soil backfilling and reclamation activities at MDA P. It may be helpful to provide a timeline and/or figures to clarify where native soil exists, locations of operational fill (clean or contaminated), and reclaimed areas.*

LANL Response

There is no contradiction in the language cited. To clarify the Laboratory's response, Figure 1 of this document depicts current conditions at the MDA P Site and the surrounding area. Please note that the figure shows the boundaries of both the *MDA P Site* and *MDA P* within it—each of those terms has a specific meaning. *MDA P* refers only to that discrete hazardous waste management unit and is outlined in red on the figure. *MDA P Site* refers to the larger boundary that encompasses MDA P, as well as the other SWMUs that were combined for cleanup purposes, and is outlined in blue on the figure.

Figure 1 also shows that the MDA P Site contains both an "exposed tuff zone" (gray hatching) and a "biological zone" (green hatching and green triangles). The exposed tuff zone is comprised of bare tuff which has not been reclaimed (i.e., there has been no soil or fill material placed on it). The

biological zone is comprised of either reclaimed or undisturbed areas. The reclaimed areas contain a mix of native topsoil and operational fill (i.e., non-native soil brought in during active site operations [1950s–1984]) which has been regraded to inhibit erosion. The undisturbed areas of the biological zone contain only native topsoil.

MDA P lies almost entirely within the exposed tuff zone, except for a small portion at the southeast corner. Therefore, most of the MDA P surface is exposed tuff. Only a small portion of MDA P is covered by native topsoil and/or operational fill.

Concerning the presence of "clean fill," no clean fill is currently present and none was present during the Phase II sampling within the MDA P Site. To clarify the RSI response, clean fill from a local commercial "borrow" source was brought in during Phase I closure activities [1996–2002], solely for the purpose of constructing staging areas within the MDA P Site. All of this fill was removed from the site at the end of Phase I closure activities in 2002 and none was sampled as part of the closure activities.

NMED Comment

2. *The table provided in response to RSI General Comment 3 depicts total RME incremental lifetime cancer risk (ILCR) at 2E-05, but the text states that cumulative ILCR from potential exposures to all chemicals of potential concern is below IE-05. Explain the discrepancy.*

LANL Response

2. An incorrect summary table was inadvertently included in the RSI response. The incorrect table came from the Laboratory's response to the notice of deficiency for the Phase III Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) report for solid waste management unit (SWMU) 16-021(c)-99, dated January 2004 (LANL 2004, 86536). That table was subsequently modified and sent to John Young at NMED in a letter with attachments, dated February 19, 2004, entitled "Submittal of Revision to Response to Notice of Deficiency—Phase III RFI Report for SWMU 16-021(c)-99" (LANL 2004, 85426). The revised table in the February 2004 submittal contains the correct total risk and hazard levels for the Phase III RFI at SWMU 16-021(c)-99. In the revised table, the total incremental lifetime cancer risk for the reasonable maximum exposure trail user in Cañon de Valle is 4E-06, which is below the target level of 1E-05.

NMED Comment

3. *The Permittees have indicated in their response to RSI General Comment 4 that an agreement was reached between representatives of NMED and LANL in April 2002 that decided the approach to be taken for the MDA P site ecological risk assessment. Provide the record of communication or other document that recorded this agreement. NMED has searched their records and have not found any such document.*

LANL Response

3. The meeting referred to in the RSI response took place on April 2, 2002, at the NMED offices. The NMED's representatives were Vickie Maranville and Kirby Olson, and the Laboratory's representatives were Ken Bostick, Rich Mirenda, and Paul Schumann. Although a formal record of communication was not prepared by either the Laboratory or NMED, copies of the meeting notes from both Ken Bostick's and Paul Schumann's personal log books are provided as Attachment A.

The concurrence of NMED and the Laboratory on the use of the Cañon de Valle baseline risk assessment to support the MDA P closure certification has been formally documented in subsequent correspondence. After the April 2002 meeting, the Laboratory further developed the risk assessment strategy. On September 4, 2002, the MDA P risk assessment team conducted a conference call with Kirby Olson of NMED to discuss recent findings during a site visit and to seek NMED concurrence with all aspects of the ecological risk assessment approach. This record of communication clearly indicates the approach being used to assess ecological risk at MDA P and the concurrence with this approach by Kirby Olson. The record of communication for this conference call was included in Appendix D to the closure certification report and is being resubmitted as Attachment B to this response.

In addition to this record of communication with Kirby Olson, the agreement to use the Cañon de Valle baseline risk assessment to support closure certification for MDA P is documented in the outline for the closure certification report. At Vickie Maranville's request, the Laboratory developed a working outline of the closure certification report. The draft of the outline and related correspondence, which are included as Attachment C to this response, indicate that both parties agreed to the use of the Cañon de Valle baseline risk assessment information.

NMED Comment

4. *In response to the RSI Specific Comment 5, the Permittees agreed to correct the statement regarding detection of organic chemicals in boreholes 516 and 273. Provide the replacement pages for the Closure Certification Report with the correct statement.*

LANL Response

4. As discussed in the introduction to this response, the Laboratory will provide all replacement pages at the conclusion of the NMED review process.

NMED Comment

5. *Provide the replacement pages with revisions for the Closure Certification Report for MDA P site as committed to in the response to the RSI Specific Comment 9.*

LANL Response

5. Please see response to Comment 4.

NMED Comment

6. *Provide the replacement pages for the Closure Certification Report with revisions to the text committed to in the response to the RSI Specific Comment 13.*

LANL Response

6. Please see response to Comment 4.

NMED Comment

7. *The response to RSI Specific Comment 14 is not adequate. As the original comment indicated, NMED is concerned that inclusion of data down to five feet below ground surface (ft. bgs) may result in dilution of the exposure concentration. However, the Permittees' response provided justification for excluding deeper soil concentrations and defended the use of the 95% upper confidence level (95%UCL), which was not a concern outlined in the original comment. The response did not address the use of the surface soil exposure interval of zero to five ft. bgs rather than a more commonly applied exposure interval of zero to one to two ft. bgs. The response indicates that an exposure interval of 0-5 ft. bgs is conservative because the concentrations below five feet are much less than shallower soil concentrations. It is also noted that inclusion of concentrations below five feet would serve to dilute the exposure concentrations. However, the response appears to contradict itself by stating that the highest concentrations detected on site were in the top few feet. Revise the risk assessment to include an assessment for surface soil (0 to 0.5 or 0 to 1 foot) and one for subsurface soil (below 0.5 or 1 foot).*

LANL Response

7. The approach used in the human health screening assessment of assuming exposure of a resident over a depth profile is standard risk assessment practice. However, as requested, the Laboratory has calculated 95% upper confidence limits (UCLs) of the mean for a 0- to1-ft interval and a 1- to 5-ft interval, to address NMED's concerns. Tables 1 and 2 in this document illustrate that (1) the exposure concentrations represented by the 95% UCL do not noticeably change from the original values at 0–1 ft and 1–5 ft; (2) the hazard quotients and cancer risks do not differ markedly for the various depth profiles; and (3) the hazard indices and total incremental cancer risks do not substantially change with the depth profile. Therefore, the original assessment using a 0- to 5-ft depth adequately represents a reasonable maximum exposure, and the inclusion of samples below 1 ft in the 95% UCL calculations does not dilute the exposure concentrations.

NMED Comment

8. *Provide the replacement page for the Closure Certification Report with corrected text to read NMED target cancer risk as $1x10^{-5}$, as committed to in the response to the RSI Specific Comment 17.*

LANL Response

8. Please see response to Comment 4.

NMED Comment

9. *Provide the replacement pages for the Closure Certification Report with revisions to the text of section 2.5.3.5, Ecological Assessment Summary, as committed to in the response to the RSI Specific Comment 19.*

LANL Response

9. Please see response to Comment 4.

NMED Comment

10. Provide the revised Figure 3.3.2-8 as committed to in the response to the RSI Specific Comment 20.

LANL Response

10. Please see response to Comment 4.

NMED Comment

11. Provide the replacement pages for the Closure Certification Report with revised text of Appendix B, Section 4.2, as stated in the response to the RSI Specific Comment 23.

LANL Response

11. Please see response to Comment 4.

NMED Comment

12. Provide the replacement pages for the Closure Certification Report with revisions to the text of Appendix B as committed to in the response to the RSI Specific Comment 26.

LANL Response

12. Please see response to Comment 4.

This page left blank intentionally.

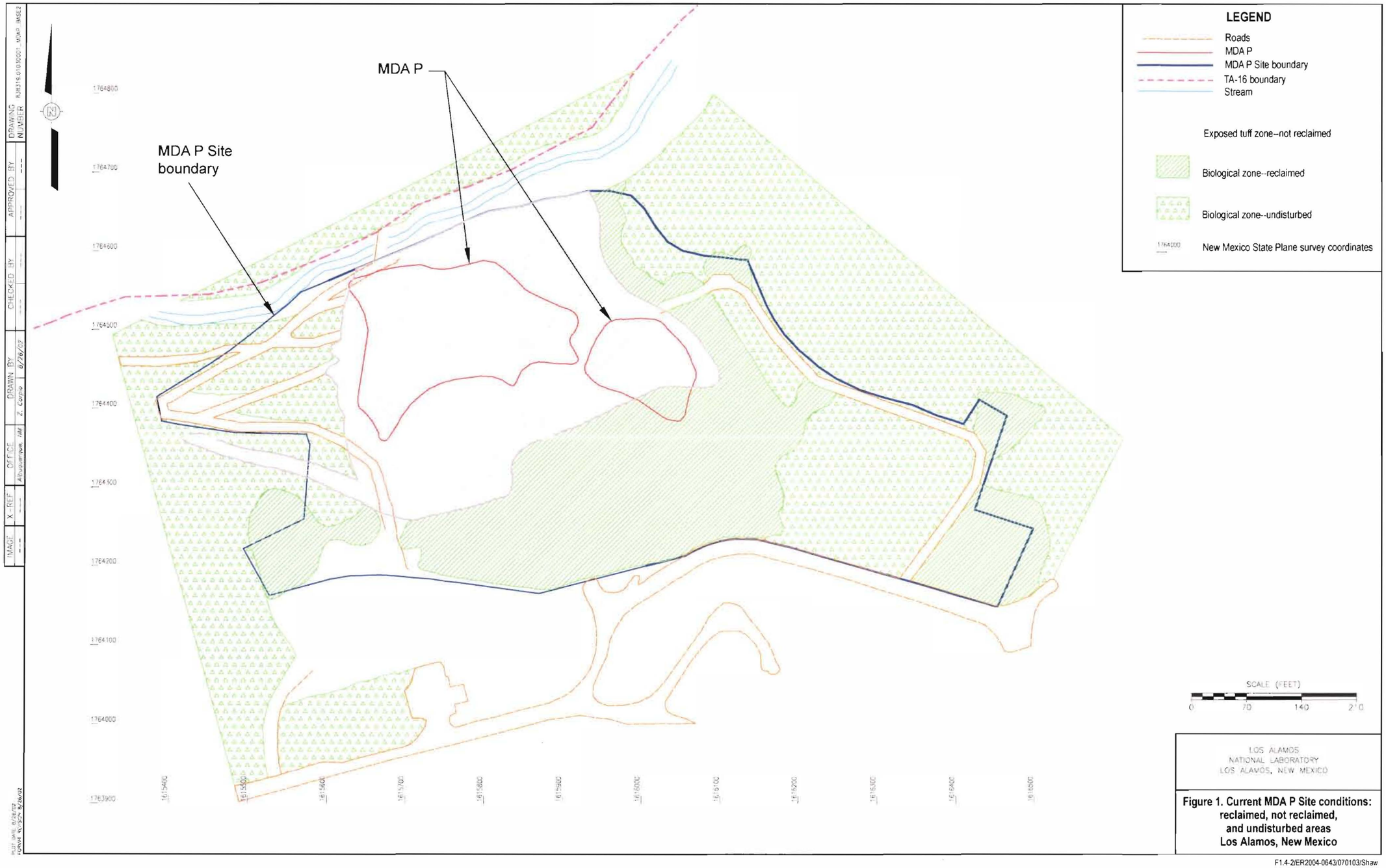

Figure 1. Current MDA P Site conditions: reclaimed, not reclaimed, and undisturbed areas Los Alamos, New Mexico

F1.4-2/ER2004-0643/070103/Shaw modified. F1/NOD response/110904/fbl

This page left blank intentionally.

Table 1
Comparison of Noncarcinogenic Chemicals of Potential Concern (COPCs) at Different Depth Intervals

COPCs	0 to 5 ft bgs 95% UCL[a] (mg/kg)	HQ[b]	0 to 1 ft bgs 95% UCL (mg/kg)	HQ	1 to 5 ft bgs 95% UCL (mg/kg)	HQ	SAL[c] (mg/kg)
Aluminum	6,049	0.08	6,136	0.08	7,399	0.1	74,000
Antimony	0.41	0.01	0.40	0.01	0.52	0.02	30
Barium	535	0.1	586	0.1	402	0.08	5,200
Beryllium	0.83	0.006	0.85	0.006	0.81	0.005	150
Cobalt	5.34	0.001	5.23	0.001	8.29	0.002	4,500
Copper	6.71	0.002	7.10	0.003	5.96	0.002	2,800
Iron	10,335	0.5	10,462	0.5	10,330	0.5	23,000
Lead	9.67	0.02	8.60	0.02	16.9	0.04	400
Mercury	0.02	0.0009	0.021	0.0009	0.016	0.00004	23
Nickel	4.5	0.003	4.4	0.003	4.96	0.003	1,500
Perchlorate	0.029	0.004	0.08	0.01	0.024	0.003	7.8
Selenium	0.25	0.0007	0.26	0.0007	0.24	0.0006	380
Silver	0.54	0.001	0.45	0.001	1.49	0.004	380
Vanadium	9.52	0.02	9.53	0.02	10.6	0.02	530
Zinc	49.0	0.002	43.7	0.002	85.1	0.004	23,000
Acetone	0.1	0.00006	0.03	0.00002	0.215[d]	0.0001	1,600
Amino-2,6-dinitrotoluene[4-]	0.15	0.002	0.16	0.003	0.14	0.002	61[e]
Amino-4,6-dinitrotoluene[2-]	0.16	0.003	0.17	0.003	0.13	0.002	61[e]
Aroclor-1260	0.034	0.03	0.040	0.04	0.0195[d]	0.02	1.1
Carbon disulfide	0.006	0.00003	0.003	0.000008	0.01[d]	0.00003	360
HMX	0.95	0.0003	1.06	0.0003	0.47	0.0002	3,100
Toluene	0.008	0.00003	0.003	0.00002	0.13[d]	0.0007	180
Trinitrobenzene[1,3,5-]	0.14	0.00008	0.14	0.00008	0.14	0.00008	1,800
HI[f]		**0.8**		**0.8**		**0.8**	

[a] 95% UCL = 95% upper confidence limit of the mean; 95% UCLs from 0–5 ft taken from revised Table 4.2.2.1 in the RSI response dated May 2004 (LANL 2004, 87059).

[b] HQ = hazard quotient

[c] SAL = screening action level; SALs used are the values from the MDA P closure certification report.

[d] Maximum concentration—too few observations to calculate a 95% UCL.

[e] 2,6-dinitrotoluene used as a surrogate for the amino-DNTs, based on structural similarity.

[f] HI = hazard index.

Table 2
Comparison of Carcinogenic COPCs at Different Depth Intervals

COPCs	0 to 5 ft bgs 95% UCL[a] (mg/kg)	Cancer Risk	0 to 1 ft bgs 95% UCL mg/kg)	Cancer Risk	1 to 5 ft bgs 95% UCL (mg/kg)	Cancer Risk	SAL[b] (mg/kg)
Chromium	5.25	3×10^{-8}	5.35	3×10^{-8}	6.81	3×10^{-8}	210
Aroclor-1260	0.034	2×10^{-7}	0.040	2×10^{-7}	0.0195[c]	9×10^{-8}	0.22
Bis(2-ethylhexyl)phthalate	0.2	6×10^{-9}	0.20	6×10^{-9}	0.2	6×10^{-9}	35
DDT[4,4'-]	0.003	2×10^{-9}	0.004	2×10^{-9}	0.001[c]	6×10^{-10}	1.7
RDX	1.89	4×10^{-7}	2.09	5×10^{-7}	1.04	2×10^{-7}	4.4
Trinitrotoluene[2,4,6-]	0.16	1×10^{-8}	0.16	1×10^{-8}	0.13	8×10^{-9}	16
Total ICR[d]		**6×10^{-7}**		**7×10^{-7}**		**3×10^{-7}**	

[a] 95% UCL = 95% upper confidence limit of the mean; 95% UCLs from 0–5 ft were taken from revised Table 4.2.2.1 in the RSI response dated May 2004 (LANL 2004, 87059).

[b] SAL = screening action level; SALs used are the values from the MDA P closure certification report.

[c] Maximum concentration—too few observations to calculate a 95% UCL.

[d] ICR = incremental cancer risk.

REFERENCES

Los Alamos National Laboratory (LANL), October 2003. "Material Disposal Area (MDA) P Site Closure Certification Report," (2 volumes), Los Alamos National Laboratory document LA-UR-03-8046, Los Alamos, New Mexico. (LANL 2003, 79563)

Los Alamos National Laboratory (LANL), January 2004. "Submittal of Response to Notice of Deficiency (NOD) Phase III RFI Report for Solid Waste Management Unit (SWMU) 16-021(c)-99, Los Alamos National Laboratory (LANL), NM0890010515, HWB-LANL-03-011," Los Alamos National Laboratory document LA-UR-04-0480, Los Alamos, New Mexico. (LANL 2004, 86536)

Los Alamos National Laboratory (LANL), February 2004. "Submittal of Revision to Response to Notice of Deficiency—Phase III RFI Report for SWMU 16-021(c)-99," Los Alamos National Laboratory document, Los Alamos, New Mexico. (LANL 2004, 85426)

Los Alamos National Laboratory (LANL), May 2004. "Response to the Request for Supplemental Information for the Material Disposal Area P Site, Closure Certification Report, October 2003," Los Alamos National Laboratory document LA-UR-04-3248, Los Alamos, New Mexico. (LANL 2004, 87059)

ATTACHMENTS

A. April 2, 2002, meeting notes from Ken Bostick's and Paul Schumann's log books

B. September 4, 2002, record of communication between LANL representatives and Kirby Olson, NMED

C. Correspondence between LANL representatives and Vickie Maranville, NMED, concerning the MDA P Site closure certification report outline