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Date: January 5, 2005
 Refer To: ER2004-0724

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



SUBJECT: SUPPLEMENTAL RESPONSE TO THE NOTICES OF DEFICIENCY FOR THE VOLUNTARY CORRECTIVE ACTION COMPLETION REPORT ADDENDUM FOR SOLID WASTE MANAGEMENT UNIT 21-013(d)-99

Dear Mr. Young:

Attached please find the supplemental response to the two Notices of Deficiency (NODs) for the addendum to the voluntary corrective action (VCA) completion report for SWMU 21-013(d)-99. As required by NMED, eight locations (two depths each) were re-sampled at SWMU 21-013(d)-99 on September 23, 2004, and the samples were analyzed for chromium, copper, and nickel. The attached supplemental response describes the methods used for sample collection and analysis, the analytical results, and the conclusions based on available site data.

If you have any questions, please contact Becky Coel-Roback at (505) 665-5011 or Woody Woodworth at (505) 665-5820.

Sincerely,

 David McInroy, Deputy Project Director
 Environmental Stewardship
 Los Alamos National Laboratory

Sincerely,

 David Gregory, Project Manager
 Department of Energy
 Los Alamos Site Offices

DM/DG/RCR/jr



Enclosures: Supplemental Response to NODs (ER2004-0716)

Cy:(w/enc)

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R. Coel-Roback, ENV-ECR, MS M992
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**Supplemental Response to the Notices of Deficiency
for the Voluntary Corrective Action Completion Report Addendum
for Solid Waste Management Unit 21-013(d)-99**

INTRODUCTION

This submittal is the supplemental response by Los Alamos National Laboratory (LANL or the Laboratory) to the "Notice of Deficiency, VCA Completion Report Addendum, Solid Waste Management Unit (SWMU) 21-013(d)-99," issued by the New Mexico Environment Department (NMED) Hazardous Waste Bureau on March 5, 2004, and the "Second Notice of Deficiency for the VCA Completion Report Addendum for SWMU 21-013(d)-99," issued by NMED on April 29, 2004. The "Voluntary Corrective Action Completion Report Addendum for Solid Waste Management Unit 21-013(d)-99" (LANL 2003, 83094) was submitted by LANL to NMED in September 2003.

BACKGROUND

Analytical results for samples collected in 2003 showed elevated concentrations of chromium, copper, and nickel in the tuff at depths of 3 ft to 7 ft below ground surface (bgs). The operational history of Solid Waste Management Unit (SWMU) 21-013(d)-99, a surface debris disposal area, does not indicate a significant source for these metals. The site was used for the disposal of uncontaminated construction debris, such as concrete, asphalt, and wood, which were dumped on the ground surface. Although some metal debris was present at the site before the 1995 voluntary corrective action (VCA), it was in solid form and located on the ground surface. According to site workers involved with debris disposal at SWMU 21-013(d)-99, no spent chemicals or contaminated materials were disposed of at the site (Francis 1998, 58709.18).

The elevated chromium, copper, and nickel concentrations observed in the 2003 samples were limited to eight locations (21-01932, 21-01933, 21-01934, 21-01935, 21-01936, 21-01939, 21-01940, and 21-01941) in the western portion of SWMU 21-013(d)-99. During 2003 sampling at these locations, an electric hammer drill was advanced to the required depth, followed by extraction of the sample using a 2-in.-diameter auger. The small hole resulting from this approach made it difficult to recover an adequate sample volume. Because of the problems experienced with the original equipment, a gasoline-powered auger was used to drill to the required depth at all remaining subsurface sample locations. The gasoline-powered auger resulted in a 4-in.-diameter hole, which allowed for easier access of a hand auger for subsequent sampling. Although both methods followed the same standard operating procedure (SOP) (SOP-06.10, Hand Auger and Thin-Wall Tube Sampler), the differences in equipment and/or the difficulties experienced using the original approach may have caused the distribution of chromium, copper, and nickel seen at SWMU 21-013(d)-99. Attachment 1 to this supplemental response provides a copy of the field notes to document the equipment used and the difficulties encountered when the eight tuff samples found to contain elevated chromium, copper, and nickel were collected.

In the SWMU 21-013(d)-99 VCA report addendum (LANL 2003, 83094), LANL hypothesized that the elevated chromium, copper, and nickel concentrations in tuff samples collected during 2003 resulted from abrasion of the sampling equipment. As stated in the first notice of deficiency (NOD), NMED did not agree with this hypothesis and required LANL to conduct additional sampling. In response, LANL provided a table comparing 1994 and 1995 chromium concentrations with the 2003 results to support further its claim that chromium is not present as a result of disposal activities at SWMU 21-013(d)-99. In the second NOD, NMED directed LANL to resample at the eight locations (two depths each) where the highest concentrations of chromium, copper, and nickel were detected. In their response to the second NOD,

LANL agreed to collect additional samples at the site. The first and the second NOD, as well as LANL's responses to both, are included as Attachment 2 to this supplemental response.

2004 RESAMPLING ACTIVITIES

To determine whether the elevated metal concentrations were related to site activities or an artifact of the sampling approach, eight locations at SWMU 21-013(d)-99 were resampled on September 23, 2004. A differential global positioning system (GPS) was used to re-establish the sampling grid and ensure the samples were collected at the correct locations. Figure 1 shows the locations that were resampled.

Because it was LANL's hypothesis that elevated concentrations of chromium, copper, and nickel were present in the 2003 tuff samples as a result of abrasion from a stainless-steel auger, a different sampling method was used to obtain the subsurface samples in 2004. A backhoe was used to trench to the required depth, and a "slam-bar" sampler was used to collect the tuff sample. Slam-bar samplers consist of a split-spoon that is pounded into the material to be sampled using a hand-operated sliding weight. The sample is then collected following the procedure outlined in SOP-06.10, Hand Auger and Thin-Wall Tube Sampler. Surface soil samples were collected following SOP-06.09, Spade and Scoop Method for Collection of Soil Samples, which was the same method used to collect surface soil samples in 2003. Figures 2 through 4 show photographs of the 2004 resampling activities.

The 2004 samples were submitted for laboratory analysis by Environmental Protection Agency (EPA) Method SW846 6010b (for chromium and copper) and SW846 6020 (for nickel), the same methods used to analyze the 2003 samples. Table 1 presents the 2004 resample data for chromium, copper, and nickel; Table 2 presents the 2003 chromium, copper, and nickel data for the same locations and approximate depths shown in Table 1.

COMPARISON OF 2003 AND 2004 ANALYTICAL RESULTS

Surface soil results did not change significantly from 2003 to 2004, and all soil results are below background values (BVs) for both sampling events (LANL 1998, 59730). There is, however, a marked difference in the tuff (Qbt 3) results between the 2003 and 2004 samples. Only three tuff sample results (one chromium and two nickel) exceeded Qbt 3 BVs in 2004 (LANL 1998, 59730), compared to 22 in 2003. The 2003 and 2004 data differ in the following ways:

- Chromium concentrations are generally two orders of magnitude lower in the 2004 tuff samples compared to the 2003 tuff samples from the same locations and depths. One 2004 chromium result exceeds the Qbt 3 BV, compared to eight in the comparable data set from 2003.
- All of the 2004 copper results are below the Qbt 3 BV, versus six results greater than Qbt 3 BV in 2003.
- All but two 2004 nickel results are below Qbt 3 BVs, compared to eight in 2003.

In Tables 1 and 2, the results exceeding BVs are shaded. Graphs comparing the 2003 and 2004 concentrations of chromium, copper, and nickel are shown in Figure 5. Note that no results from either 2003 or 2004 exceed the residential soil screening levels (SSLs) (NMED 2004, 85615; EPA 2003, 81724).

The highest 2004 chromium concentration (19.9 mg/kg at location) is the only 2004 result to exceed the Qbt 3 BV for chromium (7.14 mg/kg) and is equivalent to the soil BV for chromium (19.3 mg/kg). Of the two nickel concentrations above the Qbt 3 BV, one concentration (7.66 mg/kg) is slightly above the Qbt 3 BV of 6.58 mg/kg. The other nickel concentration (17.8 mg/kg at location 21-01939) is approximately 2.5

times the Qbt 3 BV (6.58 mg/kg) and is very similar to the soil BV (15.4 mg/kg). Tuff samples collected in 2004 from adjacent sample locations 21-01935, 21-01932, 21-01940, 21-01933, and 21-01936 (approximately 60 ft away from sample location 21-01939), at depths of 2.8 ft to 4.3 ft bgs, did not have nickel concentrations above the Qbt 3 BV.

CONCLUSIONS

The 1994, 1995, and 2004 site data indicate that elevated chromium, copper, and nickel concentrations reported in 2003 tuff samples may be an artifact of the 2003 sampling method. Data from historical sampling conducted in 1994/1995 and the resampling conducted in 2004 do not indicate the presence of these metals at levels significantly above background. Data from the 1994/1995 sampling events did not indicate that these metals are present above BVs in any media at SWMU 21-013(d)-99 (LANL 1995, 54320). In the case of the 2004 data, samples were re-collected immediately adjacent to the 2003 sample locations and depths. As shown in Table 1, the elevated metal results were not reproducible.

The 2004 data demonstrate that the extent of contamination has been adequately defined. Although three of the 2004 results (one chromium and two nickel) exceeded the Qbt 3 BVs, no other 2004 samples exceeded BVs for these metals, and the concentrations were significantly lower than those from 2003. Because this SWMU was a surface disposal area and none of the results for chromium or nickel at the surface were elevated, the three results above BV probably are not the result of a release from the site. Although two of the results that exceeded Qbt 3 BVs are very similar to soil BVs, they are not considered to be the result of cross-contamination of the tuff by soil during sampling activities. Using the backhoe to reach the required depth resulted in a very clean sampling surface and allowed for direct observation of the material being sampled. These results may reflect a local anomaly in background conditions of the tuff, possibly from weathering or fractures.

The 2003 risk screening results, using the elevated chromium, copper, and nickel concentrations, indicate SWMU 21-013(d)-99 does not pose a potential unacceptable risk to human health (based on a residential exposure). Because concentrations of metals significantly decreased in the 2004 samples, using the new data to re-evaluate the risk screening would result in the same conclusion (i.e., no potential unacceptable risk). Therefore, SWMU 21-013(d)-99 is recommended for no further action (NFA) under criterion 5, which states the SWMU has been characterized or remediated in accordance with applicable state or federal regulations, and available data indicate that chemicals of concern either are not present or are present at concentrations that would pose no potential unacceptable risk to human health or the environment under projected future land use.

REFERENCES

EPA (U.S. Environmental Protection Agency), December 2003. "EPA Region 6 Human Health Medium Specific Screening Levels," EPA Region 6, Dallas, Texas. (EPA 2003, 81724)

LANL (Los Alamos National Laboratory), September 1995. "Voluntary Corrective Action Completion Reports for Potential Release Sites, Group 2: PRSs 21-013(c,d,e), 31-001," Los Alamos National Laboratory document LA-UR-96-259, Los Alamos, New Mexico. (LANL 1995, 54320)

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

Francis, W. C., July 1998. "Definition of the Expression 'Cold Dump,' PRS 21-013(d)," Los Alamos National Laboratory memorandum (CST/ER:WCF-98-4) to L. Causey from W. C. Francis (CST-18), Los Alamos, New Mexico. (Francis 1998, 58709.18)

LANL (Los Alamos National Laboratory), September 2003. "Voluntary Corrective Action Completion Report Addendum for Solid Waste Management Unit 21-013(d)-99," Los Alamos National Laboratory document LA-UR-03-6877, Los Alamos, New Mexico. (LANL 2003, 83094)

NMED (New Mexico Environment Department), February 1, 2004. "Technical Background Document for Development of Soil Screening Levels, Revision 2.0," NMED Hazardous Waste Bureau—Ground Water Quality Bureau and Voluntary Remediation Program, Santa Fe, New Mexico. (NMED 2004, 85615)



Figure 2. Trenching using a narrow backhoe bucket to reach the required sampling depth at SWMU 21-013(d)-99



Figure 3. Using a "slam-bar" sampler to collect a tuff sample at SWMU 21-013(d)-99



Figure 4. Sample location 21-01941 at SWMU 21-013(d)-99

Table 1
Chromium, Copper, and Nickel Data from 2004 Resampling at SWMU 21-013(d)-99

Sample ID	Location ID	Depth (ft)	Media	Chromium	Copper	Nickel
Soil Background Value^a				19.3	14.7	15.4
Qbt3 Background Value^a				7.14	4.66	6.58
Soil Screening Levels^b				2100	3130	1560
MD21-04-55100	21-01932	0.00-0.50	Soil	5.78	2.74	4.38
MD21-04-55101	21-01932	3.50-4.10	Qbt 3	5.49	0.922	2.58
MD21-04-55102	21-01933	0.00-0.50	Soil	4.97	4.12	3.68
MD21-04-55103	21-01933	2.00-2.80	Qbt 3	1.23	1.6	1.41
MD21-04-55104	21-01934	0.00-0.50	Soil	6.61	8.59	5.95
MD21-04-55105	21-01934	2.00-2.75	Qbt 3	1.14	1.71	4.37
MD21-04-55106	21-01935	1.00-1.50	Soil	9.51	5.86	2.71
MD21-04-55107	21-01935	4.00-4.30	Qbt 3	2.27	2.08	3.19
MD21-04-55108	21-01936	1.00-1.50	Soil	10.7	6.36	8.13
MD21-04-55109	21-01936	3.75-4.25	Qbt 3	1.75	1.91	2.82
MD21-04-55110	21-01939	0.00-0.50	Soil	6.74	4.98	5.96
MD21-04-55111	21-01939	6.00-6.50	Qbt 3	1.7	2.81	17.8 ^c
MD21-04-55112	21-01940	0.00-0.80	Soil	6.31	3.58	4.76
MD21-04-55113	21-01940	3.50-4.10	Qbt 3	3.27	4.63	4.25
MD21-04-55116	21-01940	3.50-4.10	Qbt 3	3.56	4.56	4.05
MD21-04-55114	21-01941	0.00-0.80	Soil	10.7	8.24	6.98
MD21-04-55115	21-01941	3.50-3.75	Qbt 3	19.9	4.58	7.66

^a BVs for soil and Qbt 3 obtained from LANL (1998, 59730).

^b SSL for total chromium obtained from EPA Region 6 (EPA 2003, 81724) and converted to 10⁻⁵ cancer risk. SSLs for copper and nickel obtained from NMED (2004, 85615).

^c Shaded cells indicate a sample result greater than BV.

Table 2
Chromium, Copper, and Nickel Data from 2003 VCA Sampling Event at SWMU 21-013(d)-99

Sample ID	Location ID	Depth (ft)	Media	Chromium	Copper	Nickel
Soil Background Value^a				19.3	14.7	15.4
Qbt3 Background Value^a				7.14	4.66	6.58
Soil Screening Levels^b				2100	3130	1560
MD21-03-50472	21-01932	0.00-0.50	Soil	6.35	4.37	3.96
MD21-03-50473	21-01932	3.50-4.50	Qbt 3	502 ^c	10.4	40
MD21-03-50474	21-01933	0.00-0.50	Soil	7.54	6.07	5.17
MD21-03-50475	21-01933	2.00-3.00	Qbt 3	679	15.5	48.8
MD21-03-50476	21-01934	0.00-0.50	Soil	8.09	9.00	5.69
MD21-03-50477	21-01934	2.50-3.00	Qbt 3	224	4.60	22.2
MD21-03-50478	21-01935	0.00-0.50	Soil	7.11	5.24	4.22
MD21-03-50479	21-01935	3.50-4.50	Qbt 3	335	7.28	29.8
MD21-03-50480	21-01936	0.00-0.50	Soil	6.30	10.8	5.48
MD21-03-50481	21-01936	3.50-4.50	Qbt 3	229	5.59	30.5
MD21-03-50482	21-01939	0.00-0.50	Soil	10.1	7.65	5.16
MD21-03-50538	21-01939	6.00-7.00	Qbt 3	171	4.32	12.4
MD21-03-50484	21-01940	0.00-0.50	Soil	8.66	6.75	6.70
MD21-03-50485	21-01940	3.50-4.50	Qbt 3	460	8.2	28
MD21-03-50486	21-01941	0.00-0.50	Soil	5.68	6.44	4.93
MD21-03-50487	21-01941	3.50-4.50	Qbt 3	286	7.56	19.7

^a BVs for soil and Qbt 3 obtained from LANL (1998, 59730).

^b SSL for total chromium obtained from EPA Region 6 (EPA 2003, 81724) and converted to 10⁻⁵ cancer risk. SSLs for copper and nickel obtained from NMED (2004, 85615).

^c Shaded cells indicate a sample result greater than BV.

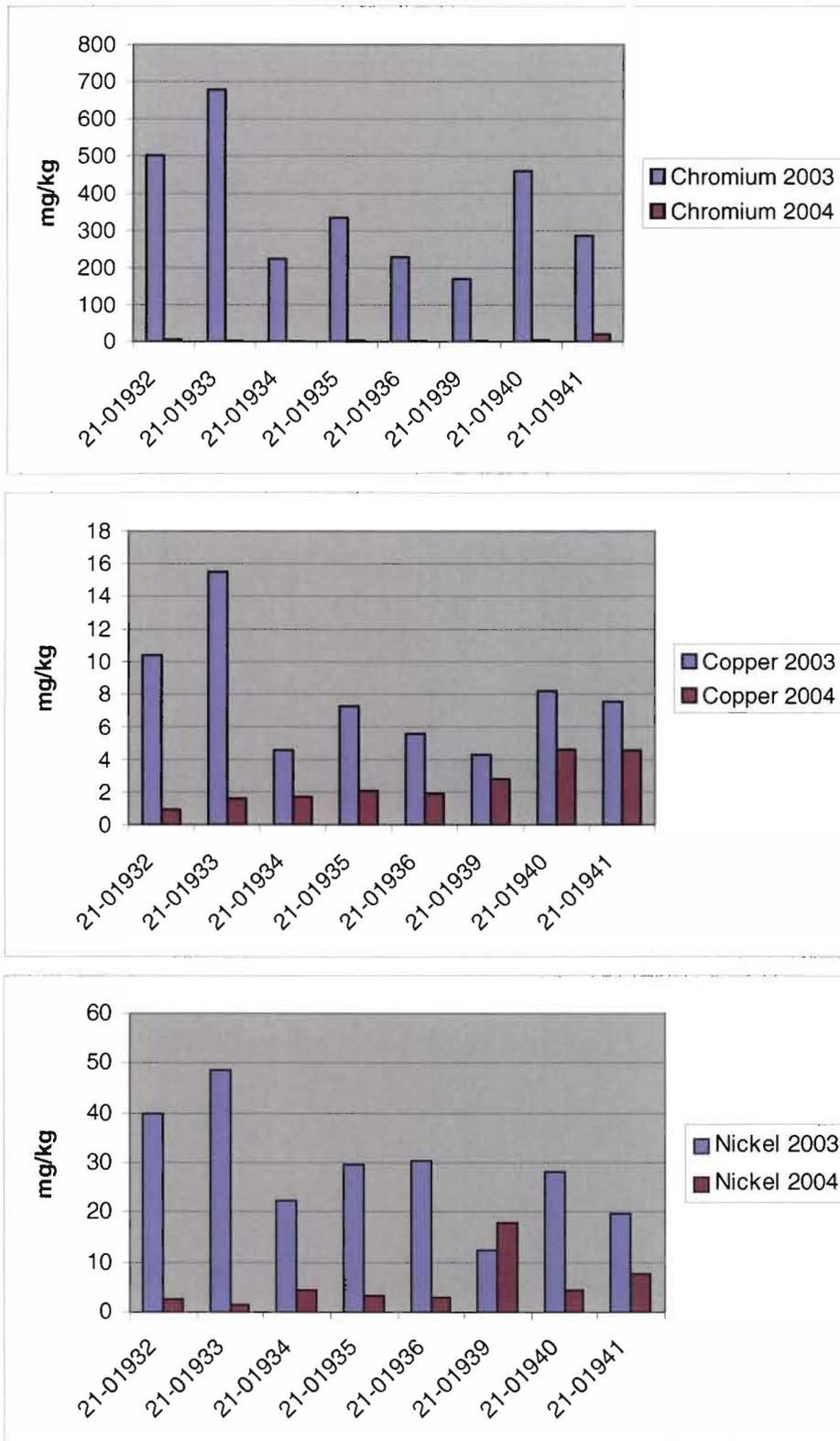


Figure 5. Comparison between 2003 and 2004 chromium, copper, and nickel concentrations in tuff samples

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Attachment 1

Field Notes

Completion of VLA activities at PRS-
21-013(d)-99 at TA-21-Field log Book
SHAW ENVIRONMENTAL, LOS ALAMOS, NM 87544 661-5200

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Completion of VCA activities at PRS 21-013 d-99
at TA-21

REES Project worker responsible for this notebook Randy Johnson

REES Project workers responsible for making entries Gary Garcia
Jacinto Gaudino
Margarie Polley

The objective of this VCA Plan Addendum is to
determine the nature and extent of residual
contamination at ~~SWMU~~ SWMU 21-013 d-99.
2/13/03

2/13/03

- 0900 GARY GARCIA HEADS TO PRECISION SURVEY TO SPEAK WITH KEV SPEDING ABOUT CONTRACT AND SCOPE CHANGES.
- 0930 RESOLVES CONTRACT CHANGES
- 1000 GARY GARCIA GOES OVER STAGE WITH PRECISION SURVEYING, CRED (2), BOTH ARE COMPATIBLE WITH SSB AND SKIN.
- 1130 SURVEYORS HEAD TO TAZI TO BEGIN SURVEYING
- 1240 SURVEY CRED IS HAVING TROUBLE WITH ESTABLISHING A CONVERGENCE THIS FALLS OUT CRITERIA. SURVEYORS TRYING TO FIGURE OUT PROBLEM. SURVEYORS ALSO HAVING TROUBLE WITH TREE CANOPY DENSITY, SATELLITE SIGNAL IS NOT CONSISTENT.
- 1330 SURVEYORS STILL CANNOT CORRECT GPS TO CONVERGE WITH 0.1 OF A FEET.
- 1400 GARY CALLS BECKY COOL-ROBELL ABOUT THE PROBLEMS WITH COORDINATES. BECKY CALLS BILL KOPP AND SAYS SHE'LL CALL GARY BACK.
- 1420 BILL KOPP CALLS GARY, GARY HANDS PHONE OVER TO LAUREN, THE SURVEYOR THEY SPEAK AND TRY TO RESOLVE COORDINATE PROBLEMS.
- 1500 THEY BOTH COME TO A RESOLUTION, COORDINATES ARE GROUP AND NOT GRID. CONVERGENCE IS WHERE IT SHOULD BE. GPS BEGINS TO ACT UP. SURVEYORS WILL RETURN TOMORROW TO RESURVEY SAMPLE POINTS.

RECEIVED
JAN 11 1964

2/18/03

0830~ GARY Garcia, Jacinto Garduno and Margie Paulie
prepare for the day activities.

POD: Sample at TA-21, VCA at PRS 21-0136(1). Sampling
will begin at the furthest point and work to trailer.

Equipment: IT TRUCK # 83632, 12 KW (65) Unlabeled Generator,
Bosch electric Auger, Utility trailer.

Weather: Cold, wet, Cloudy with a slight drizzle.

0930~ ARRIVE AT site and prepare for sampling activities.

Gary Garcia conducts tail gate

1000~ Crew assembles Alogits for sampling

1040~ Randy Johnson and Allen Bird visit site.

1100~ Gary Garcia and Jacinto Garduno head into site to begin
sampling. Margie Paulie remains in CR2 area

1140~ Collected sample at Location ID 21-01941. Sample
was a surface sample at 0-6" using spade and scoop
method ER-SOP 6.09, Rev 1.

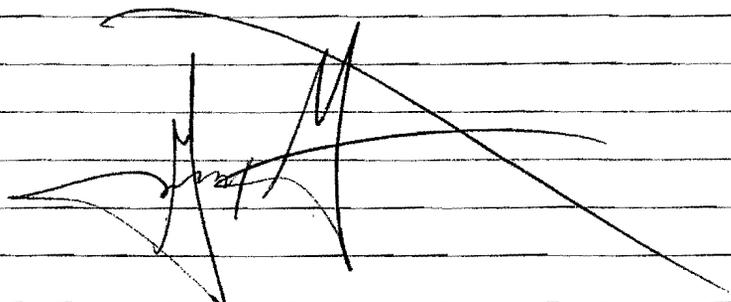
1315~ Augered down to depth at Location 21-01941 (3'5" - 4'5").
Had difficult time extracting sample from borehole. Collected
Samples from borehole.

1500~ Preped 3 labeled samples for submittal to SMO.

1530~ Decontaminated all equipment and put back into utility
trailer. Covered generator and field equipment.

1630~ HEAD BACK to OFFICE. Done with sampling for
the day.

~ Collected two samples from one location (2 depths).
Had difficulty extracting full sample from borehole.
Frey tried several different ways to retrieve sufficient
sample amounts. Have a better idea on how to do it
for future samples.



2-19-03

0730 ~ GARY GARCIA, Jacinto Garduno and Allen

Bird prepare for the days activities.

POD - Continue Sampling at UCA at PRS 21-013d-99
at TA-21.EQUIPMENTS: JAW TRUCK # 83632, Bosch Auger (electric),
Utility trailer, (65) 12kw Generator.

Weather - Sunny, Cold with a chance for afternoon Showers

0800 ~ Crew sets up decon station, inspects equipment and
fuels generator. Gary Garcia conducts tailgate safety
meeting. Allen Bird is briefed on SSHASP.0830 ~ Jacinto Garduno and Allen Bird will enter site
to begin sampling. Gary Garcia will remain in CR2
and prep samples.0915 ~ Sample 21-01934 0-6" was collected at 855.
Sample was sealed, labeled and photographed1000 ~ Margie Paulie arrives at site, briefed on tailgate.
Jacinto and Allen are having a difficult time extracting
Sub-surface sample.1215 ~ Elmer Allen visited site to give advise on Bosch
drill. Elmer was briefed on SSHASP, Safety tailgate
and signed in on visitor log.1530 ~ Crew collected Six (6) more samples from 3 locations.
Gary Garcia heads to SMO to submit samples. All samples
were not screened for VOC's. Samples to be submitted are as

follows: (21-01934 - Sample ID: MD21-03-50476 - 0-6" - 0855

21-01934 - Sample ID: MD21-03-50477 - 2.5-3'0" - 0955

2/19/03 { 21-01935 - S ID: MD 21-03-50478 - 0-6" - 1050

21-01935 - S. ID: MD21-03-50479 - 3.5" - 4.5 - 1130

21-01936 - S ID: MD21-03-50480 - 0-6" - 1145

21-01936 - S ID: MD21-03-50481 - 3.5 - 4.5" - 1195

2/18/03 { 21-01941 - S. ID: MD21-03-50486 - 0-6" - 1140

21-01941 - S. ID: MD21-03-50487 - 3.5 - 4.5" - 1315

2/19/03 - FTB - MD21-03-50540 1413

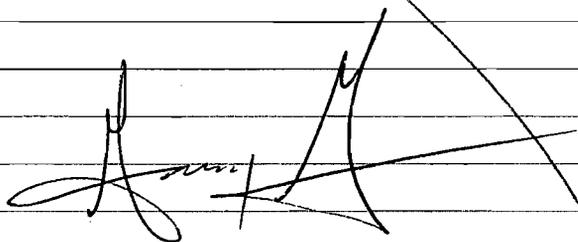
~ All samples were properly sealed, tagged and digitally photographed.
All samples did not need RADVAN screening as by command
decision from UTR - Becky-Loel Roback and SMO Keith Greene.

2-19-03

1620~ Crew continued to sample, two additional samples were collected.

1650~ Sampling activities cease for the day. All sampling equipment is cleaned and decontaminated. All tools were put up and stored. Head to SHAW OFFICE.

~ In total 6 samples were collected today 2-19-03, 2 samples were collected on 2-18-03. Eight samples were submitted to SMO. All samples did not have field screening prior to submittal. PID was not available. All samples were collected without RADVAN samples. Crew having a hard time extracting and collecting subsurface samples. Sampling is going slow due to this factor.



A handwritten signature, possibly reading "James", is written across the page. A large, thin, curved line is drawn over the signature and extends downwards towards the bottom right of the page.

1130

15

40

315

graphed

2.

6

2-20-03

0730~ GARY Garcia, Margie Polley, Allen Bivell, and Jacinto Cardona prepare for the days activities.

POD: Continue Sampling at TA-21 PRS 21-013d-99 VCA.

Sampling will begin at sample location 21-01933 of the Sample grid.

Equipment: Straw truck # 83632, 65 Gallon 12kw Generator, Utility trailer, Bosch electric Hand Auger.

Weather: Cold, (cloudy and snowing).

0800~ ARRIVE AT site, setup decon area, go over sampling plan. Gary Garcia conducts tailgate.

0830~ Crew goes into zone to begin sampling.

0850~ Collected first sample.

0930~ Randy Johnson Arrives AT site to Calibrate PID.

0945~ Randy Leaves site and shows Gary how to use; calibrate PID Instrument.

1115~ Trung Nguyen arrives at site, he was satisfied with operations. His only concern was the possibility of electrical shock and cold stress.

1125~ Trung left site.

1200~ Went to lunch.

1250~ Begin sampling, weather is getting worse. PID Alarm is going off, PID not functioning due to moisture in the air.

1500~ Crew decided that samples were not being collected in a efficient manner and an alternative was needed to collect better quality samples. Gary Garcia spoke with Becky Carl-Roback and she referred him to another gentleman (Tom Benson) that had similar problems at TA-21. Gary decides to cease sampling for the day. Gary heads to SMO to submit samples collected.

1515~ GARY submits 10 samples. Samples are as follows.

Location ID: 21-01932	S. ID~MD21-03-50472	~ 0-6" ~ 0850
21-01932	S. ID~MD21-03-50473	~ 3.5-4.5 ft ~ 1035
21-01933	S. ID~MD21-03-50474	~ 0-6" ~ 0850
21-01933	S. ID~MD21-03-50475	~ 2-3' ~ 0920
21-01939	S. ID~MD21-03-50482	~ 0-6" ~ 1425
21-01939	S. ID~MD21-03-50538	~ 6-7" ~ 1515

2/20/03

Continued

21-01940 S.ID MD21-03-50484 ~ 0-6" ~ 1543

21-01940 S.ID MD21-03-50485 ~ 3.5-4.5" A ~ 1615

21-09009 S.ID MD21-03-50494 ~ 0-6" ~ 1005

FTB MD21-03-50541 - NA - 1330

1630~ Return to SHAW OFFICE. Done for the day.

~ Collected (7) Seven samples 2-20-03 + one (1) field trip blank on 2-20-03. Two (2) samples were from 2/19/03.

All samples were properly labeled, sealed and digitally photographed. Gary will contact Tom Preussner to pick up a new set-up for Bosch Auger tomorrow. Becky Coel-Roback referred Gary to him. No RADVAN samples were taken by command decision by Becky-Coel-Roback & Keith Greene.

[Handwritten signature]

2-21-03

0800~ Gary Garcia, Jacinto Garduno prepare for the days activities.

POD~ Continue Sampling at TA-21 PRS 21-013d-99.

EQUIPMENT~ SAAN TRUCK # 83632, GS Gillette 12kW generator, Bosch electric hand auger, Utility trailer

Weather~ Sunny to partly cloudy, cold, slight wind.

0900~ Head to TA-21-011k to talk with Tom Benson.

Becky Cook-Robuck referred us to him for Sampling (Subsurface) setup.

0915~ Pick up two Auger spoons from Tom Benson.

0930~ Head to SMO to pick chain of custody paperwork and to speak with Joe Skaski on auger bits.

1000~ Picked up all ~~paper~~ paperwork. Head to Snow office.

1005~ Pick up Margie Polley, head to site

1010~ ARRIVE AT site, setup decm. station. Decided to collect surface samples only. Have questions on new equipment and short handed. Begin sampling. Gary Garcia conducts tailgate briefing.

1430~ Collected Six (6) Surface Samples. Head to SMO to Submit Samples. Samples submitted are as follows:

21-01928 - MD21-03-50468 - 0-6"

21-01924 - MD21-03-50460 - 0-6"

21-01929 - MD21-03-50470 - 0-6"

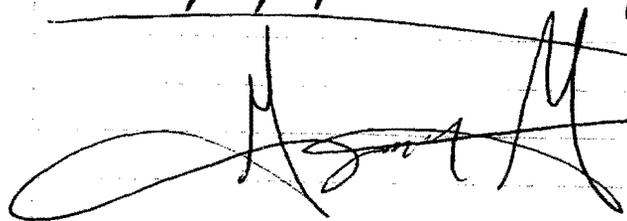
21-01923 - MD21-03-50458 - 0-6"

21-09008 - MD21-03-50492 - 0-6"

21-09010 - MD21-03-50496 - 0-6"

FTB - MD21-03-50542 - NA

1515~ Done Sampling for the day. Submitted 6 surface samples, 1 FTB to SMO. All samples were properly labeled, tagged and ~~also~~ digitally photographed. ~ All Sample paperwork ready for Sampling on Monday.

 2-21-03

2/23/02

I, Randy Johnson, have reviewed
the figures on pages 01 through
08 and they meet the requirements
described in QPS.7. All review
comments noted have been corrected
and/or resolved.

R. Johnson

2-24-03

0800~ Jacinto Gardner and Allen Bird prepare for the days activities.

POD - Continue Sampling at TA-21 PRS 21-013d-99.

EQUIPMENT - SAW TRUCK # B3632, Bosch electric Auger, 65 Gillette 12KW (Lawloured) generator, Utility trailer
Weather - Cold, breezy, cloudy with a slight snow drizzle.

0800~ Jacinto conducts tailgate. Jacinto and Allen head to the sight to begin setting up for sampling activities.

0945~ Gary Guzin and Margie Polley arrive at site. Both are briefed on SS HASP.

0950~ Jacinto and Allen collected (2) two surface samples. Battery in generator is dead. Surface sample collected are as follows.

21-01922 - 0-6" 20845 MD-21-03-50456

21-09011 - 0-6" 20945 MD-21-03-50498

Samples which are being collected using The Spade and Sloop Method, ER-SOP 6.09, R1.

1015~ Sample collected at Sample location 21-01927, MD-21-03-50466, Time - 1015, 0-6", NO RADVAN only two encore taken. (Surface Sample) - ER-SOP 6.09, R1

1035~ Sample collected at Sample location 21-01921, MD-21-03-50454, Time 1035, 0-6", NO RADVAN, 2 encores, ER-SOP 6.09, R1
Surface Sample

1105~ Sample collected (surface) at Sample location 21-01920, MD-21-03-50452, Time 1105, 0-6", NO RADVAN, 2 encore ER SOP 6.09, R1

1122~ Sample collected (surface) at Sample location 21-01920, MD-21-03-50464, Time 1122, 0-6", NO RADVAN, 2 encores, ER-SOP 6.09, R1

1210~ Lunch

1300~ Return from lunch, stopped to pick up Battery for generator. Continue sampling.

1545~ Head to SMO to submit surface samples. All samples have been properly labeled, tagged and photographed.

2-24-03

1600 ARRIVE AT SMO to Submit Samples. Surface Samples submitted are as follows:

21-01922 - MD21-03-50456 - 0-6" \varnothing 0839
 21-09011 - MD21-03-50498 - 0-6" \varnothing 0945
 21-01927 - MD21-03-50466 - 0-6" \varnothing 1015
 21-01921 - MD21-03-50454 - 0-6" \varnothing 1035
 21-01920 - MD21-03-50452 - 0-6" \varnothing 1105
 21-01926 - MD2-03-50464 - 0-6" \varnothing 1122
 21-03-21722 - MD21-03-50500 - 0-6" \varnothing 1343
 21-03-21721 - MD21-03-50502 - 0-6" \varnothing 1350
 21-03-21720 - MD21-03-50504 - 0-6" \varnothing 1400
 21-03-21719 - MD21-03-50506 - 0-6" \varnothing 1407
 21-03-21718 - MD21-03-50508 - 0-6" \varnothing 1420
 21-03-21717 - MD21-03-50510 - 0-6" \varnothing 1444
 FTB \rightarrow MD21-03-50543 NA 1530

\sim 12 Surface Samples and 1 FTB Submitted.
 \sim NO RADVANS collected, only 2 encore per Sample schedule.

1700 Head Back to SHAW OFFICE. Done Sampling for the day.

\sim Only surface sampling was done today, no augering was done due to generator battery failure. New Augering technique with Auger bucket will be tried tomorrow.

[Handwritten signature]

2-25-03

0700

Jacinto Gordon, Allen Bird, Margie Polley arrive at office and prepare for today's activities.

POD: Collect remaining surface samples, rent 4" gas powered auger from Franks Supply and began collecting samples at assigned depths.

Equipment: Shaw truck # 83632, gas powered auger from Franks Supply, utility trailer

Weather: cold, snowing 30°

13

0730

Tailgate conducted by Jacinto.

Margie and Allen began setting up for sampling activities.

0810

Allen heads in to exclusion zone, Margie will be support. Allen will collect remaining surface samples. Jacinto heads to Franks supply to rent auger equipment.

0900

Two surface samples have been collected.

21-03-21715 - M021-03-50514 - 0-6" 0822

21-03-21716 - M021-03-50512 - 0-6" 0842.

Method used to collect samples was ER-SOP 6.09, Crew begins sealing, labeling and photographing samples.

1030

Jacinto and Allen began assembling two-man hand auger.

1050

Jacinto and Allen began augering at depth of 2'-3' at sample location 21-03-21715 located on western end of sample grid.

1130

Method is successful. Jacinto calls Randy Johnson to ask him to pick up hand auger kit so samples can be extracted from depth.

1210

Crew breaks for lunch.

2-25-03

1300 Crew returns to site with hand auger kit and will begin taking subsurface

QW samples.

1330 ~~1300~~ Subsurface sample collected sample location 21-03-21722 - MO21-03-50501 - depth 2-3'

1337 Subsurface sample collected from sample location 21-09009 - MO21-03-50495 - depth 2-3'

1400 Jacinto and Allen are using 4" auger rented from Franks supply and auger down to desired depth. Then using hand auger crew is able to extract sample

1437 Subsurface sample collected, sample location 21-01929 - MO21-03-50471 - depth 3.5-4.5'

1535 Subsurface sample collected, sample location 21-03-21721 - MO21-03-50503 - depth 2-3'.

1600 Crew begins deconing auger flights, bucket, sample bowls, spoons, and any other equipment in exclusion zone.

1615 All samples have been properly sealed, labeled, and photographed.

1630 All equipment stored in utility trailer. Samples stored in cooler and will be submitted on 2-26-03.

1645 Crew heads back to Shaw office.

Activities complete for the day.

Method used to collect subsurface samples was a success. Crew would auger down using a 4" gas powered auger. Then collect sample using hand auger sampling bucket.

Samples collected today were 2 surface

samples 21-03-21715 - MO21-03-50514, 21-03-21716 -

MO21-03-50512, subsurface collected (three)

21-03-21722 - MO21-03-50501, 21-09009 - MO21-03-50495,

21-01929 - MO21-03-50471 - Field Trip Blank

MO21-03-50532

14

2/27/03

0800

Jacinto Garduno, Margie Pelley, Allen Bird, and Gary Garcia arrive at site and prepare for today's activities.

POD Crew will collect remaining sub-surface samples.

Equipment: Shaw truck # 83632, 4" gas powered auger from Franks supply, utility trailer.

Weather: Cold, chance of snow showers

0810

Tail-gate conducted by Jacinto. Gary and Allen will begin augering sample depths. Jacinto will collect samples.

Margie will remain in support zone and will prep samples collected.

0825

Allen, Gary, and Jacinto enter exclusion zone and will begin augering and collecting samples.

0908

Sub-surface sample collected at sample location 21-01928 - MD21-03-50469 - depth 3.5-4.5'

0915

Gary and Allen move to next location and began augering. Location ID # 21-09008, depth of 2'-3'.

0945

Gas powered auger is ~~not~~ hitting refusal at 18". Crew will try auger new hole next to location. Crew is also having difficulties with exhaust from machine, Activities at a stand still. Randy Johnson notified about exhaust problem.

1015

Randy Johnson arrives at site and inspects machine to see if exhaust can be diverted.

1030

Gary has reached depth at sample location 21-09008. Gary will begin collecting sample. Depth was reached using hand augers.

1040

Sample collected at location 21-09008 - MD21-03-50493 depth 2'-3'.

- 1055 Randy Johnson does some modifications to exhaust on gas powered auger.
- 1115 Gary and Allen began augering down at next sample location # 21-01923.
- 1140 Sample # MD21-03-50459 is collected from Site ID 21-01923.
- 1200 CREW BREAKS FOR LUNEL
- 1300 CREW BACK ON SITE SAMPLING RESUMES
- 1530 CREW EXITS CREW, SAMPLES ARE PREPARED FOR SUBMITTAL TO SMO.
- 1545 Brady, Carl-toberk is on site.
- 1600 CREW HEADS TO SMO TO SUBMIT SAMPLES Brady completes maintenance work around Unit Raddy.
- 1620 Randy leaves site. CREW IS DONE FOR THE DAY

Sample Summary For 02/27/03.

Sample ID	Site ID	Depth	Time
MD21-03-50459	21-01923	3.5'-4.5'	1140
MD21-03-50469	21-01928	3.5'-4.5'	0908
MD21-03-50471	21-01929	3.5'-4.5'	1435
MD21-03-50493	21-09008	2.0'-3.0'	1040
MD21-03-50497	21-09010	3.5'-4.5'*	1510
MD21-03-50499	21-09011	2.0'-3.0'	1535
MD21-03-50500	21-21720	2.0'-3.0'	1342
MD21-03-50507	21-21719	2.0'-3.0'	1405
MD21-03-50544	NA	NA FB	1555

* Location 21-09010 was over drilled past target sample depth.

- 1630 David Keller RES-BCO HAS GRANTED APPROVAL TO EXTEND FIELD ACTIVITIES BEYOND 2/28/03 AS OUR ACTIVITIES WILL NOT ADVERSELY IMPACT T&R SPECIES IN THIS AREA

R. Johnson

16

3/02/03

I, Randy Johnson, have reviewed
the earnings on page 09 through
15 and the meet the requirements
described in QP 5.7. All review
comments noted have been corrected
and/or resolved.

R. Johnson

3/4/03

0700 Jacinto Gordon, Margie Polley, and Allen Bird arrive at office and prepare for today activities. POO: Crew will collect remaining subsurface samples.

Equipment: Shaw truck # 83632, 4" gas powered auger from Franks Supply utility trailer.

Weather: Cold, chance of showers.

0745 Head to JMO to pick up chain of custody.

0810 Arrive at site MA21-013(d)-59. Tail-gate conducted by Allen Bird.

0830 Jacinto and Allen enter exclusion zone and begin augering down to depth at Sample location 21-03-21717.

0915 Sample collected at Sample location 21-03-21717. MO 21-03-50511 depth 2'-3'.

0930 Randy Johnson arrives at site. Randy replaces Allen in exclusion zone. Allen has an open wound and will not enter exclusion zone for remainder of day.

0955 Sample collected at Sample location 21-01922 - MO 21-03-50457 depth 3.5 - 4.5.

1005 Field duplicate also collected at location 21-01922 - MO 21-03-50535, depth 3.5 - 4.5.

1040 Samples prepped and photographed. Randy Johnson had a meeting at Shaw office. Sample activities are at a stand-still. Jacinto needs other person to operate auger.

1130 Crew breaks for Lunch.

1230 Crew returns to site, and continues sampling operation.

1310 Sample collected from sample location 21-03-21718 - MO 21-03-50509 - depth 2'-3'.

1315 Field duplicate collected from sample location 21-03-21718 - MO 21-03-50537 - depth 2'-3'.

18

3/4/03

- 1357 Sample collected from sample location
21-01920 — m021-03-50453 — depth 3.5'-4.5'
- 1440 Sample collected from location
21-03-21715 — ~~m021-03-50535~~ — m021-03-50515
depth 2'-3'.
- 1527 Sample collected from sample location
21-01921 — m021-03-50455 — depth 3.5'-4.5'
- 1540 Samples prep'd, labeled, and photographed.
- 1610 Becky Coel-Raback arrives at site.
Randy, Becky, and Jacinto walk
site to determine which stock-piles
will be sampled.
- 1630 Five stock-piles were chosen by
Randy and Becky.
- 1640 Crew leaves site.

Sample Summary for 3/4/03

Sample ID	Site ID	Depth	Time
m021-03-50511	21-03-21717	2-3'	0915
m021-03-50457	21-01922	3.5-4.5'	0955
m021-03-50535	21-01922	3.5-4.5'	1005 (duplicate)
m021-03-50509	21-03-21718	2-3'	1310
m021-03-50537	21-03-21718	2-3'	1315 (duplicate)
m021-03-50453	21-01920	3.5-4.5'	1357
m021-03-50515	21-03-21715	2-3'	1440
m021-03-50455	21-01921	3.5-4.5'	1527

[Handwritten signature]

3/4/03

3/5/03
0700

Jacinto Garduno and Allen Bird arrive at office and prepare for today's activities.

POO: Collect subsurface samples at remaining locations at T21-013(d)-99.

Equipment: Shaw truck #83632, 4" gas powered auger from Franks supply, utility trailer.

Weather: cold, snowing.

0745 Head to SMO to pick up sample collection log for 21-03-21715 - M021-03-50515. Also head to Metzgers True Value to purchase 5 gallon bucket with lid and to Franks supply to pick up 4" auger bit.

0845 Randy Johnson, Jacinto Garduno, and Allen Bird arrive at site. Margie Polley will join crew later.

0900 Tail-gate conducted by Jacinto.

0930 Randy and Jacinto enter exclusion zone. Allen will remain out in support zone. Randy and Jacinto decide that augering down to required depths at remaining locations prior to collecting samples would be beneficial to operation.

1040 All remaining sample locations on grid have been augered down to required depth.

1050 Sample collected from sample location 21-01925 - M021-03-50462 - depth 0-6". Margie Polley arrives at site.

1115 Sample collected from sample location 21-01925 - M021-03-50463 - depth 3.5' - 4.5'.

1135 Sample collected from sample location 21-01924 - M021-03-50461 - depth 3.5' - 4.5'.

1140 Samples prepped, labeled, and photographed. Randy and Jacinto exit exclusion zone.

1200 Crew breaks for lunch.

[Signature]

20

3/5/03

- 1300 Crew heads to SMO for another cooler and ice.
- 1320 Crew arrives back at site 21-013(d)-99. Jacinto and Margie head in to exclusion zone to collect remaining samples. Allen Bird will stay in support zone.
- 1415 Sample collected 21-01927 - MO21-03-50467 depth 2'-3'.
- 1445 Sample collected at sample location 21-01926 - MO21-03-50465 - depth 2'-3'; also Field Trip Blank prepared sample ID MO21-03-50545. Samplers are being preped, labeled, and photographed by Randy Johnson and Allen Bird.
- 1510 Sample collected at sample location 21-03-21723 - MO21-03-50530 - depth 0-6". Sample 21-03-21725 - MO21-03-50526 depth 0-6" was collected at 1500.
- 1520 Sample collected at sample location 21-03-21724 - MO21-03-50528 - depth 0-6".
- 1530 Samples being preped, labeled and photographed. Margie and Jacinto decar equipment. Sample activities completed for the day.
- 1600 Samples submitted to SMO. Paper work correct no problems. Chain of Custody will be picked up in morning.
- 1640 Head back to Shaw office.

Sample Summary for 3/5/03

Sample Id.	Site Id.	depth.	Time
MO21-03-50462	21-01925	0-6"	1050
MO21-03-50463	21-01925	3.5'-4.5'	1115
MO21-03-50461	21-01924	3.5'-4.5'	1135
MO21-03-50467	21-01927	2'-3'	1415
MO21-03-50465	21-01926	2'-3'	1445
MO21-03- 504 50545	—	—	1445

3/5/03

Sample Id	Site Id.	depth.	Time
m021-03-50526	21-03-21725	0-6"	1500
m021-03-50530	21-03-21723	0-6"	1510
m021-03-50528	21-03-21724	0-6"	1520

[A large, diagonal scribble or signature is present across the lower half of the page.]

3/5/03

22

3/6/03

0800 Jacinto Gardono and Randy Johnson head out to TA21 to complete sampling activities.

POO: Collect surface and subsurface samples from new stock-pile locations.

Equipment: Hand auger, Shaw truck # 83632, utility trailer, and sampling equipment.

Weather: sunny, and breezy

0815 Jacinto and Randy set up CR2, and prepare paperwork and sampling bottles.

0900 Tail-gate conducted by Jacinto.

0930 Jacinto enters exclusion zone and will begin sampling stock piles that Randy flagged.

0940 David Paulson Health and Safety for Shaw E & I, Los Alamos arrives on site and will do safety walk-around.

0950 Sample collected from new stock-pile location 21-03-21730 — M021-03-50514 — depth 0-6". Jacinto augers down to subsurface depth.

1022 Subsurface sample collected from sample location 21-03-21730 — M021-03-50517 — depth 2-3'.

1030 David Paulson leaves site, and has no concerns about operation.

1055 Sample collected ~~at~~ at new stock pile location 21-03-21729 — M021-03-50518 — depth 0-6". Jacinto augers down to sub-surface depth.

1122 Subsurface sample collected at location 21-03-21729 — M021-03-50519 — depth 2-3'.

1130 Samples prepped, labeled, and photographed by Randy. Jacinto decons sampling equipment.

1215 Crew breaks for lunch.

1315 Jacinto heads to SMO, to fill out Rad release form and pick up chain of custody.

1345 Jacinto and Randy arrive at site TA21 and will continue sampling activities.

3/6/03

- 1425 Sample collected from new stock pile location
21-03-21728 - M021-03-50520 - depth 0-6"
Jacinto augers down to next depth.
- 1430 Sample collected at new stock pile location
21-03-21726 - M021-03-50524 - depth 0-6"
- 1455 Subsurface sample collected at location
21-03-21728 - M021-03-50521 - depth 2-3'
Randy preps and photographs samples.
- 1535 Sample collected from new stock-pile location
~~M021-03-50524~~ 21-03-21727 - M021-03-50522 - depth
0-6". Also field duplicate will be
collected M021-03-50536 - depth 0-6".
Jacinto augers down to subsurface depth.
- 1605 Subsurface sample collected collected at
location 21-03-21727 - M021-03-50523 - depth 2-3'.
- 1615 Randy and Jacinto will operate 4" gas
powered auger, to auger down to subsurface
depth. Ground is frozen.
- 1635 Subsurface sample collected at location
21-03-21726 - M021-03-50525 - depth 2-3'.
Also field duplicate was collected
M021-03-50548 - depth 2-3' from this location.
- 1640 All surface and subsurface samples have
been collected. Randy preps, labels, and photographs
samples. Jacinto decons all sampling ^{equipment} using
a Alconox wash, rinse, and final rinse method.
- 1700 All samples are stored in a cooler and
will be stored in utility trailer for submital
in morning 3/7/03. Custody seal placed on
cooler.

Sample Summary for 3/6/03

Sample Id.	Site Id.	depth	Time
M021-03-50516	21-03-21730	0-6"	0950
M021-03-50517	21-03-21730	2-3'	1022
M021-03-50518	21-03-21729	0-6"	1055
M021-03-50519	21-03-21729	2-3'	1122

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3/6/03

Sample Id	Site Id.	depth	Time
MO21-03-50520	21-03-21728	0-6"	1425
MO21-03-50524	21-03-21726	0-6"	1430
MO21-03-50521	21-03-21728	2'-3'	1455
MO21-03-50522	21-03-21727	0-6"	1535
MO21-03-50536	21-03-21727 (duplicate)	0-6"	1535
MO21-03-50523	21-03-21727	2'-3'	1605
MO21-03-50525	21-03-21726	2-3'	1635
MO21-03-50548	21-03-21726 (duplicate)	2-3'	1635

[Handwritten signature]

3/6/03



Attachment 2
NMED NODs and LANL Responses



BILL RICHARDSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Telephone (505) 428-2500
Fax (505) 428-2567
www.nmenv.state.nm.us



RON CURRY
SECRETARY

DERRITH WATCHMAN
DEPUTY SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

March 5, 2004

David Gregory, Program Manager
Los Alamos Site Office
Department of Energy
528 35th Street, Mail Stop A316
Los Alamos, NM 87544

G. Pete Nanos, Director
Los Alamos National Laboratory
P.O. Box 1663, Mail Stop A100
Los Alamos, NM 87545

RE: NOTICE OF DEFICIENCY
VCA COMPLETION REPORT ADDENDUM
SOLID WASTE MANAGEMENT UNIT (SWMU) 21-013(d)-99
LOS ALAMOS NATIONAL LABORATORY (LANL), NM0890010515
HWB-LANL-03-014

Dear Mr. Gregory and Mr. Nanos:

The New Mexico Environment Department (NMED) is in receipt of the VCA Completion Report Addendum for SWMU 21-013(d)-99, dated September 2003 and referenced by LA-UR-03-6494 (ER2003-0475). NMED has reviewed this document and is issuing a notice of deficiency. LANL must respond to the comments as outlined in the attachment to this letter within thirty (30) days of receipt of this letter. The human health and ecological screening assessments were not evaluated as part of NMED's review. NMED will evaluate the screening assessments upon LANL's submittal of its response to this request.

This SWMU is part of land transfer tract A-15. NMED has not determined whether or not the corrective measures implemented at this land tract are protective of human health and the environment. After its review of the screening assessments, NMED will make this determination and identify any further investigation, assessment, or remediation that is needed.

Mr. David Gregory and Mr. Pete Nanos

March 5, 2004

Page 2

The Permittees are reminded that a Class 1 permit modification request must be submitted prior to transferring any portion of the facility, and a Class 3 Permit modification request submitted to remove any SWMUs from the permit.

Should you have any questions, please feel free to contact Mr. John Young of my staff at (505) 428-2538.

Sincerely,



Sandra Martin
Acting Chief
Hazardous Waste Bureau

SM:hm

cc: J. Young, NMED HWB
C. Voorhees, NMED DOE OB
S. Yanicak, NMED DOE OB, MS J993
L. King, EPA 6PD-N
J. Vozella, DOE LASO, MS A316
T. Taylor, DOE LASO, MS A316
L. Cummings, LASO, MS A316
A. Ferrell-Brown, Assistant County Administrator, Los Alamos County
P. Bacon, County Attorney, Los Alamos County
B. Ramsey, LANL RRES/DO, MS M591
N. Quintana, LANL E/ER, MS M992
D. McInroy, LANL E/ER, MS M992
file: Reading and LANL (Land Transfer)

Attachment
VCA Completion Report Addendum for SWMU 21-013(d)-99

General Comments:

1. The Permittees must submit all Voluntary Corrective Action Work Plans to NMED for review prior to commencing field work. NMED never received the "Voluntary Corrective Action Plan Addendum for Solid Waste Management Unit (SWMU) 21-013(d)-99 at Technical Area 21," and was not given the opportunity to provide technical or regulatory input prior to the implementation of the plan. This lack of involvement on the part of the Permittees only serves to hinder the corrective action process and delay final decision-making.
2. For appendix J, the Permittees must identify what "Correspondences with Regulatory Agencies" should be included.
3. The signature page of the report is incorrect and reads "VCA Completion Report for SWMU 21-024(f) and AOCs C-21-015 and 21-030 at TA-50".

Specific Comments:

1. **Section 2.2.3 Preliminary Conceptual Model, p.8-9, paragraphs 1 & 2:**

LANL Statement: "The potential pathways for human exposure are dermal contact, inhalation of vapors and particulates, and incidental soil ingestion (Figure 2.2-2). The potential pathways to ecological receptors are root uptake, dermal contact, inhalation of particulates, incidental ingestion of soil, and food web transport (see Appendix F, ESLs and Ecological Scoping Check List)." "Pathways from residual subsurface contamination to potential human receptors would be complete only if contaminated soil or tuff were excavated and brought to the surface."

NMED Comment: The Permittees cannot prove that the subsurface will not be disturbed and contamination brought to the surface. As a land transfer parcel, land development may include the construction of buildings with basements and/or the development of gardens, thus disrupting the subsurface and increasing the potential for contaminants to be brought to the surface. The potential for exposure to subsurface contamination must be included in the risk screening and assessments. Subsurface contamination must be included as a potential pathway to humans because LANL cannot guarantee that this type of exposure won't occur. The Permittees shall revise the report accordingly.

2. Section 2.3.1.2 Sampling, p. 10, paragraph 1:

LANL Statement: "Investigative sampling was conducted at SWMU 21-013(d)-99 in accordance with the approved VCA plan addendum (LANL 2003, 75902), included as Appendix H."

NMED Comment: The VCA Plan was not approved by NMED. (Also see General Comment # 1)

3. Section 2.3.2.1 Comparison of Inorganic Chemicals with Background, p. 23, paragraph 1:

LANL Statement: "In addition to the comparison of inorganic chemicals with their respective BVs, two statistical tests (Wilcox Rank Sum [WRS] and quantile tests) were used to determine whether the inorganic chemicals were statistically different from the background data sets (EPA 1994, 73793)."

NMED Comment: The Permittees used multiple statistical procedures to eliminate COPCs when some results in the data sets exceeded the background values (BVs) for corresponding constituents. The LANL BVs were calculated based on data collected facility-wide, evaluated by statistical procedures, and established as being the upper tolerance limit (UTL) for the background population of each constituent. According to the application of the UTL, any exceedance of the UTL is indicative of a release. No further statistical tests are necessary to establish that a particular value does not belong to the background population because the calculation of the UTL itself incorporates this information. The Permittees shall not use additional statistical tests to determine COPCs at SWMU 21-013(d)-99 and shall revise the report accordingly. Comparison of exposure concentrations to maximum background is also not necessary.

4. Section 2.3.3.1 Nature and Extent of Contamination (Inorganic Chemicals), p. 41, paragraph 1:

LANL Statement: "As the stainless steel hand auger bucket was advanced in welded and partially welded tuff, abrasion of the hand auger material may have resulted in samples being cross-contaminated by these metals. The stainless steel used in the construction of the auger cylinder is composed of several weight percent chromium, nickel, and copper (source: Material Safety Data Sheet)."

NMED Comment: NMED does not agree with this assertion for the following reasons:

- Unless the Permittees are using sampling equipment that has been compromised (e.g., rusted and chipping), pieces of the sampling equipment should not be found in the sampling medium. Stainless steel is used for such sampling devices

because of its physical and chemical properties. Unless the hand auger bucket is not in good condition and under certain circumstances (e.g., in the presence of water), chemicals from the stainless steel should not be detected in the tuff samples.

- Even though low levels of chromium are ubiquitous throughout the site, the anomalously high concentrations are found in select sampling locations that are clustered in the western portion of the site. Chromium ranges from 171 to 679 ppm in sample locations 21-01932 to 21-01941. These are also the same locations where nickel and copper are consistently detected above background levels. If the Permittees' theory were accurate, the higher concentrations of contaminants would more likely be found uniformly throughout the site rather than clustered.

Even though the Permittees claim these occurrences are difficult to explain, there is a strong possibility that they represent a contaminant release at the site. Given this, the Permittees are required to determine the vertical and horizontal extent of the metals contamination detected above background values with additional sampling.

5. Section 2.3.3.1 Nature and Extent of Contamination (Radionuclides), p. 43, paragraph 2:

NMED Comment: The Permittees compare site data to TA-21-specific baseline radionuclide levels. NMED does not accept site-specific background levels. BVs found in the "Inorganic and Radionuclide Background Data For Soils, Canyon Sediments, and Bandelier Tuff At Los Alamos National Laboratory" document must be used. The Permittees shall revise the report accordingly.

6. 2.3.3.1 Nature and Extent of Contamination (Summary of Nature and Extent of Contamination) p. 45, paragraph 1:

LANL Statement: "Several inorganic, radionuclide, and organic COPCs have been identified for SWMU 21-013(d)-99. Often there is no clear trend in the distribution of these COPCs."

NMED Comment: NMED does not agree that data should show a trend between waste piles at the site. SWMU 21-013(d)-99 is referred to as a "cold dump" and was used for disposal of construction-related debris and building debris. (Appendix H Section 1.0, & Appendix J, Attachment 4) The debris disposed of originated at different locations, thus the material is not similar. The waste-piles are likely to be heterogeneous. (Also see specific comment # 11.)

7. Section 2.4.1.2 Ecological (c) Uncertainty Analysis Tables 2.4-6 & 2.4-8, p. 56 & 59:

NMED Comment: The Permittees must provide the following information pertaining to Tables 2.4-6 & 2.4-8:

- The calculations for the numbers generated under the 95% UCL (mg/kg). Include discussions of how the distributions (e.g., normal, log normal) were identified/determined.
- The unit of the Bandelier Tuff from which samples were collected and to which background value data were compared.

8. Section 2.4.1.2 Ecological (c) Uncertainty Analysis, p. 58, paragraph 1:

LANL Statement: "However, visual observations during site visits found that the vegetative community is healthy and flourishing in and around the SWMU."

NMED Comment: Subjective analyses such as visual appearance cannot solely be used to quantify the health of an ecosystem. The Permittees shall provide rationale behind the assertion that the site is healthy based on a visual analysis. The Permittees shall identify whether further studies were completed to confirm this information.

9. Section 2.4.1.2 Ecological (c) Uncertainty Analysis, p. 58, paragraph 7:

LANL Statement: "Exposure concentrations for the inorganic COPECs were similar to background and many exceedances of the BVs were limited to tuff, which are unavailable to receptors."

NMED Comment: The Permittees must provide an explanation that ensures the tuff will not be disturbed and contaminants will not be available to ecological and human receptors. (Also see specific comment # 1)

10. Appendix C Results of Quality Assurance/Quality Control Activities, Table C-5.3-1, p. C-24:

LANL Statement: In this table, radionuclides are identified as "Not detected (U); sample concentration was < minimum detectable concentrations (MDC)."

NMED Comment: The Permittees must clarify if the MDC is an appropriate term or if minimum detectable activity (MDA) is more appropriate when applied to radionuclides.

11. Appendix H VCA Plan Addendum for SWMU 21-013(d)-99, Section 4.2 Supplemental Surface and Subsurface Sampling p. 11, paragraph 3:

LANL Statement: "Surface and subsurface samples will also be collected from eight grid points not previously sampled, from three locations outside of the original grid (Figure 4.2-1), and from the locations of the unsampled soil stock piles."

NMED Comment: It is clear from Figure 2.3-1 that many of the waste-piles have not been sampled. The Permittees must explain why all the waste-piles were not sampled as described in the VCA Plan Addendum and provide rationale for sampling those that were sampled. The Permittees shall sample all waste-piles (if they still remain) to adequately characterize the waste.



Los Alamos National Laboratory/University of California
Risk Reduction & Environmental Stewardship (RRES)
Remediation Services (RS), MS M992
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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: April 7, 2004
Refer to: ER2004-0178

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

**SUBJECT: RESPONSE TO THE NOTICE OF DEFICIENCY ON THE VOLUNTARY
CORRECTIVE ACTION COMPLETION REPORT ADDENDUM FOR SOLID
WASTE MANAGEMENT UNIT 21-013(d)-99 DATED SEPTEMBER 2003**

Dear Mr. Young:

Enclosed please find the certification and two copies of the response of the Los Alamos National Laboratory Risk Reduction and Environmental Stewardship–Remediation Services (RRES–RS) to your notice of deficiency (NOD) for the Voluntary Corrective Action Completion Report Addendum for Solid Waste Management Unit 21-013(d)-99. The Department of Energy–Los Alamos Site Operations Office received the NOD on March 5, 2004, and the RRES–RS project office received the NOD on March 9, 2004.

If you have any questions, please contact Becky Coel-Roback at (505) 665-5011 or Woody 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/RCR/th



An Equal Opportunity Employer/Operated by the University of California

Mr. John Young
ER2004-0178

-2-

April 7, 2004

Enclosure: (1) Response to NOD (ER2004-0166)
(2) Certification

Cy: (w/enc)

A. Dorries, RRES-ECR, MS M992
B. Coel Roback, RRES-ECR, MS M992
N. Quintana, RRES-RS, MS M992
C. Rodriguez, RRES-ECR, MS M992
D. Gregory, LASO, MS A316
L. Woodworth, LASO, MS A316
J. Kieling, NMED-HWB
S. Yanicak, NMED-OB
L. King, EPA Region 6
RRES-RS File, MS M992
IM-5, MS A150
RPF, MS M707

Cy: (w/o enclosure)

D. McInroy, RRES-RS, MS M992
J. Johnson, ADO, MS A104
S. Martin, NMED-HWB
C. Voorhees, NMED-OB

CERTIFICATION

CERTIFICATION BY THE RISK REDUCTION AND ENVIRONMENTAL STEWARDSHIP (RRES) PROJECT TECHNICAL REPRESENTATIVES

Document Title: Responses to the Notice of Deficiency on the Voluntary Corrective
Action Completion Report Addendum for Solid Waste
Management Unit 21-013(d)-99

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:

David McInroy for
David McInroy, Acting Program Manager
Remediation Program
Los Alamos National Laboratory

Date:

April
March 7, 2004

or

Date: _____

Beverly A. Ramsey, Division Leader
Risk Reduction and Environmental Stewardship Division
Los Alamos National Laboratory

David R. Gregory
David Gregory, Project Manager
Environmental Restoration Program
Department Of Energy/Los Alamos Site Office

Date:

April 7, 2004

or

Date: _____

Herman LeDoux,
Assistant Area Manager of
Environmental Projects
Department Of Energy/Los Alamos Site Operations

**Response to Notice of Deficiency
on the Voluntary Corrective Action Completion Report Addendum for
Solid Waste Management Unit 21-013(d)-99, Dated March 5, 2004,
Los Alamos National Laboratory, EPA ID# NM0890010515**

INTRODUCTION

This submittal is the response by Los Alamos National Laboratory (LANL or the Laboratory) to the "Notice of Deficiency, VCA Completion Report Addendum, Solid Waste Management Unit (SWMU) 21-013(d)-99," issued by the New Mexico Environment Department (NMED) Hazardous Waste Bureau on March 5, 2004. The "Voluntary Corrective Action Completion Report Addendum for Solid Waste Management Unit 21-013(d)-99" (LANL 2003, 83094) was submitted by LANL to NMED in September 2003.

To facilitate review of these responses, the NMED's comments are included verbatim. The comments are divided into general and specific categories as presented in the letter. LANL's responses follow each NMED comment.

GENERAL COMMENTS

NMED Comment

1. *The Permittees must submit all Voluntary Corrective Action Work Plans to NMED for review prior to commencing field work. NMED never received the "Voluntary Corrective Action Plan Addendum for Solid Waste Management Unit (SWMU) 21-013(d)-99 at Technical Area 21," and was not given the opportunity to provide technical or regulatory input prior to the implementation of the plan. This lack of involvement on the part of the Permittees only serves to hinder the corrective action process and delay final decision-making.*

LANL Response

1. LANL agrees that NMED's involvement is important and helps expedite the corrective action process. The Voluntary Corrective Action (VCA) Work Plan referenced in the comment is an addendum to the original VCA plan (LANL 1995, 50085) and was designed to address all comments received in the form of a request for supplemental information (RSI) (NMED 1998, 58836) on the original VCA completion report (LANL 1996, 54320). Although LANL had responded to the RSI (LANL 1998, 58709), no acknowledgement to the response was received from NMED. The subject addendum to the VCA plan was written to provide additional information and direct additional sampling to address the RSI comments.

NMED Comment

2. *For appendix J, the Permittees must identify what "Correspondences with Regulatory Agencies" should be included.*

LANL Response

2. Agreed. Appendix J consists of the 1998 RSI from NMED and LANL's response. Following the cover page, the first four pages (front and back) of Appendix J are the NMED RSI. The remainder

of the appendix is LANL's response, including attachments that, in some cases, do not relate to the SWMU 21-013(d)-99 document because the original VCA completion report (LANL 1995, 54320) also included SWMUs 21-013(c) and 31-001. In addition, an extra copy of the RSI response, without attachments, was erroneously included in Appendix J. The last nine pages (front and back) of the appendix are the duplicate copy of the response and may be removed. LANL regrets this error and any confusion it has caused.

NMED Comment

3. *The signature page of the report is incorrect and reads "VCA Completion Report for SWMU 21-024(f) and AOCs C-21-015 and 21-030 at TA-50".*

LANL Response

3. LANL regrets this error. Extra care will be taken to ensure this does not happen again.

SPECIFIC COMMENTS

NMED Comment

1. ***Section 2.2.3, Preliminary Conceptual Model, p.8-9, paragraphs 1 & 2***

The Permittees cannot prove that the subsurface will not be disturbed and contamination brought to the surface. As a land transfer parcel, land development may include the construction of buildings with basements and/or the development of gardens, thus disrupting the subsurface and increasing the potential for contaminants to be brought to the surface. The potential for exposure to subsurface contamination must be included in the risk screening and assessments. Subsurface contamination must be included as a potential pathway to humans because LANL cannot guarantee that this type of exposure won't occur. The Permittees shall revise the report accordingly.

LANL Response

1. LANL agrees with NMED's assertion, and therefore both surface and subsurface data were used in the risk assessment, as should have been stated more clearly in the document. The conceptual site model for exposure describes the potential as well as actual exposures to receptors. Although exposure to subsurface contamination can or will occur only if the area is excavated, the pathways under this circumstance are the same as for surface exposure. The conceptual site model does not speculate as to the likelihood of this happening, and therefore all of the data (surface and subsurface) are used in assessing the potential risk to receptors. The 95% upper confidence limit (UCL) for each COPC evaluated includes all of the data regardless of whether the receptors are currently exposed or not. For this reason, revision to the report is not warranted.

NMED Comment

2. ***Section 2.3.1.2, Sampling, p. 10, paragraph 1***

The VCA Plan was not approved by NMED. (Also see General Comment # 1)

LANL Response

2. Agreed. The word "approved" should be stricken from this statement.

NMED Comment

3. **Section 2.3.2.1, Comparison of Inorganic Chemicals with Background, p. 23, paragraph 1**

The Permittees used multiple statistical procedures to eliminate COPCs when some results in the data sets exceeded the background values (BVs) for corresponding constituents. The LANL BVs were calculated based on data collected facility-wide, evaluated by statistical procedures, and established as being the upper tolerance limit (UTL) for the background population of each constituent. According to the application of the UTL, any exceedance of the UTL is indicative of a release. No further statistical tests are necessary to establish that a particular value does not belong to the background population because the calculation of the UTL itself incorporates this information. The Permittees shall not use additional statistical tests to determine COPCs at SWMU 21-013(d)-99 and shall revise the report accordingly. Comparison of exposure concentrations to maximum background is also not necessary.

LANL Response

3. LANL agrees that the use of the upper tolerance limit (UTL) as a bright line comparison provides a simplified approach for determining COPCs above or below background. However, an exceedance of the UTL does not necessarily indicate a release of contamination or even an exceedance of background. In particular, it is not feasible to establish a single bright line concentration to define background for a particular chemical. Instead, background should be expressed as a concentration range or distribution determined by statistical analysis of the chemical data. By definition, the 95 percent UTL is the concentration at which 95 percent of the background distribution will be below at a 95 percent confidence. Therefore, on-site data are expected to exceed the UTL in roughly 5 percent of the data and still be in the upper tail of the background distribution. The comparative statistical tests done in the risk assessment are to identify those data that fall within the upper tail of the distribution. The comparative statistical tests performed identify two potential distributional differences, one around the mean (Wilcoxon Rank Sum test) and the other at the upper tail of the distribution (Quantile test) that are not accounted for by the bright line UTL comparison.

Both of these tests are recommended by EPA as methods for determining if inorganic chemicals are different from background [*Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites* (U.S. EPA 1995), *Statistical Tests for Background Comparison at Hazardous Waste Sites (Interim Draft Supplemental Guidance to RAGS)* (U.S. EPA 1998), *Selecting Inorganic Constituents as Chemicals of Potential Concern at Risk Assessments at Hazardous Waste Sites and Permitted Facilities* (Cal/WEPA 1997), *Evaluating and Identifying Contaminants of Concern for Human Health* (U.S. EPA 1994), *Guidance for Environmental Background Analysis Volume I: Soil* (NFESC 2002)]. LANL has described these statistical comparisons in Chapter 3 of the NMED-approved Installation Work Plan (LANL 1998, 62060) and the NMED-negotiated annotated RFI report outline (LANL 1998, 58981). Therefore, LANL retained the statistical comparisons methodology to determine which inorganic chemicals and radionuclides are different from background and thereby identify COPCs for the SWMU being investigated.

Appendix E, Section E-1.1, describes how the statistical background comparisons were conducted. Table E-1.3-1 indicates the number of samples, from both the background and site data sets, used

for the statistical comparisons. As a result of the statistical background comparisons, three inorganic chemicals (beryllium, cobalt, and manganese) were eliminated as COPCs.

NMED Comment

4. Section 2.3.3.1, Nature and Extent of Contamination (Inorganic Chemicals), p. 41, paragraph 1

NMED does not agree with this assertion for the following reasons:

- *Unless the Permittees are using sampling equipment that has been compromised (e.g., rusted and chipping), pieces of the sampling equipment should not be found in the sampling medium. Stainless steel is used for such sampling devices because of its physical and chemical properties. Unless the hand auger bucket is not in good condition and under certain circumstances (e.g., in the presence of water), chemicals from the stainless steel should not be detected in the tuff samples.*
- *Even though low levels of chromium are ubiquitous throughout the site, the anomalously high concentrations are found in select sampling locations that are clustered in the western portion of the site. Chromium ranges from 171 to 679 ppm in sample locations 21-01932 to 21-01941. These are also the same locations where nickel and copper are consistently detected above background levels. If the Permittees' theory were accurate, the higher concentrations of contaminants would more likely be found uniformly throughout the site rather than clustered.*

Even though the Permittees claim these occurrences are difficult to explain, there is a strong possibility that they represent a contaminant release at the site. Given this, the Permittees are required to determine the vertical and horizontal extent of the metals contamination detected above background values with additional sampling.

LANL Response

4. LANL believes the hand auger is the likely cause of the observed chromium detections (as well as the nickel and copper detections) in some of the 2003 samples from SWMU 21-013(d)-99. The sampling equipment used was nearly new and in good condition. Although the Bandelier tuff is friable and relatively easy to sample by hand auger in most locations, individual minerals within the tuff are harder than the steel and can cause abrasion to the auger bucket. Because the Bandelier tuff can exhibit inhomogeneity (e.g., in mineralogy, degree of welding or weathering, etc.) on a relatively small scale, it is not necessarily true that the same degree of abrasion would be seen from one side of the site to the other.

LANL believes there is little possibility that the chromium is a result of a contaminant release. Because the site was used for surface disposal, it is difficult to explain how the chromium could be present in subsurface tuff samples without exceeding the background value (BV) for soil in the corresponding 0 to 0.5 bgs samples. Additionally, many of the samples collected during the 2003 field effort coincide with sample locations (although not the exact depths) for which previous data exist. Table 1 shows the chromium data for samples collected in 1994 or 1995 and re-collected in 2003. The chromium results from the 1994/95 sampling effort (conducted with a core barrel sampler) are significantly lower than the chromium results from the 2003 sampling effort.

As the summary of the nature and extent discussion points out, "all of the COPCs, regardless of their distribution or potential source, are carried forward to the site assessment..." Chromium was retained as a COPC and evaluated in the risk screening process. The site was found to pose no unacceptable risk, even with a residential scenario.

Table 1
Chromium Results for 1994/1995 and 2003 for SWMU 21-013(d)-99

Location ID	Media	2003			1994/1995		
		Sample ID	Depth (ft)	Result ^a	Sample ID	Depth (ft)	Result ^a
21-01920	Soil	MD21-03-50452	0.00-0.50	8.72	— ^b	—	—
	Soil/Qbt3	—	—	—	AAB7150	0.00-2.50	7.1
	Qbt 3	MD21-03-50453	3.50-4.50	15.5 (J+)	—	—	—
21-01921	Soil	MD21-03-50454	0.00-0.50	10.5	—	—	—
	Soil/Qbt3	—	—	—	AAB7154	0.00-2.50	2.9
	Qbt 3	MD21-03-50455	3.50-4.50	13.9 (J+)	—	—	—
21-01922	Soil	MD21-03-50456	0.00-0.50	8.14	—	—	—
	Soil/Qbt3	—	—	—	AAB7158	0.00-2.50	0.94 (U)
	Qbt 3	MD21-03-50457	3.50-4.50	7.78 (J+)	—	—	—
21-01923	Soil	MD21-03-50458	0.00-0.50	8.29	AAB7161	0.00-0.50	14.6
	Qbt 3	MD21-03-50459	3.50-4.50	27.3 (J)	—	—	—
21-01924	Soil	MD21-03-50460	0.00-0.50	6.45	—	—	—
	Soil/Qbt3	—	—	—	AAB7166	0.00-2.50	2.7
	Qbt 3	MD21-03-50461	3.50-4.50	27 (J+)	—	—	—
21-01925	Soil	MD21-03-50462	0.00-0.50	4.65 (J+)	—	—	—
	Soil/Qbt3	—	—	—	AAB7170	0.00-2.50	5.9
	Qbt 3	MD21-03-50463	3.50-4.50	14.9 (J+)	—	—	—
21-01926	Soil	MD21-03-50464	0.00-0.50	9.43	AAB7173	0.00-0.50	10.4
	Qbt 3	MD21-03-50465	2.00-3.00	23.8 (J+)	—	—	—
21-01927	Soil	MD21-03-50466	0.00-0.50	9.79	AAB7177	0.00-0.50	9.7
	Soil/Qbt3	—	—	—	AAB7178	0.00-2.50	7.2
	Qbt 3	MD21-03-50467	2.00-3.00	10.1 (J+)	—	—	—
21-01928	Soil	MD21-03-50468	0.00-0.50	11.1	—	—	—
	Soil/Qbt3	—	—	—	AAB7182	0.00-2.50	7.2
21-01929	Qbt 3	MD21-03-50469	3.50-4.50	15.2 (J)	—	—	—
	Soil	MD21-03-50470	0.00-0.50	9.48	—	—	—
	Soil/Qbt3	—	—	—	AAB7186	0.00-2.50	2.9
21-01932	Qbt 3	MD21-03-50471	3.50-4.50	17.4 (J)	—	—	—
	Soil	MD21-03-50472	0.00-0.50	6.35	—	—	—
	Soil/Qbt3	—	—	—	AAB7198	0.00-2.50	8.1
21-01933	Qbt 3	MD21-03-50473	3.50-4.50	502	—	—	—
	Soil	MD21-03-50474	0.00-0.50	7.54	AAB7201	0.00-0.50	6.0
21-01934	Qbt 3	MD21-03-50475	2.00-3.00	679	—	—	—
	Soil	MD21-03-50476	0.00-0.50	8.09	AAB7205	0.00-0.50	5.2 (J)
21-01935	Qbt 3	MD21-03-50477	2.50-3.00	224	—	—	—
	Soil	MD21-03-50478	0.00-0.50	7.11	—	—	—
	Soil/Qbt3	—	—	—	AAB7210	0.00-2.50	1.8 (UJ)
21-01936	Qbt 3	MD21-03-50479	3.50-4.50	335	—	—	—
	Soil	MD21-03-50480	0.00-0.50	6.3	—	—	—
	Soil/Qbt3	—	—	—	AAB7214	0.00-2.50	4.5 (J)
21-01939	Qbt 3	MD21-03-50481	3.50-4.50	229	—	—	—
	Soil	MD21-03-50482	0.00-0.50	10.1	—	—	—
	Soil/Qbt3	—	—	—	AAB7226	0.00-2.50	0.56 (UJ)
	Qbt 3	MD21-03-50538	6.00-7.00	171	—	—	—

Table 1 (continued)

Location ID	Media	2003			1994/1995		
		Sample ID	Depth (ft)	Result	Sample ID	Depth (ft)	Result
21-01940	Soil	MD21-03-50484	0.00-0.50	8.66	—	—	—
	Soil/Qbt3	—	—	—	AAB7230	0.00-2.50	1.5 (UJ)
	Qbt 3	MD21-03-50485	3.50-4.50	460	—	—	—
21-01941	Soil	MD21-03-50486	0.00-0.50	5.68	—	—	—
	Soil/Qbt3	—	—	—	AAB7234	0.00-2.50	1.1 (UJ)
	Qbt 3	MD21-03-50487	3.50-4.50	286	—	—	—
21-09008	Soil	MD21-03-50492	0.00-0.50	13.4	VCXX-95-0046	0.00-0.50	7.7
	Qbt 3	MD21-03-50493	2.00-3.00	8.58 (J)	—	—	—
21-09009	Soil	MD21-03-50494	0.00-0.50	6.46	VCXX-95-0047	0.00-0.50	3.4
	Qbt 3	MD21-03-50495	2.00-3.00	8.08 (J)	—	—	—
21-09010	Soil	MD21-03-50496	0.00-0.50	10.1	VCXX-95-0048	0.00-0.25	8.3
	Qbt 3	MD21-03-50497	3.50-4.50	25.8 (J)	—	—	—
21-09011	Soil	MD21-03-50498	0.00-0.50	9.86	VCXX-95-0049	0.00-0.25	7.1
	Qbt 3	MD21-03-50499	2.00-3.00	13.1 (J)	—	—	—

^a = All results are in units of mg/kg

^b = No sample collected at this depth/date

NOTE: Soil chromium background value = 19.3 mg/kg; Qbt3 chromium background value = 7.14 mg/kg

NMED Comment

5. Section 2.3.3.1, Nature and Extent of Contamination (Radionuclides), p. 43, paragraph 2

The Permittees compare site data to TA-21-specific baseline radionuclide levels. NMED does not accept site-specific background levels. BVs found in the "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff At Los Alamos National Laboratory" document must be used. The Permittees shall revise the report accordingly.

LANL Response

5. LANL recognizes that NMED does not accept comparisons to TA-21 baseline data for decision-making, and the purpose of these comparisons should have been stated more clearly in the document. Background comparisons for identification of COPCs were completed using the "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory (LANL 1998, 59730). The relationship to TA-21 baseline levels is provided so that the concentrations of COPCs relative to TA-wide levels are evident. Decisions to eliminate or retain individual radionuclides as COPCs were not made based on a comparison to TA-21 baseline levels. Because of the nature of the TA-21 operations, this comparison does have a bearing on whether we have determined nature and extent of SWMU-related contamination. At some point SWMU related contamination blends with TA-wide contamination such that additional sampling for nature and extent does not provide any substantial changes in concentrations. At this point, the extent of contamination from the SWMU is defined and no further sampling is warranted. Therefore, revision to the report is not necessary.

NMED Comment**6. Section 2.3.3.1, Nature and Extent of Contamination (Summary of Nature and Extent of Contamination) p. 45, paragraph 1**

NMED does not agree that data should show a trend between wastepiles at the site. SWMU 21-013(d)-99 is referred to as a "cold dump" and was used for disposal of construction-related debris and building debris. (Appendix H, Section 1.0, & Appendix J, Attachment 4) The debris disposed of originated at different locations, thus the material is not similar. The waste-piles are likely to be heterogeneous. (Also see specific comment # 11.)

LANL Response

6. Although the document states that there is no clear trend in the distribution of some COPCs, it was not LANL's intention to imply that a trend should be evident. As stated on p. 41 of the report, "The use of the site for surface disposal would not result in a regular distribution of contaminants." The only distribution of contaminants that would be expected, based on the conceptual model, is a prevalence of contamination on the ground surface.

Note that there are no waste piles left at SWMU 21-013(d)-99. As described in section 2.2.2 of the report, all of the construction-related debris was removed from the site during the VCA conducted in 1995. The piles that remain on site are soil piles that resulted from grading the site at some time prior to 1995. These piles were investigated during debris removal to ensure that they did not contain construction debris (LANL 1996, 54320).

NMED Comment**7. Section 2.4.1.2, Ecological (c) Uncertainty Analysis Tables 2.4-6 & 2.4-8, p. 56 & 59**

The Permittees must provide the following information pertaining to Tables 2.4-6 & 2.4-8:

- *The calculations for the numbers generated under the 95% UCL (mg/kg). Include discussions of how the distributions (e.g., normal, log normal) were identified/determined.*
- *The unit of the Bandelier Tuff from which samples were collected and to which background value data were compared.*

LANL Response

7. The discussion and presentation of 95% UCL calculations is in Appendix E as referenced on page 48 of the report. This discussion includes the distributions of the data used to calculate the 95% UCLs.

The unit of tuff from which samples were collected is Qbt3, as indicated in Tables 2.3-2 through 2.3-5 and 2.3-7, as well as in text locations within Sections 2.3.2 (SWMU Data Review) and 2.3.3.1 (Nature and Extent of Contamination). These data were compared to the background value (BV) established for Qbt 2,3,4 as published in *Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory* (LANL 1998, 59730) and indicated in Tables 2.3-5 and 2.3-7. For additional information, the geological setting of TA-21 is described in detail in Appendix B (Technical Area 21, Operational and Environmental Setting).

NMED Comment

8. Section 2.4.1.2, Ecological (c) Uncertainty Analysis, p. 58, paragraph 1

Subjective analyses such as visual appearance cannot solely be used to quantify the health of an ecosystem. The Permittees shall provide rationale behind the assertion that the site is healthy based on a visual analysis. The Permittees shall identify whether further studies were completed to confirm this information.

LANL Response

8. LANL agrees with the first part of NMED's comment that subjective analysis cannot solely be used to quantify the health of an ecosystem. In the case of SWMU 21-013(d)-99, it is not the sole assessment used because a hazard quotient (HQ) and hazard index (HI) were also calculated. None of the HQs were greater than 1.0 and the HI was only 1.2. None of these values indicates a potential for adverse effects to the plants, and, combined with the visual observations, provide a more comprehensive assessment of the vegetative community. Because the plants are the only receptors that are on site 100% of the time and have been exposed to the contamination for the last 40 years or more, the visual appearance of the plants is an important indicator of whether they are affected by contamination. The vegetative community is not different within and around the SWMU, and the plants appear healthy, with the exception of those trees affected by the bark beetle infestation. Therefore, visual observations plus HQ/HI indicate that the COPCs are not affecting the plants and no further studies are warranted.

NMED Comment

9. Section 2.4.1.2, Ecological (c) Uncertainty Analysis, p. 58, paragraph 7

The Permittees must provide an explanation that ensures the tuff will not be disturbed and contaminants will not be available to ecological and human receptors. (Also see specific comment # 1)

LANL Response

9. The 95% UCLs used in the human health and ecological risk assessment included all of the data (surface and subsurface). The statement on which the NMED comment is made is true under current conditions. Because there is no certainty that this condition will hold in the future the risk assessment used all of the data to assess the potential risk to receptors. See response to specific comment #1.

NMED Comment

10. Appendix C, Results of Quality Assurance/Quality Control Activities, Table C-5.31, p. C-24

The Permittees must clarify if the MDC is an appropriate term or if minimum detectable activity (MDA) is more appropriate when applied to radionuclides.

LANL Response

10. The values presented in the report as minimum detectable concentrations (MDC) are neither true activities (i.e., curies, counts per minute [cpm], etc.) nor true concentrations (i.e., mg/kg, ppm, etc.), but rather activity per unit mass (i.e., the specific activity). In the past, minimum detectable activity (MDA) and MDC have been used interchangeably in LANL documents. However, because "MDA" could easily be confused with another acronym (applied to material disposal areas), LANL prefers to use "MDC." Regardless of the acronym used, the value and the units presented would not change.

NMED Comment

11. **Appendix H, VCA Plan Addendum for SWMU 21-013(d)-99, Section 4.2 Supplemental Surface and Subsurface Sampling p. 11, paragraph 3**

It is clear from Figure 2.3-1 that many of the waste-piles have not been sampled. The Permittees must explain why all the waste-piles were not sampled as described in the VCA Plan Addendum and provide rationale for sampling those that were sampled. The Permittees shall sample all waste-piles (if they still remain) to adequately characterize the waste.

LANL Response

11. As indicated in the response to specific comment # 6, there are no waste piles remaining on site at SWMU 21-013(d)-99. All of the construction-related debris, which is the only known waste handled at this site, was removed during the 1995 VCA. The piles that remain on site are soil piles that resulted from grading of the site prior to 1995. These remaining soil piles were investigated during the VCA to ensure that no construction debris remained on site.

Based on a request made by NMED in the 1998 RSI, an attempt was made to delineate the soil piles at the site. As shown on the light detection and ranging (LIDAR) map, presented as Figure 2.1-2 of the report, very few of the soil piles have enough relief to be successfully delineated by LIDAR. Therefore, the soil piles were mapped by hand. The soil piles appear more significant in the hand-drawn map, due to the inability to show the third dimension. In general, the soil piles are less than 3 ft in height. Most are linear (trending northwest to southeast) as a result of grading and it is difficult to distinguish individual piles. Virtually all of the soil piles are well stabilized with mature native vegetation.

As shown in Table 4.2-2 of the VCA Plan Addendum, the objective was to collect samples from five previously unsampled soil pile locations, at two depths each. Note that the second depth interval in all cases was collected in tuff (Qbt3) beneath the soil pile. Because these piles are primarily soil that appears to have originated at the site, it was not expected that data from the pile samples would differ markedly from other soil data across the site (for which 38 samples were collected and analyzed). The analytical data from the 2003 samples bears this out, and indicates that soil from SWMU 21-013(d)-99, whether present in piles or otherwise, is adequately characterized.

REFERENCES

LANL (Los Alamos National Laboratory), June 1995. "Voluntary Corrective Action Plan for Site under Field Unit 1 at TA-21, DP Area: 21-013(d)," Los Alamos National Laboratory document, Los Alamos, New Mexico. (LANL 1995, 50085)

LANL (Los Alamos National Laboratory), February 1996. "Voluntary Corrective Action Completion Report for Potential Release Sites 21-013(c), 21-013(d), 21-013(e), 31-001," Los Alamos National Laboratory report LA-UR-96-259, Los Alamos, New Mexico. (LANL 1996, 54320)

LANL (Los Alamos National Laboratory), June 1998. "Resource Conservation and Recovery Act Facility Investigation Report, LANL RFI Annotated Outline," Los Alamos National Laboratory document. (LANL 1998, 58981)

LANL (Los Alamos National Laboratory), July 1998. "Response to Request for Supplemental Information on Voluntary Corrective Action Report for Potential Release Sites 21-013(c), 21-013(d), 21-013(e), and 31-001," Los Alamos National Laboratory document EM/ER: 98-239, Los Alamos, New Mexico. (LANL 1998, 58709)

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), November 1998. "Installation Work Plan for Environmental Restoration Project," Revision 7, draft, Los Alamos National Laboratory document LA-UR-98-4652, Los Alamos, New Mexico. (LANL 1998, 62060)

LANL (Los Alamos National Laboratory), September 2003. "Voluntary Corrective Action Completion Report Addendum for Solid Waste Management Unit 21-013(d)-99," Los Alamos National Laboratory document LA-UR-03-6494, Los Alamos, New Mexico. (LANL 2003, 83094)

NMED (New Mexico Environment Department), June 1998. "Request for Supplemental Information VCA Report for Potential Release Sites 21-013(c), 21-013(d), 21-013(e), and 31-001," Santa Fe, New Mexico. (NMED 1998, 58836)



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RON CURRY
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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

April 29, 2004

Mr. G. Pete Nanos, Director
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P.O. Box 1663, Mail Stop A100
Los Alamos, New Mexico 87545

Mr. David Gregory, Federal Project Director
Los Alamos Site Office
Department of Energy
528 35th Street, Mail Stop A316
Los Alamos, New Mexico 87544

**SUBJECT: SECOND NOTICE OF DEFICIENCY FOR THE VCA COMPLETION
REPORT ADDENDUM FOR SWMU 21-013(d)-99
LOS ALAMOS NATIONAL LABORATORY
EPA ID# NM0890010515
NMED TASK # LANL-03-014**

Dear Mr. Nanos and Mr. Gregory:

The New Mexico Environment Department (NMED) has completed its review of the Department of Energy and the Regents of the University of California's (collectively, the Permittees) notice of deficiency response dated April 8, 2004 and referenced by LA-UR-04-2249 (ER2004-0166) for the VCA Completion Report Addendum for SWMU 21-013(d)-99. NMED has found the response to one comment inadequate and requires the Permittees respond within 15 days of receipt of this letter.

In NMED's specific comment #4, the NMED expressed its concern regarding high levels (171 to 679 ppm) of chromium in the tuff at the site. NMED requested further information from the Permittees to determine if the chromium originated from difficulties using a hand auger in competent tuff (as stated by the Permittees) or if it was a result of a release. The additional information provided indicates the absence of chromium in the overlying soil at these same sampling locations during a previous sampling event. However, chromium can be present in subsurface tuff samples without exceeding the background value for soil. This has been seen at

Mr. Nanos and Mr. Gregory

April 29, 2004

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another site at LANL (see the *TA-16-340 Complex Investigation Work Plan, Table B-6*), where chromium was detected in subsurface tuff samples while not being detected in overlying soil samples.

The Permittees must resample at the following locations:

- 21-01932
- 21-01933
- 21-01934
- 21-01935
- 21-01936
- 21-01937
- 21-01940
- 21-01941

The Permittees must collect samples at the soil/tuff interface and 2 feet below the soil/tuff interface to determine extent of contamination. The samples must be analyzed for chromium, copper, and nickel.

If you have any questions regarding these comments, please contact John Young of my staff at (505) 428-2538.

Sincerely,



Sandra Y. Martin
Acting Chief
Hazardous Waste Bureau

SYM:cc

cc: C. Voorhees, NMED DOE-OB
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Date: May 14, 2004
Refer to: ER2004-0266

Mr. John Young, Corrective Action Project Leader
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2905 Rodeo Park Drive East
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**SUBJECT: RESPONSE TO THE SECOND NOTICE OF DEFICIENCY FOR THE
VOLUNTARY CORRECTIVE ACTION COMPLETION REPORT ADDENDUM
FOR SOLID WASTE MANAGEMENT UNIT 21-013(d)-99**

Dear Mr. Young:

In response to the New Mexico Environment Department's (NMED's) second notice of deficiency (NOD) for the Voluntary Corrective Action (VCA) Completion Report Addendum for Solid Waste Management Unit (SWMU) 21-013(d)-99, dated 29 April 2004, Los Alamos National Laboratory (the Laboratory) agrees to collect additional samples for chromium, copper, and nickel at the site. However, the Laboratory proposes two modifications to the requested approach:

1. The proposed sample depths include the soil/tuff interface and 2 ft below the soil/tuff interface. Because the soil cover at the site is very thin, the soil/tuff interface is generally within a foot of the ground surface, with the exception of soil pile locations. Therefore, sampling 2 ft below the soil/tuff interface will result in samples being collected from approximately 3 ft below ground surface (bgs). This interval is not deep enough to ensure that the extent of elevated chromium levels is captured. Historical (1994) tuff samples collected to 2.5 ft bgs do not contain elevated chromium, and the 2003 samples collected at these locations were generally collected from 3.5 to 4.5 bgs. Therefore, it is proposed that the deeper resample interval be equal to the original 2003 sample interval.
2. The proposed sample location 21-01937 does not exist. It is assumed this is a typographical error and the intended sample location is 21-01939, which had a chromium detection of 171 mg/kg at 6 to 7 ft bgs. Therefore, location 21-01939 will replace 21-01937 on the resample list.



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If you have any questions, please contact Becky Coel-Roback at (505) 665-5011 or Woody Woodworth at (505) 665-5820.

Sincerely,



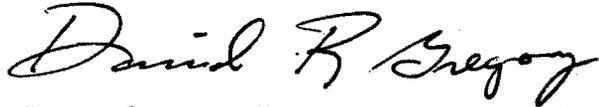
David McInroy, Deputy Project Director
Remediation Services
Los Alamos National Laboratory

DM/DG/RCR/th

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CT # File # C963

Sincerely,



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