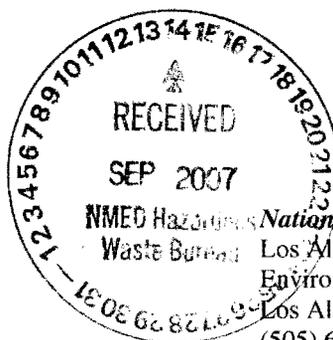


TA35



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Date: September 14, 2007
Refer To: EP2007-0564

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

Subject: Submittal of Confirmation Sample Data from Solid Waste Management Unit 35-016(p), Middle Mortandad/Ten Site Aggregate Area

Dear Mr. Bearzi:

On June 27, 2007, approximately 0.12 yd³ of soil was removed from Solid Waste Management Unit (SWMU) 35-016(p). Excavation was conducted because results from two soil samples indicated elevated concentrations of polycyclic aromatic hydrocarbons (PAHs) in the immediate vicinity of 35-23188. A confirmation sample (RE35-07-4023) was collected from a depth of 1 to 1.5 ft below ground surface (bgs) in the center of the excavation area. Two additional confirmation samples (sample RE35-07-4022 at location 35-600908 and sample RE35-07-4028 at location 35-600909) were collected from the sidewalls of the excavation, both at depths of 0.5 to 0.6 ft bgs. The samples were submitted for offsite laboratory analysis of target analyte list metals and PAHs. Data from these three samples were received too late to be included in the investigation report, submitted to the New Mexico Environment Department (NMED) on July 20, 2007.

The excavation of the material associated with two samples previously collected at location 35-23188 (samples RE35-04-54643 and RE35-04-54644) resulted in changes to the list of chemicals of potential concern (COPCs) identified for SWMU 35-016(p). These changes are discussed below, and revised tables of inorganic chemicals detected or detected above background values (BVs) (Table 1) and organic chemicals detected (Table 2) are attached.

Inorganic chemicals

Arsenic, cadmium, selenium, and zinc were detected above their BVs or had detection limits above their BVs. Arsenic was detected in one sediment sample at a concentration of 3.99 mg/kg, which is equivalent to the BV (3.98 mg/kg). Arsenic is not retained as a COPC for the site.



Cadmium was not detected but had detection limits above the BV in soil and sediment samples. In all the soil samples, the cadmium detection limits were below the maximum concentration of cadmium in the background data set (2.6 mg/kg). Only one sediment sample had a detection limit (0.551 mg/kg) slightly above the BV (0.4 mg/kg). Cadmium is not retained as a COPC for the site.

Selenium was detected above the BV in one sediment sample and had multiple detection limits above the soil and sediment BVs slightly above the maximum concentration of selenium in the soil background data set (1.7 mg/kg). Selenium is retained as a COPC for SWMU 35-016(p).

Zinc was detected above the BV in one soil sample, at a concentration of 50.9 mg/kg, below the maximum concentration of zinc in the background data set (75.5 mg/kg). Zinc is not retained as a COPC for the site.

In summary, the only inorganic COPC identified is selenium. The removal of soil from location 35-23188 resulted in the elimination of cadmium, copper, lead, mercury, and zinc, which had been identified as COPCs in the investigation report (section D-4.8.3, p. D-73).

Organic chemicals

The removal of soil from location 35-23188 resulted in the elimination of benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, and dibenzofuran, which had been identified as COPCs in the investigation report (section D-4.8.9, p. D-74). These organic chemicals were not detected in the confirmation samples or in any other samples from the site.

Changes to risk screening assessments

The removal action also resulted in changes to the calculated 95% upper confidence limits (UCLs) for the identified COPCs at SWMU 35-016(p) and the Mortandad Slope Subarea. The revised 95% UCLs have been incorporated into the human health risk screening assessment for SMWU 35-016(p) and into the ecological risk screening assessments for the Mortandad Slope Subarea. The following changes to the screening assessment (sections F-5.4.2, p. F-83) are the result of the revisions to COPCs and 95% UCLs (see Tables 3 and 4):

- Based on the residential scenario for SWMU 35-016(p), the hazard index (HI) 0.004 is less than NMED's target level of 1.0, the carcinogenic risk 1×10^{-6} is less than the NMED target level of 1×10^{-5} , and the dose (2 mrem/yr) is less than the Department of Energy (DOE) target dose of 15 mrem/yr. The screening assessments still indicate no potential unacceptable risk/dose to human health at SWMU 35-016(p) under the residential scenario.
- Based on the recreational scenario for SWMU 35-016(p), the HI 0.0003 is less than NMED's target level of 1.0 (Table F-5.4-19), the carcinogenic risk 2×10^{-7} is less than the NMED target level of 1×10^{-5} (Table F-5.4-20), and the dose (0.1 mrem/yr) is less than DOE's target dose of 15 mrem/yr (Table F-5.4-21). The screening assessments still indicate no potential for unacceptable risk/dose to human health at SWMU 35-016(p) under the recreational scenario.

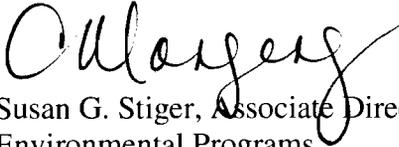
No changes to the ecological risk screening assessment for the Mortandad Slope Subarea resulted from the revisions to COPCs and 95% UCLs (sections F-5.5.2, F-5.5.3, and F-5.5.4).

Nature and extent of contamination

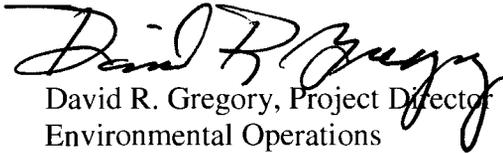
The nature and extent of contamination at SWMU 35-016(p) are defined, and the site does not pose an unacceptable risk to human health or the environment. No changes to the conclusions and recommendations of the investigation report with regard to SWMU 35-016(p) or the Mortandad Slope Subarea (section 7.3) are necessary as a result of the activities discussed herein.

If you have any questions, please contact Becky Coel-Roback at (505) 665-5011 (becky_cr@lanl.gov) or Rich Nevarez at (505) 845-5804 (rnevarez@doeal.gov).

Sincerely,


Susan G. Stiger, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,


David R. Gregory, Project Director
Environmental Operations
Los Alamos Site Office

SGS/DRG/GD/BCR:sm

Enclosure: 1) Data CD with analytical results for SWMU 35-016(p)

Cy: (w/enc.)
Laurie King, EPA Region 6, Dallas, TX
Steve Yanicak, NMED-OB, White Rock, NM
Rich Nevarez, DOE-NNSA-SC, SC1-111
David Davenport, LATA
Joe Sena, LATA
Becky Coel-Roback, EP-CAP, MS M992
Peggy Reneau, EP-ERSS, MS M992
Public Reading Room, MS M992
EP-CAP File, MS M992
RPF, MS M707 (with two CDs)

Cy: (w/o enc.)
Tom Skibitski, NMED-OB, Santa Fe, NM
Bonita Eichorst, DOE-LASO (date-stamped letter emailed)
Susan G. Stiger, ADEP, MS J591
Carolyn A. Mangeng, ADEP, MS J591
Alison M. Dorries, ERSS-DO, MS M992
Gordon Dover, EP-CAP, MS M992
Dave McInroy, EP-CAP, MS M992
IRM-RMMSO, MS A150

Table 1
Summary of Inorganic Chemicals Detected or Detected above BV at SWMU 35-016(p)

Sample ID	Location ID	Depth (ft)	Media Code	Arsenic	Cadmium	Selenium	Zinc
Soil/Fill Background Value (mg/kg)				8.17	0.4	1.52	48.8
Sediment Background Value (mg/kg)				3.98	0.4	0.3	60.2
Recreational SSL^a (mg/kg)				27.7	392	3960	1.00E+05^b
Residential SSL^c (mg/kg)				3.9	39	391	2.35E+04
RE35-07-4023	35-23188	1.00-1.50	ALLH	— ^d	0.515 (U)	—	—
RE35-04-54645	35-23189	0.23-0.49	SED	—	0.551 (U)	—	—
RE35-04-54646	35-23189	0.49-0.85	SED	3.99	—	0.564 (U)	—
RE35-04-54649	35-23191	0.00-0.39	SED	—	—	0.577 (U)	—
RE35-04-54650	35-23191	0.39-1.38	SED	—	—	0.576	—
RE35-07-75210	35-27429	0.00-0.50	ALLH	—	0.57 (U)	—	—
RE35-07-75211	35-27429	0.50-1.00	ALLH	—	0.567 (U)	1.7 (U)	—
RE35-07-75212	35-27430	0.00-0.40	ALLH	—	0.593 (U)	1.78 (U)	—
RE35-07-75213	35-27430	0.40-1.00	ALLH	—	0.568 (U)	—	—
RE35-07-75214	35-27431	0.00-0.40	ALLH	—	0.591 (U)	1.77 (U)	—
RE35-07-75215	35-27431	0.40-0.80	ALLH	—	0.582 (U)	1.75 (U)	—
RE35-07-75216	35-27432	0.00-0.40	ALLH	—	0.572 (U)	—	—
RE35-07-75217	35-27432	0.40-1.00	ALLH	—	0.551 (U)	—	—
RE35-07-75218	35-27433	0.00-0.50	ALLH	—	0.597 (U)	—	—
RE35-07-75219	35-27433	0.70-1.00	ALLH	—	0.584 (U)	1.75 (U)	—
RE35-07-4028	35-600909	0.50-0.60	ALLH	—	0.514 (U)	1.54 (U)	50.9

^a Values from LANL technical document (LANL 2007, 094496).

^b Maximum values or saturation values.

^c EPA Region 6 (EPA 2006, 094321).

^d — Indicates analyte not reported (detect or nondetect) above BV or not detected.

Table 2
Summary of Organic Chemicals Detected at SWMU 35-016(p)

Sample ID	Location ID	Depth (ft)	Media Code	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene ^a	Benzoic Acid	Chrysene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
Recreational SSL^b (mg/kg)				4.75E+04	1.00E+05 ^c	30.1	3.01	30.1	2.38E+04	1.00E+05 ^c	3010	1.39E+04	3.17E+04	30.1	1.58E+04	1.20E+04	2.38E+04
Residential SSL^d (mg/kg)				3730	2.20E+04	6.21	0.621	6.21	2290	1.00E+05 ^c	615	2290	2660	6.21	79.5	1830	2290
RE35-07-75188	35-02096	2.20-2.50	ALLH	— ^e	—	0.195	0.172	—	0.126	—	0.167	0.436	—	—	—	0.253	0.34
RE35-04-54645	35-23189	0.23-0.49	SED	—	—	—	—	—	—	1.6	—	0.0324 (J)	—	—	—	—	0.0244 (J)
RE35-04-54646	35-23189	0.49-0.85	SED	—	—	—	—	—	—	—	0.0337 (J)	0.058	—	—	—	—	0.052
RE35-04-54649	35-23191	0.00-0.39	SED	0.0105 (J)	—	—	—	0.0799	—	0.159 (J)	0.0764	0.12	0.0108 (J)	—	—	0.0889	0.138
RE35-04-54650	35-23191	0.39-1.38	SED	—	—	—	—	0.0479	—	—	0.0364	0.0676	—	—	—	0.0353	0.0588
RE35-07-4022	35-600908	0.50-0.60	ALLH	0.0351	0.0228	0.0581	0.0424	0.0591	0.0257	—	0.0389	—	0.0345	0.0286	0.0103 (J)	0.143	0.104
RE35-07-4028	35-600909	0.50-0.60	ALLH	—	—	0.0692	—	—	—	—	0.0486	—	—	—	—	0.158	0.121

^a Pyrene used as a surrogate for benzo(g,h,i)perylene.

^b Values from LANL technical document (LANL 2007, 094496).

^c Maximum values or saturation values.

^d EPA Region 6 (EPA 2006, 094321).

^e — Indicates analyte not detected.

Table 3
Screening Evaluation for SWMU 35-016(p), Noncarcinogenic COPCs

Analyte	95% UCL (mg/kg) (0-1 ft)	Recreational SSL ^a (mg/kg)	HQ	95% UCL (mg/kg) (0-10 ft)	Residential SSL ^b (mg/kg)	HQ	
Selenium	0.84	3960	2.11E-04	0.83	391	2.13E-03	
Acenaphthene	0.12	4.75E+04	2.48E-06	0.11	3730	3.00E-05	
Anthracene	0.12	1.00E+05 ^c	1.17E-06	0.11	2.20E+04	5.05E-06	
Benzo(g,h,i)perylene ^d	0.016	2.38E+04	6.85E-07	0.048	2290	2.07E-05	
Benzoic Acid	1.6 ^e	1.00E+05	1.60E-05	1.6 ^e	1.00E+05 ^c	1.60E-05	
Fluoranthene	0.25	1.39E+04	1.79E-05	0.24	2290	1.06E-04	
Fluorene	0.12	3.17E+04	3.69E-06	0.11	2660	4.17E-05	
Naphthalene	0.12	1.58E+04	7.47E-06	0.11	79.5	1.41E-03	
Phenanthrene	0.14	1.20E+04	1.13E-05	0.15	1830	8.31E-05	
Pyrene	0.091	2.38E+04	3.84E-06	0.13	2290	5.81E-05	
HI			0.0003	HI			0.004

^a Values from LANL technical document (LANL 2007, 094496).

^b Values from EPA Region 6 (EPA 2006, 094321).

^c Maximum values or saturation values.

^d Pyrene used as a surrogate for benzo(g,h,i)perylene.

^e Value is maximum detected concentration.

Table 4
Screening Evaluation for SWMU 35-016(p), Carcinogenic COPCs

Analyte	95% UCL (mg/kg) (0-1 ft)	Recreational SSL ^a (mg/kg)	Cancer Risk	95% UCL (mg/kg) (0-10 ft)	Residential SSL ^b (mg/kg)	Cancer Risk
Benzo(a)anthracene	0.031	30.1	1.05E-08	0.1	6.21	1.61E-07
Benzo(a)pyrene	0.047	3.01	1.56E-07	0.08	0.621	1.26E-06
Benzo(b)fluoranthene	0.12	30.1	3.82E-08	0.2	6.21	3.22E-07
Chrysene	0.044	3010	1.48E-10	0.08	615	1.25E-09
Indeno(1,2,3-cd)pyrene	0.034	30.1	1.11E-08	0.033	6.21	5.38E-08
Total Excess Cancer Risk			2E-07	Total Excess Cancer Risk		1E-06

^a Values from LANL technical document (LANL 2007, 094496).

^b Values from NMED – residential (NMED 2006, 092513).

