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Department of Energy
National Nuclear Security Administration
Los Alamos Site Office
Los Alamos, New Mexico 87544

APR 23 2004

Mr. John Young, Corrective Action Project Leader
Permits Management Program
NMED-Hazardous Waste Bureau
2905 Rodeo Park Drive E; Bldg 1
Santa Fe, NM 87505

Ms. Cindy Padilla
Bureau Chief
NMED-Solid Waste Bureau
P.O. Box 26110
Santa Fe, NM 87502



Dear Mr. Young and Ms. Padilla:

Subject: Management of Drill Cuttings from Wells R-1, R-28, CdV-16-1,
CdV-16-2 and CdV-16-3

The purpose of this letter is to inform the New Mexico Environmental Department Hazardous Waste Bureau (NMED-HWB) and Solid Waste Bureau (NMED-SWB) that the Department of Energy (DOE) will use the cuttings from the drilling of the regional aquifer wells for restoration of the drilling sites upon completion of drilling activities consistent with the requirements outlined in the Stormwater Pollution Prevention Plan for each site. We plan to use the same approach that was set forth in previous letters sent to NMED on March 22, 2004 and January 22, 2003 regarding this same issue (reference RRES-GPP:03-006). The use of the cuttings for this purpose is supported by the information included in the attached letter that summarizes the results of the analytical data from the cuttings analyses and compares the data to background and screening levels.

The drill pit liner will be removed and cuttings left in place as fill for the drill pit after completion of drilling activities. The cuttings from each site will be used as pit fill material and will not be moved off-site. The pits will then be filled to ground level with original site fill material and the site re-graded to meet pre-drilling topography and grade. The drill sites will be re-vegetated with an appropriate seed mix and erosion will be controlled utilizing Best Management Practices while the sites recover.

The cuttings from wells R-1, R-28, CdV-16-1, CdV-16-2, and CdV-16-3 were analyzed for radionuclides, organics, high explosives, PCBs, total inorganics, and TCLP inorganics and compared against established background levels for LANL (Ryti Report,



1998) and NMED Soil Screening Levels (December 18, 2000 Revision 1.0). In summary, no constituents were detected above NMED Soil Screening Levels (SSLs).

None of the analyzed radionuclide concentrations were higher than background levels. No PCBs were detected. Very low levels of high explosives, well below the NMED SSLs, were detected in the cuttings from R-1. The levels of high explosives detected were near the detection limit of the analytical test method. None of the inorganics analyzed for were detected above background levels and all were below NMED SSLs. Calcium was detected above background in some of the cuttings. Its presence is most likely due to the presence of cement grout mixed in with the drill cuttings. All of the inorganic TCLP data were all non-detect for all constituents in all cuttings samples. Di-n-butyl-phthalate and bis (2-ethylhexyl) phthalate were detected in the cuttings from wells R-1 and CdV-16-1 but at levels far below the NMED SSLs. The presence of these constituents is most likely due to the weathering of the plastic pit liner and/or the use of latex gloves by samplers. Since the liner will be removed during site restoration and the cuttings buried in the pit, this should not present a problem. Based on these analytical results, DOE believes that use of the cuttings on-site is an acceptable management practice.

The drilling contractor will begin site restoration activities starting in May 2004. If there are concerns or questions, please contact us by April 30, 2004; otherwise we will proceed with cuttings disposal as outline above. If you have any questions, I can be reached at (505) 665-5046 or Mr. Tom Whitacre at (505) 665-5042.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mat Johansen', with a stylized flourish to the right.

Mat Johansen

Groundwater Program Manager

OPM:1TW-007



April 20, 2004

Mr. Tom Whitacre
Project Manager
DOE - Los Alamos Site Office

Subject: Waste Determination for Drill Cuttings From Hydrogeologic Work Plan Wells R-1, R-28, CdV-16-1, CdV-16-2, and CdV-16-3

Dear Mr. Whitacre:

Duratek Federal Services, Inc. (DFSI) has performed a review of the analytical results of the drill cuttings from the Hydrogeologic Work Plan Wells R-1, R-28, CdV-16-1, CdV-16-2, and CdV-16-3 for a waste determination. The concentrations of detected constituents in the cuttings are below regulatory action levels. A few constituent concentrations are slightly higher than soil geochemical background values (Ryti, 9/22/98), but lower than soil screening levels (SSL) from the New Mexico Environment Department (NMED) Soil Screening Levels, Revision 1, December 18, 2000 (ER ID # 68554). Calcium at CdV-16-2 is slightly elevated above background with no available NMED SSL, details are explained below. The use of the drill cuttings for site restoration fill material at each well location is an appropriate option assuming the NMED concurs with the use of drill cuttings as site restoration fill material as set forth in the January 22, 2003 letter to NMED (reference: RRES-GPP:03-006) from Charles Nylander and Mat Johansen.

DFSI's data review consisted of comparing R-1, R-28, CdV-16-1, CdV-16-2, and CdV-16-3 cuttings analytical mean values to the soil background and NMED SSL values. The results were lower than background and NMED SSLs with the exception of calcium (19,441 mg/kg) at CdV-16-2. DFSI considers all the cuttings analytical results to be consistent with the results NMED accepted in the January 22, 2003 letter assuming some flexibility in the background values.

The analytes detected in wet cuttings from R-1, R-28, CdV-16-1, CdV-16-2, and CdV-16-3, the minimum, maximum, and mean values, soil geochemical background values, screening levels, and TCLP regulatory limits are provided in the attachment.

The cuttings from R-1, R-28, CdV-16-1, CdV-16-2, and CdV-16-3 were analyzed for radionuclides, organics, high explosives, PCBs, total inorganics, and TCLP inorganics. Of the radionuclides analyzed, none of the mean values were higher than background. The maximum thorium and uranium concentrations detected in CdV-16-1 are slightly higher than background values provided in Ryti (9/22/98), however, this could be evidence of a slightly higher local background value at CdV-16-1. Organic concentrations detected were lower than NMED SSLs. Bis (2-ethylhexyl) phthalate and di-n-butyl-phthalate were detected at R-1 and CdV-16-1, however, the most obvious source is the plastic pit liner and/or latex gloves worn during sampling activities. High explosives concentrations detected at R-1 were lower than NMED SSLs. No PCBs were detected. Of the inorganics analyzed, all were lower than NMED SSLs, and only calcium was higher than background with no available NMED SSL. The calcium source is likely to be from the cement used for well head construction and the concentration would be reduced or become undetectable when spread on site. The TCLP analytical results indicate that there are no hazardous characteristic waste issues associated with the cuttings.

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Mr. Tom Whitacre
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Based on these results DFSI believes that use of the cuttings on site is an acceptable management practice and the cuttings do not warrant off-site disposal as a solid/industrial waste.

Sincerely,

A handwritten signature in cursive script, appearing to read "Thomas A. Benson".

Thomas A. Benson, Project Manager
Duratek Federal Services, Inc.

Sincerely,

A handwritten signature in cursive script, appearing to read "Andrew E. Drom".

Andrew E. Drom, General Manager
Duratek Federal Services, Inc.

**Analytes Detected in Wet Cuttings for Wells
R-1, R-28, CdV-16-1, CdV-16-2, and CdV-16-3**

Detected Analyte	Minimum Value	Maximum Value	Mean Value	Soil Geochemical Background Value	NMED Soil Screening Level	TCLP Regulatory Limit
Radionuclides (pCi/g)						
Th-232	0.31	3.28	1.42	2.33	NA	NA
U-233/234	0.49	3.25	1.54	2.59	NA	NA
U-235/236	0	0.38	0.08	0.2	NA	NA
U-238	0.43	3.06	1.49	2.29	NA	NA
Organics (EPA 8270-D, mg/kg)						
Bis(2-ethylhexyl) phthalate	0	0.34	0.13	NA	350	NA
Di-n-butyl-phthalate	0	0.29	0.11	NA	6,100	NA
Total Inorganics (EPA 6010, 3050 ICP SCAN, 7471 CVAA, mg/kg)						
Aluminum	1,780	6,190	3,278	29,200	74,000	NA
Antimony	0	0.96	0.47	0.83	30	
Arsenic	0.45	3.61	1.33	8.17	3.90	NA
Barium	18.6	61.2	30	295	5,200	NA
Beryllium	0.12	0.90	0.38	1.83	150	NA
Cadmium	ND	ND	ND	0.40	70	NA
Calcium	523	88,300	19,441	6,120	NA	NA
Chromium	1.52	19.40	7.41	19.3	100,000	NA
Cobalt	1.04	7.66	3.07	8.64	4,500	NA
Copper	3.03	18.00	10.96	14.7	2,800	NA
Iron	3,430	12,400	7,446	21,500	23,000	NA
Lead	1.76	6.17	3.83	22.3	400	NA
Magnesium	739	6,620	2,624	4,610	NA	NA
Manganese	95.50	270.00	191.50	671	7,800	NA
Nickel	1.30	21.70	8.55	15.4	1,500	NA
Potassium	219	903	513	3,460	NA	NA
Selenium	0	3.12	0.79	1.52	380	NA
Silver	0	0.22	0.04	1	380	NA
Sodium	87.80	937	412	915	NA	NA
Thallium	0	3.37	1.85	0.73	6.1	NA
Vanadium	2.63	21.80	13.14	39.6	530	NA
Zinc	10.40	31.90	20.08	48.8	23,000	NA
High Explosives (SW846 8321A Mod. Explosives LC-MS/MS, mg/kg)						
2,4,6-Trinitrotoluene	0	0.008	0.002	NA	31	NA
RDX	0	0.009	0.002	NA	44	NA
PCBs (EPA 8082, mg/kg) No compounds were detected.						
Mercury Analysis – (SW846 7471A, mg/kg)						
Mercury	0	0.004	0.001	0.1	6.5	NA
TCLP Inorganics (EPA 1311/6010-B, mg/L)						
Arsenic	ND	ND	ND	NA	NA	5
Barium	ND	ND	ND	NA	NA	100
Cadmium	ND	ND	ND	NA	NA	1
Chromium	ND	ND	ND	NA	NA	5
Lead	ND	ND	ND	NA	NA	5
Mercury	ND	ND	ND	NA	NA	0.2
Selenium	ND	ND	ND	NA	NA	1
Silver	ND	ND	ND	NA	NA	5