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JUL 15 1999

Mr. Douglas R. Sherwood
Hanford Project Manager
U.S. Environmental Protection Agency
712 Swift Boulevard, Suite 5
Richland, Washington 99352-0539

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FEB 07 2000

EDMC

Dear Mr. Sherwood:

SUMMARY OF SOIL LEAD RESULTS FROM LANDFILL 1D (WIDS SITE 628-4) IN THE 300-FF-1 OPERABLE UNIT

Lead results associated with soil from the 300-FF-1 Operable Unit, Landfill 1D are provided in the attached tables for your information and inclusion in the Administrative Record:

- Table 1 presents total lead results from soil samples taken at various locations in the waste site.
- Table 2 presents leachable lead results from soil samples taken at various locations in the waste site. For comparison, results are provided for samples analyzed using the Toxic Characteristic Leaching Procedures protocol and samples analyzed using the actual Environmental Restoration Disposal Facility leach solution.
- Table 3 presents total lead results from samples taken from the underlying soil in the waste site.

Additional information is available in the 300-FF-1 Operable Unit project file. If you want to discuss this matter further or require additional information, please contact me at 372-0096.

Sincerely,

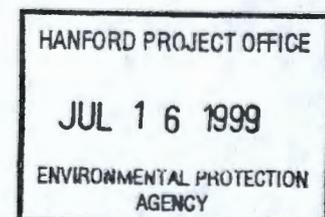
Robert G. McLeod, Project Manager
Remedial Actions Project

RAP:RGM

Attachment

cc w/attach:
D. R. Einar, EPA
T. Masterson-Heggen, Ecology

cc w/o attach:
J. R. James, BHI



**TABLE 1: SUMMARY OF TOTAL LEAD CONCENTRATIONS IN SOIL
300-FF-1 Operable Unit Landfill 1D (WIDS site 628-4)**

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Sample ID	Sample Type	mg/kg	Sample ID	Sample Type	mg/kg
B0M698	process	< 100	B0MX98	ERDF box	420
B0ML89	process	< 100	B0MX99	ERDF box	290
B0MLV2	process	< 100	B0MXB0	ERDF box	150
B0MLT9	process	< 100	B0MXB1	ERDF box	250
B0MLV8	process	< 100	B0MXB2	ERDF box	360
B0MLV9	process	< 100	B0MXB3	ERDF box	230
B0MLW1	process	< 100	B0MXB4	ERDF box	410
B0MLW6	process	< 100	B0MXB5	ERDF box	120
B0MLX3	process	< 100	B0MXB6	ERDF box	270
B0MLX6	process	< 100	B0MXD1	test pit	1500
B0MLX9	process	< 100	B0MXD2	test pit	1300
B0MLY2	process	< 100	B0MXD3	test pit	1200
B0MLY6	process	240	B0MXD4	test pit	890
B0MX00	process	210	B0MXD5	test pit	< 100
B0MX01	process	< 100	B0MXD6	test pit	490
B0MX02	process	< 100	B0MXD7	test pit	< 100
B0MX04	ERDF box	410	B0MXD8	test pit	< 100
B0MX07	ERDF box	408	B0MXD9	test pit	390
B0MX10	ERDF box	409	B0MXF0	test pit	940
B0MX13	ERDF box	200	B0MXF1	test pit	830
B0MX16	ERDF box	320	B0MXF2	test pit	420
B0MX19	ERDF box	470	B0MXF3	test pit	< 100
B0MX22	ERDF box	260	B0MXF4	process	< 100
B0MX25	ERDF box	230	B0MXF5	process	810
B0MX28	ERDF box	201	B0MXF6	process	130
B0MX31	ERDF box	300	B0MXF7	process	< 100
B0MX34	ERDF box	340	B0MXF8	process	< 100
B0MX37	ERDF box	570	B0MXF9	process	< 100
B0MX40	ERDF box	940	B0MXJ5	process	< 100
B0MX43	ERDF box	330	B0MXJ6	process	240
B0MX49	ERDF box	620	B0MXJ8	process	260
B0MX52	ERDF box	360	B0NV68	lab (ICP)	312
B0MX55	ERDF box	690	B0NV78	lab (ICP)	3460
B0MX58	ERDF box	850	B0NV69	lab (ICP)	276
B0MX46	ERDF box	160	B0NV70	lab (ICP)	820
B0MX61	ERDF box	260	B0NV71	lab (ICP)	549
B0MX64	ERDF box	250	B0NV72	lab (ICP)	514
B0MX67	ERDF box	430	B0NV73	lab (ICP)	979
B0MXB7	ERDF box	580	B0NV79	lab (ICP)	562
B0MXB8	ERDF box	280	B0NV74	lab (ICP)	4610
B0MXB9	ERDF box	400	B0NV75	lab (ICP)	23
B0MXC0	ERDF box	605	B0NV76	lab (ICP)	798
B0MX97	ERDF box	240	B0NV77	lab (ICP)	891

Summary Statistics

COUNT (n)	86
MEAN (x)	460
STD DEV (s)	641
95% UCL	576

95% UCL = $x + t(s/n^{0.5})$

where t = A-4 value on n-1 degrees freedom

Assumptions:

-normal distribution (reasonable based on large number of samples)

-use $t=1.671$ (conservative; $t_{90}=1.671$, $t_{120}=1.658$ from Table A-4)

< results are used at face value (conservative)

**TABLE 2: SUMMARY OF LEACHABLE LEAD CONCENTRATIONS IN SOIL
300-FF-1 Operable Unit Landfill 1D (WIDS site 628-4)**

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Sample ID	leachable lead (mg/l)		Location
	TCLP (protocol)	ERDF leach	
B0MX06	3.69	--	process soil - ERDF box
B0MX12	1.16	--	process soil - ERDF box
B0MX30	1.9	--	process soil - ERDF box
B0MX36	19	0.05	process soil - ERDF box
B0MX54	1.73	--	process soil - ERDF box
B0MX39	5.41	0.008	process soil - ERDF box
B0MX96	18.9	0.007	contaminated soil stockpile
B0NV68	17.8	--	contaminated soil stockpile
B0NV78	1.3	--	contaminated soil stockpile
B0NV69	0.59	--	contaminated soil stockpile
B0NV70	0.17	--	contaminated soil stockpile
B0NV71	4.9	--	contaminated soil stockpile
B0NV72	1	--	contaminated soil stockpile
B0NV73	1.9	--	contaminated soil stockpile
B0NV79	1.5	--	contaminated soil stockpile
B0NV74	0.56	--	contaminated soil stockpile
B0NV75	0.4	--	contaminated soil stockpile
B0NV76	0.4	--	contaminated soil stockpile
B0NV77	0.4	--	contaminated soil stockpile

Summary Statistics		
count (n)	19	3
mean (x)	4.35	0.02
std dev (s)	6.50	0.02
t	1.73	2.92
95% UCL	6.94	0.06
$95\% \text{ UCL} = x + t(s/n^{0.5})$ <i>where t = A-4 value on n-1 degrees freedom</i>		
NOTES:		
- assumes normal distribution		
- pH of ERDF leachate is ~ 7.7		
- 618-4 BG samples show similar protocol/ERDF leach TCLP results:		
4 results with mean conc = 6.27/0.02 (protocol/ERDF leach in mg/L)		

**TABLE 3: SUMMARY OF TOTAL LEAD CONCENTRATIONS IN UNDERLYING SOIL
300-FF-1 Operable Unit Landfill 1D (WIDS site 628-4)**

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Sample ID	Total Lead (mg/kg)	Comments
B0ML89	<100	XRF split of verification sample collected on 12/10/97 from random location toward east side of site. Sample collected from native material at ~13 ft below grade prior to creating a ramp up to the clean soil stockpile.
B0MLW6	<100	XRF split of verification sample collected on 12/31/97 from random location toward southeast corner of site. Sample collected from native material at ~13 ft below grade prior to using the area for a soil stockpile.
B0MXD7	<100	XRF sample from native material at bottom of test pit excavated toward southwest corner of site on 1/16/98. ^a
B0MFX3	<100	XRF sample from native material at bottom of test pit excavated toward northwest corner of site on 1/16/98. ^b

^a Test pit excavated to determine depth to native soil and estimate volume of material remaining to be removed from the site. Samples were collected at 1-ft intervals. XRF results (in mg/kg) were 1500 (-1ft), 1300 (-2), 1200 (-3), 890 (-4), <100 (-5), 490 (-6), <100 (-7, native material).

^b Test pit excavated to determine depth to native soil and estimate volume of material remaining to be removed from the site. Samples were collected at 1-ft intervals. XRF results (in mg/kg) were <100 (-1ft), 390 (-2), 940 (-3), 930 (-4), 420 (-5), <100 (-6, native material).