0051084

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

068603

MAY 1 1 1999

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

Dear Mr. Sherwood:

INTENT TO SEEK TREATABILITY VARIANCE FOR DISPOSAL OF LANDFILL 1D SOIL IN THE ENVIRONMENTAL RESTORATION DISPOSAL FACILITY (ERDF)

The purpose of this letter is to provide the U.S. Environmental Protection Agency (EPA) with information necessary to evaluate granting a site-specific treatability variance to allow for disposal of remaining lead-contaminated soil from the Hanford Site 300-FF-1 Operable Unit (OU) Landfill 1D remediation effort. The treatability variance would give approval to dispose, without treatment, of approximately 918 loose cubic meters (lcm) of soil currently residing within Landfill 1D. Disposal of the waste would be in the ERDF. Based on other EPA actions regarding use of the land disposal restriction (LDR) treatability variance (promulgated at 40 CFR 268.44) in situations where the treatment standard is deemed "not appropriate," the U.S. Department of Energy (DOE), Richland Operations Office (RL) believes the soil in question qualifies for disposal in an untreated form.

On December 5, 1997, in 62 Federal Register 64504, EPA promulgated a final rule amending 40 CFR Part 268 to clarify when variances from the LDR could be granted on the basis that, even though technically achievable, they may be "inappropriate" in the larger interests of environmental protection, including "cases where imposition of the otherwise applicable treatment standard could result in a net environmental detriment by discouraging aggressive remediation." (62 F.R. at 64505) Specifically, "where federal rules allow the option of leaving wastes in place, and a facility then has the choice of pursuing the legal option of leaving the wastes in place or opting to excavate thereby triggering treatment to standards based on the performance of best demonstrated available technology, which can be very expensive . . . a treatment variance can provide an intermediate option of more aggressive remediation . . . a net environmental benefit over leaving untreated waste in place." (Id.) That is precisely the circumstance we now face regarding the lead-contaminated soil at Landfill 1D.

Although granting of an LDR treatability variance does not necessarily rule out imposition of some degree of treatment, the variance can authorize disposal of waste with no treatment when appropriate. As an example, in Region V a treatability variance was granted authorizing disposal of untreated soils containing up to 50 parts per billion (ppb) of dioxin (50 times the LDR treatment standard) in an on-site Subtitle C landfill. In this example, treatment via incineration was required prior to disposing of any soil containing over 50 ppb dioxin.

RL believes that disposal of the Landfill 1D lead-bearing soil in the ERDF without treatment is appropriate based on the following considerations:

- In Toxicity Characteristic Leaching Procedure (TCLP) tests of samples of the lead contaminated soils from Landfill 1D, the levels varied from below the dangerous waste characteristic designation limit of 5 mg/L to a maximum of only 19.8 mg/L.

- The cleanup levels at the South Tacoma Field (STF) OU of the Commencement Bay South Tacoma Channel Superfund site can be used for comparison. The Record of Decision (ROD) for the STF OU required treatment of those soils with lead concentrations in excess of 18,000 mg/kg. This is almost an order of magnitude above the highest level detected in the Landfill 1D soil. Approximately 110,000 tons of soil containing lead at concentrations between 1,000 and 18,000 mg/kg were excavated, consolidated, and capped in the STF OU, with no treatment. Soils below 1,000 mg/kg were not excavated and allowed to remain in place, uncapped.

- The 95% UCL on the mean for Landfill 1D lead contaminated soil is 576 mg/kg based on combined random XRF and biased ICP analytical results. This level is well below levels requiring treatment or capping at the STF site and are at a level where the Landfill 1D soils could be left in place. It is felt that removal of Landfill 1D soil for disposal in ERDF presents a more protective remediation alternative than leaving in place but that it would not be cost-effective or reasonable to treat the waste.

- Even after the granting of a treatability variance for the lead-contaminated soil, this substance would retain the characteristics of a hazardous waste, as defined by the Resource Conservation and Recovery Act (RCRA), and would be disposed of in the ERDF, a Comprehensive Environmental Response, Compensation, and Liability Act facility that meets the substantive requirements for a RCRA Subtitle C landfill.

- Testing of the Landfill 1D site demonstrates that soils underlying the landfill are free of leached lead contamination despite many years of exposure to the environment with only a soil covering. Thus the potential for release into the environment would be minimal if the soil is placed into the ERDF, where it will be contained under a Subpart C impermeable cap and within a liner and leachate collection system. Again, any added benefit from LDR treatment of the soil would be questionable.

- The ratio of soil to debris at Landfill 1D is approximately 725 lcm soil and 193 lcm debris. The soil is below the 300-FF-1 OU ROD radiation cleanup standard, but is lead contaminated. The debris is not lead contaminated, but cannot be certified as radiation free. One remedial option is to screen out the debris and leave the soil in place. It would be more protective, or there would be greater assuredness of protection, to dispose of both the soil and debris in ERDF. It is not cost effective to treat for lead and therefore, without the treatability variance, RL would have to pursue leaving the soil in place. For comparison purposes, a cost estimate of three alternatives is attached.

In summary, RL is requesting that EPA consider a site-specific variance with regard to the soil from Landfill 1D, since "For [this] remediation waste . . . [LDR] treatment to the specified level or by the specified method is environmentally inappropriate because it would likely discourage aggressive remediation." [40 CFR 268.44(h)(2)(ii)] Leaving the soil in place would not be the optimal solution, while conducting LDR treatment would have marginal benefit at a substantial cost.

EPA's Superfund LDR Guide #6A: "Obtaining a Soil and Debris Treatability Variance for Remedial Actions;" acknowledges that situations may arise where the need for a treatability variance is not evident until after a ROD is signed. According to the guidance, an explanation of significant differences from the ROD should be prepared and made available for public comment. RL believes that this administrative step could be implemented expeditiously and would provide an appropriate mechanism for determining whether the public has any objection to the proposed disposal of this soil.

The EPA Project representatives have informally expressed the need for a treatability variance with RL. DOE's Restoration Projects is requesting that EPA and DOE work closely together and in a timely manner so remediation of Landfill 1D can be completed soon in conjunction with similar on-going cleanup.

If you have any questions or require additional information, please feel free to contact Mr. Robert G. McLeod at (509) 372-0096.

Sincerely,

Richard A.Holten, Director
Restoration Projects

RAP:RGM

Attachment

cc w/attach:
D. R. Einan, EPA
P. S. Innis, EPA
J. R. James, BHI
T. K. Masterson-Heggen, Ecology
T. C. Post, EPA

LANDFILL 1D LEAD CONTAMINATED SOIL TREATMENT AND DISPOSAL OPTIONS

OPTIONS AND RELATED TASKS	ESTIMATED COST ($)		TASK CALCULATIONS
Option 1: Screen Out Debris and Leave Soil In Place			
S/C Sort Debris From Soils @ LF 1D	10,000		(1900 Tons)($4.70/MT)(0.907Tons/MT) + O.H
S/C Transport & Dispose Debris to ERDF	8,800		(400 Tons)($22/ton) -- (includes O.H.)
ERC Labor to Support Sorting	4,900		(Ave. $50/hr)(80 hrs) + O.H.
	23,700	Total	
Option 2: Treat and Dispose			
S/C Load Soils & Debris at Landfill 1D	5,000		(1900 Tons)($4.70/MT)(0.5)(0.907Tons/MT) + O.H.
S/C Transport Soil & Debris to ERDF	20,900		(1900 Tons)($22(0.5)/ton) -- (includes O.H.)
S/C & ERC Soil Treatment	196,900		1900 Tons Soil (See page 2 for details)
S/C Treated Soil Disposal Costs	29,900		(2715 Treated Tons of Soil)($22(0.5)/ton) -- includes O.H.
	252,700	Total	
Option 3: Direct Disposal With Variance			
S/C Load Soils & Debris at Landfill 1D	5,000		(1900 Tons)($4.70/MT)(0.5)(0.907Tons/MT) + O.H.
S/C Transport/Dispose Soils/Debris to ERDF	41,800		(1900 Tons)($22/ton) -- (includes O.H.)
Prepare ESD	12,300		(Ave. $50/hr)(200 hrs) + O.H.
	59,100	Total	

Assumptions:

1. 1900 U.S. tons (1724 Metric Tons) of soil and debris stockpiled in landfill 1D: based on field engineer estimate
2. 400 tons are debris and 1500 tons are soil; engineering estimate
3. Sorting Cost per 300-FF-1 RA S/C $4.70/metric ton
4. Incremental Disposal Cost @ ERDF is $22/ U.S. ton (all inclusive)
5. Treated Soil weighs 30% by weight portland cement (Stabilization mix for landfill 1D soils)
6. Soil Treatment Costs based on current landfill 1D effort (includes treatability plan development, limited bench scale tests, mobilizing equipment, training personnel)
7. Soil Loadout rate assumed to be approximately 50% of sorting cost.
8. Overheads are 18.45% Direct Distributables and 3.66% G&A
9. Prepare ESD are estimated hours from regulatory functionals.
10. Rough Order of Magnitude Cost Estimate +50% -30%

Prepared By: R A Carlson 3/31/99
Reviewed By: B.P. Bennett 4/1/99
Project Concurrence: J R Jones 3/31/99
Cost Estimating Concurrence: [signature] 4/1/99

Calculate Weight of Treated Soil to Dispose

Given: 1) Start with 1900 us tons of soil to treat
2) final mix is 30% by weight portland cement

Write Equations:

1) 1900 tons soil/debris + x tons cement = y tons treated soil
2) 0.3y = x

Therefore substituting equ. 2 into equ. 1, 1900 + 0.3y =y

y=2714.3 total tons of treated soil and debris

say 2715 us tons

Soil Treatment Costs based on current estimates from ERDF Project

S/C mobilization		42,000	includes test plan, bench scale test, mobilize equip., training personnel
S/C treatment process		133,627	Unit cost is $55,000/782tons = $70.33/ton for current treat, therefore $70.33(1500)
S/C demobilization		5,000	Given from ERDF
	Subtotal	180,627	
S/C overhead		1,220	
ERC mobilization		15,000	all inclusive from ERDF
	Total	196,847	