



388 Department of Energy

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APR 04 2003

Mr. James A. Saric, Remedial Project Manager
United States Environmental Protection Agency
Region V, SR-6J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

DOE-0313-03

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

**TOXICITY CHARACTERISTIC LEACHING PROCEDURE RESULTS FOR SOIL SAMPLES
COLLECTED FROM QUONSET HUT NO. 1**

The purpose of this letter is to:

- Report the Toxicity Characteristic Leaching Procedure (TCLP) results for soil samples collected from soil staged at Quonset Hut No.1
- Describe the basis for removing the eastern half of the staged soil and placing it in the On-Site Disposal Facility (OSDF)
- Summarize the general approach for treatment of soil in the western half of the staged pile
- Gain agreement upon the regulatory requirements that apply to the off gas generated from the treatment process.

Upon your concurrence of the path forward presented in this letter, a detailed treatment plan will be developed and submitted for the United States Environmental Protection Agency (USEPA) and Ohio Environmental Protection Agency (OEPA) review and approval.

During the Operable Unit 5 Remedial Investigation/Feasibility Study and predesign investigation for Area 3A/4A, approximately 600 cubic yards (yd³) of soil located northwest of the former Maintenance Building (Building 12) was identified as having the Toxicity Characteristic for trichloroethylene (TCE). This conclusion was based on 20 out of 132 TCLP samples that exceeded the TCE characteristic limit of 0.5 mg/L (0.52 to

SEBA
Mr. James A. Saric
Mr. Tom Schneider

-2-

DOE-0313-03

3.5 mg/L). Most of the TCLP samples (105) had TCE results below the reported detection limit of 0.05 mg/L. In late 2001, this soil was excavated and placed in Quonset Hut No. 1 for temporary staging until a treatment process could be identified and implemented.

In late 2002 and early 2003, additional TCLP testing of the soil was performed to define the soil volume that would require treatment. Thirty-two soil samples were collected from 18 borings (Figure 1) under the Project Specific Plan for Investigation of Soil Staged in Quonset Hut No. 1 and all samples were shipped to an off-site laboratory for TCLP analysis of tetrachloroethylene (PCE) and TCE concentrations. Results for the five rounds of sampling and TCLP testing performed between November 2002 and March 2003 are given in Table 1.

Nine of the samples (eight locations) exceed the toxicity characteristic for TCE, and the extent of the characteristic material is contained in the northwest and southwest quadrants of the soil pile (Figure 1). The ranges for TCE and PCE concentrations in the western half of the soil pile (about 300 yd³) are 0.026 to 1.9 mg/L and 0.005 to 0.39 mg/L, respectively. Assuming the TCLP results represent the range of TCE and PCE concentrations in the western half of the soil pile (i.e., all the TCE and PCE are released from the soil sample during the TCLP test), the total mass of each constituent that is likely to be in the off gas generated from the 300 yd³ of soil is estimated to range from approximately 200 to 14,000 grams and 38 to 2,900 grams, respectively. This estimate is based upon 0.05 kg of soil in the TCLP test and a soil density of 1,227 kg/yd³ (e.g., 0.026 mg TCE/L * L/0.05 kg * 1,227 kg/yd³ * 300 yd³ = 191,412 mg = 191 g of TCE in 300 yd³ of soil).

Based on the bounding of the characteristic material to the west of locations QHUT-BNE and QHUT-BE4, the northeast and southeast quadrants of the soil pile (about 300 yd³) are not characteristic material and this soil will be removed and placed in the OSDF. Prior to removal of the east half of the soil pile, the division between the east and west portions of the pile will be clearly delineated with stakes and flags that will be placed approximately five feet east of the QHUT-BNE and QHUT-BE4 locations. Removal of the eastern half of the soil pile will be immediately initiated upon USEPA approval of the path forward outlined in this letter. This activity will be supervised by the Waste Acceptance Organization and a staff member from the Soil and Disposal Facility Project Characterization Group.

After the eastern half of the soil pile is removed and placed in the OSDF, the western half of the soil pile will be treated to remove the toxicity characteristic via an enhanced soil venting process. Enhanced soil venting removes TCE and PCE from soil by pulling the pore air and moisture out of the soil. This will be achieved by placing perforated pipe on eastern half of the concrete pad and spreading the soil over the pipes. Several layers of pipe will be installed in the constructed treatment pile and the pipes will be attached to a vacuum blower. This simple technology is well suited for the soil pile in Quonset Hut No. 1 because access to the pile is good, solar heating can be enhanced by painting the building black, and minimal energy needs are required to run the blower. By installing a sufficient number of pipes and a large vacuum blower, large air volumes can be pulled through the soil pile and organic compounds in the off-gas emissions can be maintained

Mr. James A. Saric
Mr. Tom Schneider

-3-

DOE-0313-02

below the 15 pounds per day permit-exemption requirement (OAC 3745-31-03, Paragraph D). [Note: the maximum estimated mass of TCE (14 kg or 31 pounds) would need to be released in two days to exceed the permit-exemption requirement, which is unlikely based on the physiochemical mechanisms involved in the passive soil venting process]. The simplicity of the system allows for monitoring of air samples prior to and after they pass through the blower. Air samples will be collected to monitor the decreasing levels of TCE in the soil pile and to ensure that the daily total mass of organic compounds in the off gas complies with regulatory requirements. Prior to initiating treatment, a detailed treatment plan will be developed that addresses the items in Paragraph D of OAC 3745-31-03. For example, weekly updates on the progress of the treatment will be covered on the weekly conference call and the approach to verification sampling at the end of treatment will be presented in the plan. This plan will be submitted to the USEPA and OEPA in spring of 2003 for review and approval.

If you have any questions or need further information, please contact Robert Janke at (513) 648-3124.

Sincerely,



Johnny W. Reising
Fernald Remedial Action
Project Manager

FCP:R.J. Janke

Enclosure: As Stated

Mr. James A. Saric
Mr. Tom Schneider

-4-

DOE-0313-02

cc w/enclosure:

R. Janke, OH/FCP
D. Pfister, OH/FCP
T. Schneider, OEPA-Dayton (three copies of enclosure)
G. Jablonowski, USEPA-V, SR-6J
M. Cullerton, Tetra Tech
F. Bell, ATSDR
M. Shupe, HSI GeoTrans
R. Vandegrift, ODH
AR Coordinator, Fluor Fernald, Inc./MS78

cc w/o enclosure:

R. Greenberg, EM-31/CLOV
N. Hallein, EM-31/CLOV
J. Reising, OH/FCP
D. Carr, Fluor Fernald, Inc./MS1
R. Abitz, Fluor Fernald, Inc./MS64
T. Beasley, Fluor Fernald, Inc./MS60
J. Chiou, Fluor Fernald, Inc./MS64
T. Hagen, Fluor Fernald, Inc./MS1
F. Miller, Fluor Fernald, Inc./MS64
R. Nichols, Fluor Fernald, Inc./MS1
D. Powell, Fluor Fernald, Inc./MS64
R. Reynolds, Fluor Fernald, Inc./MS64
T. Poff, Fluor Fernald, Inc./MS65-2
W. Zebick, Fluor Fernald, Inc./MS60
ECDC, Fluor Fernald, Inc./MS52-7

TABLE 1
TCLP RESULTS FOR SOIL SAMPLES COLLECTED IN QUONSET HUT NO. 1

Collection Date	Sample ID	TCE (mg/L)	PCE (mg/L)
11-5-02	QHUT-NE2-B-L	0.18	0.040
11-5-02	QHUT-NE2-M-L	0.041	0.040
11-5-02	QHUT-NE2-T-L	0.021	0.040
11-5-02	QHUT-NW1-10-L	0.14	0.39
11-5-02	QHUT-NW1-12-L	0.095	0.21
11-5-02	QHUT-NW2-B-L	0.35	0.040
11-5-02	QHUT-NW2-M-L	0.33	0.011
11-5-02	QHUT-NW2-T-L	0.026	0.014
11-5-02	QHUT-SE2-B-L	0.025	0.040
11-5-02	QHUT-SE2-M-L	0.060	0.040
11-5-02	QHUT-SE2-T-L	0.040	0.040
11-5-02	QHUT-SW1-11-L	0.13	0.091
11-5-02	QHUT-SW1-13-L	0.076	0.050
11-5-02	QHUT-SW1-6-L	0.79	0.014
11-5-02	QHUT-SW1-6-L reanalysis	0.93	0.018
11-5-02	QHUT-SW2-B-L	0.10	0.072
11-5-02	QHUT-SW2-M-L	0.030	0.057
11-5-02	QHUT-SW2-T-L	0.017	0.051
12-11-02	QHUT-SW-BE-6-L	0.12	0.050
12-11-02	QHUT-SW-BE-13-L	0.91	0.050
12-11-02	QHUT-SW-BS-6-L	0.13	0.050
12-11-02	QHUT-SW-BW-6-L	0.091	0.050
12-11-02	QHUT-SW-BN-6-L	0.39	0.050
1-13-03	QHUT-SW-BS2-8-L	0.51	0.025
1-13-03	QHUT-SW-BE2-12-L	1.1	0.012
1-13-03	QHUT-SW-BN2-13-L	1.5	0.025
2-5-03	QHUT-SW-BE3-11-L	0.45	0.005
2-5-03	QHUT-SW-BN3-15-L	1.9	0.11
2-5-03	QHUT-SW-BN3-8-L	0.85	0.025
2-26-03	QHUT-SW-BE4-12-L	0.33	0.035
2-26-03	QHUT-SW-BN4-14-L	3.0	0.027
2-26-03	QHUT-SW-BNE-16-L	0.18	0.010

Bold numbers indicate TCE exceeds the TCLP limit of 0.5 mg/L

