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**COMMENT RESPONSES ON THE OPERABLE UNIT
2 TREATABILITY STUDY REPORT OCTOBER 1992**

10-01-92

**DOE-FN/EPA
9
RESPONSES**

Comment Responses on the

**OPERABLE UNIT 2
TREATABILITY STUDY
REPORT**

OCTOBER 1992

SUMMARY OF COMMENTS/RESPONSES
Treatability Study Report
Operable Unit 2

Date Document Issued October 16, 1992
Date Comments Due October 21, 1992 /Received _____
Date Responses Due NA
Date Report Due _____

Codes

- M** = Major issue that needs to be addressed.
- C** = Clarification or additional information needed; response may be in Summary of Comment Responses and/or next version of document.
- E** = Editorial comments will be noted and corrected, but may be dropped from the Summary of Comment Responses.

GENERAL COMMENTS

1	Commenting Organization:	Pg.:#	Commentor:
	Section #: General Comments		Line #: Code:
	Original Comment #:		
	Comment:	It is not acceptable to only use the data for UCS and leachability testing for evaluating overall protection of human health and the environment and compliance with ARARs in the FS. The problem is that this only demonstrates short-term protection and compliance. The FS will also need to look at the future risk scenario. Therefore, durability testing would provide data which would allow for long-term extrapolation for evaluating overall protection of human health and the environment.	
	Response:	The topic of conducting durability testing during the Operable Unit (OU) 2 Treatability Study has been discussed in the following letters:	
		<ul style="list-style-type: none"> - G.E. Mitchell to J.R. Craig, "Conditional Approval OU 2 Treatability Work Plan," dated November 7, 1991 - DOE-557-92, J.R. Craig to J.A. Saric and G.E. Mitchell, "Operable Unit (OU) 2 Treatability Study Work Plan Approval," dated December 20, 1991 - DOE-592-92, J.R. Craig to J.A. Saric and G.E. Mitchell, "Operable Unit (OU) 2 Treatability Study Work Plan," dated December 31, 1991 	

- G.E. Mitchell to J.R. Saric, "Durability Tests - OU 2 Treatability Study Work Plan," dated January 8, 1992
- DOE-919-92, J.R. Craig to J.A. Saric and G.E. Mitchell, "Operable Unit (OU) 2 Treatability Study Work Plan Approval," dated February 19, 1992
- G.E. Mitchell to J.R. Craig, "OU 2 Treatability W.P.," dated March 16, 1992

Both sides of the issue have been presented in the above referenced correspondence. In the March 16, 1992 letter, (see enclosure) the Ohio Environmental Protection Agency (OEPA) stated:

"...in the light of the waste type encompassed by OU 2 and the schedule which DOE, U.S. EPA, and Ohio EPA want to maintain, we feel that it is acceptable for DOE to not include durability testing in the advanced phase. Ohio EPA does suggest that DOE consider durability testing during the optional phase."

As discussed with Ohio Environmental Protection Agency (OEPA), the optional phase pertained only to radon emission and radon leaching for OU 2 and was not performed as the combined Ra-226 and Ra-228 content of the waste did not exceed 15 pCi/g.

The DOE agrees with OEPA in that durability testing should be included in future treatability studies if the treatment process of cement stabilization is selected for the remediation of OU 2. This investigation would be required during Remedial Design.

Action: None required.

2	Commenting Organization:	Commentor:
	Section #: General Comments	Line #: Code:
	Original Comment #:	
	Pg. #:	

Comment: It is not clear how DOE will use the data achieved through this treatability test to compare with the To Be Considered standards set up in the NRC Technical Position on Waste Form (1/91). DOE should note that an evaluation of the proposed waste forms with respect to the measurements stated in the Waste Form paper is expected within the Feasibility Study.

Response: Comment noted. In accordance with the CERCLA guidance document, ARARs and TBCs are evaluated in the FS stage of the CERCLA process. The treatability study provides information in support of the FS. However, providing evaluation of TBCs is beyond the scope of the TS.

Action: None required.

Response: See General Comment 1.

Action: None required.

4 **Commenting Organization:** **Commentor:**
Section #: 3.1.3.2 **Pg. #:** 3-14 **Line #:** 8-10 **Code:**
Original Comment #:

Comment: By using the data for UCS and leachability testing for evaluating overall protection of human health and the environment and compliance with ARARs in the FS, only demonstrates short-term protection and compliance. The durability test would provide data which would allow for long-term extrapolation for evaluating overall protection of human health and the environment.

Response: See General Comment 1.

Action: None required.

5 **Commenting Organization:** **Commentor:**
Section #: 3.6.7 **Pg. #:** 3-42 **Line #:** **Code:**
Original Comment #:

Comment: Its disappointing to note that the instrument chosen by DOE to measure UCS did not even achieve a reportable limit of 500 psi. Since the basic criteria for successful runs included a minimum UCS of 500 psi, one would think an instrument capable of measuring this would have been used.

Response: Comment noted. The proving ring used for the UCS instrument was calibrated to 1500 pounds. Hence, for the 2 inch by 4 inch molds, the maximum UCS limit which could be achieved was approximately 480 psi. A decision was made not to use an upper limit of 110 percent of rated capacity (525 psi), as suggested by the manufacturer (soil test).

Action: None required.

6 **Commenting Organization:** **Commentor:**
Section #: 4.1.2.1 **Pg. #:** 4-23 **Line #:** **Code:**
Original Comment #:

Comment: Table 4-17: Define or footnote the meaning of "acetone^m".

Response: Agree. The "acetone^m" footnote was inadvertently omitted. This footnote represents the statistics for acetone with the outliers rejected.

Action: A definition will be provided as a footnote to the table.

7 **Commenting Organization:** **Commentor:**
Section #: 4.1.2.1 **Pg. #:** 4-24 **Line #:** **Code:**
Original Comment #:

Comment: Table 4-18: Uranium data were not included in this table, please revise.

Response: Comment noted. Only positive hits on both the treatability and characterization data for each constituent are reported in this table. The analyses on treatability samples for the Solid Waste Landfill showed nondetects at a value of <1.0 µg/L uranium for all samples (see Table C-5 in Appendix C).

Action: Table will be revised.

8 **Commenting Organization:** **Commentor:**
Section #: 4.1.2.1 **Pg. #:** 4-29 **Line #:** **Code:**
Original Comment #:

Comment: 2nd paragraph: a) This section fails to discuss beryllium and Tables 4-17 thru 4-22 do not list it. Section 2.1, pg. 2-1 suggests it failed some leaching criteria, please clarify.

b) It should be discussed within the report the fact that the characterization data from before treatment was not collected from a portion of the treated waste. The fact that OU2 characterization data rather than specific samples from the to-be-treated waste were analyzed for TCLP may explain the difference in contaminants leached. The other potential source is contaminants introduced during the study. Without analyses of pretreatment waste it is difficult to draw conclusions concerning this data.

Response a: See specific Comment 2.

Action a: Text will be revised as noted in response to Specific Comment 2.

Response b: In the treatability study, the leachability results from the treated samples were not compared to a leachate from a single characterization sample. Instead, the leachability results were compared to the characterization sample population (data compiled from all characterization samples). The treated-sample leachability (as expressed as the upper 95 percent confidence level of the mean) was compared to the median value of the characterization sample population. In addition, the treated sample leachabilities were compared to the TC regulatory levels and the Leachate Action Levels. All contaminants leached from the treated material were significantly less than the TC regulatory levels and the Leachate Action Levels except for beryllium. The cement-based

treatment was therefore successful at meeting the structural strength and leachability regulatory requirements. DOE agrees that differences between the characterization and treated waste leachate results may be partially the result of collecting some of the to-be-treated and characterization waste samples from different locations in the waste areas. The measured leachabilities of various components in the untreated and treated waste may be affected by multiple factors such as the waste heterogeneity, the cement-based treatment of the waste, the pH and ionic strength of the extraction fluid during the tests, and the type of extraction (TCLP types 1 or 2 fluids) used. However, all of these parameters have little or no impact due to the comparison of the upper 95 percent confidence interval of the mean compared to the median value of the characterization sample population.

Action b: None required.

9	<p>Commenting Organization: Section #: 4.1.2.1 Original Comment #:</p>	<p>Commentor: Pg. #: 4-30</p>	<p>Line #:</p>	<p>Code:</p>
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Comment: Table 4-23: No footnotes are provide with this table to explain the numerous footnotes cited. Please correct.

Response: Agreed. The footnotes were omitted and will be added to the table.

Action: Table will be revised.

10 **Commenting Organization:** **Commentor:**
 Section #: 4.1.2.1 **Pg. #:** **Line #:** **Code:**
 Original Comment #:

Comment: Tables 4-23 thru 4-28: These tables are very difficult to interpret. An attempt should be made to revise the tables and make them more usable to the reader. Additionally, it should be noted that these treatability study reports will be DOE's source of information to the public concerning the treatment choice at ROD. These documents need to be clear and understandable for the public as well.

Response: A nontechnical summary of the results are presented in both the Executive Summary and Chapter 2 of the report. Both of these sections will be reviewed and reworded, if necessary, to promote comprehension. The introduction to Chapter 4 will be expanded to include a discussion of how the data will be presented in that chapter. Tables 4-23 thru 4-28 are chemical statistical summaries of the distribution of contaminants of concern detected during characterization and treatability testing. These tables show the comparison of the levels of detected contaminants from the leachate of the waste before and after stabilization; the levels of contaminants that were detected in the characterization leachate, but not detected in the treatability leachate; and the levels of contaminants that were detected in the treatability leachate, but not detected in the characterization leachate. These tables are the detailed statistical backup to Tables 4-11 thru 4-22 and are required for documenting what is stated in these tables. To try to simplify a detailed backup of a complex statistical evaluation is a contradiction in their charter and would reduce the report viability. It is agreed the public most likely will be incapable of understanding tables of data providing backup to statistical evaluations. However, these tables provide copious quantities of data on a complex subject and cannot be simplified without diluting the required supporting documentation.

Action: None required.



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George V. Volnovich
Governor

March 16, 1992

RE: O.U.2 TREATABILITY W.P.

Mr. Jack R. Craig
Project Manager
U.S. DOE FEMP
P.O. Box 398705
Cincinnati, Ohio 45239

Dear Mr. Craig:

The purpose of this letter is to notify DOE that Ohio EPA considers our comments on the O.U.2 Treatability Study Work Plan resolved. It is still Ohio EPA's opinion that durability testing is an important part of stability studies for both storage and disposal. However, in light of the waste type encompassed by O.U.2 and the schedule which DOE, U.S. EPA and Ohio EPA want to maintain, we feel that it is acceptable for DOE to not include durability testing in the advanced phase. Ohio EPA does suggest that DOE consider durability testing during the optional phase. This could be important for any O.U.2 wastes that do not have the potential to serve as "additives" for vitrification or stabilization in other operable units. Such an approach would allow DOE to meet schedule commitments while obtaining information that may be valuable to determine if waste form will comply with ARARs and TBCs.

If you have any questions, please contact me.

Sincerely,

Graham E. Mitchell
Project Manager

GEM/klj

cc: Jennifer Kwasniewski, DERR
Jim Saric, U.S. EPA
Dennis Carr, WEMCO
Lisa August, GeoTrans
Tom Hahne, PRC
Robert Owen, ODH