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# OU 2 TEST PAD WORK PLAN

02/28/96

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590



FEB 2 8 1996

Mr. Johnny W. Reising
United States Department of Energy
Feed Materials Production Center
P.O. Box 398705
Cincinnati, Ohio 45239-8705

SRF-5J

RE: OU 2 Test Pad Work Plan

Dear Mr. Reising:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the United States Department of Energy's (U.S. DOE) draft Test Pad Work Plan for the on-site disposal facility. The work plan provides an overview of the test pad program and describes the existing information on the brown till that will be used for constructing the test pad. The work plan further details a preconstruction laboratory testing program, a field permeability testing program, and the use of the test pad results in developing construction recommendations.

The Work Plan adequately describes the test pad program in great detail, however, U.S. EPA is concerned about the use of sealed double-ring infiltrometers (SDRI) for the testing of field permeability. This test requires 30 to 90 days before results are acquired. An alternative test, the "Boutwell Test", developed by Soil Testing Engineers should be used in conjunction or as a replacement to the SDRI test. The Boutwell Test has been recognized by the State of Ohio for the determination of in-field testing of permeability and the test has the advantage of providing a better measure of permeability in a much shorter time frame (10 to 15 days).

Therefore, U.S. EPA disapproves the test pad work plan pending incorporation of adequate responses to comments in a revised work plan. U.S. DOE must submit responses to comments and a revised work plan within thirty (30) days receipt of this letter.

Please contact me at (312) 886-0992 if you have any questions regarding this matter.

Sincerely,

James A. Saric
Remedial Project Manager
Federal Facilities Section
SFD Remedial Response Branch #2

Enclosure

cc: Tom Schneider, OEPA-SWDO
Jack Baublitz, U.S. DOE-HDQ
Don Ofte, FERMCO
Charles Little, FERMCO
Terry Hagen, FERMCO
Michael Yates, FERMCO

## GENERAL COMMENTS

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 1
Comment: The target moisture contents proposed for the three lanes of the test pad are the same. During construction of the compacted clay liner and cap, the moisture content can vary as much as 3 percent above the optimum moisture content for the fill. Therefore, the target moisture content for lanes 1, 2, and 3 should differ to reflect the moisture conditions that may be encountered.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 2
Comment: Sealed double-ring infiltrometers (SDRI) are proposed for field permeability tests. The American Society for Testing and Materials (ASTM) method for double-ring infiltrometers (D3385-76) states that the method is "difficult to use and the resultant data may be unreliable in very heavy or heavy clay soils". In the ASTM method, the infiltration rate is converted into a permeability value by assuming a one-dimensional vertical flow through the soil mass. Chapter 3 of the U.S. EPA guidance Design, Construction, and Evaluation of Clay Liners for Waste Management Facilities, EPA/530/SW-86/007F, November, 1988, states that a series of tests of this method have shown that the assumption of a one-dimensional vertical flow through a soil mass is incorrect. The other disadvantage of this test is that it requires test periods of 30 to 90 days or more. A long period could elapse before a SDRI test produces results. If the SDRI tests indicate that the compacted clay liner does not meet permeability requirements, much valuable time will have been lost and the need for new tests will cause further delay.

DOE should consider the use of another in-situ permeability test, the "Boutwell Test" also known as the "Two-Stage Field Permeability Test" developed by Soil Testing Engineers, Inc. This test will give a better measure of permeability in a much shorter time of 10 to 15 days. That test option should be considered either in lieu of or in addition to the SDRI tests.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 3
Comment: The work plan should discuss the effect of the variability encountered in SDRI and laboratory permeability measurements on the interpretation of the test pad results. This aspect of the test pad finding will have a significant effect on the development of construction recommendations and the construction quality assurance plan.



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