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*DISAPPROVAL OF THE GLACIAL TILL/VADOSE ZONE
WORK PLAN*

06/10/93

*USEPA/DOE-FN
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LETTER



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

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REPLY TO THE ATTENTION OF:

Mr. Jack R. Craig
United States Department of Energy
Feed Materials Production Center
P.O. Box 398705
Cincinnati, Ohio 45239-8705

HRE-8J

RE: Disapproval of the Glacial
Till/Vadose Zone Work Plan

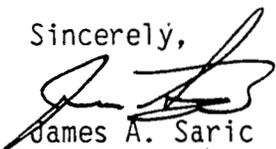
Dear Mr. Craig:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the Glacial Till/Vadose Zone Hydraulic Investigations Work Plan. The Work Plan details additional data needs to the support the Operable Unit 5 Remedial Investigation. Although much of the additional work is adequate, further information is required concerning hydraulic investigations.

Therefore, U.S. EPA disapproves the Work Plan pending incorporation of the attached comments.

Please contact me at (312/FTS) 886-0992 if you have any questions.

Sincerely,


James A. Saric
Remedial Project Manager

Enclosure

cc: Graham Mitchell, OEPA-SWDO
Pat Whitfield, U.S. DOE-HDQ
Nick Kaufman, FERMCO
Jim Thiesing, FERMCO
Paul Clay, FERMCO

FEMP Glacial Till/Vadose Zone Hydraulic Investigations Work Plan**General Technical Review Comments**

1. The work plan includes one section for each of the specific hydraulic investigations (e.g. slug tests, pump tests, yield tests, and so on). Each section provides information on the location of the tests but does not provide any information on why these locations were selected. The work plan should provide the precise rationale for the location of the tests and the number of tests. The locations should be selected to provide specific information regarding the movement of ground water and contaminants from each operable unit (OU) to OU 5, as well as movement within OU 5.

Specific Technical Review Comments

2. Section 2.2, Page 2-1, Line 13: The text refers to wells and piezometers to be used in the slug tests. However, Table 2-1 does not indicate the glacial till hydraulic unit within which the wells or piezometers are screened. This information is critical for evaluating whether enough tests are being performed and whether the test depths and locations are adequate to meet the objectives.
3. Section 2.3.2, Page 2-6, Line 8: The work plan proposes that a 2-inch diameter slug be used for the falling and rising head slug tests in the 4-inch piezometers. This approach will require that at least 4 feet of a 2-inch slug be used to raise the water in the well 1 foot. This may impose an unnecessary constraint resulting in the rising head tests not being performed. An alternative approach is

the use of a 3-inch diameter slug, which will require only 2 feet of the slug to attain a 1 foot rise of water in the piezometer.

4. Section 2.3.2, Page 2-7, Line 24: The word "rising" in this line does not appear appropriate. It seems that the work plan is discussing falling head tests. The work plan should be checked for accuracy and clarity.
5. Section 2.3.2, Page 2-7, Line 26: The work plan states that water will be introduced into the casing annulus but does not explain how this will be done. The work plan should describe this procedure. The work plan also references Figure B in Attachment B-1. This figure is not included with the work plan and should be provided.
6. Section 2.3.2, Page 2-9, Line 6: The work plan provides a procedure for conducting a falling head test and then states that under many conditions the test results will not be used to determine the hydraulic conductivity. The work plan should explain why the test is necessary if the data cannot be used.
7. Section 4.1, Page 4-1, Line 15: The text states that the samples from the lysimeters will be analyzed for general chemistry and total uranium. However, Table 4-1 also lists volatile organic compounds (VOC). Since VOC analysis of the lysimeter samples will probably not be representative of the actual VOC concentrations, VOCs should not be analyzed for.
8. Section 4.1, Page 4-1, Line 20: The work plan provides the location of each of the six lysimeters but does not provide any rationale for these locations. The rationale should be provided. In addition, DOE should consider placing

additional lysimeters in some areas where contaminant transport through the till and Great Miami Aquifer vadose zone is suspected (e.g. south field, waste pit area, and production area).

9. Section 6.2, Page 6-1, Line 28: The work plan provides bore log information (subsurface characterization and lithologic description) for only 1 of the 4 test wells and only 4 of the 18 observation wells used in the yield tests. Therefore, it is not possible to evaluate whether the observation wells are appropriately located relative to the test well to provide sufficient aquifer characterization data. The work plan should provide subsurface characterizations and lithologic descriptions for all wells and piezometers used in the yield tests.
10. Section 6.2, Page 6-1, Table 6-1,: The design of the yield tests appears inadequate to meet the stated objectives. Specifically, the locations of the observation wells seem too far from the test wells to provide significant information on the hydraulic conductivity or hydraulic connection between various sand units. Test wells 1274 and 1339 do not have any observation points within 200 feet of the test well. Drilling more suitably located replacement wells or using alternative existing wells should be considered to meet the objectives of the yield tests. Also, additional information should be provided on the pumping rate of the test wells.
11. Section 6.2, Page 6-3, Table 6-1, Line 12: Table 6-1 lists test well 1077 and only 2 observation wells, whereas Figure 6-1 displays test well 1076 and at least 10 observation wells. This discrepancy should be corrected.

12. Section 6.3.2.1, Page 6-5, Line 30: The work plan states that the test wells will be pumped at a rate of 1 gallon per minute and that other pumping rates will be considered. The work plan should explain how decisions will be made to either (1) increase the pumping rate and continue the tests or (2) determine that a sufficient pumping rate was established and that no hydraulic response is seen, therefore ending the tests at that location.

13. Section 7.0, Page 7-1, Line 14: The work plan does not state that any of the data will be validated. All data should be validated in accordance with the procedures in the Site-Wide Characterization Quality Assurance Project Plan prior to incorporation into reports.