



State of Ohio Environmental Protection Agency

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George V. Voinovich
Governor

February 11, 2000

Mr. Johnny Reising
U.S. Department of Energy, Fernald Area Office
P.O. Box 538705
Cincinnati, OH 45253-8705

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RE: COMMENTS ON 90% DESIGN PACKAGE EPLTS

Dear Mr. Reising:

This letter provides formal Ohio Environmental Protection Agency comments on the 90 % Design Package for the Enhanced Permanent Leachate Transmission System. Many of these comments have already been informally submitted without numbering via fax. A meeting to discuss our comments has been scheduled for February 15, 2000.

If you have any questions, please contact Tom Ontko or me.

Sincerely,

For

Thomas A. Schneider
Fernald Project Manager
Office of Federal Facilities Oversight

cc: Jim Saric, U.S. EPA
Terry Hagen, FDF
Mark Shupe, HSI GeoTrans
Francie Hodge, Tetra Tech EM Inc.
Ruth Vandergrift, ODH

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**Ohio Environmental Protection Agency Comments on the 90% Design Package
for the Enhanced Permanent Leachate Transmission System for the On-Site
Disposal Facility**

General Comments

- 1) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Pg #: Line #: Code: c
Comment: The original design of the Leak Detection System manhole allowed liquids in the LDS to flow unimpeded into the primary containment vessel. The primary containment vessel was not directly connected to the LTS line. This functional requirement was listed in Appendix B Section 6.1.3 of the original Design Criteria package. Quoting from Section 6.1.3, "Each collector (pipe) will pass through the perimeter toe berm to a respective sump. The sumps will not be interconnected nor will the leak detection system be interconnected with the leachate collection system." The 90 % EPLTS design does not allow unimpeded flow into a primary containment vessel. A knife valve is placed before the tank. The LDS lines are directly plumbed into the LTS.
Re-design the system to comply with the original functional requirements. The LDS lines should drain directly into the collection tank. The 3/4" transfer line should empty into a standpipe (or similar appurtance) connected to the LTS. This emptying should be accomplished with a small pump. Check valves to prevent back flow into the LDS lines should be added at the standpipe.
The "T" that can direct flow to either the tank or the LTS line and valving, flow meters, etc. should be omitted.
The tank and appurtances are satisfactory.
- 2) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Pg #: Line #: Code: c
Comment: This design shows the piping within the valve houses being 3 inch pipes as opposed to the 6 inch pipes used in the manholes in the original design. No explanation is given as to the reason for decreasing the pipe size. Please explain.
- 3) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.1 Pg #: 1 of 4 Line #: Code: c
Comment: Under the paragraph labeled background, a sentence reads "the LCS/LDS manholes will be demolished or abandoned". All manholes are to be removed. Please delete the reference to abandonment.
- 4) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Pg #: Line #: Code: c
Comment: The EPLTS double containment pipe is designed to be monitored for

leakage by placing drip pans under the open ends of the containment pipe at the lower ends of the runs between the valve houses. The design does not include fixed end seals at either the upper or lower end. The original design used stopcocks at the lower ends and fixed end seals at both the upper and lower ends.

The design should be changed to re-incorporate the stopcocks and fixed end seals.

- 5) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Pg #: Line #: Code: c
Comment: The original design included provisions to remove the spool from the LCS line to the LTS line prior to final closure of the OSDF so that in the long term there are no obstructions to leachate flow. New spools should be fabricated and available so that long-term leachate flows are not impeded. These spools should be made from SDR 11 HDPE and designed so that both ends can be butt-fused to the existing HDPE lines.
- 6) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Pg #: Line #: Code: c
Comment: A Systems Plan should be developed that details how the EPLTS should be operated in routine and non-routine conditions.
- 7) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Pg #: Line #: Code: c
Comment: A Leachate Management Contingency Plan should be developed that outlines actions to be taken if the EPLTS becomes non-operational.
- 8) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Pg #: Line #: Code: c
Comment: We have previously commented that changes should be made in the LDS system to remove the direct connection between the LDS and the LTS. This comment addresses the two methods of measuring flow in the LCS system: the flow meter and the tank.
It is not clear why the flow meter is in the system considering the problems associated with reliability under low-flow conditions. The tank serves as a means of measuring flow at a wide range of flow rates and we would expect it to be robust under high or variable silt loadings. We realize that by making this change, flows can only be measured batch-wise, not continuously.
- 9) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Pg #: Line #: Code:
Comment: The Package provides very few details on the concrete protective liner.

Provide information on such details as how joints are sealed, how seams are welded, how anchors and penetrations are sealed, how repairs are accomplished, how components are tested for leaks, etc. Manufacturers fact sheets or web sites would be satisfactory.

Comments on Construction Drawings

- 10) Commenting Organization: Ohio EPA Commentor: HSI GeoTrans
 Drawing #: G-1 Section #: Notes Code: E
 Comment: Last line of Note 2 is repeated above it. Note 8 is incomplete.
- 11) Commenting Organization: Ohio EPA Commentor: HSI GeoTrans
 Drawing #: G-3, G-4 and G-5 Section #: Scales Code: E
 Comment: Scales should be identified as horizontal and vertical.
- 12) Commenting Organization: Ohio EPA Commentor: HSI GeoTrans
 Drawing #: G-6 Section #: Detail 11 Code: c
 Comment: Detail 11 shows a minimum of 3 feet of cover over the invert of the pipe, but it refers to Note 3 which requires a minimum of 4.75 feet of cover over the invert of the pipe.
- 13) Commenting Organization: Ohio EPA Commentor: OFFO
 Drawing #: G-6 Section #: Code: C
 Comment: Numerous station numbers are missing from this drawing. Please correct.
- 14) Commenting Organization: Ohio EPA Commentor:
 Drawing #: G-10 Detail: B Code: C
 Comment: Note 4 is referenced in detail B (LTS Pipe Crossing at OSDF Sediment Basin 1 Principal Spillway Pipes) when it appears that the appropriate reference would be 7. Please correct.
- 15) Commenting Organization: Ohio EPA Commentor: OFFO
 Drawing #: G-17 Section #: Code: C
 Comment: Note 2 references replacing pipes with SDR-26 pipes. Please correct.
- 16) Commenting Organization: Ohio EPA Commentor: OFFO
 Drawing #: M-1 Section #: Code:
 Comment: Detail VH-1 shows valve 115 is normally closed and valve 114 is open. This arrangement allows leachate in the LDS system to drain directly into the LTS. The

valves should be adjusted so that standard LDS flows are into the tank. We have already commented that much of the plumbing in the LDS line should be re-designed. It is acceptable to allow the LCS to flow directly into the LTS as shown in the schematic.

- 17) Commenting Organization: Ohio EPA Commentor: OFFO
Drawing #: M-2 Section: B Code: c
Comment: Has an evaluation been made to include a sediment trap right after the LCS line enters the valve house and before the knife valve? Considerations would include how robust the flow meters and check valves are to sediment loading and experience gained with the Cells 1 and 2.
- 18) Commenting Organization: Ohio EPA Commentor: OFFO
Drawing #: M-3 Detail: 68 Code: c
Comment: What is the purpose of the 3" auxiliary quick disconnect located just prior to the LTS line exiting the valve house?
- 19) Commenting Organization: Ohio EPA Commentor: OFFO
Drawing #: M-3 Section #: H Code: c
Comment: The weld-o-let fitting in this detail looks like it is mounted on the ball valve flange.
- 20) Commenting Organization: Ohio EPA Commentor: OFFO
Drawing #: M-4 Detail: 76 Code: c
Comment: To facilitate finding leaks in the tank, it should be mounted on legs so that it is elevated an inch or two above the floor.
- 21) Commenting Organization: Ohio EPA Commentor: HSI GeoTrans
Drawing #: M-5 Section #: Detail 79 Code: c
Comment: The Control Valve House will be constructed around the existing ILTS while it is in use. What provisions will be made to protect the piping during excavation and support it during construction of the Control Valve House?

Comments on Technical Specifications

- 22) Commenting Organization: OhioEPA Commentor: HSI GeoTrans
Section #: 15080 Page #: 4 Line: 3 (Item E) Code: c
Comment: An APCO Series 9000 double door check valve has been specified. However, the APCO catalog indicates that double door check valves are recommended for clean water, and not for wastewater. Because the leachate would not be considered

clean water, some other style of check valve (such as a rubber flapper swing check valve or a slanting disc check valve) may be more appropriate for this application.

Comments on Calculations

- 23) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.1 Pg #: Ex. Summary Line #: Code:
Comment: The pipe flow capacity for the LCS line is calculated to be 86.87 gpm. The pumping capacity for the PLS is 200 gpm. At the present configuration with one cell nearly completed, one cell partially filled, and one cell barely started we are very close to a situation where the limiting factor in removing leachate head during storm flow conditions is not the capacity of the PLS to pump but rather the flow of the LCS lines. To amplify, under storm flow we expect that the LCS lines from Cells 2 and 3 will flow at full capacity ($2 \times 86.87 \text{ gpm} = 174 \text{ gpm}$). We know that flow from Cell 1 will be somewhat less than that because it is closer to being filled and the catchment area is closed. If the flow from Cell 1 is less than $200 - 174 = 26 \text{ gpm}$, the flow from Cells 2 and 3 is limited by the new 3" lines in the valve houses.
- 24) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.1.1 Pg #: 1 of 5 (Data verification) Line #: Code:
Comment: The baseline design flow rate during active operations cited here from the original design package assumes that two cells are open. It would be more realistic to assume that three or four cells are open but the factor of safety for flow (EPLTS flow capacity divided by baseline flow during active operations) does not change drastically. We calculate an FOS of 3.9 assuming four cells are open. This is greater than the desired FOS of 3.0.

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