OhioEPA

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January 15, 2004

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

RE: COMMENTS - IEMP MID-YEAR DATA SUMMARY FOR 2003

Dear Mr. Taylor:

Ohio EPA has reviewed the *IEMP Mid-Year Data Summary Report for 2003 Rev.0 Final (51350-RP-0021)* and *Response to Additional OEPA Comment on the 2002 Site Environmental Report* submitted on November 24, 2003. Ohio EPA's comment's are enclosed.

If there are any questions, please contact me at (937) 285-6466 or Donna Bohannon at (937) 285-6543.

Sincerely,

Donna Bohannon for

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

cc: Jim Saric, U.S. EPA
Terry Hagen, Fluor Fernald
Mark Shupe, GeoTrans, Inc.
Michelle Cullerton, Tetra Tech EM Inc.
Ruth Vandergrift, ODH

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IEMP MID-YEAR DATA SUMMARY
REPORT FOR 2003
(51350-RP-0023 REV.0 FINAL)

Comments:

1. Commenting Organization: OEPA Commentor: GeoTrans, Inc.
Section #: 3.0 Pg.#: 3-3 Line #: 8 Code: C
Original Comment #:
Comment: Construction data for the five perched water monitoring wells could not be located on the Fernald IEMP Data Information Site. Please provide the well construction data for these five monitoring wells.

2. Commenting Organization: OEPA Commentor: GeoTrans, Inc.
Section #: 3.0 Pg.#: 3-3 Line #: 8 Code: C
Original Comment #:
Comment: Why are the water levels in 13261 so low relative to the other four wells? Are the other wells screened in a coarse-grained unit that is not present at 13261?

3. Commenting Organization: OEPA Commentor: GeoTrans, Inc.
Section #: 3.0 Pg.#: 3-3 Line #: 8 Code: C
Original Comment #:
Comment: The elevation of the interface between the brown and gray tills in the vicinity of the OSDF is shown on Sheet X-10 (Brown Till/Gray Till Interface Contour Map) of the OSDF Final Design Package (May, 1997). The water level elevations observed in 13249, 13250, and 13251 are generally similar to the elevations of the brown/gray till interface. A high hydraulic conductivity zone might, therefore, locally coincide with the till interface and be a significant perched water unit in the Cell 1 vicinity. The relative extent and hydraulic conductivity of the perched water unit may drive the surface water drainage improvements design that is currently underway. Although significant site characterization investigations have been conducted in the Cell 1 footprint, perched groundwater units have not been mapped in the area to the north of Cell 1. Is the currently available data regarding the up gradient perched water system sufficient to support an effective design?

4. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 3 Pg. #: Figures 3-5 and 3-6 Line #: Code: c
Comment: There appear to be responses in the LDS systems of Cells 4 and 5 to the rainfall during the week of 3/26. A very large rainfall the week of 6/18 was preceded and followed by two relatively dry weeks. The responses during that week and what would be interpreted as a residual response, the following week might be significant. A plot of weekly waste placement volumes superimposed on the flow rates has been helpful in interpreting the flow data from other cells and no doubt would be helpful here, too.

5. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 3.2 Pg. #: 3-1 Line #: last paragraph on page Code: c
Comment: The text states that the observed flows in the Cells 4 and 5 LDS systems are

higher than those previously observed in other cells. The paragraph compares the observed LDS volumes with the measured rainfall which fell during the construction of the primary liner. It is concluded that the relatively high LDS flows in Cells 4 and 5 compared to the other cells are attributable to the higher rainfall during construction. It is also noted that the observed flows in the LDS systems are only a tiny portion of the rain that fell during construction.

While we do not take issue with the facts or conclusions drawn, we note that LDS flows in new cells vary widely and it is difficult to draw valid conclusions about the significance of the LDS volumes until after the cell is capped. We also note that although construction water is drained prior to operation of the cell, the volume is not measured and it is not possible to perform a water balance.

We note that since the time period of this report, the Cells 4 and 5 LDS flows have decreased to a level that is more typical of the flows observed in previous cells.

6. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 3.2 Pg. #: 3-1 Line #: last paragraph Code: c
Comment: The text states, "A portion of the water became trapped, as construction water, in the geosynthetic clay liner in the cells' leak detection systems and the geotextile cushion within the leak detection systems."

We agree that some of the rainfall which fell during construction of the primary liners entered the LDS systems of Cells 4 and 5 and that some of this water no doubt was trapped by the geosynthetic components. We believe it is more likely that this water is held within the gravel components of the LDS system. However, since the total observed LDS flow cannot be broken down into flows from individual components of the LDS system, the point is moot.

7. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 3.2 Pg. #: 3-3 Line #: Bulleted paragraph Code: c
Comment: The text compares the perched water levels as observed in the horizontal till wells and monitoring wells with the elevation of the bottom of the secondary liner. It is concluded that perched levels during the time period covered by this report may have contacted the Cells 1 and 5 secondary liners.

An analysis to estimate the factor of safety of the OSDF liner against hydraulic uplift was performed in the original design package. (Section 6.1 OSDF Final Design Calculation Package, GeoSyntec Consultants, 1997) Figure 2, "Design Basis Perched Water Contour Drawing" shows the perched system under most of Cell 1 is between 605 and 610 feet AMSL. The northeast corner is above 610 feet AMSL and the southwest corner is below 605 feet AMSL. The inferred elevation of the perched system used as the design basis is quite close to Figure 3-7 of this report.

We note that maintaining the bottom of the secondary liner above the perched water system was not a design basis for the OSDF. (Final Design Criteria Package for the OSDF, Section 2.4.2, GeoSyntec Consultants, 1997) The designers contemplated that the perched system could be temporarily dewatered for construction reasons, but it is clear

from the context that the main design issue with perched water was stability with respect to hydrostatic uplift and not infiltration of perched water into the LDS layer.
We can only imagine three routes for perched water to enter the LDS layer; through the bottom of the secondary liner (including the sides), or between the two gml layers at the anchor trench along the east and west berms, or through the LDS piping after it has left the primary liner penetration box. In the first case, the water has to penetrate 3 feet of compacted clay, a geosynthetic clay liner and a geomembrane liner. In the second case, the water has to percolate up between the two anchor trenches and then flow between the primary and secondary geomembrane liners before draining downward into the LDS layer. In the third case, the water has to penetrate both the container and the carrier pipe of the dual-containment system. Because all three options appear unlikely, we have previously commented that leakage through the primary liner seemed most probable.

8. Commenting Organization: Ohio EPA Commentor: DSW
Section #: 4.2 Pg. #: 4-2 Line #: NA Code: C
Original Comment #:
Comment: Although not a FRL exceedance, one of the monitoring goals of the IEMP is to identify potential cross media impacts where the groundwater FRL may be exceeded in surface water flows that may directly impact groundwater. This assists in reducing impacts to groundwater and accelerating the remediation of groundwater. As such, it is preferred that exceedances of the groundwater in these surface water flows be reported under notable results and events, with any relevant explanatory notes. During the monitoring period covered in the midyear 2003 report, at least one such exceedance occurred. The March 13, 2003 sample in SWD-03, a drainage to Paddys Run with the next monitoring station in this flow path being the property line, had a total uranium result of 41.6 μg/L, which, although far below the surface water FRL, is greater than the groundwater FRL for total uranium. Please include such results in future data summary reports.