

**RESPONSE TO U.S. EPA SPECIFIC COMMENT ON THE
COMMENT RESPONSE ON THE DRAFT DATA PACKAGE FOR
BASELINE GROUNDWATER CONDITIONS AT THE
ON-SITE DISPOSAL FACILITY CELLS 1, 2, AND 3**

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO**

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U.S. DEPARTMENT OF ENERGY



time covered by the data set in some of the wells, the SER graphs were constructed using a different scale to show all available data. To complete visual comparisons similar to what was done for the on-site disposal facility wells in the data package, all SER graphs have been set to a scale similar to that used for the on-site disposal facility wells. Initial review of the graphs revealed various types of visual correlation in many of the wells (e.g., positive correlation, inverse correlation). The results of this data review will be summarized in the mid-year Integrated Environmental Monitoring Plan (IEMP) report due to OEPA and EPA by November 30. It is also anticipated that additional information regarding the presence/absence of site wide correlations and related implications will be provided in the 2002 SER.

Action: The U.S. Department of Energy will provide the following:

- 1) Additional references to documents where the pre-existing aquifer contamination in the vicinity of the on-site disposal facility was identified and/or noted to be a potential complication to the leak determination process. In Section 3.1.5, the fourth bullet will be updated as follows: "The existence of trends indicates that the baseline data set is not in steady state and that there are pre-existing contaminant conditions. Pre-existing conditions have also been identified in various FEMP documents including the GWLMP, the Remedial Investigation Report for Operable Unit 5 (DOE 1995b), the 1993 through 1996 RCRA Annual Reports (DOE 1994, DOE 1995a, DOE 1996, and DOE 1997a, respectively), the Design for Remediation of the Great Miami Aquifer in the Waste Storage and Plant 6 Areas (DOE 2001b), and the annual site environmental reports."
- 2) The following summary of the ongoing efforts to quantify pre-existing contamination in the vicinity of the on-site disposal facility footprint will be added to Section 4.0, as follows:

4.1 ONGOING EFFORTS TO QUANTIFY PRE-EXISTING GROUNDWATER CONTAMINATION IN THE ON-SITE DISPOSAL FACILITY AREA

As identified in Section 3.1.5, the presence of pre-existing groundwater contamination in the on-site disposal facility area has been noted in various documents over the last eight years. The most recent documentation occurred in the Design for Remediation of the Great Miami Aquifer in the Waste Storage and Plant 6 Areas (DOE 2001b), when substantially above background uranium concentrations were seen in Property Boundary Monitoring Well 2426. The text pertaining to this documentation is repeated here as follows:

"IEMP sampling results (June 2000) for Monitoring Well 2426 indicated a $> 20 \mu\text{g/L}$ uranium plume at the eastern property boundary downgradient from the Plant 6 area (Figure 1-3). The initial sample results indicated a $24.2 \mu\text{g/L}$ uranium concentration. Since $> 20 \mu\text{g/L}$ uranium concentrations had not been previously observed at Monitoring Well 2426, the sample was re-analyzed yielding a uranium concentration of $10 \mu\text{g/L}$. To verify the presence/absence of a $> 20 \mu\text{g/L}$ uranium plume at the eastern property boundary, direct push location 12859a was completed just upgradient of Monitoring Well 2426. The maximum uranium concentration at Location 12859a was $0.6 \mu\text{g/L}$ indicating there was not a $> 20 \mu\text{g/L}$ uranium plume at the eastern property boundary. To further verify the presence or absence of a $> 20 \mu\text{g/L}$ uranium plume in this area four additional direct push locations (12829-12832, Figure 1-3) were completed on a north-south line east of Plant 6, the only

confirmed source for aquifer contamination in this area. The maximum uranium results for all four locations (all ≤ 5 $\mu\text{g/L}$) further indicate there is no uranium plume requiring remediation in this area east (downgradient) of Plant 6. However, due to a concern regarding penetration through the glacial overburden in the On-Site Disposal Facility footprint, no direct push locations could be completed in that footprint. The concern is that penetrations through the glacial overburden in the footprint could compromise the protectiveness of the overburden and potentially create a short circuit pathway for potential leakage from future OSDF cells to reach the Great Miami Aquifer.

Although it appears from past and current characterization efforts in this area east of Plant 6 that there is not a uranium plume requiring remediation in this area, it is recognized that there are residual, above background concentrations of uranium present. Due to the presence of the OSDF footprint, these residual concentrations cannot be fully defined. Further, it is recognized that these residual concentrations must be considered when developing pre-OSDF baseline uranium concentrations in the aquifer, and since they cannot be quantified they may confound future OSDF leak detection evaluations.”

Ongoing efforts to quantify pre-existing groundwater contamination in the on-site disposal facility area, beyond the cell-specific groundwater sampling consist of:

- IEMP Property Boundary Sampling
 - Groundwater Remedy Performance Geoprobng at 20-25 locations site wide per year, some in the vicinity of the on-site disposal facility footprint, as needed
 - If feasible, Geoprobng at each new monitoring well location for the remaining cells to be constructed. This will be done to establish the uranium profile at the monitoring well locations.
- 3) The following re-iteration of the concern that pre-existing contamination will confound future on-site disposal facility leak detection interpretations involving the horizontal till well and Great Miami Aquifer monitoring well data sets will be placed in the conclusions portion of Section 5, just ahead of the current text located on page 5-2. “As anticipated, on-site disposal facility area pre-existing contamination in the perched groundwater and in the Great Miami Aquifer has complicated the establishment of a statistical measure for baseline groundwater conditions at Cells 1, 2, and 3. It is anticipated that this contamination will confound future leak detection determinations as well. Therefore, in addition to statistical analysis, the supplemental assessments in Section 4.0, which provide useful leak detection considerations for the ongoing on-site disposal facility leak detection program should be updated on a routine basis. These assessments include:...”