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January 3, 2005

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Mr. William J. Taylor  
US Department of Energy  
Ohio Field Office  
Fernald Closure Project  
175 Tri-County Parkway  
Springdale, Ohio 45246

**RE: COMMENTS - RESPONSE TO DOE'S TRANSMITTAL TO OEPA'S RESPONSES TO DOE'S RESPONSE TO OEPA COMMENT ON THE 2003 SER**

Dear Mr. Taylor:

Ohio EPA has reviewed DOE's transmittal of the "Responses to the Ohio Environmental Protection Agency Comments on the 2003 Site Environmental Report Comment Responses, (51350-RP-0024) Rev 0, Final," submitted on December 6, 2004. Ohio EPA's comments are enclosed.

Should you have any questions, please contact Donna Bohannon or me.

Sincerely,

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

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

RESPONSE TO DOE'S TRANSMITTAL TO OEPA'S RESPONSES TO DOE'S  
RESPONSE TO OEPA COMMENT ON THE 2003 SER

Comments:

1. Commenting Organization: Ohio EPA                      Commentor: GeoTrans, Inc.  
Section #: Attachment A.5                      Pg. #: A.5-5 Line: 32                      Code: C  
Original Comment #: 4

Comment: Common ion monitoring in perched groundwater at the OSDF is proposed to verify that groundwater aging is occurring at the site and to determine when aging effects have dissipated in order that meaningful background characterization for OSDF leachate constituents can occur. The common ion data are not proposed as an expansion of the constituent monitoring list for the facility. Once background for leachate constituents is established and an appropriate statistical procedure (such as control charts) is implemented, common ion monitoring will no longer be necessary. These key points have been clearly stated in our original comment and in our response to DOE's initial response. Common ion monitoring is inexpensive to perform and is not subject to the same interpretation problems as are leachate constituents. Leachate constituents tend to have much higher concentrations in the waste material relative to background soils and any increase in their concentrations in perched groundwater could be the result of a leak from the facility rather than groundwater aging. DOE has yet to propose an alternative approach to characterize leachate constituent background in the perched zone or to provide legitimate justification why common ion monitoring will not work for this purpose. The key points from DOE's latest response, however, are provided below along with our responses:

- *The original constituent list was established in the OSDF Groundwater/Leak Detection and Leachate Monitoring Plan and was based on rigorous evaluation.*

The original constituent list is entirely appropriate for leachate monitoring purposes and is not at issue in the original comment. The common ions are not intended to be used for leachate monitoring but are intended to verify the presence of groundwater aging and to assess when statistically-based leachate monitoring data analysis can be implemented.

- *Most cells are far into the construction process and the ability to estimate baseline conditions for common ions is not possible.*

The monitoring data presented in the 2003 Site Environmental Report and in the 2004 Mid Year Summary Report indicate that perched groundwater constituent concentrations are likely continuing to be affected by groundwater aging. In fact, DOE indicates groundwater aging is actively occurring in the monitoring results' discussions

Mr. Bill Taylor  
January 3, 2005  
Page 2

in the SER. The proposed common ion monitoring strategy is, therefore, entirely appropriate given the current construction status of the OSDF.

- *The primary constituents monitored are sufficient for leak detection; they are the constituents that have the greatest potential for significant differences between the horizontal till wells and leachate.*

As stated above, the purpose of common ion monitoring is not leak detection but the assessment of groundwater aging in the perched groundwater.

- *It is hard to detect a system leak in the perched groundwater and a substantial difference in concentration would be needed for detection to occur.*

As noted by DOE in the OSDF Groundwater/Leak Detection and Leachate Monitoring Plan, the leak detection monitoring requirements proscribed in the OAC dictate the implementation of monitoring plans capable of determining the facility's impact on the quality of water in the uppermost aquifer and any significant zones of saturation above the uppermost aquifer underlying the landfill. The horizontal till wells are positioned for the most feasible site-specific approach to monitor for first-entry leakage from the OSDF (below the LCS and LDS liner penetration box in each cell) into the uppermost significant zone of saturation (perched groundwater in the till). Given the reliable characterization of background concentrations of the leachate monitoring parameters, that is, background characterizations that account for groundwater aging effects, even a small, low concentration leak will be detected.