



State of Ohio Environmental Protection Agency

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February 1, 2006

Mr. Johnny Reising
U. S. Department of Energy
Ohio Field Office
Fernald Closure Project
175 Tri-County Parkway
Springdale, Ohio 45246

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RE: COMMENTS ON SSOD INFILTRATION TEST REPORT

Dear Mr. Reising:

This letter provides Ohio Environmental Protection Agency comments on the Storm Sewer Outfall Ditch Infiltration Test Report.

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

Sincerely,

for Tom Ontko

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.

**Ohio Environmental Protection Agency Comments on the
Storm Sewer Outfall Ditch Infiltration Test Report**

- 1) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Pg #: Line #: Code: general
Comment: Ohio EPA believes the report demonstrates the benefits of actively sending clean water down the SSOD for natural infiltration. Considering the low cost of the action, the low confidence in DOE's projected clean up time frame, and the benefits to the timely remediation of the aquifer, Ohio EPA believes it is essential to implement this project as part of the overall ground water remediation strategy at Fernald. Failing to implement such a reasonable and effective approach would clearly demonstrate a lack of concern with the timely remediation of this valuable resource. DOE should implement pumping of clean ground water into the SSOD via the borrow pit as soon as practicable. Termination of this enhanced infiltration could be based upon monitoring results that demonstrate its ineffectiveness.
- 2) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.0 Pg #: 2 Line #: 3rd sentence after 'Activity' Code: c
Comment: The text states that, " Activity 4 (flow testing that uses both northwestern and northeastern branches) has been accomplished because the entire SSOD was tested during activity 1."
We are not clear how it is possible to make this statement since only natural flows were present in the northwest branch. Furthermore, flow can be measured only at Flume 4 but per Figure 1, over 600 feet of exposed aquifer material is present up-gradient of Flume 4. There is no way to measure infiltration in the northwest branch upstream of Flume 4.
- 3) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.
Section #: 5.0 Pg.#: 4 Line #: 18 Code: C
Comment: As shown by Figure 2, the test was successful in showing that engineered reinjection in the SSOD is feasible at rates that could significantly improve the efficiency of the groundwater remediation. DOE should discuss any potential issues that over the long term may adversely impact the infiltration rate. Specifically, iron fouling and sedimentation are potential factors that could potentially reduce the reinjection efficiency of the SSOD.
- 4) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.1 Pg #: 4 Line #: 2nd paragraph Code: c
Comment: The text states, "With the exception of a few storm events, seasonal flows into the SSOD mostly infiltrated into the bed of the SSOD." Post-remediation, the SSOD will carry flows from the most of the former production area and points east. What is the expected average annual flow to the SSOD post-remediation?
- 5) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.
Section #: 6.0 Pg.#: 7 Line #: 7 Code: C

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Comment: The prediction that re-injection of clean groundwater into the SSOD would only decrease aquifer cleanup time by one year was calculated using an uncalibrated solute transport model that assumes instantaneous equilibrium between sorbed and dissolved phases. Previous model predictions based on this approach have significantly underestimated the time required for cleanup. For example, DOE (1997) estimated a 10 year time frame in 1997 only to revise this to 23 years in 2003 (DOE, 2003). In addition, trend testing of the total uranium data in several of the more highly contaminated monitoring wells suggests that the cleanup time will be much longer than the 23 year prediction. Model predictions, therefore, have been notoriously inaccurate and do not make a persuasive case against the implementation of SSOD re-injection. If the cost of re-injecting groundwater into the SSOD is only 15 percent of the annual cost of running the entire well field, and if there is significant uncertainty regarding the upper bound of the time required for cleanup, than SSOD reinjection should be implemented unless future monitoring results show that it is ineffectual.

- 6) **Commenting Organization:** Ohio EPA **Commentor:** OFFO
Section #: 7.0 **Pg #:** 7 **Line #:** last paragraph **Code:** c
Comment: The text states that DOE will pursue the possibility of diverting discharges to the Great Miami River and instead discharging all site flows to the SSOD and the PPDD. It is highly unlikely that the State would ever permit such discharges to an intermittent stream. Additionally, adding uranium mass, that may be associated with this discharge, to the GMA is not an acceptable alternative in Ohio's view.

References

1. U.S. Department of Energy, 1997. Baseline Remedial Strategy Report, June, 1997, Rev. 0, Final.
2. U.S. Department of Energy, 2003. Comprehensive Groundwater Strategy Report, June, 2003, Rev. 0, Final.