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OhioEPA FERNALD

State of Ohio Environmental Protection Agency

Southwest District Office

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FILE 6448.3

November 7, 1997

RE: DOE FEMP
COMMENTS: DMEPP
JANUARY-JUNE 1997

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

Dear Mr. Reising:

This letter provides Ohio Environmental comments on the South Plume Removal Action Design Monitoring Evaluation Program Plan system Evaluation Report for January 1-June 30, 1997.

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
- Ruth Vandergrift, ODH
- Mark Shupe, HSI GeoTrans
- Francie Barker, Tetra Tech EM Inc.
- Manager, TPSS/DERR,CO

DMEPP197.CMM

Ohio Environmental Protection Agency comments on the DMEPP January-June 1997

- 1) Commenting Organization: OEPA Commentor: HSI-GeoTrans, Inc.
 Section # :1.0 Operational Summary Pg. #: 1-1 Line # 29-30 Code: M
 Comment: The text indicates that the pumping rate at RW-3 was not increased while RW-4 was being rehabilitated because of its proximity to the Paddy Run Road Site and potential adverse impacts on PRRS contaminants. However, while RW-4 was inoperative, the average South Plume System extraction rate was only 1000 gpm. In the Executive Summary, page ES-2, Lines 25-26, it was stated that "the total (uranium) plume remains within the capture zone created by the current recovery system when it operates at the optimum 1400 gpm pumping rate." It is assumed that the potential impact of not increasing the rate of pumping at RW-3 would be to prevent full uranium plume capture and allow dissolved uranium to co-mingle with PRRS contaminants. For this reason, the rate of pumping of RW-3 should be increased or an additional well should be added to the system to maintain overall optimum system rates while RW-4 is being rehabilitated or serviced. Previous FEMP documents have recognized this. For example, the "Operations and Maintenance Master Plan for the Aquifer Restoration and Wastewater Treatment Project--Draft Final, September, 1997, Appendix A, Section 3, Page 7, Lines 11-14 states, "The South Plume Recovery Wellfield System, on the other hand, runs continuously and has no spare wells to compensate for wells taken out of service for maintenance. In fact, when a well goes down for maintenance, the remaining wells must increase their flow to continue the scheduled capture of the plume."

- 2) Commenting Organization: OEPA Commentor: HSI-GeoTrans, Inc.
 Section # :1.0 Operational Summary Pg. #: 1-1 Line # 27-31 Code: C
 Comment: The text should indicate that the during the period 1/10/97 through 1/14/97 only well RW-2 was pumping.

- 3) Commenting Organization: OEPA Commentor: HSI-GeoTrans, Inc.
 Section # :1.0 Operational Summary Pg. #: 1-2 Line # 16 Code: C
 Comment: The operational summary sheets for the four extraction wells provide flow rates on a only monthly basis. To help assess system performance more accurately, average daily flows should be summarized graphically in this report.

- 4) Commenting Organization: OEPA Commentor: HSI-GeoTrans, Inc.
 Section # :1.0 Operational Summary Pg. #: 1-8 Line # Footnote a Code: E
 Comment: The text in the table on page 1-8 should indicate that RW-4 was being rehabilitated in first quarter 1997 from 1/1/97 through 1/8/97 as described in the text of the report.

- 5) Commenting Organization: OEPA Commentor: HSI-GeoTrans, Inc.
 Section # :1.0 Operational Summary Pg. #: 1-10 Line # Footnotes Code: E
 Comment: The text should indicate all days and the justification for why extraction wells were out of service as shown in the operational summary sheets on pages 1-5 through 1-10.

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- 6) Commenting Organization: OEPA Commentor: HSI-GeoTrans, Inc.
Section #: 3.0 Analytical Data Summary Pg. #: 3-2 Line # 17-25 Code: C
Comment: The significant upward trend in total uranium at 2551, along with this well's location requires that more activity than just monitoring be performed. Because of the scarcity of wells in this area, additional wells are required to define the western edge of the uranium plume. This is especially important because it appears that most of the mass of the plume is to the west, and there is very little basis for the definition of the western edge of the plume as shown in the total uranium maps provided.
- 7) Commenting Organization: OEPA Commentor: HSI-GeoTrans, Inc.
Section #: 3.0 Analytical Data Summary Pg. #: 3-4 Line # 1-4 Code: C
Comment: The significant upward trend in total uranium at 2128 is a concern because it is directly down gradient of the South Plume recovery wells. The presence of a lower concentration well up gradient alone does preclude continuing migration of contaminants causing increasing concentrations. The lower concentrations and lack of change in Monitoring Well 2625 suggest that 2128 and 2625 may not be on the same flow path or are influenced by different factors. The monitoring interval for 2625 is 4.5-14.5 feet bgs and the monitoring interval for 2128 is 12-22 feet bgs. Another example of a well with low concentrations is well 21194 which had a 1st Quarter 1997 uranium concentration value of 0.9 ug/L and was identified as down marginally over the same time period. This well is within the center of the total uranium plume and up gradient of the extraction wells (see Figure 4-2). Should uranium concentrations continue to rise in 2128, additional groundwater monitoring points may be required in this area to assess if uranium is not being fully captured by the South Plume recovery wells.
- 8) Commenting Organization: Ohio EPA Commentor: DD&GW
Section #: 3.1 Pg #: 3-4 Line #: 1 Code:
Original Comment #:
Comment: The uranium concentrations in monitoring wells 2625 and 2128 warrant further investigation. The fact that the up gradient monitoring well is not contaminated while the down gradient monitoring well is may be indicative of the three dimensional nature of this plume.

Previously, Ohio EPA and DOE have agreed that further Geoprobe investigation in the South Plume area is warranted. This area is a very good place to start. The study of the vertical nature of the South Plume yielded very important information for the characterization of the plume. This type of investigation is needed to fully characterize the plume, especially in areas which yield anomalous results.

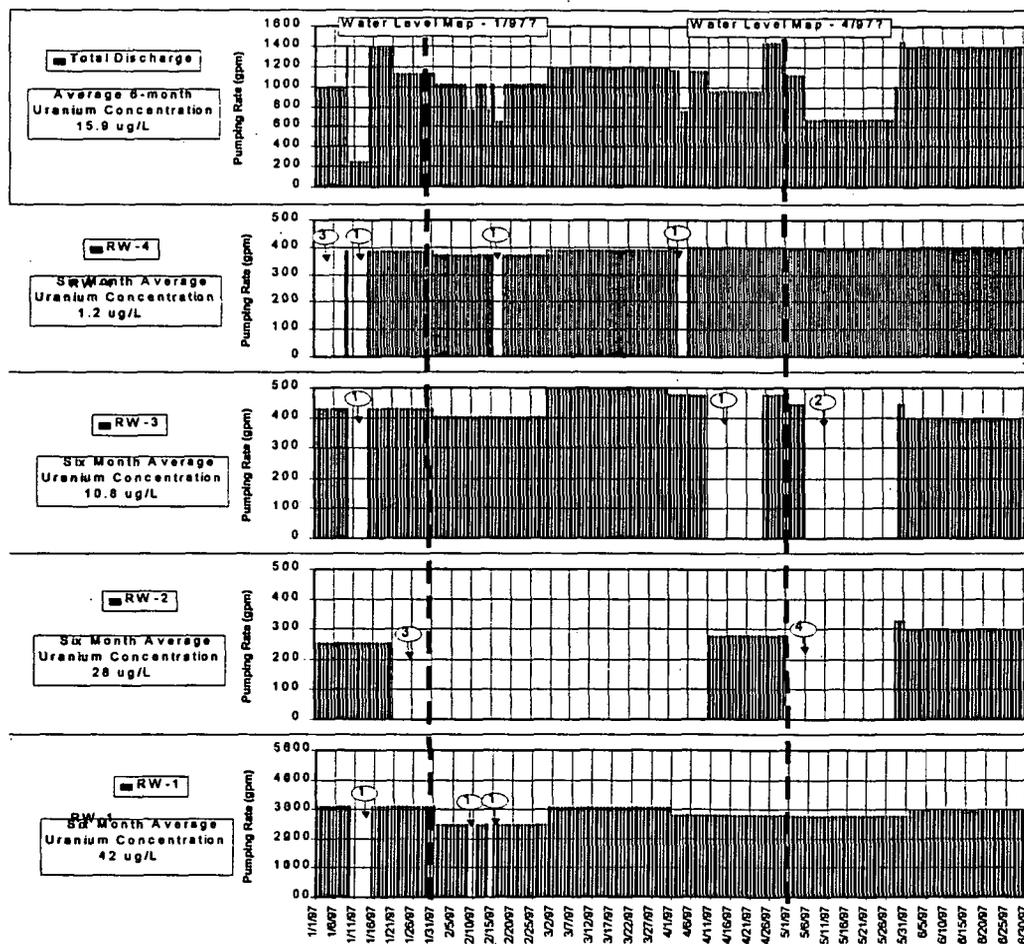
- 9) Commenting Organization: OEPA Commentor: HSI-GeoTrans, Inc.
Section #: 4.0 Capture Assessment Pg. #: 4-1 Line #11 Code: E

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Comment: For clarity replace "posted to maps" to "posted on maps."

- 10) Commenting Organization: OEPA Commentor: HSI-GeoTrans, Inc.
Section #: 4.0 Capture Assessment Pg. #: 4-2 Line #18-27 Code: C
Comment: Significant uranium concentration differences exist between the Geoprobe data shown and adjacent well data as presented in Figures 4-1 through 4-5, e.g., between well 2880 at 1.5 ug/L and adjacent Geoprobe location 12235 at 127 ug/L total uranium. Presumably the differences are due to multiple sample collection depths in Geoprobe borings as compared with the single open interval for the wells. The text should further illuminate the 3-dimensional geometry of the uranium plume through cross-sections and provide a description of the factors affecting the plume shape.
- 11) Commenting Organization: OEPA Commentor: HSI-GeoTrans, Inc.
Section #: 4.0 Capture Assessment Pg. #: 4-3 Line #17 Code: E
Comment: The text indicates that colloidal borescope flow directions are presented in Figure 4-8. For clarity this figure should specifically state in the legend "colloidal borescope flow directions."
- 12) Commenting Organization: OEPA Commentor: HSI-GeoTrans, Inc.
Section #: 4.0 Capture Assessment Pg. #: 4-3 Line # 12 Code: C
Comment: Although groundwater levels are taken on a monthly basis, potentiometric surfaces were only provided for January and April. As stated in Section 2.0 Monitoring Well Summary, Page 2-1, Lines 4-6, " For the period covered by this report groundwater elevation measurements were collected monthly rather than quarterly because of the different pumping scenarios used while the recovery wells were being rehabilitated." The report reviewer should be provided these water levels in order to assess plume capture. A figure showing estimated daily recovery rates from RW-1 through RW-4 has been developed (Figure 1). Estimated daily rates were developed using monthly averages presented on pages 1-5 through 1-10 and known periods of non-recovery. Figure 1 shows that the water levels presented in for January and April could be representative of higher pumping rates and do not show capture zones when recovery has been reduced due to pump shut down. Water levels for each month during the recovery period should be provided. In addition, this information should be provided on a diskette, in a similar fashion to concentration data.

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- Notes:
- ¹Malfunctioning flow control valve due to iron fouling
 - ²Clogged pump intake screen
 - ³Well rehabilitation
 - ⁴New self-cooling pump/motor assembly installed

Figure 1. Monthly average uranium concentrations and estimated daily recovery well pumping rates at RW-1 (3924), RW-2 (3925), RW-3 (3926), and RW-4 (3927).

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- 13) Commenting Organization: OEPA Commentor: HSI-GeoTrans, Inc.
Section # :5.0 Summary and Conclusions Pg. #: 5-5 Line # 23 Code: C
Comment: The recommendations should address the significant upward trends in total uranium at 2551 and 2128 including the potential of additional Geoprobe data acquisition or installation of additional wells.