Department of Energy

Ohio Field Office
Fernald Closure Project
175 Tri-County Parkway
Springdale, Ohio 45246

JUL 13 2006

DOE-0167-06

Mr. James A. Saric, Remedial Project Manager
United States Environmental Protection Agency
Region V-SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Mr. Thomas Schneider, Project Manager
Ohio Environmental Protection Agency
Southwest District Office
401 East Fifth Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

TRANSMITTAL OF RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS TO RESPONSES TO COMMENTS ON THE FERNALD GROUNDWATER CERTIFICATION PLAN, REVISION 0

Reference: Letter, T. Schneider to J. Reising, "Comments to Responses to Comments on the Fernald Groundwater Certification Plan," dated May 18, 2006

Enclosed for your review and approval are responses to Ohio Environmental Protection Agency comments on the Fernald Groundwater Certification Plan, Revision 0.

If you have any questions or require additional information, please contact me at (513) 648-3139.

Sincerely,

Johnny Reising

Johnny W. Reising
Director

Enclosure: As Stated

cc w/ enclosures

G. Stegner, DOE-OH
C. Jacobson, Stoller
M. Lutz, Stoller
M. Miller, Stoller/MS2
S. Marutzky, Stoller/MS2
J. Powell, DOE-LM/OH
M. Cullerton, Tetra Tech
M. Murphy, USEPA-V, A-18J
G. Jablonowski, USEPA-V, SR-6J
D. Sarno, FCAB
T. Schneider, OEPA (3 copies of enclosure)
M. Shupe, HIS GeoTrans
S. Helmer, ODH

c w/o enclosures:
K. Broberg, Stoller, MS12
J. Chiou, Fluor Fernald, Inc., MS88
B. Hertel, Fluor Fernald Inc., MS12
F. Johnston, Fluor Fernald, Inc., MS12
C. Murphy, Fluor Fernald, Inc., MS01
P. Mohr, Fluor Fernald, Inc., MS01
D. Sizemore, Fluor Fernald, Inc., MS01
M. Sucher, Fluor Fernald, Inc., MS99
C. Tabor, Stoller, MS12
T. Terry, Fluor Fernald, MS01
S. Walpole, Stoller, MS76

RESPONSES TO
OHIO ENVIRONMENTAL PROTECTION AGENCY
COMMENTS ON THE
FERNALD GROUNDWATER CERTIFICATION PLAN
FINAL, REVISION 0, OCTOBER 2005

FERNALD CLOSURE PROJECT
FERNALD, OHIO

JULY 2006

U.S. DEPARTMENT OF ENERGY

OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE FERNALD GROUNDWATER CERTIFICATION PLAN, FINAL, REVISION 0

ORIGINAL COMMENTS

1. Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.
Section #: 4.2.2 Pg #: 4-3 Line #: 6 Code: C
Original Comment #: 4

Comment: DOE's proposed text edit states "Supplemental pumping will continue until the existing wells, pumps, or motors being used are no longer serviceable." In order to accurately ascertain the impact of the re-injection, some minimum number of concentration measurements from the site monitoring wells in the vicinity of the SSOD are needed. This text should, therefore, be revised to read "Supplemental pumping will continue until sufficient monitoring data have been collected to assess whether or not SSOD re-injection improves remedy performance."

Response: The operational status of the three construction wells (Construction Wells 42202, 42471, and 43309) that will be used to pump water to the SSOD is good. The pump and motor in Construction Well 42202 were replaced in 2005 to support the SSOD Infiltration Test. The motor in Well 42471 is being replaced as part of the 2006 SSOD Infiltration Project. Well 43309 has been operating and is in good shape. It is anticipated that the construction wells will remain operational and serviceable for many years. Aquifer remedy progress near the SSOD will be assessed annually in the Site Environmental Report. It may be difficult to differentiate the direct benefit to the aquifer remedy being achieved solely from the SSOD pumping operation, but unless it can be proven that no benefit is being gained the pumping will continue as long as the wells remain serviceable. Rather than discontinuing the pumping operation just because the wells, pumps, and motors, are no longer serviceable, DOE will commit to the following: Should the existing wells, pumps, and motors become unserviceable prior to a determination being made on the direct benefit being gained by the aquifer remedy because of the pumping, continuance of the pumping will be re-evaluated, and US EPA and Ohio EPA concurrence on a path forward will be obtained.

Action: Section 4.2.2 has been revised via the use of change pages to state that enhanced infiltration to the aquifer through surface waters would be discontinued for one of two reasons; 1) A conclusion is reached that the process is not a cost effective benefit for improving the aquifer remedy, and; 2) Successful completion of Stage I in the module where induced infiltration is occurring. Should the existing wells, pumps, or motors used to supply water to the SSOD become unserviceable prior to a determination of the direct benefit being gained by the aquifer remedy from the pumping, continuance of the pumping will be re-evaluated, and US EPA and Ohio EPA concurrence on a path forward will be obtained. The change pages for Section 4.2.2 of the Fernald Groundwater Certification Plan are attached.

2. Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.
Section #: 9.1 Pg #: 9-1 Line #: 4 Code: C
Original Comment #: 12

Comment: The key objective of the long term water level monitoring is to ascertain whether high water levels exist in the source areas. Elevated water levels may result in concentration rebound by the release of sorbed contaminants in the unsaturated zone. Based on available site data, rebounding concentrations are a very real possibility. Accurate assessment of source area water levels is, therefore, critical and should not be based on remote measurements. As noted in the original comment, unforeseen changes to water levels are possible, particularly given the long period of time involved in this monitoring task. Although the proposed long term monitoring approach using the OSDF wells is

clearly more convenient with respect to implementation, the potential for a false negative (the conclusion that source area water levels are low when the opposite is true) is clear. The source area water level monitoring should be conducted at the source areas.

Response: This comment is the same as Original Comment #91 on the LMICP. Data was presented in Section 9 of the Certification Plan that illustrates that the OSDF aquifer-monitoring wells will serve as good indicators for rising water levels in the aquifer beneath former source areas. Regardless of this data, DOE will commit to monitor water levels in the former source areas identified in Figure 9-3 of the Certification Plan. This will include one well in each of these five former source areas; Waste Storage area, Pilot Plant Drainage Ditch Area, Former Southern Waste Units Area, South Field Area, and Plant 6 Area.

Action: Section 9 of the Certification Plan has been revised to reflect a strategy of monitoring water levels in the former source areas. Revised Section 9 of the Fernald Groundwater Certification Plan is attached.

Change Page for Comment #1

&

Revised Section 9 for Comment #2

4.2.2 Role of Injection

As defined in the OU5 Record of Decision, innovative technologies will be pursued to supplement the pump-and-treat remedy. From 1998 through 2004, well-based re-injection was used to supplement the pump-and-treat remedy. Well-based re-injection was suspended in 2004 because it was no longer considered to be a cost-effective option. There are currently no plans to conduct future well-based re-injection.

An effort will be made for the remainder of the aquifer remedy to supplement pump-and-treat operations by directing as much clean surface water and/or groundwater as possible into all available practical pathways to the aquifer (i.e., the storm sewer outfall ditch, basins, Paddys Run). Enhanced infiltration to the aquifer through surface water features would be discontinued for one of two reasons. 1) A conclusion is reached that the process is not a cost effective benefit for improving the aquifer remedy. 2) Successful completion of Stage I in the module where induced infiltration is occurring.

A study was completed in 2005 that tested the feasibility of inducing recharge to the aquifer by pumping clean groundwater to the Storm Sewer Outfall Ditch (SSOD) in the South Field and allowing the water to infiltrate into the aquifer (DOE 2005e). Groundwater modeling predicts that such an action will shorten the time required to complete the aquifer remedy. The decision was made in early 2006 to proceed with pumping clean groundwater from existing construction wells located on the east side of the site into the SSOD as a supplement to natural flow of storm water entering the ditch in order to achieve up to a 500 gpm flow rate. Should the existing wells, pumps, and motors become unserviceable prior to a determination being made on the direct benefit being gained by the aquifer remedy because of he pumping, continuance of the pumping will be re-evaluated, and US EPA an Ohio EPA concurrence on a path forward will be pursued.

4.3 OVERVIEW OF OPERATIONS AND SYSTEM DESIGN

4.3.1 Operational Infrastructure and Design

As presented earlier, the pump-and-treat aquifer remediation system is divided into three restoration modules: the South Plume Module, the South Field Module, and the Waste Storage Area Module. The complete operational system is expected to consist of 23 active extraction wells. Six of these extraction wells are located off property, south of Willey Road (South Plume Module). Thirteen of the extraction wells are located in the South Field (South Field Module). Four of the extraction wells will be located in the waste storage area (Waste Storage Area Module). Two extraction wells are currently installed in the waste storage area; installation of two additional wells is planned for late 2005 or early 2006. Figure 1-1 shows the locations of the extraction wells. Operational pumping rates, as presented in the Waste Storage Area (Phase II) Design Report, are shown in Table 4-1. The total pumping rate being targeted for the system is approximately 4,775 gallons per minute (gpm) beginning April 1, 2006.

TABLE 4-1

GROUNDWATER REMEDY PUMPING SCHEDULE FOR MODELING APPROACH C

SYSTEM/WELL ID			PUMPING RATES (gpm) 04/01/06 to 04/01/15	PUMPING RATES (gpm) 04/01/15 to End
South Plume				
SP-1	RW-1	3924	200	0
SP-2	RW-2	3925	200	0
SP-3	RW-3	3926	200	0
SP-4	RW-4	3927	200	0
SP-6	RW-6	32308	200	0
SP-7	RW-7	32309	200	0
		Subtotal	1,200	0
South Field				
SF-31	EW-15a	33262	200	300
SF-17	EW-17a	31567	175	175
SF-18	EW-18	31550	100	100
SF-19	EW-19	31560	100	100
SF-20	EW-20	31561	100	400
SF-21	EW-21a	33298	200	300
SF-22	EW-22	32276	300	400
SF-23	EW-23	32447	300	400
SF-24	EW-24	32446	300	300
SF-25	EW-25	33061	100	100
SF-32	EW-30	33264	200	400
SF-33	EW-31	33265	300	400
SF-34	EW-32	33266	200	200
		Subtotal	2,575	3,575
Waste Storage Area				
WSA-1	EW-26	32761	300	500
WSA-2	EW-27	33062	200	200
WSA-4	EW-28	33063	200	200
WSA-5	EW-33	33330	300	300
		Subtotal	1,000	1,200
		Total Pumping	**4,775**	**4,775**

9.0 STAGE VI – LONG-TERM MONITORING

Uranium contamination is sorbed onto the unsaturated aquifer sediments within the vadose zone beneath former source areas. This presence is due to groundwater levels being higher in the past when sources were active and due to source leaching and infiltration through the vadose zone.

9.1 OBJECTIVES

The objective of Stage VI is to monitor water levels in the former source areas as an indicator for the need to sample for dissolved uranium in the groundwater beneath those areas after certification has been achieved.

9.2 Monitoring and Reporting

9.2.1 Monitoring Network

The monitoring network will consist of the 5 Great Miami Aquifer groundwater-monitoring wells (Monitoring Wells 2649, 83124, 2046, 2389, and 83294), as shown in Figure 9-1. Any needed additional sampling in the former source areas would be accomplished using a direct-push sampling tool.

9.2.2 Monitoring List, Frequency, and Duration

Water level measurements will be taken semiannually for five years during July (when water levels are normally at seasonal high levels) and in January (when water levels are normally at seasonal low levels).

If water level data triggers the need to sample beneath the former source areas, groundwater samples would only be analyzed for uranium. A table that provides groundwater FRL constituent monitoring frequencies for all stages of the certification process is provided in Appendix A.

9.2.3 Controlling Documents

The controlling document for long-term monitoring will be the IEMP. The current version of the IEMP addresses Stage I monitoring. Details concerning Stage VI monitoring will be addressed through future revisions of the IEMP.

9.2.4 Reporting

Annual letters will be issued to the EPA and OEPA.

9.3 DECISION-MAKING CRITERIA

If dissolved uranium concentrations beneath the former source areas appear to have increased higher than the concentration level documented at the time that certification was declared completed, then monitoring will continue and the need to install additional monitoring wells will be considered. Agency concurrence will be sought for any decision made concerning the need to install additional monitoring wells.

9.4 CONTINGENCIES AND EXIT STRATEGY

Long-term monitoring will stop after five years if the groundwater table remains low or uranium concentrations measured during higher groundwater table conditions remain statistically below the FRL.

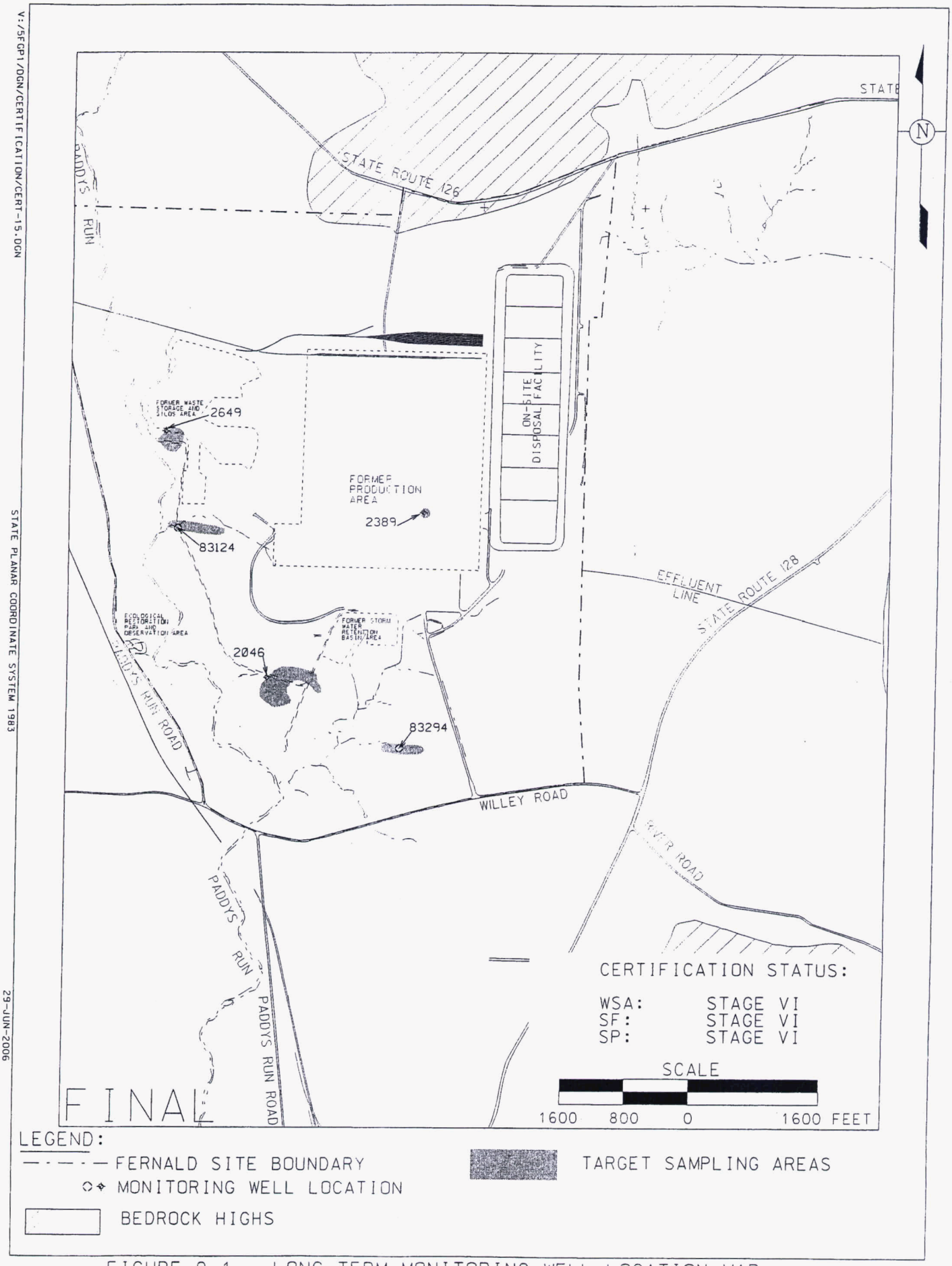

FIGURE 9-1. LONG-TERM MONITORING WELL LOCATION MAP