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R-009-203.7

**SOUTH GROUNDWATER CONTAMINATION
PLUME REMOVAL ACTION EE/CA/ ADDENDUM**

09/19/91

**DOE-2259-91
DOE-FSO/USEPA
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LETTER**



Department of Energy
Fernald Environmental Management Project
P.O. Box 398705
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SEP 19 1991
DOE-2259-91

Mr. James A. Saric, Remedial Project Director
U. S. Environmental Protection Agency
Region V - 5HR-12
230 South Dearborn Street
Chicago, Illinois 60604

Mr. Graham E. Mitchell, DOE Coordinator
Ohio Environmental Protection Agency
40 South Main Street
Dayton, Ohio 45402

Dear Mr. Saric and Mr. Mitchell:

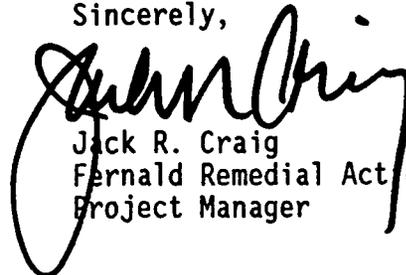
SOUTH GROUNDWATER CONTAMINATION PLUME REMOVAL ACTION EE/CA ADDENDUM

Enclosed is a draft of the addendum to the South Groundwater Contamination Plume Removal Action EE/CA.

The addendum reflects the changes which were discussed in the Project Managers meeting with the U.S. EPA, Ohio EPA, DOE-FO, DOE-HQ, and WEMCO personnel in Chicago on August 29, 1991. The addendum also includes information on the decision to install a new outfall pipeline as was included in other documentation, but never reflected in the EE/CA.

Please review and provide comments to my office by September 25, 1991. This addendum is currently being reviewed by DOE-HQ also. If you have any questions please contact Carlos J. Fermaintt at FTS 774-6157.

Sincerely,


Jack R. Craig
Fernald Remedial Action
Project Manager

FO:Fermaintt

Enclosure: As stated

cc w/o encl.:

D. J. Carr, WEMCO
S. Frush, EM-424, GTN
D. J. Brettschneider, WEMCO
S. W. Coyle, WEMCO
H. F. Daugherty, WEMCO
J. P. Hopper, WEMCO
AR Project File

ADDENDUM TO SOUTH GROUNDWATER CONTAMINATION PLUME REMOVAL ACTION EE/CA
September 14, 1991

This addendum is to document recent events which have occurred on portions of the South Groundwater Contamination Plume Removal Action (South Plume) project. The events have necessitated a restructuring of Parts 2 and 3 of the EE/CA, and the addition of a Part 5, as described in the following paragraphs.

The scope of the original EE/CA dated November 1990 and agreed to by USEPA was defined as management of radioactively contained groundwater in an area south of the Fernald Environmental Management Project (FEMP) property boundary. The fundamental objective of the removal action was to protect public health by limiting access to, and use, of groundwater with uranium concentrations exceeding the derived concentration limit of 30 ug/l for uranium in drinking water. Additionally, secondary objectives formulated for the South Plume Removal Action included:

Protection of the groundwater environment, represented by the sole-source aquifer

Control of plume migration to other receptors

Based on these identified objectives and an evaluation of remedial alternatives, an alternative was selected that most comprehensively satisfied the evaluation criteria. The selected alternative included the groundwater pumping and discharge with installation of an "interim" 150 gpm Advanced Wastewater Treatment system (IAWWT) to remove a greater than equivalent mass of uranium from an existing FEMP discharge so that the mass of uranium currently discharged is not exceeded.

As a result of information obtained recently from a separate remedial investigation that is being performed at the Paddys Run Road Site (PRRS), additional concerns have been identified in the South Plume area. The PRRS consists of several industries (e.g. Albright & Wilson Americas Co., and Rutgers and Nease) that, over the past years, have reportedly released both organics and inorganics into the environment which have now found their way to the Great Miami aquifer. Some of these contaminants include cumene, toluene, benzene, arsenic, mercury, and others. The area that the PRRS plume has been determined to extend to very near the location of the Part 2 well field as described in the November 1990 South Plume EE/CA. Therefore, operation of a uranium recovery well field at the location originally described could result in the extraction and discharge of PRRS contaminants to the Great Miami River (IAWWT system will only address uranium) and could result in the further spreading of the PRRS contaminants as has been predicted by computer modeling.

As a result of these conditions, it has been deemed necessary to relocate the Part 2 well field to an area north of the PRRS. Modeling efforts have been performed to determine a location where pumping of the recovery well field will not significantly affect the PRRS plume and will not draw PRRS contaminants into the recovery well field. Figure 1 depicts the new location of the South Plume Removal Action Part 2 well field.

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This relocation of the Part 2 well field has generated several additional requirements. The new location is in an area of higher uranium concentration which jeopardizes the equivalent mass treatment concept as described in the November 1990 EE/CA. Accordingly, the Part 3 IAWWT system will be expanded in size to provide the additional treatment necessary to meet the previously agreed to equivalent mass concept.

In addition, the relocated well field is upgradient of an area of known 30 ug/l uranium contamination. The computer model for the South Plume predicts that other areas could also exist where the level of uranium concentration is above 30 ug/l. Therefore, an additional investigation will be performed under a new Part 5 of the South Plume Removal Action. The Part 5 investigation will include hydropunching and soil vapor survey of the area south of the well field to New Haven Road (Figure 2). The investigation will identify the location of the 30 ug/l uranium isopleth. Because the EPA has recently issued a proposed revised limit of 20 ug/l for uranium in drinking water, the investigation will also identify the location of the 20 ug/l isopleth. The information obtained will be used to allow the FEMP to limit access to this water until final remediation of this area is implemented.

Currently, it is envisioned that the remediation of the South Plume will be addressed by dividing the area into three zones. The purpose of the zones are to distinguish the areas of contamination for purposes of treatment. The zones are as follows:

- Zone 1 would be the area of aquifer containing only uranium as the contaminant of concern. This will be the area addressed by the South Plume Removal Action project described in the EE/CA, as modified above.
- Zone 2 would be the area of aquifer containing uranium, inorganics, and organics as contaminants of concern. This area will need to be addressed jointly by FEMP and the PRRS.
- Zone 3 would include inorganics and organics as contaminants of concern. The area may also contain uranium contamination, but at a level below that specified in the FEMP Operable Unit 5 ROD. This area will need to be addressed solely by the PRRS, but will need to be coordinated with FEMP efforts for Zones 1 and 2.

In addition, the FEMP Effluent Outfall Pipeline to the Great Miami River has been evaluated for structural integrity and capacity to accept additional discharge. It has been determined that due to significant technical uncertainties associated with the existing effluent line, a new effluent pipeline should be installed and incorporated into Part 2. The new Outfall Pipeline will begin at a location approximately fifty feet south of existing Manhole 177 and will parallel the existing Outfall Pipeline to the Great Miami River. Future flow passing through the existing National Pollutant Discharge Elimination System (NPDES) monitoring point at Manhole 175 will be diverted from the existing pipeline near Manhole 177 and flow to a new Manhole 177B located at the upstream end of the new Outfall Pipeline. The flow from the South Plume Part 2 recovery well field will be monitored as a new NPDES discharge and will also join the new Outfall Pipeline

at Manhole 177B.

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The specific sections of the November 1990 EE/CA which require modification because the addition of Part 5 and the restructuring of Parts 2 and 3, can be found as Enclosure 1.

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Enclosure 1

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General: Since the EE/CA was written, the name of the DOE facility has been changed from the Feed Materials Production Center (FMPC) to the Fernald Environmental Management Project (FEMP). The name was changed to better reflect the new mission of the facility. Please be aware that all the figures that are found in the November, 1990 EE/CA identifying the location of the extraction wells near New Haven Road are now invalid. The new location is identified in Figure 1 of this EE/CA addendum. The figures in the existing EE/CA will not be revised.

Throughout the EE/CA, statements are made that pumping will be targeted at the leading edge of the plume. It should be clarified that the leading edge is defined as the location of the 30 ug/l uranium isopleth; however, with the relocation of the well field, pumping will occur in an area with concentrations greater than 30 ug/l. However, sufficient treatment will be installed as part of this addendum to address the equivalent mass removal of uranium which results from the relocation of the well field.

- Page ES-6:** Paragraph 4 is modified to include: (referred to hereafter as pump and treat), Groundwater Modeling and Geochemical Investigation.
- Page 4-1:** Paragraph 1 is modified to include: (subsequently referred to as pump and treat), Groundwater Modeling and Geochemical Investigation
- Page 4-5:** Paragraph 3 is modified to: The system will provide sufficient treatment to remove a quantity of uranium greater than the quantity of uranium that will...
- Page 4-5:** Paragraph 4 is modified to: Three to five recovery wells are tentatively planned for installation north of the Albright & Wilson Americas (AWA) Plant. The recovery wells are shown conceptually in Figure 1 of this Addendum.
- Page 5-7:** Paragraph 3 is modified to include: This alternative, which includes groundwater pumping and discharge along with sufficient treatment of the FEMP effluent, will meet...
- Page 5-7:** Paragraph 3 is modified to include: The position of the recovery wells north of AWA is minimally...
- Page 5-16:** Paragraph 1 is modified to: An Interim Advanced Wastewater Treatment (IAWWT) system will be installed to remove uranium from existing FEMP discharges
- Page 5-18:** Paragraph 6 is modified to include: Under the alternatives a treatment system will be installed to remove a greater than equivalent mass of uranium from an existing FEMP effluent...

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- Page 5-19: Paragraph 1 is modified to include: The total mass of uranium released via the new effluent pipeline...
- Page 6-3: Paragraph 3 is modified to: Alternative 4, which includes groundwater pumping and discharge, an alternate water supply for two concurrently affected industrial users, installation of a treatment unit sufficient for handling the increased uranium loading, and enhanced monitoring and institutional controls
- Page 6-3: Paragraph 4 is modified to: The installation of the treatment system sufficient for handling the increased uranium loading as part of Alternative 4...
- Page 8-5: Is modified to: "Interim" Advanced Wastewater Treatment System \$3,000,000.

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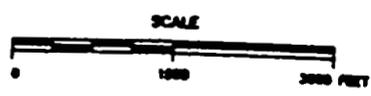
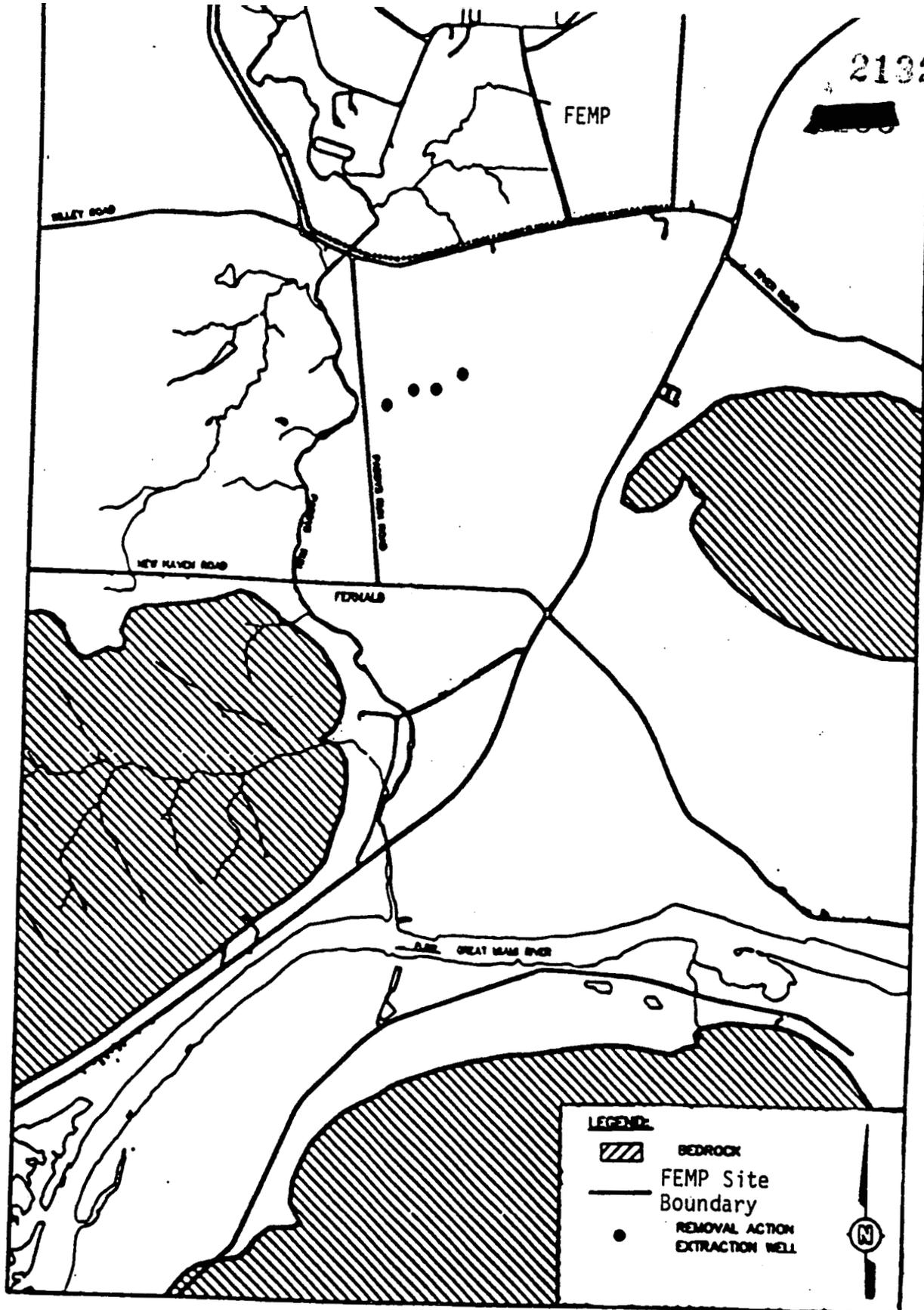


FIGURE 1
New location of Recovery
Well Field

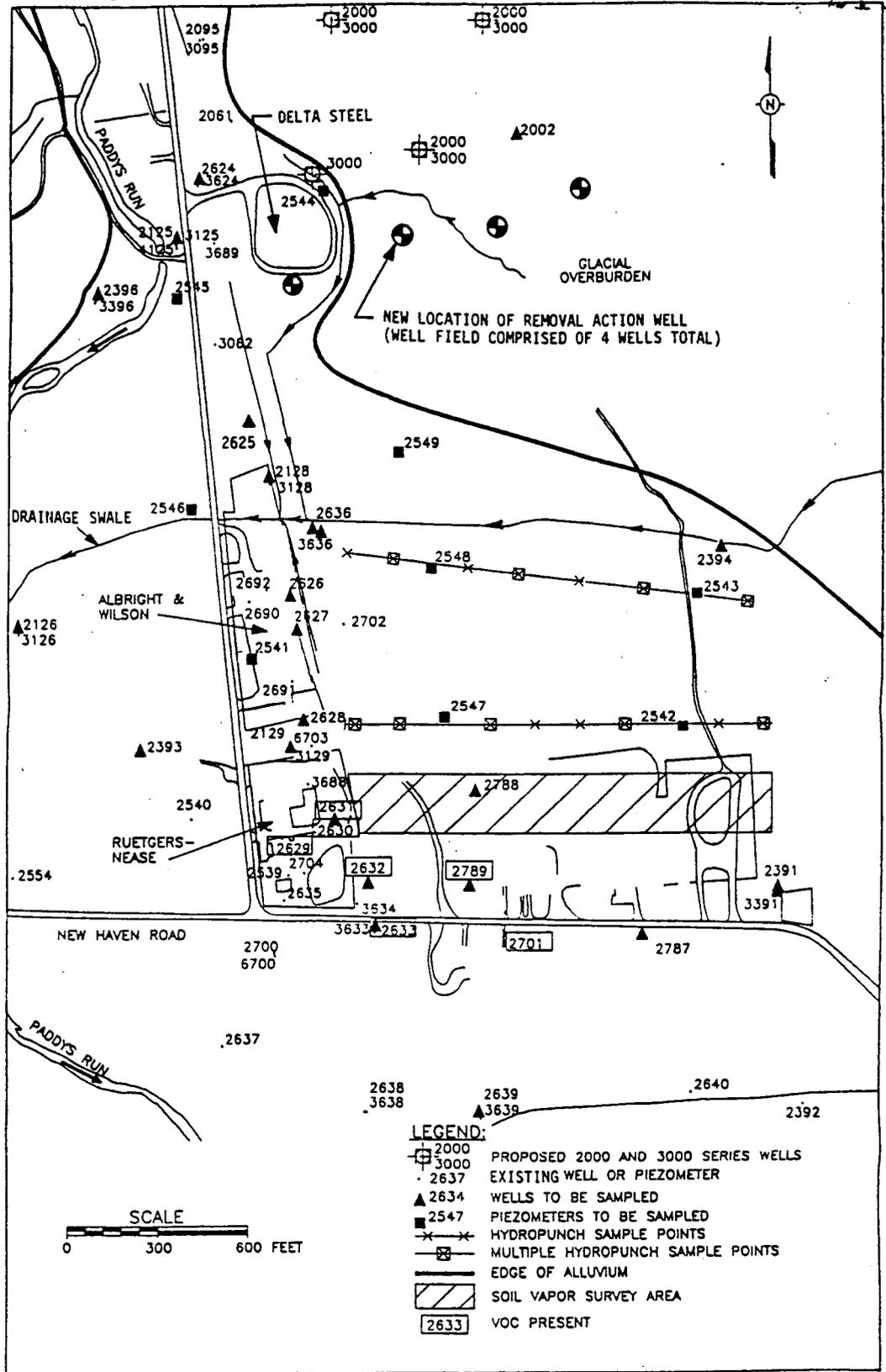


FIGURE 2 PROPOSED SAMPLING LOCATIONS FOR PART 5