

**R-009-101.2**

**2229**

**WEEKLY REPORT - SOUTH GROUNDWATER  
CONTAMINATION PLUME REMOVAL ACTION**

**09/06/91**

**DOE-2119-91  
DOE-FSO/USEPA  
5  
LETTER**



**Department of Energy**  
Fernald Environmental Management Project  
P.O. Box 398705  
Cincinnati, Ohio 45239-8705  
(513) 738-6357

**2229**

SEP 06 1991  
DOE-2119-91

Mr. James 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:

**WEEKLY REPORT - SOUTH GROUNDWATER CONTAMINATION PLUME REMOVAL ACTION**

Reference: Letter, DOE-2136-91, G. W. Westerbeck to D. Ullrich, "Action to be taken by FEMP: South Groundwater Contamination Plume Removal Action", dated August 30, 1991

The referenced letter indicated that the Department of Energy would provide U.S. EPA with weekly reports on the South Groundwater Contamination Plume Removal Action. This letter provides the first of the referenced reports.

U.S. DOE, U.S. EPA and Ohio EPA have met on several occasions during the last few months to discuss the status of the South Groundwater Contamination Plume Removal Action activities. The last of these such meetings was held on August 29, 1991 in Chicago. This letter will document the actions taken as a result of the meeting and provide the current status of the project along with future actions that are planned.

South Groundwater Contamination Plume - Part 1 (Alternate Water Supply)

The Part 1 Work Plan was approved by U. S. and Ohio EPAs on January 9, 1991. The U.S. Army Corps of Engineers (COE) met with the owners of the property on January 14; however, no agreement could be reached and the said property was referred to the Department of Justice (DOJ) on March 1, 1991. Continued negotiations resulted in access to the property being obtained on March 21, 1991.

The current milestone date for construction completion is December 13, 1991, based on the approved Part 1 Work Plan. The revised schedule indicates a construction completion date of May 22, 1992. This revised date is due to the delays in completing negotiations between COE and the property owners for the

well site testing (although the properties were referred to DOJ in a timely manner). Delays were also incurred in completing the Archaeological/Historical Survey on the well site prior to testing.

The revised completion of construction date for the AWS was discussed with representatives from Albright and Wilson Americas Co. (AWA); U. S. Army Corps. of Engineers (COE); Rendings, Fry, Kiely & Dennis, Attorneys at Law (RFK&D) representing AWA, Westinghouse Environmental Management Company of Ohio (WEMCO), the DOE Oak Ridge Operations, and the DOE Fernald Office. A copy of the meeting minutes is enclosed for your information (Enclosure A).

#### South Groundwater Contamination Plume - Part 2 (Pump and Discharge)

Most of the issues identified under Part 2 (Pump and Discharge) are related to re-locating the extraction well field. In the meeting held on May 22, 1991, in Chicago between DOE, U. S. EPA, and OEPA, data from the Paddy's Run Road Site (PRRS), which had not been validated, was presented by Ohio EPA to DOE for the first time, which showed that isopropylbenzene (Cumene), a footprint from Ruetgers-Nease (one of the PRRS companies), was found at well location 2701, on New Haven Road (see Figure 1 of Enclosure B). Organics in that area would be extracted if the well field is located at the proposed location described in the November 1990 version of the EE/CA. Due to potential legal issues with the PRRS Potentially Responsible Parties (PRPs) and the regulators, DOE, in agreement with U. S. EPA and OEPA, tentatively decided to move the proposed Removal Action extraction well field to the north of Albright & Wilson Americas property. The wells were relocated to eliminate the possibility of extracting or significantly influencing contaminants from the PRRS plumes.

On June 5, 1991, DOE/FSO directed ASI/IT to determine the southernmost location of the extraction well field using the SWIFT III computer code. On July 23, 1991, preliminary results from the modeling effort were presented to the U. S. EPA and OEPA. In the meeting, a tentative decision was made to locate the extraction well field approximately just south of Delta Steel property. This agreement was based on DOE's proposal to divide the South Plume into three areas as follows:

- Zone 1 - uranium being the only contaminant of concern
- Zone 2 - uranium, inorganics and organics as contaminants of concern
- Zone 3 - inorganics and organics as contaminants of concern (uranium below ROD cleanup level)

Only Zone 1 will be addressed by the Part 2 Removal Action. Zone 2 will need to be addressed jointly in future remediation by the Fernald Environmental Management Project (FEMP)-RI/FS and the PRRS-PRPs. Zone 3 will be addressed by the PRRS-PRPs remediation, but will need to be coordinated with the FEMP-RI/FS.

Although no contaminants from the PRRS plumes will be extracted or significantly influenced by the wells at the new location, a higher concentration of uranium will be withdrawn at this location as compared to the original location (predicted by the South Plume computer model). The model predicts a concentration of uranium in the range of 100 to 400 parts per

billion (ppb) in this area. To verify the computer model predictions at this location, a series of hydropunch and/or monitoring wells is proposed to be installed under Part 5 of the South Groundwater Contamination Plume Removal Action.

South Groundwater Contamination Plume - Part 3 (installation and operation of an Interim Advanced Wastewater Treatment System [IAWWT] to reduce contaminant loading discharged to the Great Miami River to a level less than 1,700 pounds per year)

This portion of the removal action had been preceding on schedule until late August. At that time, it was determined that the contractor for the IAWWT treatment trailer fabrication could not perform the contracted duties. It was determined that the project would need to be rebid.

Because the relocation of the Part 2 well field jeopardized the equivalent mass concept agreed to in the dispute resolution, additional IAWWT treatment capability was determined to be required at July 23 meeting. DOE-FSO committed to converting the AWWT pilot plant unit to a 100 gpm operational unit to be located at the BDN Effluent Treatment Facility.

The addition of the pilot plant conversion to a 100 gpm operational unit would not remove the full amount of additional uranium expected. Additional treatment capacity will be required to meet the 1700 pounds per year limit committed to in the dispute resolution. At the August 29th meeting, DOE proposed that, instead of limiting the discharge from the well field, an additional 150 gpm IAWWT unit would be purchased. A proposal was presented by DOE (Enclosure C) which would address all of the issues which have arisen on Part 2 and 3.

South Groundwater Contamination Plume - Part 4 (Institutional Controls)

Part 4 of the South Groundwater Contamination Plume Removal Action Work Plan involves groundwater monitoring and institutional controls. Homeowner wells continue to be sampled on a monthly basis along Route 128 where previous above-background levels of uranium have been detected. Uranium concentrations in these homeowner wells are not increasing. Sampling of other homeowner and RI/FS wells continues. Several additional wells on properties adjacent to the FEMP have had their uranium levels rise above 2.7 ppm. The DOE has offered these owners bottled water for drinking purposes and has been our ongoing policy.

South Groundwater Contamination Plume - Part 5 (Further Investigations South of Extraction Wells)

The Work Plan for Part 5 of the South Groundwater Contamination Plume Removal Action has been revised according to the items discussed with U. S. EPA and OEPA in the July 23, 1991, meeting and comments received from the agencies on the June 1991 version of the plan. The revised Work Plan was transmitted to the U. S. EPA and OEPA with a response to comments on August 8, 1991.

In the July 23, 1991, meeting in Cincinnati, U. S. EPA and OEPA gave approval to proceed with the proposed Part 5 field investigation. On August 1, 1991, under the DOE and the U. S. Army Corps of Engineers (COE) Interagency

Agreement, DOE/FSO directed the COE to proceed with property access negotiations. The COE started negotiations with property owners on the week of August the 19th.

It is estimated that after access has been secured, a two (2) month period, is needed to finish the field program and an additional one to three-month period is required to get analytical results. The results will then be used to confirm the uranium concentrations predicted by the computer model, and to determine if the measures recently proposed to address the equivalent mass concept described in the EE/CA will be sufficient.

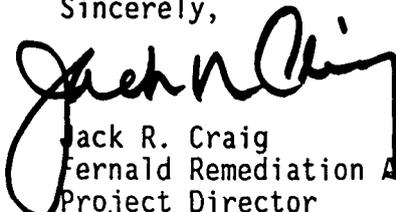
#### General Issues

The fundamental objective of the South Plume Removal Action is to protect the public health by limiting access to and use of groundwater with uranium concentrations exceeding the derived concentration guideline of 30 ppb for uranium in drinking water. This objective is being achieved by continued monitoring of drinking water wells and groundwater monitoring wells (Part 4 - Groundwater Monitoring and Institutional Control of the South Groundwater Contamination Plume Removal Action) in properties being affected or potentially being affected by the FEMP Site contaminants, and by providing bottled water to those residents whose drinking water wells contain uranium concentrations above 2.7 ppb (upper bound background concentration for uranium in this area).

Secondary objectives for the South Plume Removal Action include: 1) Protection of the groundwater environment, and 2) Control of plume migration toward additional receptors further south. By moving the extraction well field to the north, these secondary objectives will be achieved to a certain degree but not in their entirety. Therefore, a revision or an amendment to the EE/CA, describing the changes which have occurred since the last approved November 1990 version, will need to be issued for U. S. EPA, and OEPA approval, and also possibly for further public review. DOE will provide U. S. EPA a schedule for the EE/CA modification at a later date.

If your staff has any questions, please ask them to contact Carlos Fermaintt at FTS 774-6157 or (513) 738-6157 or myself at FTS 774-6159 or (513) 738-6159.

Sincerely,

  
Jack R. Craig  
Fernald Remediation Action  
Project Director

FO:Craig

Enclosures: As stated

cc w/encl.:

J. J. Fiore, EM-42, GTN  
K. A. Hayes, EM-422, GTN  
L. August, GeoTrans  
K. Davidson, OEPA-Columbus  
M. Butler, USEPA-V, 5CS-TUB-3  
J. Benetti, USEPA-V, 5AR-26  
E. Schuessler, PRC  
H. F. Daughtery, WEMCO  
D. T. Carr, WEMCO  
S. M. Peterman, WEMCO  
R. L. Glenn, Parsons  
J. D. Wood, ASI  
AR Coordinator, WEMCO

2229

ENCLOSURE A

CONFERENCE MEMORANDUM

**Date:** July 9, 1991

**Location:** Office of Rendigs, Fry, Kiely & Dennis, Attorneys at Law  
900 Central Trust Tower, Fourth & Vine Streets  
Cincinnati, Ohio

**Subject:** PART 1 ALTERNATE WATER SUPPLY - AWA PORTION

**Notes By:** David Brettschneider

**Participants:** Jim Foutch (DOE-ORO)  
William Stephens (DOE-ORO)  
Carlos Fermaintt (DOE-FSO)  
David Brettschneider (WMCO)  
Jesse Lacefield (WMCO)  
Jack Karnes (COE-Louisville)  
Dan Middleton (COE-Louisville)  
Simon Robson (AWA)  
William Tims (AWA)  
W. Roger Fry (RFK&D)  
Jon Saxton (RFK&D)

The meeting was held to discuss the status of the above subject project. The agenda for the meeting, prepared by Mr. Fermaintt, is provided as Enclosure I.

- 1) A brief explanation of the overall CERCLA program being conducted at the FMPC was made by the WMCO and DOE representatives. The explanation clarified what Operable Unit #5 (OU#5) is, and that the subject project is part of a CERCLA Removal Action being conducted under OU#5 termed the "South Groundwater Contamination Plume." The project itself is Part 1 of the Removal Action.
- 2) Mr. Tims of AWA was concerned over the amount of correspondence, paperwork, etc. this project is receiving relating to CERCLA. It was reiterated that this project falls under CERCLA jurisdiction and therefore must comply with the appropriate protocol. It was also stated that, although DOE is giving this project major emphasis, the project must be integrated with the other CERCLA efforts which are occurring simultaneously at the FMPC site. It was explained that, under CERCLA, the "site" is any area where FMPC contaminants are present.
- 3) Copies of the subject project schedule indicating activities which

have occurred to date since January of this year (Enclosure 2) were passed out to the attendees. Mr. Brettschneider discussed each bullet of the enclosure. Mr. Foutch emphasized that this list did not include activities which occurred prior to January and which were documented and sent to AWA in the April 8, 1991 transmittal.

- 4) Copies of the projected future project schedule (Enclosure 3) were passed out to the attendees. Mr. Lacefield discussed each bullet of the enclosure.
- 5) Mr. Tims stated that AWA had additional comments on the drawings and specifications for the project. It was stated that the comments should be supplied to WMCO at the earliest possible time so that they can be incorporated into the 100% design effort currently underway. It was requested that Mr. Robson be present at a future meeting with the Architectural/Engineering (A/E) firm performing the project design. Mr. Lacefield would meet with Mr. Robson to obtain the additional AWA comments and also to setup a meeting with the A/E firm to discuss the comments.
- 6) AWA indicated that they may want to have a split sample of the test well water for their own analysis. It was explained that OEPA will also be performing a split sample analysis as required by the CERCLA Work Plan for this project. AWA will make a decision if they also want a split sample and would let DOE know ASAP.
- 7) It was requested that Mr. Robson be kept aware of the status of the test well work and all such future work. It was stated that Mr. Lacefield would work closely with Mr. Robson on this issue as has been the case in the past.
- 8) It was decided that Dan Middleton will be the point of contact for any real estate issues and that he will keep DOE abreast of any conversation with attorneys or technical representatives from AWA. C. J. Fermaintt will be the point of contact for DOE on any general issues. Correspondence will continue to flow through the Attorney's offices.
- 9) Mr. Fry and Mr. Middleton began a discussion on the structure of the various easement agreements. It was decided that this discussion should be conducted as a separate follow-up meeting between these two attendees only. A separate conference memorandum will be prepared for the meeting.
- 10) Mr. Saxton requested the following items be supplied or addressed by DOE:
  - a) final copy of the South Groundwater Contamination Plume EE/CA
  - b) placing AWA on distribution of final documents concerning this project
  - c) questioned if test well screen should be stainless

steel rather than galvanized steel if the well casing will be turned into a permanent well (reference ASI/IT well drilling scope of work)

d) provide 'As Built' drawings for this project

c: S. L. Bradley  
D. J. Carr  
S. W. Coyle  
J. R. Craig, DOE-FSO  
T. L. Crawford  
H. F. Daugherty  
C. J. Fermaintt, DOE-FSO  
D. M. Gerrick  
J. P. Hopper  
J. M. Lacefield

ALBRIGHT & WILSON AMERICAS MEETING  
CENTRAL TRUST TOWER  
CINCINNATI, OH.  
JULY 9, 1991  
9:00 am

- Introduction (Foutch)
- Alternate Water Supply Project Status (Brettschneider)
- Schedule (Lacefield)
- Easements and Right of Entry (Middleton)
- Discussion (all)
- Adjourn

AWA Status Meeting  
July 9, 1991

ALTERNATE WATER SUPPLY  
SCHEDULE TO DATE

<u>Item</u>	<u>Completion Date</u>
<b><u>WELL SITE</u></b>	
• Work Plan approved by EPA/OEPA	Jan 9, 1991
• COE contact well field owner	Jan 14, 1991
• Obtain access to well site	March 21, 1991
• OEPA verbal approval of well site assuming OEPA jurisdiction (> 25 people constitutes a public water supply)	April 18, 1991
• OEPA visit to Albright & Wilson Americas, Inc. (AWA); informed of less than 25 people, therefore falls under Hamilton County jurisdiction	April 18, 1991
• Well site jurisdiction discussions with OEPA and Hamilton County	April 19, 1991 thru June 12, 1991
• Arch./Hist. (A/H) report on well site by COE indicating no reason for concern	June 4, 1991
• OEPA contact with AWA; informed of greater than 25 people	June 12, 1991
• OEPA jurisdiction confirmed	June 13, 1991
• DOE-FSO approval to proceed based on COE A/H report	June 14, 1991
• Receipt of revised scope of work for installation of test well; including testing for adjacent Delta Steel well site capacity	June 24, 1991
• Review/approval of revised scope of work	June 25, 1991 thru July 2, 1991

AWA Status Meeting  
July 9, 1991ALTERNATE WATER SUPPLY  
FUTURE SCHEDULE

<u>Item</u>	<u>Completion Date</u>
<u>WELL SITE</u>	
• Procurement/Mobilization/Drill test well	July 8, 1991 thru Aug 9, 1991
• Perform test/collect samples	Aug 10, 1991 thru Aug 16, 1991
• Water sample analysis	Aug 19, 1991 thru Sept 27, 1991
• Prepare/issue report	Sept 30, 1991 thru Oct 4, 1991
• Design confirmation/Certified for Construction (CFC)	Oct 7, 1991
• Obtain title for well site property	Oct 30, 1991
<u>PIPELINE</u>	
• Arch./Hist. report	June 28, 1991
• Arch./Hist. approval by State Historic Preservation Officer (SHPO)	Oct 4, 1991
• Sampling/analysis completed	Oct 4, 1991
• Design confirmation/CFC	Oct 7, 1991
• Obtain pipeline easements	Oct 30, 1991

AWA Status Meeting  
July 9, 1991

ALTERNATE WATER SUPPLY  
FUTURE SCHEDULE (cont'd)

<u>Item</u>	<u>Completion Date</u>
<b><u>DESIGN</u></b>	
• Issue 100% design review	July 26, 1991
• 100% review - comments	July 29, 1991 thru Aug 9, 1991
• Complete design	Aug 23, 1991
• Design confirmation/CFC	Oct 7, 1991
• Prepare CFC documents	Oct 10, 1991
<b><u>CONSTRUCTION</u></b>	
• Issue Request for Construction Action Package (RCA)	Aug 26, 1991
• RUST Engineering prepares RCA package	Aug 27, 1991 thru Sept 13, 1991
• RCA package review/approval	Sept 16, 1991 thru Sept 20, 1991
• Prepare Construction Work Order (CWO)	Sept 23, 1991 thru Oct 4, 1991
• Issue RCA to RUST Engineering	Oct 11, 1991
• Bid/award process	Oct 14, 1991 thru Jan 17, 1992
• Issue CWO to RUST Engineering	Jan 20, 1992*
• Installation of system	Jan 20, 1992* thru May 22, 1992
• Start-up/acceptance of system	May 25, 1992* thru July 17, 1992
* Assumes condemnation will not be required	

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ENCLOSURE B

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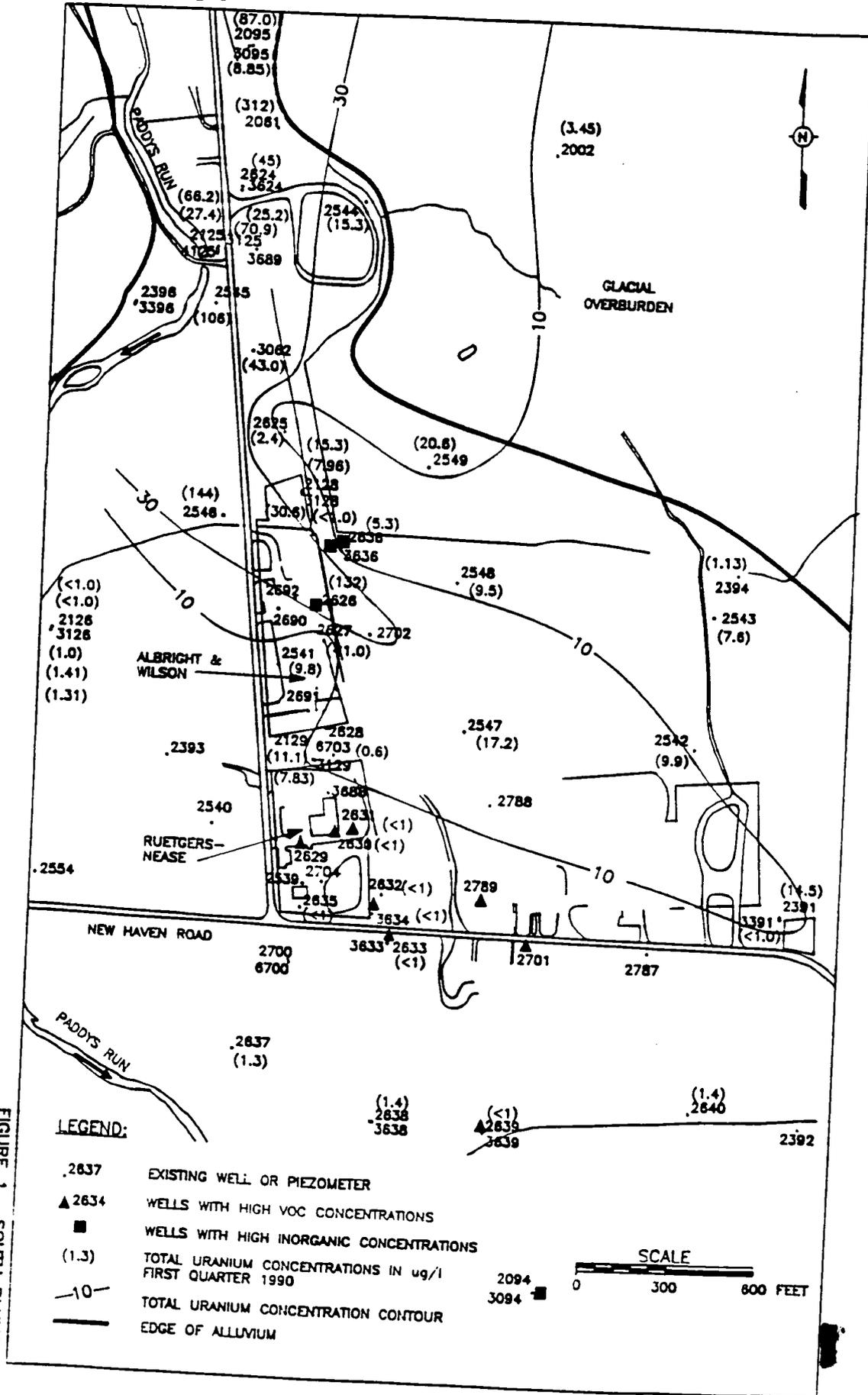
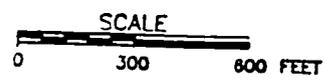


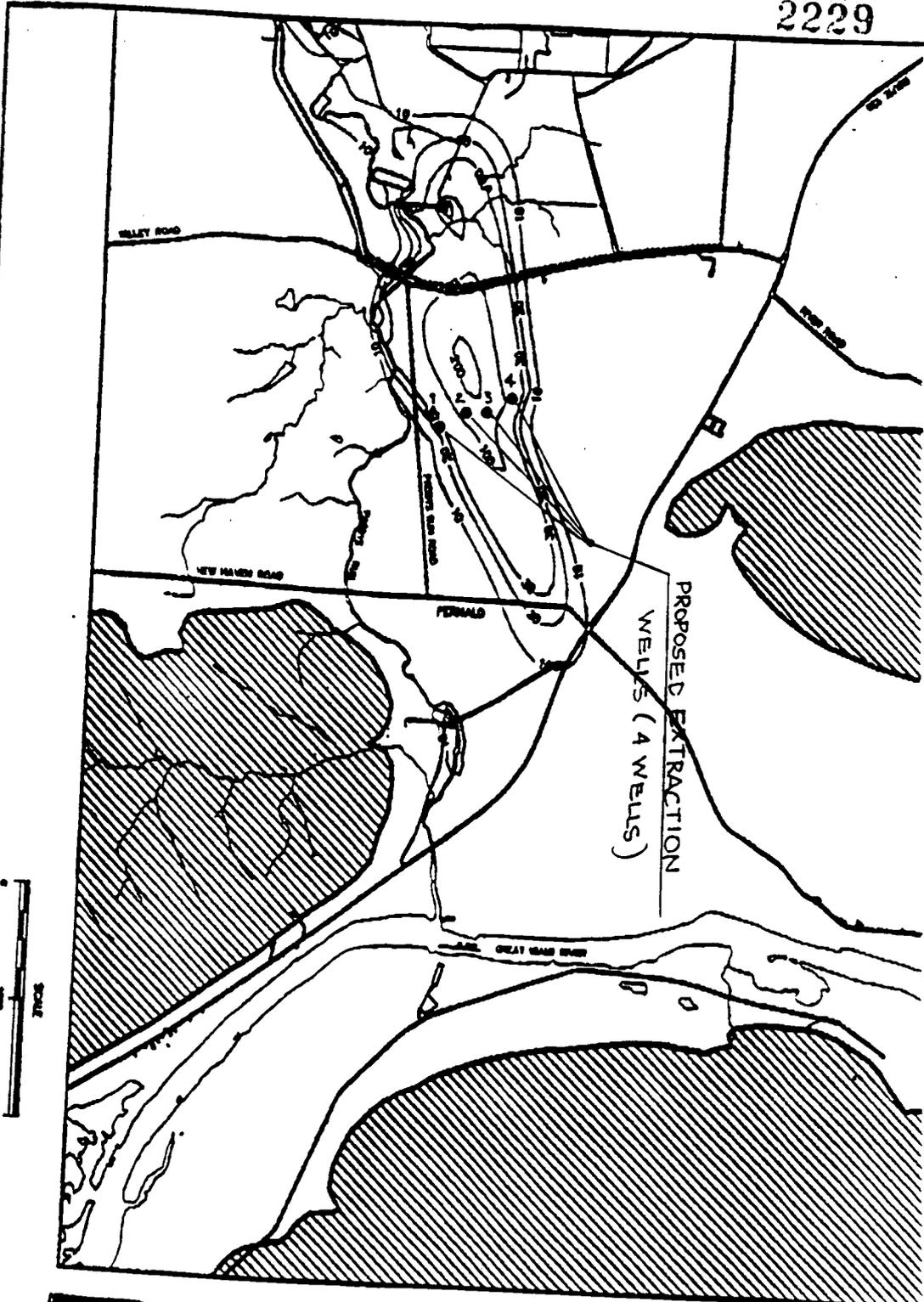
FIGURE 1. SOUTH PLUME  
 AREA DATA  
 APRIL-MAY, 1990

**LEGEND:**

- 2637 EXISTING WELL OR PIEZOMETER
- ▲ 2634 WELLS WITH HIGH VOC CONCENTRATIONS
- WELLS WITH HIGH INORGANIC CONCENTRATIONS
- (1.3) TOTAL URANIUM CONCENTRATIONS IN ug/l FIRST QUARTER 1990
- 10- TOTAL URANIUM CONCENTRATION CONTOUR
- EDGE OF ALLUVIUM



WEST-000 0/00



PROPOSED EXTRACTION WELLS (4 WELLS)



**DRAFT**



- LEGEND**
- 500' — UNSATURATED CONCENTRATIONS 11/81 LAYER 1.
  - ▨ Hatched box symbol: Hatched area
  - Solid line symbol: LIRC SITE BOUNDARY
  - Dot symbol: REMOVAL ACTION EXTRACTION WELL
- NOTE:**
- COMPUTER FILE NAME: HSR00000

**FIGURE 2**  
**SOUTH PLAIN: REMOVAL ACTION**  
**PREDICTED EFFECT OF REMOVAL ACTION WELLS**  
**MODELED UNSATURATED CONCENTRATIONS**  
**5 YEARS IN FUTURE**

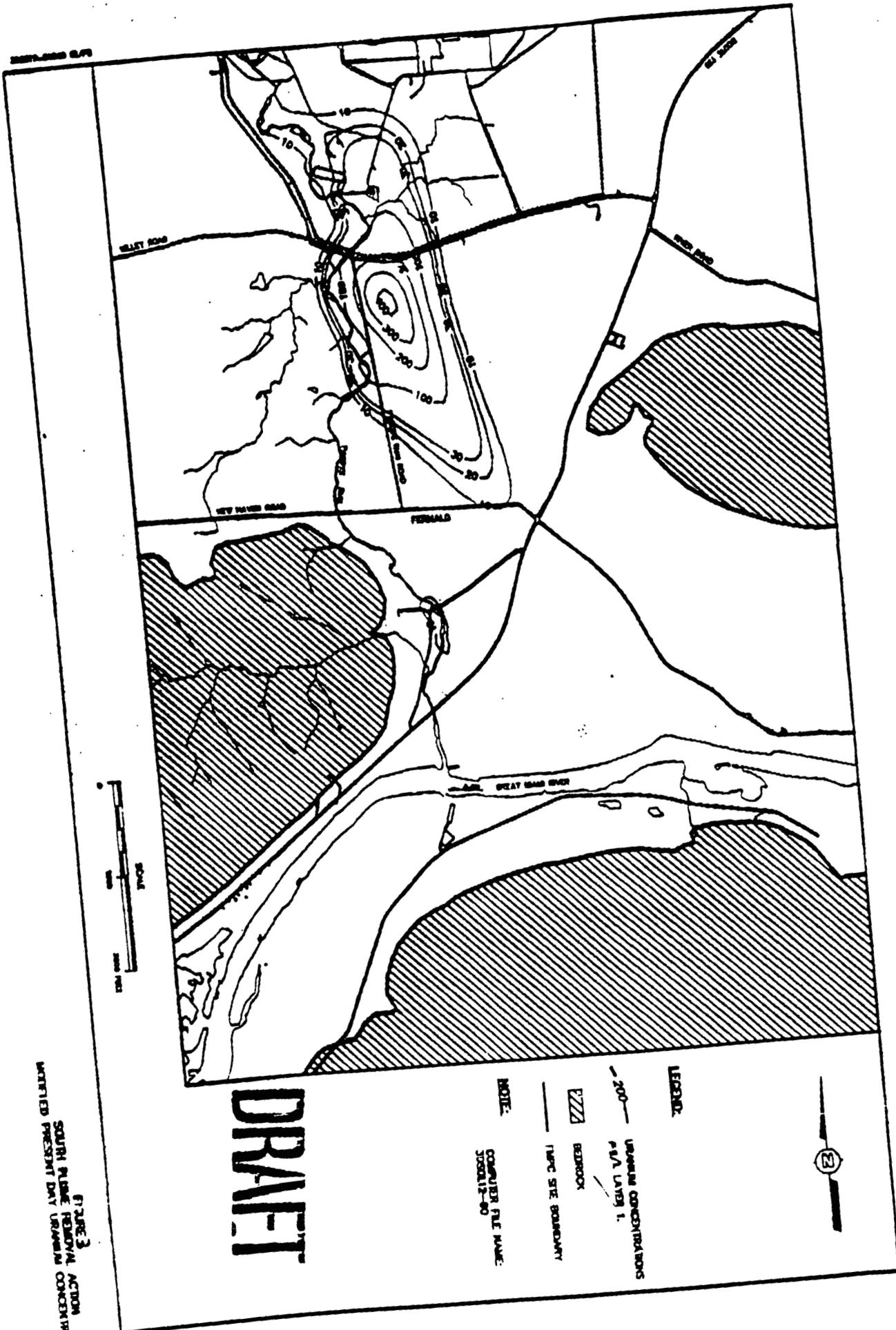


FIGURE 3  
 SOUTH PLUME REMOVAL ACTION  
 WARTIED PRESENT DAY URANIUM CONCENTRATION

**DRAFT**

NOTE: COMPUTER FILE NAME: S08A1E-00

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ENCLOSURE C

2029

CONTINUATION TO THE PROPOSAL PRESENTED AT THE  
JULY 23, 1991 MEETING CONCERNING  
SOUTH GROUNDWATER CONTAMINATION PLUME REMOVAL ACTION:  
PART 2 - PUMPING AND DISCHARGE SYSTEM AND  
ON PART 3 - INTERIM ADVANCED WASTEWATER TREATMENT SYSTEM  
(IAWWT)

Proposal

- 1) Provide additional interim treatment to compensate for the additional mass to be extracted by the relocated South Plume Part 2 well field. This will consist of:
  - a) 150 gpm IAWWT unit, status: design complete (orig. dispute resolution concept)
  - b) 100 gpm AAWT Pilot Plant converted to production unit currently under design (discussed at July 23rd meeting)
  - c) A second 150 gpm IAWWT unit (new proposal)
  
- 2) Prepared addendum (letter format) for the EE/CA which explains:
  - a) the relocation of the well field to the south edge of Delta Steel
  - b) providing interim uranium removal facilities to limit FEMP discharge of uranium to 1700 lbs/year
  - c) eliminate ceiling of 150 gpm IAWWT

Report will consist of a description of the change and an attached list of specific items in EE/CA which will be modified by this agreement.
  
- 3) The Part 2/3 Work Plan will be modified to include all three units and the relocated well field.
  
- 4) Change Part 2/3 Work Plan schedule to show that treatment units will be operational by July 30, 1992 (date when Waste Pit Perimeter Area Runoff Control Removal Action is to become operational). The Part 2 schedule is currently being revised.
  
- 5) EE/CA will not have to be reissued to public, but will be revised by addendum and concurred with by U.S. and Ohio EPAs only.
  
- 6) The permit information in the Part 2/3 Work Plan will be revised to include the equivalent information for the 100 gpm AAWT Pilot Plant and the second 150 gpm IAWWT unit that would otherwise be required by a PTI.