

263

5-100.1  
2

**WELL ABANDONMENT**

04/25/96

---

**DOE-0766-96**  
**DOE-FN        EPAS**  
**6**  
**LETTER**



## Department of Energy

Ohio Field Office  
Fernald Area Office

P. O. Box 538705  
Cincinnati, Ohio 45253-8705  
(513) 648-3155



APR 25 1996  
DOE-0766-96

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

Mr. Tom Schneider, Project Manager  
Ohio Environmental Protection Agency  
401 East 5th Street  
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

### WELL ABANDONMENT

Reference: Letter, James Raab to Kathi Nickel, "Well Abandonment," dated March 4, 1996.

The purpose of this letter is to provide information regarding monitoring well abandonment activities for 1996 at the Fernald Environmental Management Project (FEMP). In preparation for construction, demolition, and excavation activities supporting remedial actions, it is necessary to begin abandoning many of the monitoring wells installed as part of the remedial investigation. The process of selecting and scheduling monitoring well abandonments is being conducted as part of the planning associated with implementation of the accelerated remediation schedule. Each monitoring well is being evaluated for abandonment based on its proximity to construction, demolition, excavation areas, and its current or projected future use in monitoring remediation activities. Because each well represents a significant monetary investment, careful consideration is given to its potential future use. Wells selected are then prioritized and scheduled for abandonment to accommodate construction activities. A preliminary abandonment list is provided as an enclosure. In addition, a map is provided which identifies the locations of wells that have been abandoned, wells that are tentatively identified for abandonment and the remaining wells. The abandonment list represents an estimate developed from preliminary project schedules and therefore is subject to change.

The major projects driving abandonments in 1996 are the construction/site preparation for the vitrification plant, the On-Site Disposal Facility (OSDF) and the Operable Unit 1 (OU1) railroad spur. The remaining wells in the FEMP monitoring well system will be abandoned

as necessary during remediation with peak periods of well abandonment anticipated to occur in Fiscal Years (FY) 1997, 1998, and 2005. However, a network of monitoring wells to assess the performance of the Operable Unit 5 (OU5) groundwater remedy and address long-term monitoring of groundwater in the area of the OSDF will be maintained. Wells that are determined critical to monitoring activities, but must be plugged and abandoned to accommodate construction/demolition activities, may be replaced at a new location. If replacement is not feasible, then groundwater monitoring activities will be conducted via the Geoprobe™ (or equivalent technology). This work is currently reflected in the draft accelerated baseline.

The techniques used for abandonment may vary from well to well depending on the well type and location. However, all abandonment methods will be consistent with the FEMP Sitewide CERCLA Quality Assurance Project Plan (SCQ), OEPA guidance provided in the Technical Guidance Manual for Hydrogeologic Investigations and Groundwater Monitoring, and Ohio Department of Natural Resources (ODNR) guidance. A general description of the abandonment procedure to be used for wells located outside the OSDF footprint is as follows:

- Shallow Type 1 flush-mount wells located inside buildings will be filled temporarily with bentonite. The well casing will be removed later as the building foundations are excavated.
- In all other Type 1 wells, the screen and riser will be removed and the resulting hole will be sealed with bentonite grout. (If the well is in an area where the soil is to be removed down to the depth of the well during remediation, the well will not be plugged but will be removed during excavation activities.)
- Lysimeters will be abandoned by removing the riser, cup, and protective casing from the subsurface. The resulting hole will be sealed with bentonite grout.
- In Type 2, 3, and 4 wells, the screen will be filled with sand and the riser will be filled with grout to approximately 5 feet below the glacial overburden. The casing will be cut at this point and removed. The resulting hole will be sealed with bentonite grout.

For wells abandoned inside the footprint of the OSDF, the following procedure will be used:

- Type 1 wells within the footprint will be overdrilled to a depth of at least 1 foot below the bottom of the original well boring. The riser, well screen or lysimeter cup will be completely removed. The borehole will be abandoned with an expansive cement (Type K) to 5 feet below the planned elevation of the bottom of the compacted clay liner component of the OSDF liner system. The remainder of the borehole will be filled to the ground surface

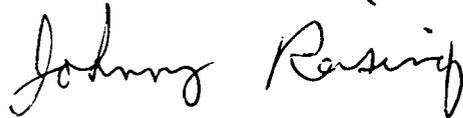
with a bentonite slurry. The purpose of the bentonite slurry is to provide a compressible zone at the top of the boring that does not induce stress concentrations in the OSDF liner system when the OSDF foundation settles.

- Type 2, 3, and 4 wells within the footprint will be overdrilled to a depth of at least 5 feet below the base of the glacial overburden. First, the well screens will be filled with sand followed by 1-2 feet of bentonite. The well casing will then be filled with an expansive cement (Type K) up to an elevation of 5 feet below the glacial overburden. The well casing will be cut at this point and the upper portion removed. The resulting hole will be filled with an expansive cement (Type K) to 5 feet below the planned elevation of the bottom of the compacted clay liner component of the OSDF liner system. The remainder of the borehole will be filled to the ground surface with a bentonite slurry.

The FEMP will submit a Water Well Sealing Report to the ODNR for each method of abandonment used. Enclosed with each report will be a list of wells that were abandoned along with the identification of the particular method of abandonment noted. Reports will be filed as groups of wells are abandoned. This system of reporting has been discussed with and approved by the ODNR (Reference).

If you have any questions regarding the information provided, please contact Kathi Nickel at (513) 638-3166.

Sincerely,



Johnny W. Reising  
Fernald Remedial Action  
Project Manager

FN:Nickel

Enclosures: As Stated

**cc w/encs:**

**R. L. Nace, EM-423/GTN**  
**S. Smiley, DOE-OH**  
**G. Jablonowski, USEPA-V, 5HRE-8J**  
**Manager, TPSS/DERR, OEPA-Columbus**  
**T. Onko, OEPA-SWDO, Dayton**  
**M. Proffitt, SWDO OEPA**  
**F. Bell, ATSDR**  
**D. S. Ward, GeoTrans**  
**R. Vandegrift, ODOH**  
**J. Raab, ODNR**  
**S. McLellan, PRC**  
**T. Hagen, FERMCO/65-2**  
**J. Harmon, FERMCO/90**  
**N. S. Weatherup, FERMCO/52-2**  
**AR Coordinator, FERMCO**

**cc w/o encs:**

**C. Little, FERMCO**  
**M. Yates, FERMCO**

## ENCLOSURE

## PRELIMINARY WELL ABANDONMENT LIST

WELL	PROJECT CONFLICT/REASON	E83 COORDINATE	N83 COORDINATE
1024	OU1 REMEDIATION SYSTEM DESIGN/SOIL PREPARATION	1347423.95	482510.52
1085	OU1 REMEDIATION SYSTEM DESIGN/SOIL PREPARATION	1350270.60	481999.69
1086	OU1 REMEDIATION SYSTEM DESIGN/SOIL PREPARATION	1350247.48	482013.85
1087	OU1 REMEDIATION SYSTEM DESIGN/SOIL PREPARATION	1350217.42	481992.33
1088	OU1 REMEDIATION SYSTEM DESIGN/SOIL PREPARATION	1350199.91	482008.55
1089	OU1 REMEDIATION SYSTEM DESIGN/SOIL PREPARATION	1350247.51	481995.36
1090	OU1 REMEDIATION SYSTEM DESIGN/SOIL PREPARATION	1350215.50	482024.77
11071	ON-SITE DISPOSAL FACILITY/WASTE HAUL ROAD CONSTRUCTION	1348330.60	481572.95
11072	OU1 REMEDIATION SYSTEM DESIGN/SOIL PREPARATION	1348298.95	481339.94
11131 *	ON-SITE DISPOSAL FACILITY	1351286.64	478537.71
11132 *	FEMP RAIL SYSTEM UPGRADE	1350372.02	482236.05
11133 *	FEMP RAIL SYSTEM UPGRADE	1350356.55	482237.30
11230	ON-SITE DISPOSAL FACILITY/WASTE HAUL ROAD CONSTRUCTION	1350399.58	481866.45
11233	THORIUM COMPLEX/PLANT 9 COMPLEX D&D	1350404	481679
11482 *	ON-SITE DISPOSAL FACILITY	1351027.80	483043.60
11483 *	ON-SITE DISPOSAL FACILITY	1351031.50	483054.99
11484 *	ON-SITE DISPOSAL FACILITY	1351296.70	481846.22
11486 *	ON-SITE DISPOSAL FACILITY	1351004.99	482134.22
11491	ON-SITE DISPOSAL FACILITY/WASTE HAUL ROAD CONSTRUCTION	1351025.55	483056.78
11492	ON-SITE DISPOSAL FACILITY/WASTE HAUL ROAD CONSTRUCTION	1351021.20	483045.15
11493	ON-SITE DISPOSAL FACILITY/WASTE HAUL ROAD CONSTRUCTION	1351004.12	482448.12
11494	ON-SITE DISPOSAL FACILITY/WASTE HAUL ROAD CONSTRUCTION	1350993.97	482448.21
11495	ON-SITE DISPOSAL FACILITY/WASTE HAUL ROAD CONSTRUCTION	1350999.75	482457.38
11496	ON-SITE DISPOSAL FACILITY	1350995.31	482126.09
11497	ON-SITE DISPOSAL FACILITY	1351006.32	482126.03
11500	ON-SITE DISPOSAL FACILITY	1351284.42	481840.03
11501	ON-SITE DISPOSAL FACILITY	1351285.28	481853.33

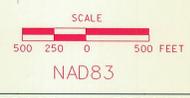
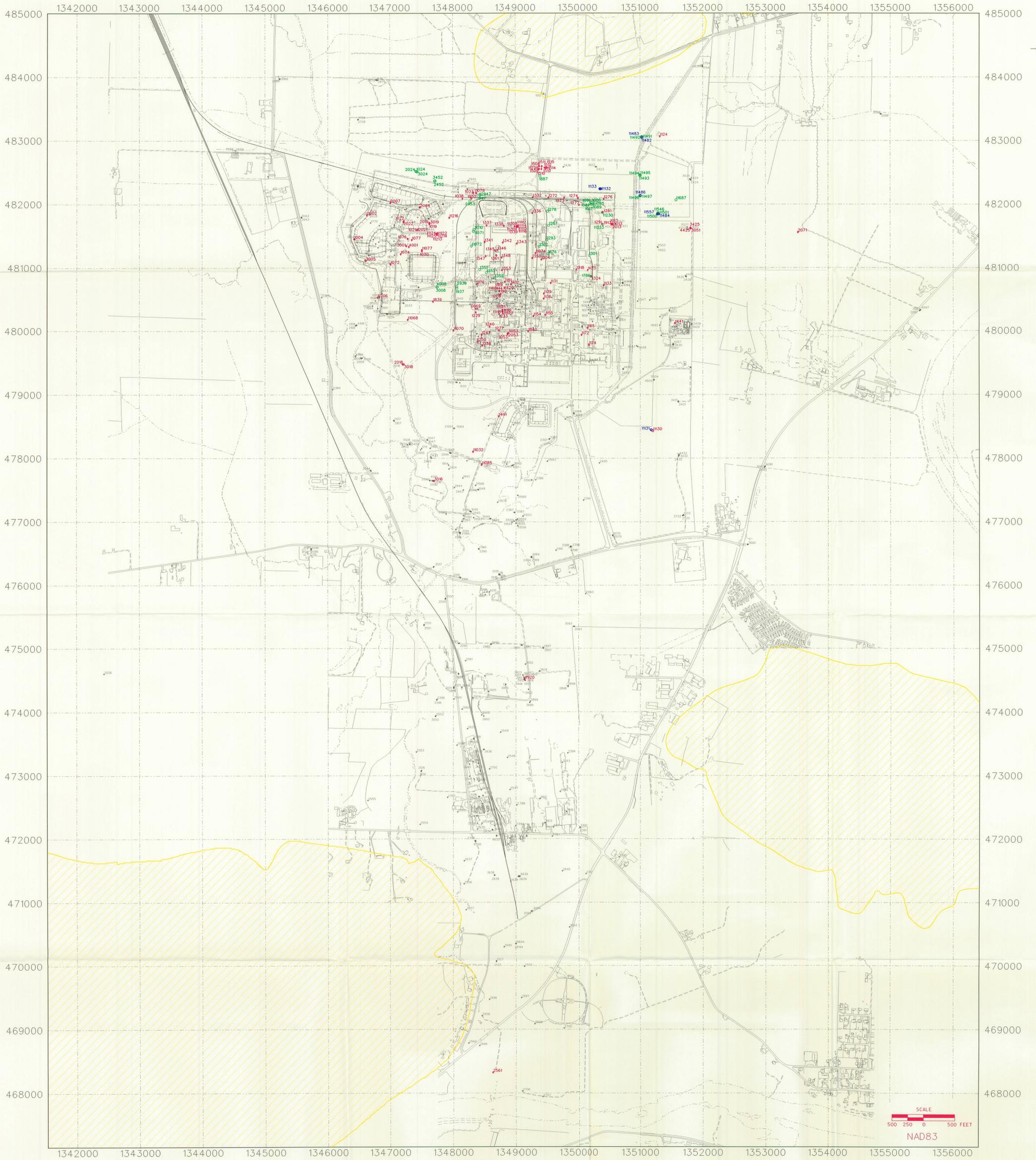
**PRELIMINARY WELL ABANDONMENT LIST**  
(Continued)

WELL	PROJECT CONFLICT/REASON	E83 COORDINATE	N83 COORDINATE
11546	ON-SITE DISPOSAL FACILITY	1351286.10	481865.39
11557 *	ON-SITE DISPOSAL FACILITY	1351276.80	481842.73
11687	ON-SITE DISPOSAL FACILITY	1351572	482064
1239	HIGH TRAFFIC AREA	1348360.40	480063.00
1278	FEMP RAIL SYSTEM UPGRADE	1349504.46	481884.20
1287	BOILER PLANT/WATER PLANT COMPLEX D&D	1349523.37	481664.25
1293	BOILER PLANT/WATER PLANT COMPLEX D&D	1349493.26	481436.33
1301	THORIUM COMPLEX/PLANT 9 COMPLEX D&D	1350180.49	481190.73
1351	PLANT 1 COMPLEX-PHASE I D&D	1348430.85	480969.77
1352	PLANT 1 COMPLEX-PHASE I D&D	1348535.50	480919.10
1359	PLANT 1 COMPLEX-PHASE I D&D	1348671.17	480833.31
1362	BOILER PLANT/WATER PLANT COMPLEX D&D	1349371.58	481333.24
1676	BOILER PLANT/WATER PLANT COMPLEX D&D	1349510.51	481216.84
1786	THORIUM COMPLEX/PLANT 9 COMPLEX D&D	1350212.83	480857.86
1887	FEMP RAIL SYSTEM UPGRADE	1349386.69	482440.09
1937	ON-SITE DISPOSAL FACILITY/WASTE HAUL ROAD CONSTRUCTION	1348065.59	480674.84
1947	FEMP RAIL SYSTEM UPGRADE	1348437.15	482137.33
2024	OU1 REMEDIATION SYSTEM DESIGN/SOIL PREPARATION	1347411.69	482516.89
2452	OU1 REMEDIATION SYSTEM DESIGN/SOIL PREPARATION	1347721.88	482365.69
2939	ON-SITE DISPOSAL FACILITY/WASTE HAUL ROAD CONSTRUCTION	1348062.15	480700.80
2947	FEMP RAIL SYSTEM UPGRADE	1348437.85	482149.35
2953	FEMP RAIL SYSTEM UPGRADE	1348275.22	482049.47
3008	ON-SITE DISPOSAL FACILITY/WASTE HAUL ROAD CONSTRUCTION	1347751.51	480691.49
3010	ON-SITE DISPOSAL FACILITY/WASTE HAUL ROAD CONSTRUCTION	1348340.97	481601.54
3024	OU1 REMEDIATION SYSTEM DESIGN/SOIL PREPARATION	1347433.70	482506.56
3452	OU1 REMEDIATION SYSTEM DESIGN/SOIL PREPARATION	1347711.90	482363.71
4008	ON-SITE DISPOSAL FACILITY/WASTE HAUL ROAD CONSTRUCTION	1347746.61	480690.58

\* = Lysimeter

PRELIMINARY WELL ABANDONMENT LIST  
(Continued)

46 Wells  
8 Lysimeters



FILE NAME: /USR/ERMA5/SCRW1/DGN/MAP/HOR/DPTH/WEELMAP.DGN

NO.	REVISIONS	DATE	REVISED BY
1	CREATED BY FERMC GIS	3/13/96	P. HILDEBRAND
2	UPDATES TO PLUGGED WELLS/D. SHANKLIN	3/14/96	L. McCANDLESS
3	UPDATES TO PROPOSED WELLS/M. CHERRY	3/26/96	L. McCANDLESS
4	UPDATES TO EXISTING WELLS/D. SHANKLIN & K. COLLINS	4/1/96	L. McCANDLESS
5	UPDATES TO LYSIMETERS/D. SHANKLIN & P. RILEY	4/9/96	L. McCANDLESS

**FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION**  

  
 Fernald  
 Environmental Management Project  
**U.S. DEPARTMENT OF ENERGY**

- LEGEND:**
- ◆ TYPE 1 MONITORING WELLS
  - ◆ TYPE 2 MONITORING WELLS
  - ◆ TYPE 3 MONITORING WELLS
  - ◆ TYPE 4 MONITORING WELLS
  - LYSIMETER
  - WELLS PROPOSED FOR ABANDONMENT IN 1996
  - LYSIMETERS PROPOSED FOR ABANDONMENT IN 1996
  - ◆ ABANDONED WELLS/LYSIMETERS
  - ▨ BEDROCK OUTLINE

**FEMP PROPOSED WELL ABANDONMENTS FOR 1996**