Department of Energy

Ohio Field Office
Fernald Closure Project
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Springdale, Ohio 45246
(513) 648-3155

AUG 31 2005

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

DOE-0317-05

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:

DRAFT EXPLANATION OF SIGNIFICANT DIFFERENCES FOR OPERABLE UNIT 3

Enclosed for your review and approval is a draft Explanation of Significant Differences (ESD) document for Operable Unit 3 (OU3).

The Enclosed ESD has been prepared to:

- Clarify that the D&D for structures needed for groundwater remediation are part of the Operable Unit 5 Record of Decision (ROD),
- Allow facilities, structures and improvements to remain or be constructed for Institutional Controls as identified in the Fernald Institutional Control Plan.
- Define other types of facilities, structures, and improvements that are not part of the Operable Unit 3 Final Record of Decision (FROD) to decontaminate, dismantle, and disposition, and
- Identify the public process that will be used to involve the public in changes in facilities, structures, and improvements needed for legacy management of the FCP.

The enclosed draft incorporates comments from informal review of the ESD by the United States Environmental Protection Agency (USEPA) and the Ohio Environmental Protection Agency (OEPA). Following review and approval of the draft ESD by the USEPA, and the OEPA, a draft final ESD will be issued for formal public review. All comments received during the public review will be appropriately addressed in the final ESD submitted for Department of Energy (DOE) and USEPA approval.

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

Sincerely,

Johnny Reising

for William J. Taylor
Director

FCP:Reising

Enclosure

cc w/enclosure:
J. Reising, OH/FCP
J. Craig, DOE/LM
J. Powell, DOE/LM
T. Schneider, OEPA-Dayton (three copies of enclosure)
G. Jablonowski, USEPA-V, SR-6J
C. Connell, ATSDR
M. Cullerton, Tetra Tech
M. Shupe, HSI GeoTrans
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K. Alkema, Fluor Fernald, Inc./MS01
J. Chiou, Fluor Fernald, Inc./MS88
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ECDC, Fluor Fernald, Inc./MS52-7

DRAFT

EXPLANATION OF SIGNIFICANT DIFFERENCES FOR OPERABLE UNIT 3 RECORD OF DECISION

UNITED STATES DEPARTMENT OF ENERGY
FERNALD CLOSURE PROJECT
FERNALD, OHIO

AUGUST 2005

(2503 – RP - 0031)

Robert F. Warther, Manager — Date
United States Department of Energy – Ohio Field Office

Richard C. Karl, Director — Date
Superfund Division
United States Environmental Protection Agency – Region 5

1.0 INTRODUCTION TO THE SITE AND STATEMENT OF PURPOSE

1.1 BACKGROUND

The Fernald Closure Project (FCP) is a former uranium processing facility located in Hamilton and Butler Counties, Ohio approximately 18 miles northwest of Cincinnati, Ohio. The FCP is owned by the United States Department of Energy (DOE). In November 1989, the FCP site (formerly the Feed Materials Production Center [FMPC] and then the Fernald Environmental Management Project [FEMP]) was included on the National Priorities List established under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA). The DOE is the lead agency for remediation of the FCP pursuant to the *Consent Agreement as Amended under CERCLA Sections 120 and 106(a)* (the ACA) signed with the U.S. Environmental Protection Agency (EPA) in September 1991. The Ohio Environmental Protection Agency (OEPA) is also participating in the cleanup process at the site.

Operable Unit 3 is one of the five operable units identified in the ACA and consists of the structures (e.g., process buildings, storage pads, warehouses, and above-grade storage tanks), remaining product, and equipment that were contaminated by FEMP production activities and waste management practices. Together the Operable Unit 3 "Interim Remedial Action" Record of Decision (IROD – May 1994) and the Operable Unit 3 "Final Remedial Action" Record of Decision (FROD – August 1996) provide for the decontamination and dismantlement (D&D) of all Operable Unit 3 facilities and structures, the off-site disposal of process residues, product materials, and process related metals and other materials that exceed the On-Site Disposal Facility (OSDF) Waste Acceptance Criteria (WAC); and the disposal of remaining Operable Unit 3 wastes in the OSDF. The Operable Unit 3 RODs both state: "DOE's selected interim remedy is the D&D of contaminated buildings, equipment, and facilities within Operable Unit 3. Included within the scope of this interim remedial action is removal of all Operable Unit 3 facilities, including former uranium processing buildings, and equipment, support structures, above-, at-, and below-grade utilities, and identified ponds and basins." The FROD incorporated all of the D&D decisions of the IROD, and identified the final disposition pathway for the materials generated.

The Operable Unit 3 Integrated Remedial Design/Remedial Action Work Plan (RD/RA Work Plan) further states (Page 2-2): "Operable Unit 3 is composed of associated production facilities, support facilities (including all above- and below-grade improvements), equipment, structures, utilities, drums, tanks, solid waste, waste product, thorium, effluent lines, K-65 transfer lines, wastewater treatment facilities, sewage treatment plant, fire training facilities, scrap metal piles, feed stocks, and the coal pile. Table 2-1 (Located in the RD/RA Work Plan) provides a current list of the 233 components within

Operable Unit 3. The table lists the name of each component and its alphanumeric designation. This list will be updated during Operable Unit 3 remediation if any additional structures are constructed (e.g., temporary storage structures)."

The Operable Unit 3 Integrated RD/RA Work Plan on page 2-12 provides that facilities built "to support remediation of other operable units" have been added to the Operable Unit 3 scope. The Integrated RD/RA Work Plan also on page 2-12 clarifies that the above grade components for the Operable Unit 5 groundwater remediation will continue to be addressed in Operable Unit 5 because of the long remediation schedule for the groundwater.

1.2 CIRCUMSTANCES GIVING RISE TO PREPARATION OF AN ESD FOR OPERABLE UNIT 3

Since the issuance of the IROD and FROD for Operable Unit 3, DOE has been progressively implementing and completing the individual remedial actions for the D&D of the facilities, structures, and improvements at Fernald. All of the work under the Operable Unit 3 FROD is anticipated to be completed during calendar year 2006. At this time, there is a need to clarify the process for identifying those facilities, structures, and improvements that are allowed within the objectives of the Operable Unit 3 FROD to be left on site after closure, for beneficial use during legacy management of the site. The initial issue that surfaced is the need to provide various facilities and structures to achieve the Institutional Controls (ICs) required under the Operable Unit 5 ROD to protect the remedies and the public during the legacy management phase of the project. One of the recommended ICs, an Office/Informational Center, requires that certain existing uncontaminated facilities and structures be left on site (or new facilities constructed) to achieve the objectives of the IC. In addition, there are other facilities, structures, and improvements that will need to be left behind to support groundwater remedial actions, OSDF monitoring, natural resource management, and overall site management. Examples of these facilities, structures, or improvements include buildings for informational activities, equipment storage, groundwater treatment, and offices; improvements such as culverts and deer fences; and beneficial structures such as utilities, utility poles, roads, parking areas, gates, signs, security fences, pumps, piping, wells, weather warning systems; and other items as necessary to support legacy management activities. Two maps (FCP POST CLOSURE MONITORIONG WELLS July 25, 2005, FCP POST CLOSURE and MISCELLANEOUS SITE FEATURES July 25, 2005) show the current list of designated facilities, structures, and improvements that will need to be left at the time of closure and are attached to this ESD. Minor improvements are not specifically shown but are listed on the maps as items that will be onsite but

not shown on the maps. These types of minor improvements are posts, signs, culverts, and similar improvements.

The intent of the Operable Unit 3 IROD and FROD were to provide remedies to decontaminate, dismantle and disposition structures at the FCP to meet cleanup goals and requirements under CERCLA. It was not the intent of the RODs to prohibit structures and improvements needed to implement on-going remedies or activities during the legacy management post-closure period. The Integrated RD/RA Work Plan makes it clear that the structures and improvements for implementation of the groundwater remedy are part of the Operable Unit 5 Remedial Action. Therefore, it is DOE's position that the clarifications addressed under this Explanation of Significant Difference (ESD) will:

- Clarify that the future D&D of structures needed for groundwater remediation are part of the Operable Unit 5 ROD,
- Allow facilities, structures and improvements to remain or be constructed for Institutional Controls as specified in the Institutional Control Plan,
- Define other types of facilities, structures, and improvements that can remain at the site while achieving the intended objectives of the Operable Unit 3 IROD and FROD; and
- Identify the public involvement process that will be used in the future to inform the public regarding updates or changes to the specific list of facilities, structures, and improvements needed for legacy management.

1.3 REGULATORY BASIS

Pursuant to Section 117(c) of CERCLA as amended and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) at 40 CFR 300.435(c)(2)(i), an ESD document should be published when "differences in the remedial or enforcement action, settlement, or consent decree significantly change but do not fundamentally alter the remedy selected in the ROD with respect to scope, performance, and cost." The language in the Operable Unit 3 RODs and supporting documents implies that all structures and improvements would be decontaminated, dismantled and disposed. It is DOE's position that it was not the intent of those statements to prevent structures needed for remedy implementation, natural resource management, or legacy management to be left behind or constructed. However, DOE desires through this ESD to clarify the intent of the Operable Unit 3 RODs and seek regulatory and public review and support in this understanding. Any structure or improvement needed during legacy management in any area certified to meet Operable Unit 5 ROD clean up levels would be clean and appropriate for those areas. The Operable Unit 5 ROD provides for ICs that will protect the remedies and the public. The proposed ICs in the Institutional Controls Plan provide for both physical and administrative controls. Further, the future land use for the site designated in the Operable Unit 5

ROD is an "undeveloped park". Both of these requirements entail the need to have appropriate facilities, structures, and improvements (groundwater remediation facilities, OSDF, offices/information facilities, roads, fences, utilities, storage buildings, signs, posts, gates, parking areas, etc.) in place to support the designated land use. The attached maps show the current list of designated facilities, structures, and improvements that are planned to be left at the time of closure. These can be divided into three categories. The first category includes those facilities and improvements needed to support the continuation of groundwater remediation and the OSDF and associated facilities. Any changes in these remedies would obviously follow the normal CERCLA process of public involvement and regulatory approvals. The second category includes the facilities, structures, and improvements needed for institutional controls (such as signs or facilities to support an information center) specifically identified in the Fernald Institutional Control Plan. For this category, any future change would also require a formal modification of the CERCLA Fernald Institutional Control Plan. The third category includes the miscellaneous facilities, structures, or improvements needed to support legacy management in general. Examples include bird houses, non-institutional control fences and gates, buildings to provide general support for offices or warehouses, roads for access, utility poles or lines, and the like. While these types of miscellaneous improvements would not require modification to the Institutional Control Plan or other CERCLA documentation, the public process identified in this ESD to accommodate future changes in legacy management facilities provides for public communications. Proposed changes will be identified through the use of the attached maps and communicated to the public. The maps show buildings, roads, utilities, and other significant features. Minor changes are not shown and include birdhouses, posts, signs, culverts, deer fences, and similar improvements. These minor improvements are listed on the map as being present but not shown. It would not be DOE's intent to formally communicate changes to these minor improvements that are not shown on the maps.

The basis of CERCLA is to manage and eliminate the threat or actual release of hazardous materials that may endanger the public and the environment. Structures and improvements that are protective and supportive of the selected remedies and land use restrictions are not only allowed under CERCLA but are required.

An ESD is appropriate for this clarification because it provides for regulatory and public involvement. This clarification does not substantially change the remedy. This ESD provides for the same level of public and environmental protection as the Operable Unit 3 RODs. In fact as noted in this clarification, the selected ICs are integral elements of the remedy decisions. The facilities and structures required by the ICs will provide further protection of the remedy and the public. No facilities, structures or

improvements allowed under this clarification will expose the public or the environment to increased risk. The clarification will not significantly impact cost or schedule but simply provides for facilities that are needed for post-closure legacy management and achievement of the ICs.

1.4 ADMINISTRATIVE RECORD

This ESD will become part of the Administrative Record pursuant to 40 CFR 300.825(a)(2). This ESD will be available to the public at the Public Environmental Information Center (PEIC).

2.0 SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY

2.1 SUMMARY OF SITE OPERATING HISTORY

Operating as the FMPC between 1951 and 1989, the site produced high purity uranium metal products in support of national defense programs. The site consists of approximately 1,050 acres encompassing three primary areas: the former production area, the waste storage area, and adjacent forest/pasture land. The former production area is a 136-acre tract at the center of the site. The waste storage area, which includes the Operable Units 4 and 1 areas, is located west of the former production area. In 1989, operations ceased and efforts were focused on environmental restoration and waste management activities. In 1991, the site name changed to the FEMP to recognize this new emphasis. In 2003, the site name changed again to the FCP to reflect the increased focus on final site closure.

The ACA organized the remediation of the FCP into five operable units. Operable Units 1 through 4 are considered source operable units while Operable Unit 5 encompasses all environmental media, both on and off FCP property. The final remedial actions include: facility decontamination and dismantlement; on-site disposal of the majority of contaminated soil and debris; off-site disposal of the contents of Silos 1 and 2, Silo 3, waste pit material, nuclear product inventory, low-level waste, mixed waste, and limited quantities of soil and debris not meeting on-site waste acceptance criteria; and treatment of contaminated groundwater to restore the Great Miami Aquifer. Records of Decision have been finalized for all five operable units, and current site activities consist entirely of implementing remedial actions in accordance with the final RODs, and enforceable milestones established under the ACA.

Fluor Fernald's current baseline schedule forecasts the completion of the Operable Unit 3 remedy by March 31, 2006. As of the date of this ESD, the implementation of the Operable Unit 3 ROD is more than 80 percent complete.

2.2 OPERABLE UNIT 3 STRUCTURES

As mentioned previously, Operable Unit 3 is composed of associated production facilities, support facilities (including all above- and below-grade improvements), equipment, structures, utilities, drums, tanks, solid waste, waste product, thorium, effluent lines, K-65 transfer lines, wastewater treatment facilities, sewage treatment plant, fire training facilities, scrap metal piles, feed stocks, and the coal pile. The facilities are further identified in the Operable Unit 3 Integrated RD/RA Work Plan.

Examples of facilities, structures and improvements that would remain for legacy management would be to support ongoing remedial actions, groundwater remedy and OSDF; implementation of institutional controls; natural resources management; and other structures needed for site management located in certified clean areas. The facilities, structures and improvements include OSDF and support structures; groundwater infrastructure; storage facilities, informational facilities; utilities, fences, signs, posts, gates, parking areas, and roads to support legacy management activities; and culverts, deer fences, perimeter fences, and other infrastructure to support natural resources management.

Those structures that are part of the groundwater remedy will be dismantled and disposed under the Operable Unit 5 ROD when groundwater remediation is completed. The Operable Unit 3 RODs and Integrated RD/RA Work Plan specifically provide for this work to be conducted as part of Operable Unit 5. Section 1.3 describes how changes to facilities, structures, and improvements will be managed.

2.3 OPERABLE UNIT 3 SELECTED REMEDY

The Operable Unit 3 IROD was issued in May 1994 and addressed the decontamination, dismantlement, and storage of Operable Unit 3 structures. The Operable Unit 3 FROD was issued August 1996 and provided for the disposition of the D&D debris and contaminated wastes from the Operable Unit 3 remedy. There have been no modifications to the RODs. These RODs were approved through the CERCLA and NCP processes.

The selected remedy defined in the Operable Unit 3 FROD consists of:

- Adoption of Previous Operable Unit 3 Decisions
    - Incorporates the decisions provided in the IROD so as to provide for an integrated implementation of the respective decisions;
    - Adopts the procedures and deposition decisions of Removal Action 9 to continue disposition of the products, residues, and nuclear materials generated during site operations;
    - Adopts prior decisions made for management of Safe Shutdown (Removal Action 12), management of asbestos abatement (Removal Action 26), and management of debris (Removal Action 17);
- Alternatives to Disposal
    - Permits the unrestricted/restricted release of materials, as economically feasible for recycling, reuse, or disposal;
- Treatment
    - Permits treatment of materials to meet the OSDF WAC and/or off-site disposal facility WAC;
- Off-Site Disposal
    - Requires off-site disposal of process residues, product materials, and process-related metals;
    - Requires off-site disposition of acid brick and concrete from specific locations (identified in Section 6.2 of the Operable Unit 3 ROD) and any other materials exceeding the OSDF WAC;
- On-Property Disposal
    - Permits disposal of remaining Operable Unit 3 wastes in the OSDF;
    - Imposes administrative controls through deed restrictions and access controls; and
    - Incorporates post-remediation activities that include long-term monitoring and maintenance of the OSDF and operation of a groundwater-monitoring network to evaluate the performance of the OSDF.

The Operable Unit 3 IROD remedy (Incorporated into the FROD):

> "involves the decontamination and dismantlement of all Operable Unit 3 facilities and structures and the interim storage of the resulting wastes until the final remedial action ROD."

The Operable Unit 3 Integrated RD/RA Work Plan approved by the EPA and the OEPA states that the decontamination, dismantlement, and disposal of FCP structures will be done under the Operable Unit 3 ROD except for structures involved with the long-term remediation of groundwater. Section 3.4.3.4 of the Operable Unit Operable Unit 3 Integrated RD/RA Work Plan concerning key elements for integration between the Operable Unit 3 and the Operable Unit 5 RODs states, "(2) decontamination, dismantlement, and disposition of long-term remedial action facilities (e.g., biodenitrification system, AWWT) consistent with strategies provided in this work plan ... is addressed by the Operable Unit 5 Aquifer Restoration Project RA documentation."

3.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE BASIS FOR THE CHANGE

3.1 SUMMARY OF DIFFERENCES/CLARIFICATIONS

The intent of the Operable Unit 3 RODs was to provide remedies to dismantle and disposition structures at the FCP to meet cleanup goals and requirements under CERCLA. It was not the intent of the ROD to prohibit structures and improvements needed to implement on-going remedies or activities during the legacy management post-closure period. Therefore, the clarifications addressed under this ESD will as noted:

- Clarify that the D&D for structures needed for groundwater remediation are part of the Operable Unit 5 ROD,
- Allow facilities, structures and improvements to remain or be constructed for Institutional Controls as identified in the Fernald Institutional Control Plan.
- Define other types of facilities, structures, and improvements that are not part of the Operable Unit 3 FROD to decontaminate, dismantle, and disposition, and
- Identify the public process that will be used to involve the public in changes in facilities, structures, and improvements needed for legacy management of the FCP.

This ESD for the Operable Unit 3 ROD clarifies the intent to allow facilities, structures, and improvements for ICs, remedy implementation, and legacy management. This ESD does not substantially change the scope, performance, or cost of the remedies for remediation of the FCP. The scope of the Operable Unit 3 remedy is clarified to allow clean facilities, structures and improvements to be retained for ICs and legacy management. The scope of the Operable Unit 3 remedy is clarified to allow structures associated with the groundwater remedy to be managed under Operable Unit 5. There is

no change in performance. Public health and the environment will receive the same level of protection as already provided. There is little if any change to costs. The ICs are a part of the remedies and need to be implemented as an integral element. Facilities will be needed for legacy management. The retention of clean existing facilities, structures, and improvements for legacy management will if anything slightly lower the cost of the remedy.

3.2 BASIS FOR CHANGE

Structures and improvements will be needed for ICs and legacy management. It was not the intent of the Operable Unit 3 RODs to prevent either of these activities. Clean facilities, structures, and improvements in certified clean areas meet the fundamental intent of the RODs to remove the unacceptable risk to the public and the environment created from Fernald's uranium production activities. These structures and improvements will be used as ICs, support of the specified land use of undeveloped park, and legacy management. Further, the decontamination, dismantlement, and disposal of the facilities associated with the groundwater remedy logically belong with the Operable Unit 5 remedy. These facilities will be in use long after all of the other Operable Unit 3 structures have been disposed. Although the Operable Unit 3 RODs were not clear in expressing the intent that Operable Unit 5 should address the removal of the groundwater remedy facilities, the Operable Unit 3 Integrated RD/RA Work Plan clearly states that these facilities would be part of the Operable Unit 5 Remedial Action Work Plan.

3.2.1 Original Operable Unit 3 Remedial Action Objectives

The basis for selection of the original remedy for Operable Unit 3, and for the subsequent modifications, was attainment of the remedial action objectives for Operable Unit 3 identified in the Operable Unit 3 Remedial Investigation/Feasibility Study Report, issued in February 1996. The original Operable Unit 3 remedial action objectives consisted of:

- Prevent exposure of any member of the public to radionuclides and/or chemicals related to Operable Unit 3 that would result in lifetime cancer risk exceeding the range of 10-4 to 10-6 (i.e., an increased cancer risk for one in 10,000 persons and one in 1,000,000 persons) for all exposure pathways as required by the NCP;
- Prevent exposure of any member of the public to toxic chemicals related to Operable Unit 3 that would result in a hazard index (HI) of 1 or greater for all exposure pathways as required by the NCP and EPA risk assessment guidance (EPA 1991);
- Prevent exposure of any member of the public to radiation sources related to Operable Unit 3 that would result, in a year, in an effective does equivalent greater than 100 millirems (mrem) for all exposure pathways, as required by DOE Order 5400.5);
- Prevent emissions of radionuclides to the ambient air that would result in an effective DOE equivalent due to inhalation to any member of the public, in any year, of greater than 10 mrem

based on 40 CFR 61, Subpart H (National Emissions Standards for Emission of Radionuclides Other Than Radon for Doe Facilities); and

- Prevent the release from Operable Unit 3 without radiological restrictions of any materials and equipment with surface contamination levels that exceed those specified in DOE Order 5400.5.

All of the objectives will continue to be met under the clarifications in this ESD.

3.2.2 Statement of Significant Difference

The DOE and the U.S. EPA remain committed to timely and cost effective implementation of the current Operable Unit 3 remedy, which was proposed, demonstrated to be compliant and protective of human health and the environment, and approved in accordance with CERCLA and the NCP. Clarification of the Operable Unit 3 RODs to allow for structures and improvements to be used for ICs and legacy management considers all fundamental objectives of Operable Unit 3. Further, the Operable Unit 3 remediation objectives will continue to be met with the clarification that all groundwater remediation facilities will be decontaminated, dismantled, and disposed under the Operable Unit 5 ROD.

4.0 AFFIRMATION OF THE STATUTORY DETERMINATIONS

Considering the changes proposed to clarify the Operable Unit 3 RODs, DOE and U.S. EPA believe that the remedy continues to meet all of the statutory requirements of Section 121 of CERCLA as amended. The remedy 1) is protective of human health and the environment, 2) complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and 3) since there is essentially no change in cost, the remedy remains cost-effective.

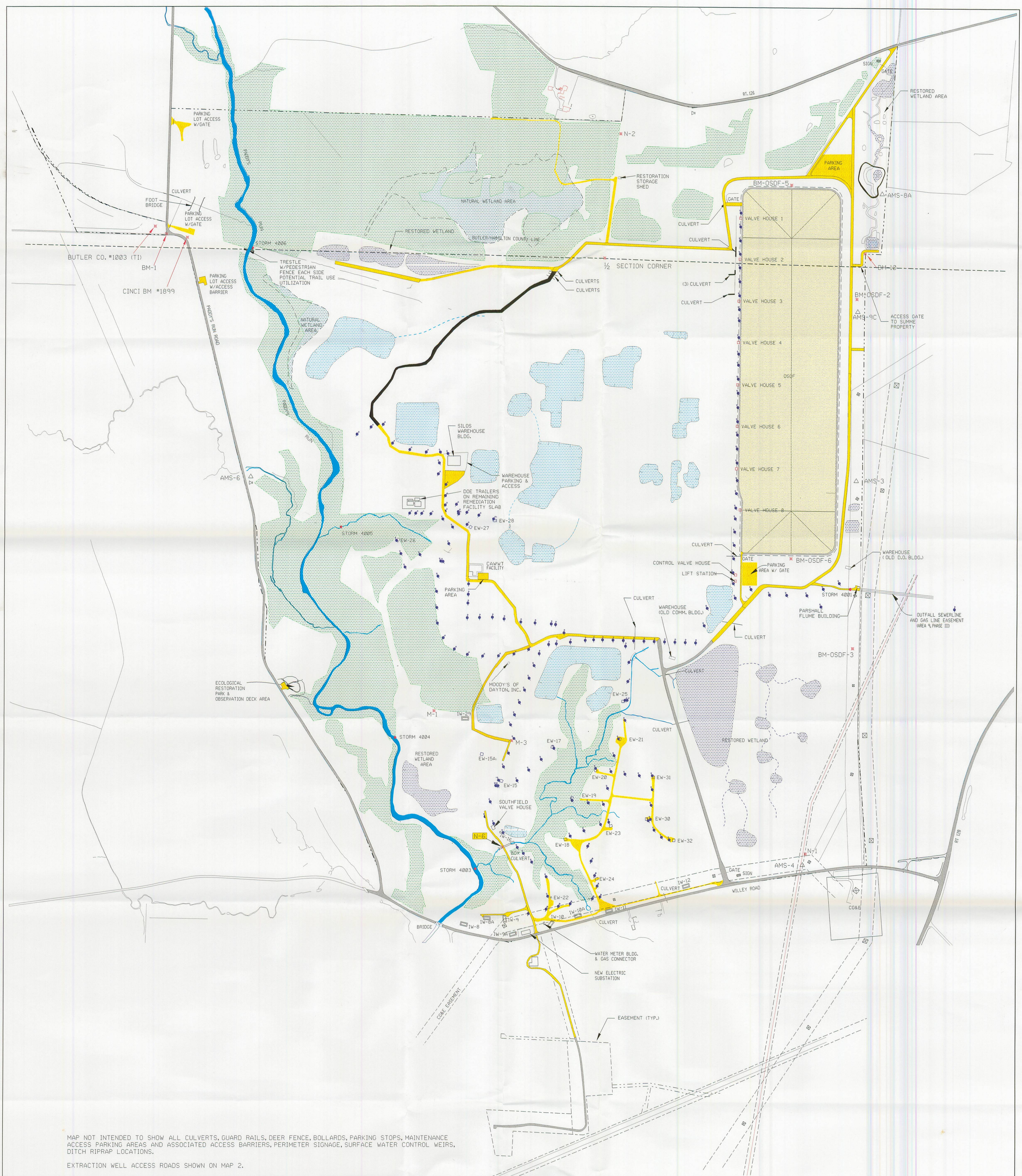
5.0 PUBLIC PARTICIPATION

The following is an example of the public participation section – the information will be filled in in detail after completion of the public comment period.

The draft final ESD was made available for public inspection for formal public comment from xx, xx, 2005 through xx, xx, 2005. A notification that included a brief description of the changes being considered was published in a newspaper of general circulation, in accordance with 40 CFR 300.435(c)(2)(i). On XXXX, 2005, notification of the availability of the draft final ESD document for public review and comment appeared in the Cincinnati Enquirer, The Hamilton Journal, and the Harrison Press. In addition to newspaper notification, post cards announcing this public review and comment period were mailed to XXX key Fernald stakeholders.

A formal public hearing was held on xx xx, 2005 at yyyy. A presentation was made by DOE-FCP on the proposed changes and a question and answer period was conducted. The formal comment period followed this question and answer period. A court reporter was present to record and prepare a transcript of the formal comment period.

As a result of this public comment period *[and public hearing]*, the DOE-FCP received comments from XX individuals. A responsiveness summary to all comments received has been prepared and is Attachment 2 to this final ESD. In addition, copies of the actual comments received and the transcript from the public hearing is included as Attachment 3 to this final ESD.



MAP NOT INTENDED TO SHOW ALL CULVERTS, GUARD RAILS, DEER FENCE, BOLLARDS, PARKING STOPS, MAINTENANCE ACCESS PARKING AREAS AND ASSOCIATED ACCESS BARRIERS, PERIMETER SIGNAGE, SURFACE WATER CONTROL WEIRS, DITCH RIPRAP LOCATIONS.

EXTRACTION WELL ACCESS ROADS SHOWN ON MAP 2.

LEGEND

- ROAD
- PROPERTY LINE
- WET LANDS
- EDGE OF CREEK
- FENCE LINE
- EASEMENT
- WATER FLOW
- PONDS/WETLANDS
- TRANSMISSION TOWER
- TREE LINE
- EXTRACTION WELL HOUSE
- POLE
- AIR MONITORING STATION
- GPS BENCH MARK
- STORM 4006 — REGULATED STORMWATER OUTFALLS
- IW-11 — INJECTION WELL (WELL & CASING ONLY TO REMAIN)
- EMERGENCY WARNING SIREN

- WOODED AREA
- PONDED WATER
- GRAVEL ROADS/PARKING AREAS
- ASPHALT ROADS
- UNIMPROVED "PATH-LIKE" ROADS
- ON SITE DISPOSAL FACILITY
- NATURAL WETLAND AREA
- RESTORED WETLAND AREA

SCALE: 1" = 400'

GPS BENCH MARK LOCATION PLAN

MONUMENT	DESCRIPTION	NORTHING	EASTING	ELEVATION	SURVEY	COMMENTS
BM-1	(ESTAB.) SITE ORIGIN (0,0)	482813.982	1345109.041	579.83	WOOLPERT	COUNTY SECTION CORNER - GPS LOCATED
M-1	FLY AS PILE	478237.93	1347705.20	573.62	WOOLPERT	GPS LOCATED
M-3	FLY AS PILE	477948.929	1348451.099	577.41	WOOLPERT	GPS LOCATED
N-1	ALUMINUM CAPPED PIN	476876.20	1351301.43	607.88	WOOLPERT	GPS LOCATED
N-6	ALUMINUM CAPPED PIN	476928.55	1348369.68	551.99	WOOLPERT	GPS LOCATED
BM 1003	BUTLER CO.	482887.97	1345001.20	579.93	WOOLPERT	BUTLER COUNTY WITNESS - GPS LOCATED
BM 1899	CITY OF CINCINNATI	482781.79	1345309.62	579.06	WOOLPERT	CINCINNATI WATER DEPT BM - GPS LOCATED
1/2 SECTION CORNER	HAMILTON COUNTY					DESTROYED 11/94 - BASE STONE INTACT
1/2 SECTION CORNER	HAMILTON COUNTY					CAGIS #3160
BM-10	U.S. AEC	482637.962	1351857.178	615.88	WOOLPERT	GPS LOCATED
BM-OSDF-2	ON-SITE DISPOSAL FAC.	482199.937	1351779.165	615.82	B.L. PAYNE	GPS LOCATED
BM-OSDF-3	ON-SITE DISPOSAL FAC.	478850.416	1351749.328	595.61	B.L. PAYNE	GPS LOCATED
BM-OSDF-5	ON-SITE DISPOSAL FAC.	483297.439	1351145.734			
BM-OSDF-6	ON-SITE DISPOSAL FAC.	479703.866	1351151.514			

FCP POST CLOSURE
MISCELLANEOUS SITE FEATURES MAP 3

SCALE: 1" = 400'
DATE: 9-9-2004
REVISED: 8-24-2005

FILE NAME: V:/5FGP1/DGN/7-20-05.DGN
(COPY OF TECUMSEH SURVEYING DRAWING)

V:/5FGP1/DGN/KAREN016.DGN

STATE PLANAR COORDINATE SYSTEM 1983

LEGEND:

- 1000 SERIES WELL
- 2000 SERIES WELL
- 3000 SERIES WELL
- 4000 SERIES WELL
- 6000 SERIES WELL
- 8000 SERIES MULTI-LEVEL WELL (CMT)

- FCP BOUNDARY
- REMEDIATION AREA BOUNDARIES
- 2560 INACTIVE WELLS
- 2096 ACTIVE WELLS

1200 FEET 600 0

FCP POST-CLOSURE MAP 1: MONITORING WELLS