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**ACTION DESCRIPTION MEMORANDUM FOR
OPERABLE UNIT 1, 2 AND 5, FERNALD
ENVIRONMENTAL MANAGEMENT PROJECT
(OPERABLE UNIT 1)**

03/14/94

DOE-1015-94

DOE-FN/DOE-HQ

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MEMO

OU1

United States Government

Department of Energy

Fernald Field Office

memorandum

MAR 14 1994

DATE: DOE-1015-94

REPLY TO: FN:Skintik
ATTN OF:

SUBJECT: ACTION DESCRIPTION MEMORANDUM FOR OPERABLE UNITS 1, 2 AND 5, FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

TO: J. J. Fiore, EM-42, TREV II:

This is to notify you that based on review of the Action Description Memorandum (ADM) for Operable Units 1, 2 and 5, Environmental Assessments (EAs) will be prepared to analyze the potential environmental consequences for each of the stated Operable Units. As indicated in the approved Fernald Environmental Management Project (FEMP) National Environmental Policy Act (NEPA) Implementation Plan, NEPA values will be integrated into the ongoing Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Remedial Investigation/Feasibility Study (RI/FS) process, and as such, FS-EA documents will be prepared to satisfy those requirements. This is consistent with actions taken in the submittal of the OU4 Feasibility Study/Environmental Impact Statement (FS-EIS), which provided the upper bound NEPA preparation of an EIS for FEMP remedial activities. If you have any comments on this action, please do so within two weeks of the date of this letter. If no comments are received by that date, the State of Ohio will be notified of our intent to prepare EAs for the above actions.

Please direct any questions on this subject to Ed Skintik, 513 648-3151.



J. Phil Hamric
Manager

Attachment: As Stated

cc w/att:

Y. Mansoor, EH-251
K. A. Chaney, EM-424
D. R. Kozlowski, EM-424
S. Frush, EM-22
J. Reising, DOE-FN
R. Allen, DOE-FN
D. Lojek, DOE-FN
D. Ofte, FERMC0/1
K. L. Alkema, FERMC0/65-2
M. E. Nelson, FERMC0/65-2
Administrative Record, FERMC0

Action Description Memorandum**Remediation of Operable Units 1, 2 and 5
Fernald Environmental Management Project****1.0 Purpose and Need**

The U.S. Department of Energy (DOE) proposes to remediate Operable Units 1, 2 and 5 at the Fernald site. These remedial activities are based on concerns identified by DOE, United States Environmental Protection Agency (U.S. EPA), and Ohio Environmental Protection Agency (OEPA). These concerns include: 1) potential impacts on human health and the environment as a result of past releases of hazardous materials into the air, water and soil; 2) continuing releases of hazardous materials to the air and Great Miami Aquifer; and 3) accumulation of process materials and low-level radioactive and hazardous materials.

Cleanup and environmental restoration of the entire Fernald site is required under the following environmental legislation: 1) Comprehensive Environmental Response and Liability Act of 1980 (CERCLA); 2) Superfund Amendments and Reauthorization Act of 1986 (SARA); and 3) Resource Conservation and Recovery Act of 1976 (RCRA). Operable Units 1, 2 and 5 are in the investigation phase of the cleanup process.

This Action Description Memorandum (ADM) has been prepared to facilitate a determination of the appropriate level of National Environmental Policy Act (NEPA) documentation required for the proposed action of operable units 1, 2 and 5. A Feasibility Study/Proposed Plan-Environmental Impact Statement (FS/PP-EIS) has been prepared for Operable Unit 4 which is the lead operable unit.

2.0 Background

The U.S. Atomic Energy Commission (AEC), predecessor to DOE, established the Fernald Site for processing uranium and its compounds from natural uranium ore concentrates and recycled recoverable residues for government needs. This integrated production complex began operations in conformance with AEC orders in the early 1950's.

Production peaked in 1960 at approximately 10,000 metric tons of uranium (mtu). Production declined in 1964, to a low in 1975 of about 1400 mtu. In 1981, planning began to accommodate increased production requirements at the FEMP. Production ceased in the summer of 1989 and plant resources were focused on a cleanup program. In June, 1991, the Fernald Site was officially closed as a federal production facility; however, the mission of environmental restoration of the site continues.

On July 18, 1986, a Federal Facility Compliance Agreement (FFCA) pertaining to environmental impacts associated with the Fernald Site's past and present operations, was signed by DOE and U.S. EPA, and amended by Consent Agreement in 1990. The FFCA was intended to ensure environmental impacts associated with past and present operations at the Fernald Site are thoroughly investigated so appropriate remedial response actions can be addressed and implemented. In response to the FFCA, the DOE is conducting Remedial Investigation and Feasibility Studies (RI/FS) to achieve environmental restoration of the site. Response Actions at the Fernald Site are being conducted in accordance with the requirements of the CERCLA of 1980, as amended by the SARA of 1986.

Consistent with DOE Order 5400.4, the Fernald site is integrating values of NEPA into the documentation being prepared to support the CERCLA RI/FS process. The RI/FS documents under CERCLA for Operable Unit 4 have been written to incorporate NEPA values at the level of an EIS and include cumulative impacts. The FS and Proposed Plan constitute the EIS. The proposed impacts included in the FS/PP-EIS prepared for Operable Unit 4 are not expected to be significant.

Furthermore, the RI/FS documents for the remaining operable units will be written to include NEPA values, focusing on OU specific impacts and will tier from the lead Operable Unit 4 FS/PP-EIS. The NEPA regulations (40 CFR 1502.20) encourage tiering from a broad EIS (e.g., OU4 FS/PP-EIS) to eliminate repetitive discussions and focus on issues specific to subsequent related actions (e.g., OU 1, 2 and 5). Tiering is being implemented at the FEMP, such that the broad cumulative impact analysis presented in the OU4 FS/PP-EIS will not occur in the tiered documents unless the subsequent related action Leading Remedial Alternatives (LRAs) change.

Leading Remedial Alternatives were developed for each operable unit in the Site-Wide Characterization Report prepared by DOE in 1993, and were included in the Operable Unit 4 cumulative impact assessment. The LRAs have been revised to reflect current information being evaluate in the Operable Unit's respective Feasibility Studies.

3.0 Location of the Action

The Fernald site is a 425-hectare (1050 acre), government-owned, contractor-operated facility located in southwestern Ohio, about 20 km (17 mi) northwest of downtown Cincinnati. The facility is located just north of Fernald, Ohio, a small farming community, and lies on the boundary between Hamilton and Butler counties. Of the total site area, 345 ha (850 acres) are in Morgan and Crosby townships of Hamilton County, and 80 hectares (200 acres) are in Ross Township of Butler County.

4.0 Proposed Action

The U.S. Department of Energy proposes to remediate Operable Units 1, 2 and 5 as defined below. Overall, the long-term impacts associated with remediation will be positive as a result of eliminating contaminant source release. However, some negative impacts are anticipated from the implementation of remedial activities. Each operable unit and its associated definition, LRA, and environmental issues are described below. The LRA for each operable unit includes continued federal ownership of the land to control future land use. The LRA may change along with associated environmental impacts as more information becomes available through the RI/FS process.

4.1 Operable Unit 1

OUI includes six low-level radioactive waste storage pits, the Burn Pit, the Clearwell, berms, liners, and associated contaminated soil within the operable unit boundary. The pits contain large quantities of liquid and solid wastes that were generated by various operations at the Fernald Site.

4.1.1 Leading Remedial Alternative

The Leading Remedial Alternative for OUI involves the removal and treatment of waste materials from Waste Pits 1-6, the Burn pit and the Clearwell including the waste caps, liners and soils below the liners to risk-based limits. The excavated materials will be treated on-site and transported to an off-site disposal facility. The waste pits would be backfilled with clean soil and covered with an infiltration limiting multilayer cover.

4.1.2 Environmental Issues

The implementation of the LRA may potentially impact groundwater, wetlands and floodplains, and threatened and endangered species as discussed below. This LRA would attempt to minimize impacts to natural resources. In addition, the LRA would eliminate the long-term threat of contaminant release to these natural resources.

Groundwater. In the short-term, any constituents reaching groundwater from remedial activities would be eliminated. Dewatering of perched groundwater for excavation purposes, would prevent the leaching of contaminated materials into the Great Miami Aquifer.

Wetlands and Floodplains. Wetlands located near the waste pits would be impacted from remedial activities. Wetland mitigation would be determined using the Section 404 (b)(1) guidelines of the Clean Water Act. Short-term impacts to the 100- and 500-year floodplain of Paddys Run would occur from regrading activities near the stream. Waste removal would not alter flow patterns or uses of the floodplain. Disturbed areas of the floodplain would be regraded to near original contours.

Threatened and Endangered Species. Waste removal and treatment activities could result in adverse impacts to federal and state threatened and endangered species that are potentially present in or along Paddys Run. Impacts could occur from the removal and disturbance of riparian habitat, disruption of breeding activities, and loss of individual species. Impacts to these species would be offset by implementing the following mitigative measures: re-establishment of suitable floral and faunal habitat and restoration of riparian habitat. A survey would be performed to determine presence of any threatened or endangered species.

4.2 Operable Unit 2

Operable unit 2 includes the active and inactive flyash piles, the South Field area, the lime sludge ponds, the solid waste landfill, berms, liners, and associated contaminated soil within the operable unit boundary.

4.2.1 Leading Remedial Alternative

The Leading Remedial Alternative (LRA) for Operable Unit 2 is the excavation and on-site disposal of waste from all five subunits and the partial capping of solid waste in the Solid Waste Landfill. All excavated areas would be regraded and runoff/run-on controls would be employed.

4.2.2 Environmental Issues

The implementation of the LRA may potentially impact surface water, wetlands, and threatened and endangered species. This LRA would attempt to minimize impacts to these natural resources and would eliminate the long-term threat of contaminant release to these natural resources.

Surface Water. Short-term adverse impacts on Paddys Run could result during the remediation of the South Field and flyash piles. Impacts would be associated with increased turbidity and the disturbance of contaminated soils and sediment. Best management practices (placement of straw bales and silt fences) would be used to minimize deposition of sediment into Paddys Run. Long-term impacts of waste removal would be beneficial because rainwater and runoff would be prevented from coming into contact with waste and transporting contaminants to Paddys Run.

Wetlands. The capping of the Solid Waste Landfill may impact a drainage ditch wetland habitat north of the landfill. Efforts would be made to minimize the amount of wetland disruption. Runoff/run-on control measures would be utilized during cap construction to prevent the transport of waste unit material to the wetland area. Wetland mitigation would be determined using the Section 404 (b)(1) guidelines of the Clean Water Act. In addition, a Wetland Assessment would be performed pursuant to the requirements of 10 CFR 1022.

Threatened and Endangered Species. Impacts include, removal and disturbance of riparian habitat along Paddys Run, disruption of breeding activities, and potential loss of individual species. Impacts to these species would be offset by implementing mitigative measures. A survey would be performed to determine presence of any threatened and endangered species.

4.3 Operable Unit 5

The components of OU 5 include groundwater, surface water, soils, sediment, and flora and fauna.

4.3.1 Leading Remedial Alternative

The Leading Remedial Alternative (LRA) for OU5 involves the extraction and treatment of contaminated groundwater at an on-property facility, and discharge of the treated effluent to the Great Miami River through the newly constructed effluent line. Sludges generated from the treatment processes will be dried, packaged and will be shipped off-site for disposal. The LRA also involves the excavation and on-site treatment of contaminated sediment/soils using a fluidized soil washing technique, and returning the treated materials as backfill. The soil washing fluids will be recycled and the concentrated soil residuals will be stabilized and disposed of in an on-property facility.

4.3.2 Environmental Issues

The implementation of the LRA may potentially impact groundwater, surface water, wetlands, and threatened and endangered species. This LRA would attempt to minimize impacts to these natural resources through engineering controls and mitigative measures. In addition, the LRA would eliminate the long-term threat of contaminant release to these natural resources.

Groundwater. The extraction of contaminated groundwater may result in vertical migration of contaminants during the construction of recovery wells within the contaminant plume. However, well construction techniques such as using casing during the drilling process are designed to minimize this possibility. Pumping and treatment of the contaminated regional groundwater in the South Plume would create a hydraulic barrier and prevent further migration of the plume. Remediation of the contaminated perched groundwater in the former Production Area would reduce the potential for contaminated water from infiltration into the Great Miami Aquifer.

Surface Water. Potential adverse impacts could occur from erosion of contaminated soils into surface waters and excavation of contaminated sediments. Best management practices (straw bales, silt fences) would be utilized to minimize transport of contaminated sediments to surface water. In addition, engineering controls would be employed to control surface water runoff during excavation activities. Long-term impacts would be beneficial because contaminated Operable Unit 5 soils and sediments would be isolated from rainwater and runoff, and contaminated groundwater in the aquifer would be prevented from reaching the Great Miami River over the long term.

Wetlands. Excavation during remediation and the siting of the on-property disposal facility could impact wetlands due to filling or rerouting of drainageways. Remedial design efforts would be intended to minimize wetland impacts. Wetland mitigation would be determined using the Section 404 (b)(1) guidelines of the Clean Water Act. A wetlands mitigation report is being prepared to address such occurrences.

Threatened and Endangered Species. Excavation activities and the siting of the on-property disposal facility may have adverse impacts on federal and state threatened and endangered species that are potentially present on the Fernald Site. Impacts could include, removal and disturbance of habitat, disruption of breeding activities, and loss of individuals, depending on what areas require excavation and where the on-property disposal facility is sited. Impacts to these species would be offset by re-establishing suitable habitat. A Natural Resources Management Plan is being developed to minimize such impacts.

5.0 National Environmental Policy Act Documentation

This Action Description Memorandum has been prepared to facilitate a determination of the appropriate level of NEPA documentation required for the proposed action to meet the requirements of NEPA. The proposed actions are not expected to have a significant effect on the human environment because appropriate engineering controls and mitigative measures will be employed. Therefore, the Fernald Field Office recommends that an Environmental Assessment be prepared for Operable Units 1, 2 and 5, (tiered from the Environmental Impact Statement for Operable Unit 4) to determine the significance of potential impacts from the proposed actions. Each Environmental Assessment will be used to determine if preparation of an Environmental Impact Statement (in addition to the EIS for Operable Unit 4) is necessary or if a Finding of No Significant Impact can be issued.