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**ADDENDUM TO THE RI/FS COMMUNITY RELATIONS PLAN FOR
REMOVAL ACTION NO. 13 - PLANT 1 ORE SILOS REMOVAL
ACTION**

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TO THE
RI/FS COMMUNITY RELATIONS PLAN
FOR REMOVAL ACTION No. 13
PLANT 1 ORE SILOS REMOVAL ACTION

Fernald Environmental Management Project
Fernald, Ohio

U.S. Department of Energy
Fernald Field Office

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TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
List of Acronyms	ii
Introduction	1
Objectives	2
Background	3
Overview of Community Concerns	5
Highlights of Community Relations Activities	6
Timetable	6
References	8

LIST OF ACRONYMS

CERCLA:	Comprehensive Environmental Response, Compensation, and Liability Act [of 1980] (also known as Superfund)
CRP:	Community Relations Plan
DOE:	U.S. Department of Energy
EPA:	U.S. Environmental Protection Agency
EE/CA:	engineering evaluation/cost analysis
FEMP:	Fernald Environmental Management Project (formerly the Feed Materials Production Center)
FFCA:	Federal Facility Compliance Agreement
NCP:	National Oil and Hazardous Substances Pollution Contingency Plan [of 1990]
HEPA:	high efficiency particulate Air [filters]
RI/FS:	remedial investigation and feasibility study
SARA:	Superfund Amendments and Reauthorization Act [of 1986]
UNH:	uranyl nitrate hydrate

Introduction

This document is prepared as an addendum to the Fernald Environmental Management Project (FEMP) Remedial Investigation and Feasibility Study (RI/FS) Community Relations Plan (CRP), dated August 1990. This addendum addresses Removal Action No. 13, Plant 1 Ore Silos.

This removal action is being conducted pursuant to the laws, regulations and agreements listed below, and will comply with the provisions of each:

- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), also known as Superfund, that provides for the investigation and cleanup of uncontrolled hazardous waste sites
- The Superfund Amendments and Reauthorization Act of 1986 (SARA) that renewed and updated CERCLA
- The National Oil and Hazardous Substances Pollution Contingency Plan of 1990 (NCP) that spells out how CERCLA and SARA will be implemented
- The Federal Facility Compliance Agreement of 1986 (FFCA) between the U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (EPA) that provides for the investigation and cleanup of environmental impacts from past and present activities at the FEMP
- The Consent Agreement of 1990 that amended the FFCA and fostered consistency among the operable unit concept and the current commitments of the RI/FS program without modifying the underlying objectives
- The Amended Consent Agreement of 1991 that establishes definitions and schedules for completion of RI/FS documents for the five operable units and identifies additional specific removal actions at the FEMP

The 1990 Consent Agreement specified four removal actions and provided for the identification of three more; these seven are now referred to as the Phase One Removal Actions. The Amended Consent Agreement for the FEMP, signed on September 20 and effective on December 19, 1991, specified 11 additional removal actions, referred to as Phase Two Removal Actions.

On January 14, 1992 six more removal actions, known as Phase Three Removal Actions, were approved by EPA and three emergency removal actions were initiated. In all, the three phases total 27 separate, sequentially numbered removal actions. DOE may identify additional removal actions each year by January 15, if needed.

Objectives

The objective of removal actions under CERCLA and the NCP is to "...take appropriate action to abate, stabilize, mitigate, or eliminate the release or threat of release..." of hazardous materials or waste in a manner that reduces or eliminates the threat to public health, welfare, or the environment. Removal actions are emergency or short-term responses to immediate threats. They differ from remedial actions in that they are generally more limited in scope and cost.

Removal actions can be divided into three general categories: emergency, time critical, and non-time-critical. They are as follows:

- Emergency removal actions call for an immediate response. An Administrative Record file must be established and affected citizens must be notified.
- Time-critical removal actions have a planning period of less than six months. If on-site removal actions are expected to extend beyond 120 days, then an addendum to the CRP is required based on interviews with community residents and/or public interest groups to identify their concerns and determine ways in which residents would like to become involved.
- Non-time-critical removal actions usually have a planning period of at least six months and dictate the same community relations activities as discussed above. An added requirement is the preparation of an engineering evaluation/cost analysis (EE/CA). In this case, the addendum to the CRP must be completed before the EE/CA approval memorandum is signed.

The specific objective of Removal Action No. 13, Plant 1 Ore Silos, a time-critical removal action, is to protect human health and the environment by eliminating the potential threat of release of contaminants from the Plant 1 ore silos. The schedule provides 26 months for completion after start of field activities. Other considerations were: (1) the silos contained radioactive metal oxide process residue and when they were emptied, they were neither flushed nor decontaminated; (2) the silos are in an advanced state of deterioration, were not adequately sealed, and leakage has occurred; (3) although the silos have been

sealed since a release of contaminated material, the threat of future releases still exists because of the advanced state of deterioration; and (4) the potential for release of radionuclides to both on- and off-site populations from airborne or air-conveyed releases (from the ore silo facility) exists due to weather-related events.

The Plant 1 Ore Silos Removal Action will be accomplished by removing six concrete silos, eight tile silos, supporting steel structures down to the top of the concrete slab, and auxiliary equipment. The removal action will also address the segregation, size reduction, decontamination, packaging, certification, shipping, and disposal of the low-level radioactive waste scrap metal and masonry rubble. The silo pads and surrounding soils are not included in this removal action and will be addressed as part of the final remedial action for Operable Unit 3 and/or Operable Unit 5. The removal action will implement the following activities: (1) installing protective structures for nearby facilities; (2) installing temporary containment systems; (3) erecting scaffolding and preparing the silos for removal; (4) removal of the silos; (5) segregation, size reduction, and packaging of wastes for disposal; (6) removal, size reduction and placement of structural steel in temporary storage; and (7) cleaning the area.

All activities will be controlled to prevent the spread of contamination. A containment system will be built around the Plant 1 ore silos to act as a physical barrier during the removal action. This containment system will include a ventilation system with high efficiency particulate air (HEPA) filters. The air will pass through the HEPA filters before being discharged into the atmosphere.

Installation of protective structures will prevent potential damage to nearby facilities in the event of an accident involving falling silo structures or debris throughout the course of the removal action. Removal of the silos and remaining structures followed by silo area cleanup will minimize the release of contaminated materials from the Plant 1 silos area. Subsurface conveyors, originally used to transfer material between plants, will not be removed under this action but will be removed under final remediation.

Background

Plant 1 was the receiving point and sampling plant for incoming ores and residues to be used for processing. It also served as the collection point for FEMP wastes for shipment off site. The Plant 1 ore silos are part of the former production area which makes up most of Operable Unit 3.

The Plant 1 ore silos were constructed in 1953. They include the two groups of silos, consisting of six reinforced concrete silos and eight glazed tile silos. Four of the glazed tile silos are 44 feet tall and the remaining four are 10 feet tall; the six reinforced concrete silos are 10 feet tall. These reinforced concrete

silos and the eight glazed tile silos sit on separate superstructures which are approximately 38 feet tall and are connected by a mezzanine.

The contents of the Plant 1 ore silos were removed except for small amounts of residue. The estimated height of residual material in each of the eight glazed tile silos ranges from 1-4 feet. The residual material in the concrete silos is minimal. The silo area is bounded on the south by four uranyl nitrate hydrate (UNH) tanks which presently contain about 10,000 gallons of approximately one percent uranium-235 UNH in weak nitric acid solution. A removal action is being prepared to address the UNH tanks.

The original purpose of the Plant 1 ore silos was to sample and blend ore concentrates. The blended concentrates then became feed material for the refinery processes that occurred in Plant 2/3. This system proved to be inefficient and was terminated. In approximately 1955, the silos were temporarily used as overflow storage for the cold metal oxides stream which was a by-product of ore processing.

In the 1970s, spalling of the tile silos due to weathering, particularly the freeze-thaw cycles, was first observed on the two westerly tile silos. This deterioration has continued to the present. Spalling was also evident on the upper course of the southwest silo. The steel support structures are extensively corroded, with rust evident throughout. A structural evaluation was performed on the silos in late 1990 and early 1991. The report provided two recommendations: (1) demolish the entire facility or (2) demolish the tall tile silos and inspect and repair, as required, the support structure for both the tile and concrete silos.

The first alternative was selected because the second would be inconsistent with the final remediation of the site and would result in the creation of additional waste.

On February 6, 1991, a spill was observed on the ground level under the northwest tile silo during a routine inspection. It is believed that heavy rain on the previous day wet the residues to the point of flow from the silo. Also, residues had accumulated on the lower platform under both western tile silos and the northwest tile silo. Approximately 2,600 pounds of residue and corrosion were released from the three silos. The spills were cleaned up and the debris stored in drums pending further evaluation. After the cleanup effort, further inspection and emergency maintenance activities were conducted to seal the silo vents to prevent similar incidents and to reduce the potential for release.

In March and April 1991, Westinghouse Environmental Management Company of Ohio personnel surveyed radiation levels, took smear samples from the silo surfaces, and collected samples from inside the tile silos. The radiation levels and results from the smear samples indicated that worker health would be at risk at such levels. The results were:

- Contact radiation rates ranging from <0.5 to 7.5 millirem per hour (rem/hr), with the highest reading occurring at the base of the northwest tile silo; at three feet from the silos, the highest radiation rate was 2 mrem/hr at one of the tile silos
- Smear sample rates ranging from nondetectable to 12,000 disintegration per minute (dpm) alpha/100 cm; the highest levels measured on the external surfaces of the silos were 3,300 dpm alpha/100 cm² and 1000 dpm beta-gamma/100 cm² also found on the northwest tile silo
- Grab sample results indicating the presence of uranium and radionuclides of the uranium decay chain. Few organic compounds were observed above detection limits. None of the results from the toxicity characteristic leaching procedure (TCLP) tests are above regulatory limits.

The presence of asbestos and lead was identified during industrial hygiene investigation surveys. Asbestos is present in transit panels of the small electrical building beneath the silo structure and the covered walkway on the south side of the structure. Lead exists in the paint on the steel structures and in the residue in the silos. Lead in the residue is present as part of the natural uranium decay chain. The investigation also indicates that polychlorinated biphenyls do not exist in transformers, capacitors, and switchgear located in the building.

Overview of Community Concerns

In preparing this addendum, transcripts of community meetings held on: January 31, 1989; May 15, 1989; October 24, 1989; February 20, 1990; May 22, 1990; September 25, 1990; December 11, 1990; March 19, 1991; July 16, 1991; and October 29, 1991, and February 25, 1992 were reviewed. Also reviewed were transcripts from the RI/FS Environmental Impact Statement scoping meetings held on June 12 and 13, 1990. The Plant 1 ore silos were mentioned as a future removal action at the July 16, 1991, October 29, 1991, and February 25, 1992 community meetings. The incident involving the accidental release of residues from the Plant 1 ore silos was discussed in detail at the April 2, 1991 community meeting. A videotape of the cleanup process was shown at the meeting.

A 45-day public comment period for the Plant 1 Ore Silos Removal Action was held from May 25 - July 11, 1992. The announcement ran in three local newspapers. There were no oral or written comments submitted.

Highlights of Community Relations Activities

Community concerns regarding the Plant 1 Ore Silos Removal Action suggest an active FEMP community relations effort with the following objective:

- Maintain an active effort to keep interested community members informed throughout the implementation of the Plant 1 Ore Silos Removal Action.

The following specific activities have been identified to support the community relations objective for this removal action:

1. Prepare one or more fact sheets or updates for the purpose of providing information about the removal action and answering key concerns about the Plant 1 Ore Silos at the FEMP and distribute them at the quarterly public meetings.
2. Devote some portion of future community meetings to this issue; update the RI/FS exhibit to include new information as it becomes available. (Community meetings are held at regular intervals on dates selected by DOE.)
3. Include coverage about the Plant 1 Ore Silos Removal Action in the Fernald Project Cleanup Report as needed during the removal action.
4. Offer a roundtable presentation on Plant 1 ore silos.
5. Provide a 24-hour phone line at the FEMP so concerned citizens can contact a FEMP representative during a time of alarm. The number is 513-738-6295, which is FEMP Security.
6. Make appropriate additions to the Administrative Record and publicize their availability at the Public Environmental Information Center, JAMTEK Building, 10845 Hamilton-Cleves Highway, Harrison, Ohio, 45030.

Timetable

The preparation of materials for all community relations activities will be tied to the removal action schedules. For a complete list of schedule dates and activities, please see the Plant 1 Ore Silos Work Plan, which is in the Administrative Record, located at the PEIC. The activities will be scheduled to

provide the maximum flexibility and information to the public. The work plan for this removal action has been approved by EPA. Discussions and updates on the status of the removal action will be given at future public meetings.

RI/FS Work Plan Vol III
Removal Action No. 13 Addendum
August 1992
Page 8 of 8

REFERENCES

1. U.S. Department of Energy, "Fernald Environmental Management Project Plant 1 Ore Silos Removal Action Number 13 Work Plan." March 1992, Revision 1.