

5905

R-008-1002.1

**ADDENDUM TO THE RI/FS COMMUNITY RELATIONS PLAN FOR
REMOVAL ACTION NO. 4 SILOS 1 AND 2 AUGUST 1990**

08/01/90

DOE-FN EPA
5
ADDENDUM

**ADDENDUM
TO THE
RI/FS COMMUNITY RELATIONS PLAN
FOR
REMOVAL ACTION NO. 4
SILOS 1 AND 2
AUGUST 1990**

Prepared by:

**Westinghouse Materials Company of Ohio
Cincinnati, Ohio**

For the:

**U.S. Department of Energy
Oak Ridge Operations Office**

I. Introduction

This addendum to the RI/FS Community Relations Plan has been prepared to guide the community relations activities of the U.S. Department of Energy (DOE) to support the development and implementation of the K-65 Removal Action (Silos 1 and 2) at the Feed Materials Production Center (FMPC) located near Fernald, Ohio. The scope of this removal action can be broadly defined as the control of contamination from the contents of Silos 1 and 2 and will contribute to the efficient performance of the long term remedial action for Operable Unit 4.

The removal action is being conducted pursuant to the Consent Agreement Under CERCLA 120 and 106(a) between DOE and the United States Environmental Protection Agency (U.S. EPA). As stated in the Consent Agreement this removal action is Removal Number 4: Silos 1 and 2. These 80 foot diameter concrete silos contain radium-bearing materials that release radon gas to the atmosphere and contaminants may leach to underlying soils and groundwater. This removal action is designed to comply with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, known as Superfund, the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) of 1990 (40 CFR 300.415 (m)). The Consent Agreement, relevant laws such as CERCLA and SARA, and the NCP describe the process to be followed during a removal action.

The objectives of this removal action are as follows: to reduce routine emissions of radon from the K-65 Silos to the maximum extent practical within the context of the removal action; to decrease, mitigate, or otherwise control the radon gas inventory in the K-65 Silos so that a failure of the dome(s) will not result in a release of significant quantities of radon gas, which would pose a threat to the public; and to decrease, mitigate, or otherwise control the threat of K-65 residues released in significant quantities as a result of dome failure caused by a tornado.

Community relations activities relating to the K-65 Silos at the FMPC are designed to achieve two overall objectives. These are:

- To ensure that interested parties are provided with information necessary to understand key issues and decisions relating to the K-65 Silos.
- To provide opportunities for the community to comment on documents that support the U.S. EPA and the DOE decision to implement the recommended removal action.

This addendum to the RI/FS Community Relations Plan for the K-65 Silos presents an overview of the FMPC, the Remedial Investigation/Feasibility Study (RI/FS) and its relationship to the K-65 Silos Removal Action, a discussion of contamination associated with the K-65 Silos and highlights of the community relations activities to support the K-65 Silos Removal Action.

II. Background of K-65 Silos Removal Action

On July 18, 1986, a Federal Facility compliance Agreement (FFCA) was jointly signed by the DOE and the U.S. Environmental Protection Agency (U.S. EPA) pertaining to environmental impacts associated with the DOE Feed Materials Production Center (FMPC) in Fernald, Ohio. The FFCA is intended to ensure that environmental impacts associated with past and present

activities at the FMPC are thoroughly and adequately investigated so that appropriate response actions can be formulated, assessed, and implemented.

In response to the FFCA, and consistent with the new CERCLA Consent Agreement signed by DOE and U.S. EPA in April 1990, a Remedial Investigation and Feasibility Study (RI/FS) is in progress pursuant to CERCLA, as amended by SARA. The technical strategy adopted for the RI/FS is to issue distinct RI/FS reports for each of the five identified operable units at the FMPC. Operable Unit 4 is composed of Silos 1-4. Silos 1 and 2, known as the K-65 silos, contain the residue of pitchblende processing. Silo 3 contains metal oxides and Silo 4 is empty. This removal action deals specifically with Silos 1 and 2, the K-65 Silos.

The two K-65 Silos are located on the west side of the FMPC and were constructed in 1951 and 1952. The silos are used for storage of radium bearing wastes (K-65 residues), a by-product of uranium ore processing.

By 1963, indications of exterior surface deterioration to the silos was apparent, and a repair program was begun. In 1964, repairs were made to the shot-crete coat, and an earthen embankment (berm) was constructed around Silos 1 and 2 to counterbalance the load from the silo contents. The berm also protected the walls from further weathering and acted as a radiation shield. Vents in the silos were sealed in 1979, and the berms were enlarged in 1983 to reduce erosion.

The following projects have been completed prior to initiating activities to implement a removal action:

- Berms were constructed in 1963-1964 around each silo to provide lateral support to the silo walls. To correct erosion problems, the slope of the berms was changed from 1.5:1 to 3:1 (1983). The berms provide radiological shielding as a secondary benefit.
- A radon treatment system was added in 1987 to reduce the level of radon gas in the air space in the domes above the residues and thus lower the radiation levels on the dome. This system is operated only when access to the silo domes for sampling or maintenance is required.
- In response to a structural analysis (Camargo 1986), protective structures, including a protective dome coating, were added in 1987 to minimize further concrete deterioration and to reduce the radon emissions.

Removal actions, as described in the NCP of March 1990 40 Code of Federal Regulations (CFR) 300.415, are primarily intended to abate, minimize, stabilize, mitigate, or eliminate a release or a threat of release prior to a final action if there is a threat to public health or welfare or the environment. A second reason for implementing a removal action is to mitigate contaminant migration pending final action if site conditions permit a straight forward mitigative action and if significant migration could occur in the interim if no action is taken. Additionally, based on the NCP, the K-65 Removal Action will be consistent with the anticipated long-term remedial action, and will contribute to the efficient performance of the long-term remedy to the extent practicable.

The K-65 Silos Removal Action is a non-time critical removal action as defined in the NCP since more than six months time is available for planning. An Engineering Evaluation/Cost Analysis

(EE/CA) has been performed to analyze removal action alternatives and to support DOE selection of a preferred alternative. The K-65 Silos Removal Action EE/CA, published August 1, 1990, will be used as the basis for remedy selection and implementation.

III. Background Information on Contamination Related to This Removal Action

During the early 1950's, FMPC processed pitchblende (uranium-rich ore) ore from the Belgian Congo. No chemical separation or purification was performed on the radium-rich ore before it arrived at the FMPC. This ore was processed to remove uranium at Mallinckrodt Chemical Works at St. Louis and later at the FMPC. The residue of this processing contained significant amounts of radium, which at that time had significant economic value. This residue was considered valuable and, as a part of the purchase agreement, the residue was to be retained by the mining company, African Metals. Ownership was assumed by the DOE from African Metals in the early 1980's.

Silos 1 and 2 were constructed in 1951 and 1952 for the purpose of storing this residue, which was called K-65 material. These silos received residues during the years between 1952 and 1958. The silos contain approximately 9600 tons of residue. The radioactive constituents of concern are uranium, radium and thorium 230. The radium releases radon which subsequently becomes radon daughter products because the silos were not designed or constructed to be gas tight.

In late 1985, Camargo Associates Limited performed a structural analysis of the silos that showed evidence of structural instability and recommended that some protective action be taken (Camargo 1986). In January 1986, 20-ft diameter, protective plywood covers for the domes of the silos were constructed and installed on Silos 1 and 2. In late 1987, a foam coating was applied to the domes of the silos to further reduce weathering and to reduce radon gas emissions. A radon treatment system was also developed and installed to remove radon from the silos prior to installation of the plywood covers and foam coating.

In January 1990, Bechtel National, Inc. completed an additional structural analysis of Silos 1 and 2. Included in this analysis were predicted life expectancies of the silos and an evaluation of their structural integrity.

The findings showed that the silo concrete had lost at least 60 percent of its design strength, and confirmed the Camargo finding that the silo domes might fail under certain tornado loads. The result of silo dome failure would be an immediate release to the environment of radon gas from the head space of the silos (the area between the top of the residues and the silo dome). There would also be the potential for K-65 residues to become airborne under certain tornado loading conditions. Based on these impacts and the removal action criteria established in the NCP, a removal action for the K-65 Silos has been deemed appropriate.

IV. Timetable for K-65 Silos Removal Action Community Relations Activities

	<u>Date(s)</u>
1. Establish Administrative Record (AR) File at all AR file locations for the records of this removal action	5/9/90

2. File a Notice of Availability (NOA) of Administrative Record File in at least one major local newspaper 5/9/90
3. File a NOA of EE/CA in at least one major local newspaper 7/31/90
4. Place the K-65 Silos Removal Action EE/CA in all AR file locations 8/1/90
5. Provide description of removal action in RI/FS Cleanup Update 8/90
6. Prepare fact sheet for special mailing 8/31/90
7. Provide 30-day period for written public comment on the EE/CA 8/1/90-8/31/90
8. Conduct a K-65 Silos EE/CA workshop 8/16/90
9. Develop responses to significant community concerns 9/4/90-9/25/90
10. Add the Responsiveness Summary to all AR file locations 9/30/90