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*CATEGORICAL EXCLUSION DETERMINATION PLANT
2/3 URANYL NITRATE HEXAHYDRATE REMOVAL
ACTION NEPA DOC. NO. 358*

01/15/92

*DOE-HQ/DOE-FN
NEPA DOC. 358*

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CATEGORICAL EXCLUSION DETERMINATION**FOR PLANT 2/3 URANYL NITRATE HEXAHYDRATE REMOVAL ACTION
(FEMP No. 358)****Fernald Environmental Management Project, Fernald, OH****Proposed Action**

The U.S. Department of Energy (DOE) proposes to treat approximately 224,000 gallons of uranyl nitrate according to approved operating procedures for the Fernald Environmental Management Project process area. The uranyl nitrate hexahydrate (UNH) inventory will be converted to a solid form for drum storage at FEMP until final disposition can occur.

Location

The 20 uranyl nitrate storage tanks are currently located in the Plant 2/3 (Refinery) Area. Once the material has been processed to a solid form, it will be characterized for Resource Conservation and Recovery Act (RCRA) constituents and stored in drums either in a RCRA warehouse (if RCRA constituents are present) or on the West Pad of Plant 2/3 until the material is shipped off site (if the material is free of RCRA constituents). All possible storage areas (RCRA/low-level radioactive) for the processed UNH material are located within the 136-acre FEMP process area. FEMP is located 20 miles northwest of downtown Cincinnati, Ohio.

Background

In past operations at FEMP, recycled uranium material was digested in nitric acid at Plant 2/3. This process resulted in the formation of uranyl nitrate. Uranyl nitrate was processed in the Refinery to produce uranium trioxide (UO_3). Approximately 224,000 gallons of uranyl nitrate is currently stored in 20 tanks in the Plant 2/3 Area. This inventory represents various stages of refinery work in process when production activities ceased.

The uranyl nitrate in the Plant 2/3 Area has an average uranium concentration of 120 g/l and has an average isotopic value of 0.99% U^{235} . All steps being taken as part of the proposed action are covered by approved operating procedures. This action is being implemented as an Emergency Removal Action due to evidence of several small leaks in the ancillary piping which pose a threat to human health and the environment. In addition to the leaks, the age of the equipment, quantity, and nature of the material involved could cause an unplanned release of hazardous materials.

Description of the Proposed Action

The proposed action is to convert the uranyl nitrate solution into a stable filter cake that can be stored in drums. This will be accomplished by first blending the UNH solutions to a uniform mix, then precipitating the uranium from solution by magnesium hydroxide ($Mg(OH)_2$) addition, increasing the concentration of the slurry by settling (if that is useful) and, finally

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filtering the slurry and loading it into drums. The filtrate will be analyzed to verify full recovery of uranium from filtration. The drums of filter cake product will be sampled and analyzed for final inventory control and accountability. Each storage tank, as it emptied, will be rinsed and flushed to ensure removal of all uranium-containing solution and bottom sediment. The contents of the blend tanks will be thoroughly mixed for each blended batch and will be transferred to receiving tanks in the Refinery Sump.

The $Mg(OH)_2$ slurry will be periodically transferred to the make-up tank as needed, where it will be used in the precipitation operation. After precipitation, the slurry is pumped to a settling tank. The settled sludge underflow, concentrated to the most beneficial level for filtration, will be transferred to a refinery sump tank and then pumped to Plant 8. Decant liquor, if any, will be pumped through Enzinger (polishing) Filters and disposed of directly to the General Sump System per approved operating procedures.

At Plant 8, the slurry will be filtered on one (or both) of the existing Eimco Filters. The wet filter cake will be sampled and collected into drums and the drums transported for temporary storage on the Plant 1 Pad. The drums will remain on the Plant 1 Pad until laboratory analysis of the samples has been completed. The volume of wet filter cake is anticipated to fill approximately 2,500 drums.

If RCRA constituents are present in the drummed filter cake, the material will be stored on site in an approved RCRA storage facility as RCRA mixed waste until an approved disposal facility is found. If the drummed filter cake is determined to be free of RCRA constituents, the material will be dewatered (either by rotary kiln or other available technology) and stored on the West Pad of Plant 2/3. Upon approval, the waste will then be shipped off site and disposed of as low-level radioactive waste. The waste will most likely be sent to the Nevada Test Site waste disposal facility.

The only construction associated with this project is the installation of a new unloading line and the associated piping in the General Sump Area. All other equipment and facilities required for this project are existing at FEMP.

There is no activity involving environmentally sensitive areas such as floodplains, wetlands, or the sole source aquifer. This emergency removal action will be completed under the requirements of CERCLA and all applicable DOE Orders. The action will not threaten a violation of any applicable statutory, regulatory, or permit requirements. The proposed action will take approximately 2-3 months to complete and the cost is projected to be \$1M.

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Categorical Exclusion to be Applied

The Amendments to Section D of DOE's NEPA Guidelines, published in the Federal Register on September 7, 1990, add classes of actions generally applicable to all DOE that normally do not require Environmental Assessments or Environmental Impact Statements.

The Amendments specifically list the following as types of actions that are included:

Removal actions under CERCLA (including those taken as final response actions and those taken before remedial action), and actions similar in scope under RCRA (including those taken as partial closure actions and those taken before corrective action). These activities include the following: Removal of drums, barrels, tanks, or other bulk containers that contain or may contain substances identified within the definition of hazardous substances under section 101(14) of CERCLA or pollutants or contaminants as defined by section 101(33) of CERCLA, or hazardous wastes under 40 CFR 261, where such actions would reduce the likelihood of spillage, leakage, fire, explosion, or exposure to humans, animals, or the food chain.

The categorical exclusion (CX) is appropriate since the proposed action as described is to conduct a removal action under CERCLA, will not require siting and construction or major expansion of waste disposal, recovery or treatment facilities, and will not adversely affect environmentally sensitive areas.

Compliance Action

I have determined that the proposed action meets the requirements for the CX referenced above. Therefore, the proposed action is categorically excluded from further NEPA review and documentation.

Approval: _____

Leo P. Duffy
Leo P. Duffy,
Assistant Secretary for Environmental
Restoration and Waste Management, EM-1

FEMP

Date: _____

1/15/92

NEPA #6861

EH-25 has reviewed this determination and has no objection.

Signature: _____

Carol Borgstrom
~~Carol Borgstrom, Director~~
Office on NEPA Oversight, EH-25

Date: _____

1/22/92

United States Government

Department of Energy

memorandum

DATE: JAN 16 1992

REPLY TO
ATTN OF: EM-424 (D. Freeman, 3-7633)

SUBJECT: Categorical Exclusion Determination - Plant 2/3 Uranyl Nitrate Hexahydrate
Removal Action, Fernald Environmental Management Project, Fernald, Ohio

TO: Carol Borgstrom, EH-25

I have approved the subject categorical exclusion under Section D of the Department of Energy's National Environmental Policy Act Guidelines and am forwarding it to you for review.

This is an Emergency Removal Action; therefore, I request that you notify me within 2 weeks, in accordance with the Interim Procedural Guidelines for implementation of SEN-15-90, whether you have any objection to this determination.



Leo P. Duffy
Assistant Secretary for Environmental
Restoration and Waste Management

Attachment

cc:
L. Lawson, EM-431
M. Kleinrock, EM-20

EH-25, received on

1/21/92

NEPA 6861

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