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**REMOVAL SITE EVALUATION PLANT 1 PAD
EXPEDITED MAINTENANCE WORK
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REPORT**

REMOVAL SITE EVALUATION

PLANT 1 PAD EXPEDITED MAINTENANCE WORK

Feed Materials Production Center

U. S. Department of Energy

November 1990

REMOVAL SITE EVALUATION**PLANT 1 PAD EXPEDITED MAINTENANCE WORK****Introduction**

Plant 1 is the "Sampling Plant" for the FMPC and is therefore involved in the sampling of large amounts of uranium metal process residues and waste materials. The Plant 1 concrete storage pad, which covers approximately 8 acres near the plant, has been used as a drum storage location for low level wastes and recoverable uranium residues to support Plant 1 operations since 1952. The current inventory of the Plant 1 Pad is approximately 45,000 total drums. The inventoried waste materials and process materials contain varying quantities of radionuclides including uranium and thorium. In addition, the drums are undergoing characterization consistent with the requirements of Subtitle C of the Resource Conservation and Recovery Act (RCRA). RCRA hazardous constituents or characteristics have been identified in a small portion of the wastes stored on the Plant 1 Pad which subsequently were removed and placed in RCRA storage. The balance of the drums are being evaluated for appropriate disposition.

Some of the carbon steel drums used to store wastes on the pad have deteriorated as a result of extended exposure to the elements, thereby increasing the risk of release of hazardous material to the environment. Additionally, the pad has a number of cracks and control joints which may serve as a route of contamination release to the underlying soils. On July 17, 1990 a minor event occurred on Plant 1 Pad related to drum movements. A fork truck, which was routinely moving drums, drove over a deteriorated section of the pad which jolted the drum causing a spill. The material was cleaned up and operations were suspended until the conditions of the pad were rectified. The rough surface of the pad has also been the subject of numerous complaints from Waste Operations personnel related to potential back injuries.

This Removal Site Evaluation is being initiated by the Department of Energy under authorities delegated by Executive Order 12580 under Section 104 of CERCLA and is consistent with Section 300.410 of the National Contingency Plan (NCP). The removal site evaluation is being conducted to determine whether conditions are present to warrant the implementation of a removal action. This removal site evaluation consists of an evaluation of the factors defined in Section 300.415 of the NCP which are to be considered in determining the appropriateness of a removal action.

Source and Nature of the Threat of a Release

Materials containing varying amounts of uranium (U metal, UO_3 , UF_2 , and UO_2), thorium, and other hazardous substances are stored on the Plant 1 Pad. The proposed Amended Consent Decree, recently negotiated with the State of Ohio, requires that all of the drums on the Plant 1 Pad be arranged to provide adequate aisle space for inspection by September 30, 1990. This commitment requires extensive fork truck movement on all areas of the Plant 1 Pad including the

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transport of drums off the pad to indoor storage. Extensive overpacking of the drums is also required, increasing fork truck traffic on the pad. Due to the fact that the Plant 1 Pad surface is significantly deteriorated, the required fork truck traffic presents a safety hazard. Therefore, an expedited maintenance action to repair the deteriorated concrete areas of Plant 1 Pad was initiated to mitigate potential injury to fork truck drivers caused by jarring or exposure to spilled uranium residues.

The work was broken down into the following four areas:

Area 1	North of Building 66
Area 2	West Access Road to Plant 1 Pad
Area 3	East Access Road to Plant 1 Pad
Area 4	East Main Aisle on Plant 1 Pad

The work in these areas consisted of removing approximately 4 inches of concrete down to the reinforcing bars, placing the removed concrete/rubble in drums for sampling, and replacing with new concrete.

Evaluation of the Magnitude of the Potential Threat

Incidental to doing the work, there are several release pathways to the environment such as:

- 1) Air - Fugitive dust emissions
- 2) Surface water - Particles of contamination being carried to the storm sewer
- 3) Groundwater - Particles of contamination being driven into the soils beneath the pad

Fugitive dust from the maintenance activities were controlled by tent-like containments for "jack-hammering", periodic sprinkling, and water resulting from the controls will be collected in drums for sampling. The potential for material to be carried from the pad with runoff to the surrounding soil and/or the storm sewer system was mitigated by collecting the loose materials and saw cutting water in drums. The potential for groundwater contamination was minimal since only the upper portion of the pad was addressed and the surface water control methods are in place.

During the repairs of the deteriorated pad areas, access to the deteriorated areas was restricted and balloon tire fork trucks only were utilized on the pad to mitigate safety concerns until the repairs are complete. Sampling will be performed on the drummed materials from the pad repairs. All materials removed

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during the repair were containerized and stored on Plant 1 Pad pending their evaluation.

The potential threat associated with the existing configuration and waste inventory on the Plant 1 Pad arises from the potential spillage of material during transport or fugitive emissions from the Plant 1 Pad activities. These threats are appropriately minimized through the use of administrative controls for storage and handling of waste material and the implementation of focused maintenance actions to ensure safety in the operation of the pad.

Extensive sampling has been completed in the Plant 1 Pad area in support of the proposed continuing release removal action, the FMPC Environmental Monitoring program, and the ongoing Remedial Investigation/Feasibility Study. These samples were collected to characterize the existing environmental conditions and to assess the nature and extent of any chemical or radiological contaminants present at that location. This sampling focused on the surface and subsurface soils adjacent to and under the Plant 1 concrete pad and the groundwater present in the glacial till and the regional aquifer in the vicinity of the pad.

Surface soil samples were analyzed for a range of radiological and chemical parameters. EP Toxicity analysis for the eight primary metals was also completed on the noted samples. The results of this analysis indicated no individual samples exceeding the regulatory threshold in 40 CFR 261. More significantly, the results of the EP Toxicity analysis provides an indication of the relative immobility of the metals within the clay rich till matrix underlying the Plant 1 Pad area. Concentrations from surface soil samples beneath the pad typically exhibited concentrations less than 30 ppm of total uranium, with an arithmetic mean of 25 ppm of total uranium. These existing environmental conditions are the subject of a separate RSE, "Plant 1 Pad Continuing Release".

Assessment of the Need for a Removal Action

Consistent with Section 40 CFR 300.410 of the National Contingency Plan, the Department of Energy shall determine the appropriateness of a removal action. Section 40 CFR 300.415 (b)(2) of the National Contingency Plan defines eight factors which should be considered in determining the appropriateness of a removal action. Three of these factors, listed below, are specifically applicable to this assessment.

40 CFR 300.415 (b)(2)(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

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40 CFR 300.415 (b)(2)(iii) Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.

40 CFR 300.415 (b)(2)(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

These factors are considered appropriate as a result of the potential exposure to, or potential release of, hazardous substances or pollutants or contaminants from the Plant 1 Pad.

Appropriateness of a Response

If a planning period of less than six months exists prior to initiation of a response, DOE will prepare an Action Memorandum. The Action Memorandum will describe the selected response and supporting documentation for the decision.

If it is determined that there is a planning period greater than six months before a response is initiated, DOE will prepare an Engineering Evaluation/Cost Analysis (EE/CA) Approval Memorandum. This memorandum is to be used to document the threat to public health and the environment. It will also serve as a decision document to be included in the Administrative Record.

If it is determined that a response is appropriate due to the potential for elevated levels of radionuclides to be found both in the runoff from the Plant 1 Pad or in the fugitive emissions to the area surrounding the pad, a removal action may be required to address the existing situation.

Based on the evaluation of all of the above factors, it has been determined that existing controls for the planned action are adequate and a removal action is not required.