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**REMOVAL SITE EVALUATION - SERVICE
BUILDING ROOF REPLACEMENT MARCH 1993**

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REMOVAL SITE EVALUATION

SERVICE BUILDING ROOF REPLACEMENT

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

U. S. DEPARTMENT OF ENERGY

MARCH 1993

REMOVAL SITE EVALUATION SERVICE BUILDING ROOF REPLACEMENT

INTRODUCTION

The Service Building is used to house the cafeteria, men's and women's locker room, shower, exercise room, dry cleaner, and the laundry. The Service Building was built in the 1950's at the Fernald Environmental Management Project (FEMP) site. The Service Building is located North of the Administration Building and is attached on the East side to the IRS&T Building outside the process area.

The Service Building roof has been in use for 30 years and in 1986 the roof was coated in an attempt to stop leaks. The existing roof is now showing signs of unrepairable failure. The Service Building Roof Replacement will consist of removing approximately 60,000 sq. ft. of the existing roof to accommodate the new construction, including urethane spray insulation and covering, roof drain assemblies, wood nailers, sheet metal work and related items at roof penetrations and expansion joints. Also included is the installation of a single ply roofing, additional drains, flashing, sheet metal and wood nailers.

This Removal Site Evaluation (RSE) has been completed 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 Oil and Hazardous Substance Pollution Contingency Plan (NCP). This RSE addresses the construction project involving removal and replacement of the Service Building roof and has been completed to support the decision as to whether the project conditions warrant a removal action.

SOURCE TERM

Field investigations, including surface samples, confirmed that the current roof of the Service Building is contaminated from the deposition of uranium. Figures 1 (Attachment I) included within the next section identifies the location at which the samples were taken. Table 1 (below) shows concentrations of total uranium in discrete samples collected from the roof ranged from <1 to 425 ppm (activity concentration range of <1 to 280 pCi/g). The Service Building is not located in the process area and uranium or thorium production was never undertaken in the building. The source of contamination is due to the release of air borne particulates from production operations during uranium processing.

The roofing material is classified as non-RCRA except for the lead flashing. As indicated in Attachment II, all TCLP analyses of the roofing material were below the instrument detection level with the exception of barium, chromium, lead, and m,p-cresol. These constituents were detected, but not in quantities exceeding the RCRA regulatory limits which were established based on the toxicity of the regulated material to protect human health and the environment. Since the concentrations of these regulated constituents do not exceed these protective limits, the threat created by a release from this

material is very small. The threat is even further reduced when the site control procedures discussed below are implemented. At this point, the threat of a toxic materials release from this project becomes negligible.

EVALUATION OF THE MAGNITUDE OF THE POTENTIAL THREAT

The only potentially significant threat posed by the uranium contamination found on the Service Building roof results from the exposure resuspended particles in the atmosphere and the potential migration of the contaminants through wind and water run off during demolition of the existing roof.

All demolition activity will be controlled by FEMP Site Standard Operating Procedure SSOP-0044, "Management of Soil, Debris, and Waste From a Project" and consistent with the protocols for Phase I of RA 17 "Improved storage of Soil and Debris." In order to minimize the threat of worker exposure and the threat of airborne particulate release to the atmosphere, the following measures will be used:

1. Physical barriers around the work area. The subcontractor will submit for approval a plan to control all fugitive emissions.
2. Protective clothing/filtered face mask for workers, as required by IRS&T.
3. Radiation monitoring during demolition process and placing rubble in waste containers and depending on the contamination level determine the disposal location. Waste containers will be on plastic/herculite.
4. Portable vacuum equipped with HEPA filter at the work point during demolition process.
5. No water will be used.

The uranium concentrations from the samples taken from the roof shows that the only a small portion of the roof is contaminated. To minimize waste the roof will be monitored and the construction rubble segregated as to clean and contaminated waste. The waste will then be removed from the site and disposed of to the proper locations in compliance with WEMCO Site Operating Procedure SSOP-0044, "Management of Soil, Debris and Waste From a Project," issued June 19, 1992 and Removal Action 17 "Improved storage of Soil and Debris".

The lead flashing used in the roof construction is regulated by RCRA. A material evaluation form (MEF) will be written for the lead. It will be containerized after removal and stored in the RCRA warehouse. If the lead is not radiologically contaminated or can be successfully decontaminated attempts will be made to recycle the material. Given these control measures the lead flashing will not present a risk to human health or the environment.

The following table presents the data for radiological analytical results of samples collected from the roof. Attachment I further identifies sample locations.

TABLE 1

Sample No.	Uranium Concentration (ppm)
91-060-2882	425
91-060-2883	9
91-060-2884	22
91-060-2886	<1
91-060-2887	<1

The demolition of the roof in the controlled area of the facility has a potential environmental insult. Utilizing sampling data and introducing control measures to be used during demolition will minimize the potential threat to the environment and the public.

ASSESSMENT OF THE NEED FOR REMOVAL ACTION

Consistent with Section 40 CFR 300.410 of the NCP, the Department of Energy shall determine the appropriateness of a removal action. Eight factors to be considered in this determination are listed in 40 CFR 300.415 (b)(2). The following apply specifically to the concentrations of total uranium occurring on the Service Building roof:

40 CFR 300.415 (b)(2)(i)

Actual or potential exposure to hazardous substances or pollutants or contaminants to nearby populations, animals, or food chain.

40 CFR 300.415 (b)(2)(v)

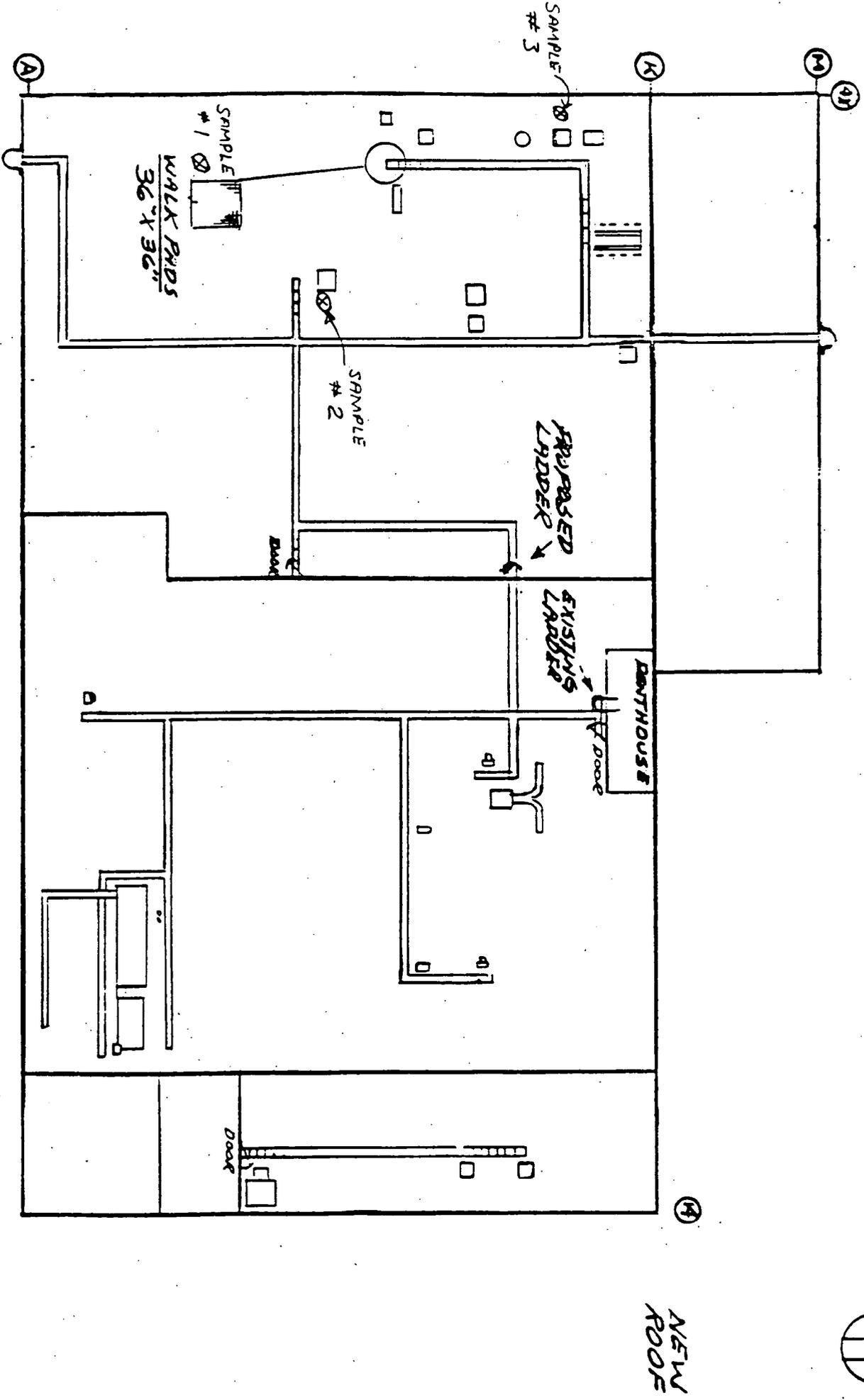
Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

Based on the controls discussed previously, the potential of a release or migration of contaminants from the project site is negligible. Therefore, while the above criteria can be applied to this project, it does not constitute the need for a removal action.

APPROPRIATENESS OF A RESPONSE

Based on the evaluation of all the above factors, it has been determined that a removal action will not be necessary and this project should be continued as a maintenance activity in support of the CERCLA remediation process and waste management. Furthermore, the controls planned in conjunction with this construction activity are adequate to mitigate any hazards created by contamination at the site and to prevent deterioration of existing site conditions.

FIGURE I



PLAN OF WALK PADS
SCALE 1" = 40'

WEMCO PO: 413910
 Release No.: 723
 Date: September 5, 1991

TABLE 1

ANALYTICAL RESULTS FOR SAMPLES

	SAMPLE #1	SAMPLE #2	SAMPLE #3	FIELD BLANK	TRIP BLANK
WEMCO ID:	910801-047	910801-048	910801-049	910801-050	910801-051
CNLSI No.:	911773	911774	911775	911776	911777
Original Matrix:	Solid	Solid	Solid	Liquid	Liquid
Units:	ppm	ppm	ppm	ppm	ppm
<u>Toxicity Characteristics Leaching Procedure</u>					
Arsenic	<0.03	<0.03	<0.03	<0.03	<0.03
Barium	0.12	0.16	0.08	<0.01	<0.01
Cadmium	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.03	<0.03	<0.03	<0.03	<0.03
Lead	0.42	<0.07	<0.07	<0.07	<0.07
Mercury	<0.003	<0.003	<0.003	<0.003	<0.003
Selenium	<0.02	<0.02	<0.02	<0.02	<0.02
Silver	<0.01	<0.01	<0.01	<0.01	<0.01

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TABLE 2

ANALYTICAL RESULTS FOR SAMPLES

	SAMPLE #1	SAMPLE #2	SAMPLE #3	TRIP BLANK	FIELD BLANK
WEMCO ID:	910801-047	910801-048	910801-049	910801-050	910801-051
CNLSI NO.:	911773	911774	911775	911776	911777
Original Matrix:	Solid	Solid	Solid	Liquid	Liquid
Units:	ppm	ppm	ppm	ppm	ppm

TCLP/ZHE Volatile Organics:

Vinyl Chloride	<0.15	<0.15	<0.15	<0.15	<0.15
1,1-Dichloroethylene	<0.12	<0.12	<0.12	<0.12	<0.12
2-Butanone (MEK)	<0.25	<0.25	<0.25	<0.25	<0.25
Chloroform	<0.12	<0.12	<0.12	<0.12	<0.12
Carbon Tetrachloride	<0.15	<0.15	<0.15	<0.15	<0.15
Benzene	<0.09	<0.09	<0.09	<0.09	<0.09
1,2-Dichloroethane	<0.10	<0.10	<0.10	<0.10	<0.10
Trichloroethylene	<0.22	<0.22	<0.22	<0.22	<0.22
Chlorobenzene	<0.19	<0.19	<0.19	<0.19	<0.19
Tetrachloroethylene	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	<0.35	<0.35	<0.35	<0.35	<0.35