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**REMOVAL SITE EVALUATION WASTE WATER  
TREATMENT REPAIR PROJECT JULY 1993**

**09/07/93**

**DOE-FN/FERMCO**

**14**

**RSE**

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REMOVAL SITE EVALUATION  
WASTE WATER TREATMENT REPAIR PROJECT

Fernald Site Office  
U. S. Department of Energy

JULY 1993

## 1.0 INTRODUCTION

The Waste Water Treatment Plant also known as the STP is located on the eastern edge of the FEMP property in an uncontrolled area. The Waste Water Treatment Plant (see Attachment I) became operational in 1952 for the treatment of FEMP sanitary waste waters. The system was later converted, to receive both sanitary and process related waste waters. The practice of employing the Waste Water Treatment Plant to treat process related waste water flows was discontinued recently with the start up of the biodenitrification effluent treatment system.

The Waste Water Treatment Plant Repair Project involves the repair of the top 12 inches of concrete for the North Trickling Filter that is badly deteriorated and the replacement of four I-beams at the Primary Sludge Collector/Skimmer.

The waste estimated to be generated for the total project includes: 135 cu. ft. of concrete and 120 linear feet of 8 inch steel I-beams.

This Removal Site Evaluation (RSE) has been completed by the Department of Energy (DOE) 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 Substances Pollution Contingency Plan (NCP). This RSE addresses the existing conditions at the Waste Water Treatment Plant. This RSE has been completed to support the decision as to whether the project conditions warrant a removal action. Controls implemented to support this construction activity are also presented in the RSE to demonstrate that the proposed construction will not cause deterioration of the existing site conditions.

## 2.0 SOURCE TERM

Consistent with 40 CFR 300.410(a), the RSE includes a removal preliminary assessment which is based upon readily available information as described in 40 CFR 300.410(c). A RCRA Determination/Radiological Characterization was issued on July 7, 1993 (see Reference 1 below) to characterize the waste to be generated from this construction activity. This information formed the basis of this RSE.

### Reference:

- 1) M:ESH:EP:93-532, Dave Back to Edward Wiese, "RCRA Determination and Radiological Characterization for Removal Action #14 CRU-3 Contaminated Soils Adjacent to the FEMP Sewage Treatment Plant Incinerator Project (Phase I)," dated July 7, 1993.

Process knowledge along with sampling and analysis were used to complete the referenced characterization. The project was divided into 10 areas, A through J and a total of 178 boxes of soil was generated. Areas G and H are the only sample areas that deal with the Waste Water Treatment Project (See Attachment I for locations). In these areas samples 930504-020 through 930504-024 were taken. As shown in the TCLP results (Attachment II) the material is not RCRA hazardous material. As stated in the above referenced letter, the concentrations of uranium-238 ranged from 1.8 to 25,670 pCi/g, in surface soil sampling. The waste generated from this project is to be considered Category 2 low level waste.

3.0 EVALUATION OF THE MAGNITUDE OF THE POTENTIAL THREAT

The fixed radiological contamination detected on the concrete and I-beams will be controlled. All material to be removed will be surveyed for radiological contamination. The threat of a release from radiological contamination is negligible through use of site procedures as guidelines.

Additional protective measures to be taken in support of this project include placing physical barriers around the work areas to prevent unauthorized access and migration of materials.

All activities performed in support of this project will follow applicable site policies and procedures written to control such activities. These procedures include, but are not limited to, the following:

- SSOP-0044, "Management of Soil, Debris, and Waste from a Project".
- SP-P35-010 "Unrestricted Release of Materials from FMPC"
- Removal Action No. 17, "Improved Storage of Soil and Debris"

4.0 ASSESSMENT OF THE NEED FOR REMOVAL ACTION

Consistent with 40 CFR 300.410 of the NCP, the DOE 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). Based on the data presented above, the following one, of the eight criteria listed in the NCP applies to this project.

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.

As discussed previously, the potential of a release of a release or migration of uranium from this project site is negligible. The low levels of contamination at the work site also supports the conclusion that any threat resulting from uranium contamination is negligible. Thus, while the above criteria can be applied to the Waste Water Treatment Plant Repair Project, it does not constitute the need for a removal action.

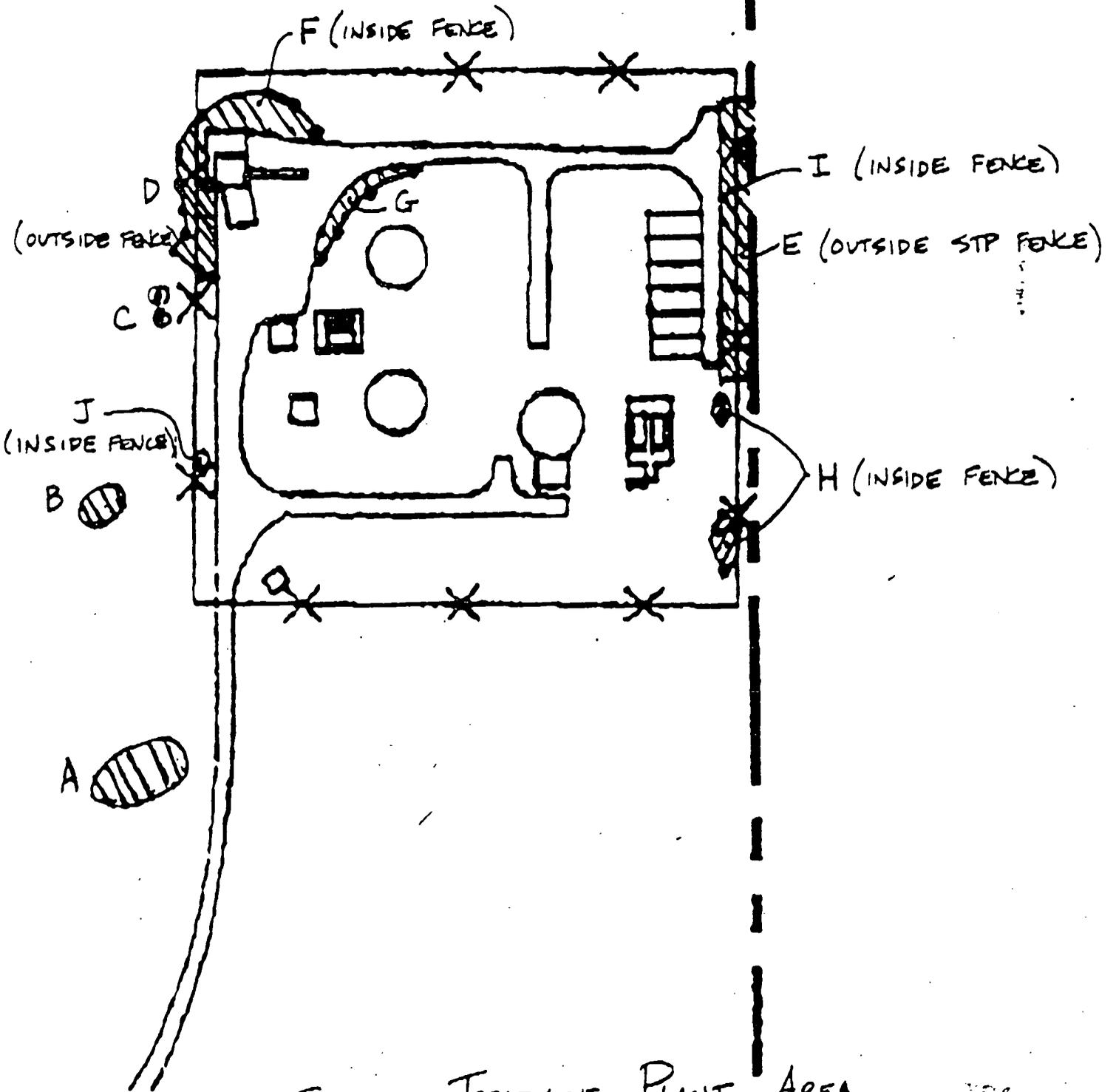
5.0 APPROPRIATENESS OF A RESPONSE

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 planned maintenance activity in support of the CERCLA remediation process. Furthermore, the controls planned in conjunction with this construction activity are adequate to mitigate any hazards to human health, safety and the environment and prevent deterioration of existing site conditions.

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ATTACHMENT 1

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SEWAGE TREATMENT PLANT AREA  
AREAS TO BE EXCAVATED - RA # 14

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ATTACHMENT 2

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FERMCO PO: 413910  
 Release No.: 3543  
 Date: June 2, 1993

## ANALYTICAL RESULTS FOR SAMPLES

FERMCO ID:	930504-018	930504-019	Maximum
RRS-CTC No.:	200005814	200005815	Concentration Of
Original Matrix:	Solid	Solid	Contaminants
Units:	ppm	ppm	ppm
TOXICITY CHARACTERISTICS LEACHING PROCEDURE:			
Arsenic	<0.02	<0.02	5.0
Barium	0.36	0.61	100.0
Cadmium	<0.02	<0.02	1.0
Chromium	<0.09	<0.09	5.0
Lead	<0.14	<0.14	5.0
Mercury	<0.001	<0.001	0.2
Selenium	<0.01	<0.01	1.0
Silver	<0.05	<0.05	5.0

FERMCO ID:	930504-020	930504-021	Maximum
RRS-CTC No.:	200005816	200005817	Concentration Of
Original Matrix:	Solid	Solid	Contaminants
Units:	ppm	ppm	ppm
TOXICITY CHARACTERISTICS LEACHING PROCEDURE:			
Arsenic	<0.02	<0.02	5.0
Barium	0.55	0.53	100.0
Cadmium	<0.02	<0.02	1.0
Chromium	<0.09	<0.09	5.0
Lead	<0.14	<0.14	5.0
Mercury	<0.001	<0.001	0.2
Selenium	<0.01	<0.01	1.0
Silver	<0.05	<0.05	5.0

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ANALYTICAL RESULTS FOR SAMPLES

FERMCO ID:	930504-022	930504-023	Maximum
RRS-CTC No.:	200005818	200005819	Concentration Of
Original Matrix:	Solid	Solid	Contaminants
Units:	ppm	ppm	ppm
TOXICITY CHARACTERISTICS LEACHING PROCEDURE:			
Arsenic	<0.02	<0.02	5.0
Barium	0.77	0.54	100.0
Cadmium	<0.02	<0.02	1.0
Chromium	<0.09	<0.09	5.0
Lead	0.17	<0.14	5.0
Mercury	<0.001	<0.001	0.2
Selenium	<0.01	<0.01	1.0
Silver	<0.05	<0.05	5.0

FERMCO ID:	930504-024	930504-025	Maximum
RRS-CTC No.:	200005820	200005821	Concentration Of
Original Matrix:	Solid	Solid	Contaminants
Units:	ppm	ppm	ppm
TOXICITY CHARACTERISTICS LEACHING PROCEDURE:			
Arsenic	<0.02	<0.02	5.0
Barium	0.49	0.59	100.0
Cadmium	<0.02	<0.02	1.0
Chromium	<0.09	<0.09	5.0
Lead	<0.14	<0.14	5.0
Mercury	<0.001	<0.001	0.2
Selenium	<0.01	<0.01	1.0
Silver	<0.05	<0.05	5.0

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ANALYTICAL RESULTS FOR SAMPLES

FERMCO ID:	930504-020	930504-021	Maximum
RRS-CTC No.:	200005816	200005817	Concentration Of
Original Matrix:	Solid	Solid	Contaminants
Units:	ppm	ppm	ppm
TCLP/ZHE VOLATILE ORGANICS:			
Vinyl Chloride	<0.17	<0.17	0.2
1,1-Dichloroethylene	<0.08	<0.08	0.7
2-Butanone	<0.33	<0.33	200.0
Chloroform	<0.08	<0.08	6.0
Carbon Tetrachloride	<0.08	<0.08	0.5
Benzene	<0.08	<0.08	0.5
1,2-Dichloroethane	<0.08	<0.08	0.5
Trichloroethylene	<0.08	<0.08	0.5
Chlorobenzene	<0.17	<0.17	100.0
Tetrachloroethylene	<0.08	<0.08	0.7
1,4-Dichlorobenzene	<0.17	<0.17	7.5

SURROGATES: (% RECOVERY)			
1,2-Dichloroethane-d4	100	98	NA
Toluene-d8	96	97	NA
Bromofluorobenzene	98	97	NA

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ANALYTICAL RESULTS FOR SAMPLES

FERMCO ID:	930504-022	930504-023	Maximum
RRS-CTC No.:	200005818	200005819	Concentration Of
Original Matrix:	Solid	Solid	Contaminants
Units:	ppm	ppm	ppm
TCLP/ZHE VOLATILE ORGANICS:			
Vinyl Chloride	<0.17	<0.17	0.2
1,1-Dichloroethylene	<0.08	<0.08	0.7
2-Butanone	<0.33	<0.33	200.0
Chloroform	<0.08	<0.08	6.0
Carbon Tetrachloride	<0.08	<0.08	0.5
Benzene	<0.08	<0.08	0.5
1,2-Dichloroethane	<0.08	<0.08	0.5
Trichloroethylene	<0.08	<0.08	0.5
Chlorobenzene	<0.17	<0.17	100.0
Tetrachloroethylene	<0.08	<0.08	0.7
1,4-Dichlorobenzene	<0.17	<0.17	7.5

SURROGATES: (% RECOVERY)			
1,2-Dichloroethane-d4	100	97	NA
Toluene-d8	95	96	NA
Bromofluorobenzene	99	99	NA

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## ANALYTICAL RESULTS FOR SAMPLES

FERMCO ID:	930504-024	930504-025	Maximum
RRS-CTC No.:	200005820	200005821	Concentration Of
Original Matrix:	Solid	Solid	Contaminants
Units:	ppm	ppm	ppm
TCLP/ZHE VOLATILE ORGANICS:			
Vinyl Chloride	<0.17	<0.17	0.2
1,1-Dichloroethylene	<0.08	<0.08	0.7
2-Butanone	<0.33	<0.33	200.0
Chloroform	<0.08	<0.08	6.0
Carbon Tetrachloride	<0.08	<0.08	0.5
Benzene	<0.08	<0.08	0.5
1,2-Dichloroethane	<0.08	<0.08	0.5
Trichloroethylene	<0.08	<0.08	0.5
Chlorobenzene	<0.17	<0.17	100.0
Tetrachloroethylene	<0.08	<0.08	0.7
1,4-Dichlorobenzene	<0.17	<0.17	7.5

SURROGATES: (% RECOVERY)			
1,2-Dichloroethane-d4	97	96	NA
Toluene-d8	95	97	NA
Bromofluorobenzene	99	98	NA

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ANALYTICAL RESULTS FOR SAMPLES

FERMCO ID:	930504-020	930504-021	Maximum
RRS-CTC No.:	200005816	200005817	Concentration Of
Original Matrix:	Solid	Solid	Contaminants
Units:	ppm	ppm	ppm
TCLP SEMI-VOLATILE ORGANICS:			
Pyridine	<0.04	<0.04	5.0
Hexachloroethane	<0.04	<0.04	3.0
Nitrobenzene	<0.04	<0.04	2.0
o-Cresol	<0.04	<0.04	200.0
m,p-Cresol	<0.04	<0.04	200.0
Hexachlorobutadiene	<0.04	<0.04	0.5
2,4,6-Trichlorophenol	<0.04	<0.04	2.0
2,4,5-Trichlorophenol	<0.04	<0.04	400.0
2,4-Dinitrotoluene	<0.04	<0.04	0.13
Hexachlorobenzene	<0.04	<0.04	0.13
Pentachlorophenol	<0.04	<0.04	100.0

SURROGATES: (% RECOVERY)			
2-Fluorophenol	68	73	NA
Phenol-d6	66	70	NA
Nitrobenzene-d5	84	84	NA
2-Fluorobiphenyl	67	65	NA
2,4,6-Tribromophenol	83	88	NA
Terphenyl-d14	83	105	NA

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ANALYTICAL RESULTS FOR SAMPLES

FERMCO ID:	930504-022	930504-023	Maximum
RRS-CTC No.:	200005818	200005819	Concentration Of
Original Matrix:	Solid	Solid	Contaminants
Units:	ppm	ppm	ppm
<b>TCLP SEMI-VOLATILE ORGANICS:</b>			
Pyridine	<0.04	<0.04	5.0
Hexachloroethane	<0.04	<0.04	3.0
Nitrobenzene	<0.04	<0.04	2.0
o-Cresol	<0.04	<0.04	200.0
m,p-Cresol	<0.04	<0.04	200.0
Hexachlorobutadiene	<0.04	<0.04	0.5
2,4,6-Trichlorophenol	<0.04	<0.04	2.0
2,4,5-Trichlorophenol	<0.04	<0.04	400.0
2,4-Dinitrotoluene	<0.04	<0.04	0.13
Hexachlorobenzene	<0.04	<0.04	0.13
Pentachlorophenol	<0.04	<0.04	100.0

<b>SURROGATES: (% RECOVERY)</b>			
2-Fluorophenol	79	75	NA
Phenol-d6	71	74	NA
Nitrobenzene-d5	87	87	NA
2-Fluorobiphenyl	71	82	NA
2,4,6-Tribromophenol	81	85	NA
Terphenyl-d14	68	88	NA

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ANALYTICAL RESULTS FOR SAMPLES

FERMCO ID:	930504-024	930504-025	Maximum
RRS-CTC No.:	200005820	200005821	Concentration Of
Original Matrix:	Solid	Solid	Contaminants
Units:	ppm	ppm	ppm
<b>TCLP SEMI-VOLATILE ORGANICS:</b>			
Pyridine	<0.04	<0.04	5.0
Hexachloroethane	<0.04	<0.04	3.0
Nitrobenzene	<0.04	<0.04	2.0
o-Cresol	<0.04	<0.04	200.0
m,p-Cresol	<0.04	<0.04	200.0
Hexachlorobutadiene	<0.04	<0.04	0.5
2,4,6-Trichlorophenol	<0.04	<0.04	2.0
2,4,5-Trichlorophenol	<0.04	<0.04	400.0
2,4-Dinitrotoluene	<0.04	<0.04	0.13
Hexachlorobenzene	<0.04	<0.04	0.13
Pentachlorophenol	<0.04	<0.04	100.0

<b>SURROGATES: (% RECOVERY)</b>			
2-Fluorophenol	78	78	NA
Phenol-d6	70	72	NA
Nitrobenzene-d5	109	114	NA
2-Fluorobiphenyl	84	81	NA
2,4,6-Tribromophenol	103	105	NA
Terphenyl-d14	87	88	NA

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