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REMOVAL SITE EVALUATION DISPOSAL OF METAL TANKS (NOS. 1, 2, 3, 4, 5 ,6 ,7 AND 21) AUGUST 1991

08-01-1991

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(NOS. 1, 2, 3, 4, 5, 6, 7, AND 21)

Fernald Site Office

U. S. Department of Energy

AUGUST 1991

REMOVAL SITE EVALUATION
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INTRODUCTION

This project consists of eight decommissioned storage tanks (Nos. 1, 2, 3, 4, 5, 6, 7, and 21) to be removed from the Main Tank Farm so that they can be disposed of as excess or scrap metal. Tanks 1, 2, 3, 4, 5, 6, and 7 are located on their foundations in the Tank Farm. Tank No. 21 was removed from the Tank Farm and is located at the north end of "B" St. (See Attachment No. 1, Location of the Main Tank Farm and Tanks). These tanks were used to store the following: Anhydrous Hydrogen Fluoride (AHF), Anhydrous Ammonia (ANH_3), Potassium Hydroxide (KOH) used for production processes, and Dilute Hydrofluoric Acid (DHF) which was a product of air emission controls on the reaction of uranium compounds and AHF and contained uranium compounds. The chemicals stored were not RCRA constituents or hazardous waste. The tank capacities vary from 19,400 gallons to 31,500 gallons. They are made of carbon-steel coated with lead-based paint. In addition, Tank Number 21 was lined with a chlorobutyl rubber liner which has since been removed. (See Table IV, Tank Farm - Tank Data.)

Tanks 3, 4, 5, 6, 7, and 21 were decommissioned during the late 1980's by emptying and draining to the fullest extent possible. Tanks 1 and 2 were previously emptied in the early 1980's. All but Tank 1 had holes cut in the ends to facilitate removing any residues generated in the bottom of the tank. Tanks 3, 4, 5, 6, 7 and 21 were rinsed with water to dilute any remaining contents minimizing any effects of exposure to these chemicals. All tank transfer lines, instrumentation and catwalks have been removed. The chlorobutyl rubber liner was removed from Tank No. 21 and is to be disposed of separately.

Based on recent radiological data, the tanks must be decontaminated to meet free-release limits (per FMPC Site Procedure, FMPC-720, "Control of Construction Waste"). Since the Main Tank Farm has a controlled sump, effort will be made to clean the tanks in-place rather than relocating to the Building 69 Decontamination Pad. The tanks are approximately 35 feet long and 11 feet in diameter and require large equipment to handle. Any tanks not capable of being cleaned in-place will be moved to Building 69 for further decontamination. It may be necessary to cut the tanks into sections to facilitate handling or to meet road carrier permitting requirements for size limits, or if required by terms of sale to eliminate risk for third party re-use. The tanks may also be cut, if required, to remove any radioactive contaminants not removed by decontamination. Any metal cut out of the tank will be properly dispositioned based on its radiological level. The tanks will be excessed in accordance with site excess procedures and FMPC Site Procedure, FMPC-720, "Control of Construction Waste".

REMOVAL SITE EVALUATION
DISPOSAL OF METAL TANKS (Nos. 1, 2, 3, 4, 5, 6, 7 AND 21)

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 Substance Pollution Contingency Plan (NCP). This RSE addresses the construction and demolition activities related to removing the tanks from the site as excess scrap metal and has been completed to support the decision as to whether the present conditions warrant a removal action.

SOURCE TERM

The results of EP toxicity testing, on samples of the lead-based paint, suggested that Toxicity Characteristic Leaching Procedure (TCLP) testing for lead only is required for RCRA determination. The analytical results for seven samples collected from each tank are shown in Table I. The TCLP analytical results for Tank 21 were 0.669 and 0.650 mg/L. below the regulatory level of 5.0 mg/L.

The rinseate from Tanks 3 through 7 were analyzed for pH, fluorine (F), hydrogen fluoride (HF) presence, and total uranium. These results are shown in Table II.

Radiological Survey Reports of the tank metal (Tanks Nos. 1, 2, 3, 4, 5, 6, 7 and 21) are summarized in Table III. Readings at Tanks 2 and 3 indicate that free release limits for uranium are not exceeded, therefore, they are considered uncontaminated and can be released for unrestricted use or disposal. Tank 1 external readings meet free release limits but additional internal readings need to be taken for final evaluation. Tanks 4 and 5 slightly exceed the free-release limits, but with further decontamination should satisfy free-release limits. Tanks 6 and 21 may require contaminated areas to be cut out. Tank 7 present readings exceed limits and further attempts at decontaminating are required before any decision to excess can be made. Tanks 1, 4, 5, 6, 7 and 21 will be cleaned and re-surveyed. Any areas with fixed contamination that are not removed through washing, and exceed free-release limits will be cut out and disposed of separately. The cut-up tanks can still be sold as scrap metal.

EVALUATION OF THE MAGNITUDE OF THE POTENTIAL THREAT

1. Under FMPC-720, Attachment B, "Radiologically Contaminated and Uncontaminated Construction Waste Definitions and Disposition Requirements," metal is considered uncontaminated if smears from the surface of the material show removable contamination levels less than 100 dpm (disintegrations per minute) beta/gamma and less than 20 dpm alpha, and the average fixed and removable contamination level is less than 1000 dpm/100cm^2 beta/gamma and less than 200 dpm

alpha/100cm^2, and the maximum fixed and removable contamination level at any point on the surface is less than 3000 dpm/100cm^2.

Most recent radiological data obtained from Radiological Survey Report dated July 6, 1991 is reported in Table III.

Tanks 4, 5, 6, 7, and 21 will be decontaminated until they meet free-release or it is determined that they cannot be decontaminated. The Main Tank Farm and Building 69 Decontamination Pad have controlled sumps which prevents contamination of water and soils. Covering the tanks with plastic during any relocation will prevent contamination by airborne particles. It may be necessary to cut-out areas with fixed contamination. Metal that cannot be decontaminated shall be appropriately dispositioned pending determination for final disposal.

2. Based on a construction rubble determination using process knowledge and analyses of rinseate (Table II), which indicate that there are no RCRA hazardous constituents or hazardous substances as listed in 40 CFR 302 in these tanks, there is no potential for a release.

3. Based on the analyses of the lead based paint (Table I) and the conclusions from the RCRA determination, the leachable lead levels are below regulatory level of concern. Since lead levels are below the level of concern, there is no potential for a release.

4. The control measures during decontamination will include periodic radiological surveys to verify clean and also to control transfer of contaminated material. When the tanks have been decontaminated they will be relocated to the Building 51 laydown area to prevent recontamination, pending sale.

ASSESSMENT OF THE NEED FOR REMOVAL ACTION

Consistent with Section 40 CFR 300.410 and 40 CFR 300.415 (B)(2) 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 Disposal of Metal Tanks:

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.

These factors are considered appropriate as a result of the potential exposure to actual radiological contamination.

APPROPRIATENESS OF A RESPONSE

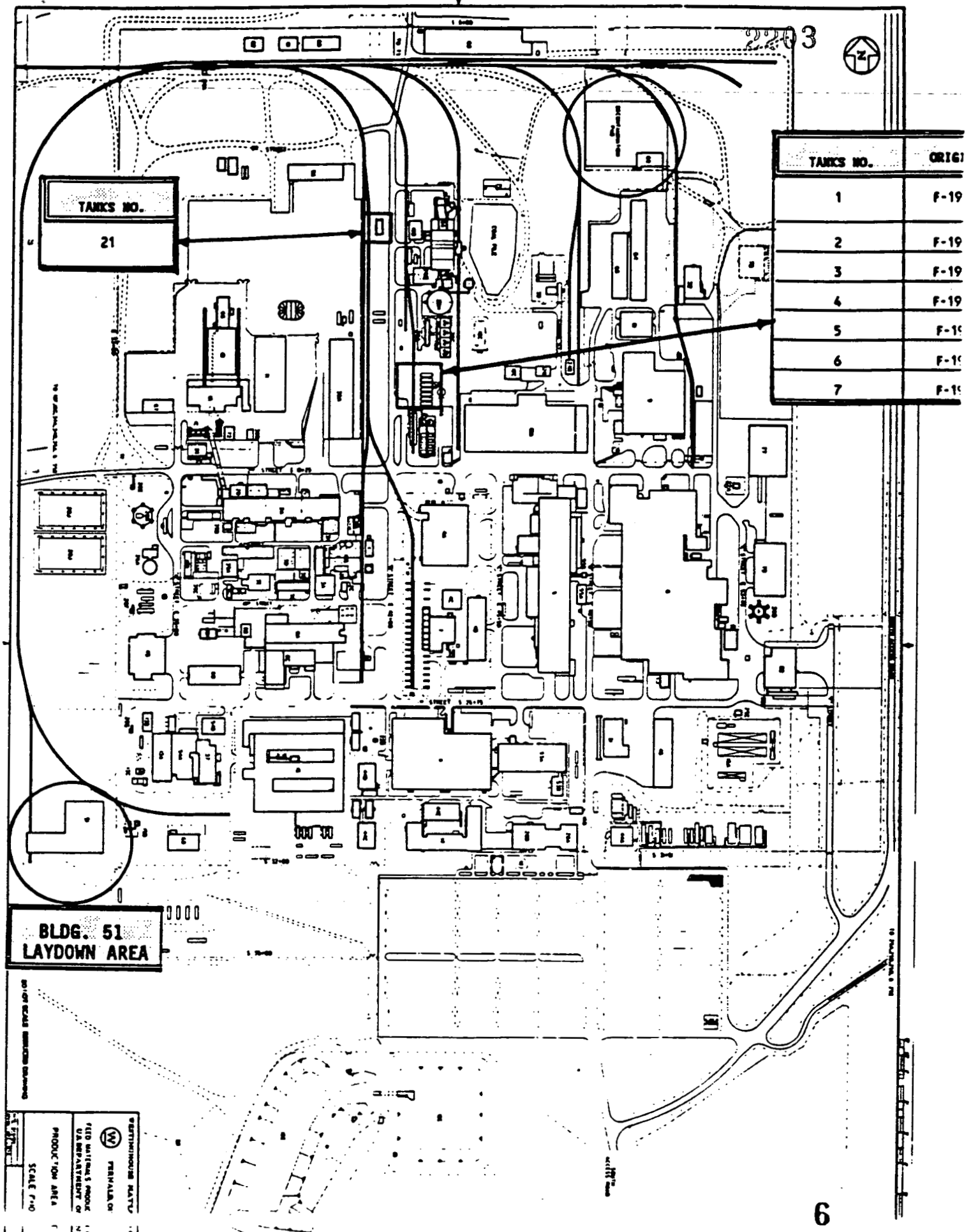
If it is determined that a response action is appropriate due to the level of uranium contamination, a removal action may be required to address the existing situation.

If a planning period of less than six months exists prior to initiation of a response action, DOE will issue an Action Memorandum. The Action Memorandum will describe the selected response and provide 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 issue an Engineering Evaluation/Cost Analysis (EE/CA) Approval Memorandum. This memorandum is to be used to document the threat of public health and the environment and to evaluate viable alternative response actions. It will also serve as a decision document to be included in the Administrative Record.

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

LOCATION OF THE MAIN TANK FARM AND TANKS



6

TABLE NUMBER I

EP TOXICITY ANALYTICAL RESULTS - mg/L

TANK NO.	Ag	As	Hg	Se	Ba	Cd	Cr	Pb	TOTAL Pb
1	<1.0	<1.0	<0.1	<0.1	<25	<0.2	<1.0	<1.0	283
2	<1.0	<1.0	<0.1	<0.1	<25	<0.2	<1.0	<1.0	1718
3	<1.0	<1.0	<0.1	<0.1	<25	<0.2	<1.0	<1.0	1292
4	<1.0	<1.0	<0.1	<0.1	<25	<0.2	<1.0	<1.0	1279
5	<1.0	<1.0	<0.1	<0.1	<25	<0.2	<1.0	<1.0	290
6	<1.0	<1.0	<0.1	<0.1	<25	<0.2	<1.0	<1.0	225
7	<1.0	<1.0	<0.1	<0.1	<25	<0.2	<1.0	<1.0	76
21								3.22	213
21								<1.0	2040

TCLP ANALYTICAL RESULTS - mg/L

21								.669	
21								.650	

7

TABLE NUMBER II

2203

TANK RINSEATE ANALYSIS

TANK NO.	pH	F ppm	HF Percent	TOTAL U ppm
3	4.3 3.8	1350 4230	0.16 0.31	1 .000009
4	4.2 4.6 4.2 3.8	900 1244 763 1830	0.07 0.18 0.09 0.22	<1 <1 <1 .000001
5	4.3 4.4	637 1430	0.07 0.19	1 .000001
6	4.0 4.1	1540 1120	0.18 0.15	.000003 .000002
7	4.1 4.2	563 1410	0.07 0.18	.00004 .00007
21	5.2 6.2			

8

TABLE NUMBER III

TANK NO.	DPM ALPHA		DPM BETA-GAMMA		COMMENTS
	100cm2	probe	100cm2	probe	
FREE RELEASE	<20	<200 <200	<100	<1000 <1000 <3000	Free-release average At One Point
1	<MDA	<200	<MDA	<1000	9 readings
2	<MDA	<200	<MDA	<1000	15 readings
	<MDA	<200	47	<1000	1 reading
	<MDA	<200	<MDA	1000	1 reading
	<MDA	<200	<MDA	1500	1 reading
	<MDA	<200	<MDA	2000	1 reading
3	<MDA	<200	<MDA	<1000	14 readings
	<MDA	<200	<MDA	1000	6 readings
4	<MDA	<200	<MDA	<1000	13 readings
	<MDA	<200	47	<1000	1 reading
	<MDA	<200	<MDA	1000	4 readings
	<MDA	<200	<MDA	3000	1 reading
	<MDA	<200	65	1000	1 support
5	<MDA	<200	<MDA	<1000	12 readings
	<MDA	<200	<MDA	1000	4 readings
	<MDA	<200	101	1000	1 support
	<MDA	<200	88	3000	1 support
	<MDA	<200	<MDA	3000	1 support
	<MDA	<200	74	<1000	1 support
6	<MDA	<200	<MDA	<1000	9 readings
	<MDA	<200	<MDA	1500	2 readings
	<MDA	<200	<MDA	2000	1 reading
	<MDA	<200	51	<1000	1 reading
	<MDA	<200	56	<1000	1 reading
	<MDA	<200	60	<1000	1 reading
	<MDA	<200	119	2000	1 reading
	<MDA	<200	42	1000	2 supports
	<MDA	<200	65	2000	1 support
	<MDA	<200	283	1000	1 support
7	<MDA	<200	<MDA	<1000	7 readings
	<MDA	<200	56	7000	1 reading
	<MDA	<200	51	<1000	1 reading
	<MDA	<200	42	10000	1 reading
	<MDA	<200	101	20000	1 reading
	<MDA	<200	<MDA	12000	1 reading
	<MDA	<200	60	12000	1 reading
	<MDA	<200	<MDA	20000	1 reading
	<MDA	<200	<MDA	14000	1 reading
	<MDA	<200	<MDA	4000	1 reading
	60	<200	51	20000	1 reading
	78	<200	106	20000	1 reading
	51	<200	119	12000	1 reading
	51	<200	211	<1000	1 reading
21	<MDA	<200	<MDA	<1000	17 readings
	<MDA	<200	<MDA	1000	1 reading
	<MDA	<200	<MDA	4000	1 reading
	<MDA	<200	<MDA	5000	1 reading