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RADIOACTIVE CONTAMINATION IN LIQUID WASTES
DISCHARGED TO GROUND AT SEPARATIONS
FACILITIES THROUGH JUNE 1956

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RADIOACTIVE CONTAMINATION IN LIQUID WASTES
DISCHARGED TO GROUND AT SEPARATIONS FACILITIES
THROUGH JUNE 1956

K. R. Heid
Radiological Administration and Communication Section
Radiological Sciences Department

August 13, 1956

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- 2 -

HT-11-78

CONTENTS

	<u>Page No.</u>
Introduction	4
Abstract	6
Summary of Contamination Discharged to Ground - 200 East Area	7
Summary of Contamination Discharged to Ground - 200 West Area	8
<u>200 East Area - Data for Individual Disposal Sites</u>	
216-A-2 Crib	10
216-A-3 Crib	11
216-A-4 Crib	12
216-A-5 Crib	13
216-A-6 Crib	14
216-A-7 Crib	15
216-A-8 Crib	16
216-A-9 Crib	17
216-A-10 Crib	18
216-BC-1, 2, 3, and 5 Cribs	19
216-BC-4 Crib	20
216-BY-4, 5, 6, and 7 Cribs	21
216-BY-Cribs (Summary)	22
216-C-1 Crib	23
216-C-4 Crib	24
216-C-6 Crib	25
216-ER-1, 2, and 3 Cribs	26
241-B-1 and 2 Cribs	27

200 West Area - Data for Individual Disposal Sites

216-S-1 and 2 Cribs (D-1 Waste)	28
216-S-1 and 2 Cribs (D-2 Waste)	29
216-S-3 Crib	30
216-S-5 Crib	31
216-S-6 Crib	32
216-S-7 Crib (D-1 Waste)	33
216-S-7 Crib (D-2 Waste)	34
216-SL-1 and 2 Cribs (Works Lab)	35
216-SL-1 and 2 Cribs (222-S Crib Waste)	36
216-SL-1 and 2 Cribs (207-SL Retention Basin)	37
216-SL-1 and 2 Cribs (Summary)	38
216-SX-1 Crib	39
222-S Swamp	40
276-S Crib	41
216-TY-1 Crib	42
241-T-3 Crib	43
241-TX-153 Crib	44
216-U-3 Crib	45
222-U Dry Well	46
216-WR-1, 2, and 3 Cribs	47
361-WR Cribs	48
216-Z-10 Crib	49
231-W Trench	50
234-5 1 and 2 Cribs and Culvert	51

Large Volume Wastes to Open Disposal Sites

Discussion	52
200 East Area "B" Swamp	53
200 West Area "T" Swamp	54
200 West Area "U" Swamp	55
Bibliography	56

INTRODUCTION

This document summarizes the amounts of radioactive contamination discharged to ground from separation facilities through June, 1956. Detailed data for individual disposal sites is presented on a month to month basis for the period July, 1955 through June, 1956. Previous publications (HW-28121⁽¹⁾, HW-33591⁽²⁾, and HW-38562⁽³⁾) of this series may be referred to for specific information on measurements and totals prior to July, 1955.

Tables I and II list the major disposal sites in separation facilities, total volume of waste discharged at each location, and the gross amounts of plutonium and fission products discharged to the ground since startup. Tables III through XLIII present this same data on a month to month basis and also include information on the source of the waste stream and the settling facility used. Isotopic data are included for all disposal sites from which the waste was analyzed for specific contaminants. Estimates of contamination and volumes discharged to the swamps are also included.

ABSTRACT

Over 1,630,000 curies of fission products have been discharged to ground from the separation facilities since the startup of the Hanford operation. Approximately 23 kilograms of plutonium were contained in this waste. Exclusive of large volume, open waste disposal sites, the estimated volume of waste admitted to ground was 8.06×10^9 liters.

Principally due to the TBP scavenging program (~600,000 curies this 12-month period) and the large amounts of fission products in redistilled condensate from the Redox process (480,000 curies this 12-month period), well over a million curies or better than 60% of the total fission product activity entered the ground during the fiscal year covered by this report.

Open waste disposal sites in the separation areas have received $\sim 8.4 \times 10^{10}$ liters since startup. Approximately 1640 curies of fission product and 32 grams of plutonium were contained in this waste. The "U" swamp and covered Redox swamp which contain over 1500 curies of fission product and 28 grams of plutonium account for most of the contamination discharged to open waste sites.

TABLE I

SUMMARY OF RADIOACTIVE WASTES DISCHARGED TO MAJOR
DISPOSAL SITES IN THE 200 EAST AREA THRU JUNE 1956

DISPOSAL SITE	VOLUME IN LITERS	PLUTONIUM IN GRAMS	BETA PARTICLE EMITTERS IN CURIES
<u>"A" FACILITY</u>			
216-A-2 Crib	1.65×10^4	53.0	0.004
216-A-3 Crib	1.10×10^5	0.10	36.3
216-A-4 Crib	1.29×10^6	59.4	11.0
216-A-5 Crib	1.49×10^8	9.74	43.3
216-A-6 Crib	1.37×10^8	3.28	1.03
216-A-7 Crib	6.64×10^4	--	--
216-A-8 Crib	3.08×10^8	13.8	47.0
216-A-9 Crib	4.08×10^8	--	--
216-A-10 Crib	2.34×10^8	--	--
<u>"B" FACILITY</u>			
5-6 Crib and Tile Field*	3.60×10^7	174.	7,800.
216-IC-1,2,3, and 5 Crib	2.36×10^7	61.2	264,000.
216-BC-4 Crib	3.36×10^6	5.75	2,010.
216-BX Trenches 1,2,4,5,6&7	8.99×10^6	4.75	7,800.
216-BX-3 Trench	4.29×10^6	0.91	3,190.
216-BX-8 Trench	1.51×10^6	**	4,800.
216-BY-1,2,3,4,5,6 & 7 Crib	3.38×10^7	60.9	409,000.
216-ER-1,2, and 3 Crib	3.26×10^8	354.	1,770.
241-B-1 and 2 Crib	4.46×10^7	4,260.	5,350.
241-B-3 Crib	2.72×10^7	29.	710.
241-B-361 Reverse Well	3.06×10^7	4,280.	3,800.
242-B-1 and 2 Crib	2.96×10^7	3.73	38.9
"B" Swamp	1.97×10^{10}	1.40	12.0
<u>"C" FACILITY</u>			
216-C-1 Crib	2.06×10^7	8.02	10,800.
216-C-4 Crib	1.81×10^4	1.27	101.
216-C-5 Crib	3.89×10^4	0.00	93.9
216-C-6 Crib	5.82×10^3	0.05	4.38

* Alternate nomenclature -- 241-B-361 Crib.

** Plutonium measurements were not made for this waste.

TABLE IISUMMARY OF RADIOACTIVE WASTES DISCHARGED TO MAJORDISPOSAL SITES IN THE 200 WEST AREA THRU JUNE 1956

DISPOSAL SITE	VOLUME IN LITERS	PLUTONIUM IN GRAMS	BETA PARTICLE EMITTERS IN CURIES
<u>"S" FACILITY</u>			
216-S-1 and 2 Cribs	1.52×10^8	1,180.	753,000.
216-S-3 Crib	4.20×10^6	0.368	258.
216-S-5 Crib	3.55×10^9	552.	928.
216-S-6 Crib	1.50×10^9	381.	499.
216-S-7 Crib	2.58×10^7	117.	59,500.
216-SL-1 and 2 Cribs	6.46×10^7	87.7	364.
216-SX-1 Crib	6.36×10^6	35.6	55.0
222-S Swamp	1.84×10^8	17.9	10.6
276-S Crib	3.29×10^6	2.25	9.12
"S" Swamp	6.35×10^9	3.27	1,050.
<u>"T" FACILITY</u>			
216-TY-1 Crib	7.64×10^6	45.5	22,200.
241-T-1 and 2 Cribs	2.90×10^7	3,720.	1,500.
241-T-3 Crib	1.07×10^8	131.	3,090.
241-T-1,2,3 and 4 Trenches	3.85×10^6	2.66	3,300.
241-T-5 Trench	2.65×10^6	175.	125.
241-T-17 Crib	9.68×10^5	1.43	840.
241-T-361A Reverse Well	1.13×10^7	3,350.	2,800.
241-TX-1,2,3, and 4 Trenches	5.03×10^6	6.50	19,300.
241-TX-5 Trench	2.99×10^6	0.60	14,200.
241-TX-153 Crib	4.50×10^7	14.0	2,020.
361-T-1 and 2 Cribs	4.50×10^7	392.	17,800.
"T" Swamp	3.10×10^{10}	2.14	110.

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TABLE II (Cont'd)

SUMMARY OF RADIOACTIVE WASTES DISCHARGED TO MAJOR
DISPOSAL SITES IN THE 200 WEST AREA THRU JUNE 1956

DISPOSAL SITE	VOLUME IN LITERS	PLUTONIUM IN GRAMS	BETA PARTICLE EMITTERS IN CURIES
<u>"U" FACILITY</u>			
216-U-3 Crib	7.88×10^5	0.041	0.420
216-WR-1 2, and 3 Cribs	2.88×10^8	352.	1,700.
222-U Drywell	142	0.101	0.125
361-WR-1 and 2 Cribs	9.30×10^6	38.3	947.
"U" Storage	2.69×10^{10}	25.0	465.
<u>"Z" FACILITY</u>			
216-Z-10 Crib	4.78×10^5	992.	-
231-1 and 2 Cribs	3.08×10^7	340.	-
231-W Trench	4.16×10^7	476.	-
231-W-150 Reverse Well	1.00×10^6	50.	-
234-5 1 and 2 Cribs and Culvert	1.12×10^8	1,210.	-

TABLE III

DISPOSAL SITE: 216-A-2 Crib
WASTE STREAM: SPENT ORGANIC EXTRACTION FROM
MAY 1956 TO DATE
SETTLING FACILITY: NONE

Only one batch of waste was sent to ground here during this reporting period. In May 1956 one kilogram of uranium, 53 grams of plutonium, and 0.004 curie of beta particle emitters contained in 1.65×10^4 liters was sent to ground at this site.

TABLE IV

DISPOSAL SITE: 216-A-3 CRIB

WASTE STREAM: SILICA GEL WASTE FROM 203-A
FROM MARCH 1956 TO DATE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of kg	Units of Grams	Units of Curies
February 1956	0.45	-	-	-
March	0.08	0.55	0.07	0.23
April	0.38	1.0	0.005	36.0
May	0.09	4.0	0.02	0.05
June	0.095	4.0	0.005	0.05
TOTAL TO DATE	1.10	9.55	0.10	36.3

TABLE V

DISPOSAL SITE: 216-A-4 CRIB

WASTE STREAM: LAB, CELL, AND DRAIN WASTE FROM
202-A FROM DECEMBER 1955 TO DATE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of kg	Units of Grams	Units of Curies
December 1955	4.05	85.5	-	-
January 1956	1.6	144.	3.04	-
February	2.7	36.9	27.1	0.34
March	1.2	11.7	6.6	9.70
April	1.26	0.03	0.9	0.01
May	0.78	10.0	7.8	0.03
June	0.96	11.	14.	0.9
TOTAL TO DATE	12.6	299.	59.4	11.0

TABLE VI

DISPOSAL SITE: 216-A-5 CRIB

WASTE STREAM: PROCESS CONDENSATE FROM 202-A
FROM NOVEMBER 1955 TO DATE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10^5	Units of kg	Units of Grams	Units of Curies
November 1955	150.	41.0	-	-
December	115.	-	-	-
January 1956	164.	-	-	-
February	165.	2.1	0.2	2.1
March	79.5	9.54	0.58	0.17
April	190.	1.30	2.60	7.9
May	102.	3.00	0.96	0.097
June	523.	35.0	5.40	33.
TOTAL TO DATE	1,490.	91.9	9.74	43.3

TABLE VII

DISPOSAL SITE: 216-A-6 CRIB

WASTE STREAM: COIL AND JACKET STEAM CONDENSATE
FROM 202-A FROM NOVEMBER 1955 TO
DATE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of kg	Units of Grams	Units of Curies
November 1955	200.	-	-	-
December	172	-	-	-
January 1956	345	-	-	-
February	340	0.9	0.5	0.01
March	133	15.8	0.97	0.21
April	95.0	11.4	1.70	0.75
May	30.0	1.0	0.04	0.02
June*	51.0	1.67	0.07	0.035
TOTAL TO DATE	1,370.	30.8	3.28	1.03

* No laboratory analysis made - estimate of radioactivity for June based on laboratory analysis made for May 1956.

TABLE VIII

DISPOSAL SITE: 216-A-7 CRIB

WASTE STREAM: 152-A DIVERSION BOX DRAIN FROM
NOVEMBER 1955 TO DATE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10^5	Units of kg	Units of Grams	Units of Curies
November 1955	0.10	25.	-	-
December	0.01	5.	-	-
January 1956	0.40	-	-	-
February	0.04	-	-	-
March	0.04	-	-	-
April	None	0	0	0
May	0.037	-	-	-
June	0.037	-	-	-
TOTAL TO DATE	0.664	30.	-	-

UNCLASSIFIED

- 16 -

784

TABLE IX

DISPOSAL SITE: 216-A-8 CRIB

WASTE STREAM: TANK FARM CONDENSATE AND COOLING
WASTE FROM NOVEMBER 1955 TO DATE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of kg	Units of Grams	Units of Curies
November 1955	775.	-	-	-
December	15.1	-	-	-
January 1956	245.0	-	-	-
February	580.	47.5	1.7	0.19
March	681.	81.7	5.0	2.17
April	81.7	14.7	5.0	0.39
May	304.0	14.0	1.75	19.2
June	400.	2.0	0.30	25.
TOTAL TO DATE	3080.	160.	13.8	47.0

TABLE X

DISPOSAL SITE: 216-A-9 CRIB

WASTE STREAM: ACID RECOVERY CONDENSATE
AND COOLING WATER

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10^5	Units of kg	Units of Grams	Units of Curies
March 1956 *	3110.	-	-	-
April *	600.	-	-	-
May *	317.	0	0	0
June *	53.	0	0	0
TOTAL TO DATE	4080.			

* Water tests only.

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- 18 -

216-A-10 CRIB

TABLE XI

DISPOSAL SITE: 216-A-10 CRIB

WASTE STREAM: PROCESS CONDENSATE FROM 202-A

SETTLING FACILITY: NONE

PERIOD		VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
		Units of 10^5	Units of kg	Units of Grams	Units of Curies
March 1956	*	1770.	-	-	-
April	*	33	-	-	-
May	*	445.	0	0	0
June	*	91.	0	0	0
TOTAL TO DATE		2340.			

* Water tests only.

TABLE XII

DISPOSAL SITE: 216-BC-CRIBS 1, 2, 3 AND 5
WASTE STREAM: TBP BUILDING SCAVENGED WASTES
SETTLING FACILITY: TANKS AS INDICATED

DISPOSAL SITE	DATE EMPTIED	TANK NUMBER	VOLUME Nx10 ⁵ LITERS	Pu GRAMS	URANIUM kg	UNITS OF CURIES								pH
						Total Beta	Cs	Sr	Ru	Sb	Ce	R.E.	Zr-Nb	
✓ BC-1	Jan. '56	21-106-BY	21.8	4.19	114.	50,000	98.3	92.5	17,500	2000	6590	1460	1620	10.3
✓ BC-1	Jan. '56	22-110-BY	20.8	12.0	72.3	32,900	128.	242.	19,700	1240	743	531	3090	9.3
✓ BC-1	Feb. '56	23-107-BY	22.3	2.57	41.0	24,300	8.27	34.3	9,520	751	2130.	615	609	10.2
✓ BC-1	Feb. '56	24-108-BY	21.6	4.98	2.15	26,300	6.29	27.5	12,300	990	2370	320	1090	9.8
✓ BC-5	Mar. '56	25-110-BY	20.8	3.99	6.49	19,100	97.9	99.0	8,640	743	809	256	462	9.3
BC-5	Mar. '56	26-106-BY	21.2	0.580	48.1	9,320	7.25	15.0	714.	406	262	106	46.9	9.9
BC-5	Mar. '56	27-107-BY	21.2	0.580	88.4	11,100	15.0	16.7	4,650.	479	228	123	83.6	9.8
✓ BC-5	Apr. '56	28-108-BY	22.2	0.511	98.5	11,400	129.	51.0	4,890	340	551	141	246.	9.8
✓ BC-3	Apr. '56	29-110-BY	19.7	6.49	75.4	24,800	52.4	57.2	9,300	551.	1230	312	437.	9.8
✓ BC-2	Apr. '56	30-106-BY	21.9	1.68	60.6	31,000	52.2	37.7	9,630	818.	2300	348	278	9.6
BC-2	May '56	31-107-BY	0.94	0.181	-	2,160	0.80	1.31	-	-	-	-	-	9.6
BC-2	May '56	32-108-BY	22.0	0.676	50.2	21,900.	9.33	38.5	7,870	338	117.	146	443	9.4
TOTAL TO DATE			236.	61.2	656.	264,000	615.	713.	95,800	8660	17,300	4360	8410	

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- 20 -

HW 4784

TABLE XIII

DISPOSAL SITE: 216-BC-4 CRIB
 WASTE STREAM: TBP *IN FARM* SCAVENGED WASTES
 SETTLING FACILITY: TANKS AS INDICATED

DISPOSAL SITE	DATE EMPTIED	TANK NUMBER	VOLUME X10 ³ LITERS	Pu GRAMS	URANIUM kg	UNITS OF CURIES								pH
						Total Beta	Cs	Sr	Ru	Sb	Ce	R.E.	Zr-Nb	
BC-4	Jan. '56	1-112CR-109C	17.1	1.31	55.4	353	13.1	30.3	139	19.0	17.6	137.	22.6	8.6
BC-4	Jan. '56	2-109-101C	16.5	4.44	75.3	1660.	205.	126.	89.6	1270.	38.5	301.	119.	9.8
TOTAL TO DATE			33.6	5.75	131.0	2010.	218.	156.	229.	1290.	56.1	438.	142.	

TABLE XIV (a)

DISPOSAL SITE: 216-BY CRIBS
WASTE STREAM: TBP BUILDING SCAVENGED WASTES
SETTLING FACILITY: TANKS AS INDICATED

DISPOSAL SITE	DATE EMPTIED	TANK NUMBER	VOLUME ML LITERS	Pu GRAMS	URANIUM kg	UNITS OF CURIES								pH
						Total Beta	Cs	Sr	Ru	Sb	Ce	R.E.	Zr-Nb	
BY-4	Sept. '55	13-107-BY	23.3	10.7	0.884	54,100	25.4	1060.	12,700.	1620.	5450	2160	105.	9.9
BY-5	Sept. '55	14-108-BY	21.2	3.25	1.27	27,000	99.7	432.	11,900.	1670	3940	616	2500	10.1
BY-5	Sept. '55	15-110-BY	15.3	2.34	4.40	17,600	30.3	181.	6220	994	2690	317	2050	9.2
BY-4	Oct. '55	16-107-BY	22.3	3.42	0.268	31,000	52.6	311	2910	887	3030.	668.	2690	9.4
BY-6	Nov. '55	17-108-BY	21.2	2.44	0.254	38,400	398	460	5080.	1250	2010	1670	2040	9.5
BY-7	Nov. '55	18-110-BY	22.3	3.43	182.	51,900	326.	721.	3300.	1150	1650	2620	4520	10.5
BY-6	Nov. '55	11-106-BY	19.8	2.29	1.67	22,000	39.9	767.	1550.	746.	940.	504.	2080.	9.3
BY-7	Dec. '55	12-104-BY	23.8	4.57	74.3	22,700	43.5	1750.	7500.	926.	1590.	4100.	1410.	8.9
BY-7	Dec. '55	19-107-BY	20.9	4.01	57.7	33,900	31.5	160	13100	1900	3100	3100	5970	9.95
BY-4	Dec. '55	20-108-BY	21.7	2.50	190.	32,200	59.2	97.8	12000	1540	1010	2130	6560	9.65
TOTAL 7/55-6/56			212.	38.9	513.0	331,000	1110.	5940	76,400	12,600	25,400	17,900	29,900	
PREVIOUS TOTAL (3)			126.	22.0	20.2	77,700	2190.	6940	22,200	3,910	13,800	10,200	10,100	
TOTAL TO DATE			338	60.9	533.	409,000	3300	12,900	98,600	16,500	39,200	28,100	40,000	

TABLE XIV (3)

DISPOSAL SITE: 216-BY CRIBS SUMMARY

WASTE STREAM: TBP SCAVENGED WASTE

SETTLING FACILITY: TANKS AS INDICATED IN TABLE

DISPOSAL SITE	LATEST DATE USED	VOLUME X10 ⁵ LITERS	Pu GRAMS	URANIUM kg	Total Beta	UNITS OF CURIES							Avg. pH
						Cs	Sr	Ru	Sb	Ce	R.E.	Zr-Nb	
216-BY-1	Nov. '54	21.1	0.400	12.5	3,140	45.9	1340.	48.2	19.0	314.	1570	-	9.7
216-BY-2	Mar. '55	56.2	11.1	2.37	21,600	652.	2810	5410	1020.	2490.	3330	2020	9.3
216-BY-3	June '55	49.1	10.5	5.35	53,000	1500.	2790.	16,700	2870	11,000	5330	8,040	9.3
216-BY-4	Dec. '55	67.3	16.6	191.	117,000	137.	1470	27,700	4050.	9490.	4960.	9360.	9.7
216-BY-5	Sept. '55	36.5	5.59	5.67	44,600	130.	613.	18,100	2660	5630	933	4550	9.7
216-BY-6	Nov. '55	41.0	4.73	1.92	60,400.	438.	1230.	6730.	2000.	2950.	2170	4120	9.4
216-BY-7	Dec. '55	67.0	12.0	314.	109,000	401.	2630	23,900	3930.	6340.	9820.	11,900	9.8
216-BY-8	Not Used												
TOTAL		338.	60.9	533.	409,000	3300	12,900	98,600	16,500	39,200	28,100	40,000	

TABLE XV

DISPOSAL SITE: 216-C-1 CRIB

WASTE STREAM: CONDENSATE FROM 201-C FROM DEC. 1952 THRU
APRIL 1954 AND FROM FEB. 1955 TO DATE.
COIL AND CONDENSER COOLING WATER FROM 201-C
FROM JUNE 1953 TO APRIL 1954 AND FROM
FEB. 1955 TO DATE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ³	Units of Grams	Units of Grams	Units of Curies
July 1955	1.69	481.	1.07	128
August	1.65	111.	0.338	211
September	2.87	281	0.260	1,600.
October	1.19	15.4	0.570	68.1
November	0.0747	13.6	0.410	102.0
December	1.15	81.6	0.050	142.0
January 1956	3.25	408	0.660	1,550.
February	1.22	18.1	0.610	308.
March	4.04	1070.	0.410	1,370.
April	1.91	200.	0.520	4,540.
May	1.55	-	0.400	64
June	0.580	4.54	0.2	28
TOTAL 7/55-6/56	21.2	2,680.	5.50	10,100
PREVIOUS TOTAL ³⁾	185.	289.	2.52	733.
TOTAL TO DATE	206.	2,970.	8.02	10,800.

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- 24 -

JAN 84

TABLE XVI

DISPOSAL SITE: 216-C-4 CRIB

WASTE STREAM: ORGANIC SOLVENT FROM 276-C BUILDING
SINCE JULY 1955

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Grams	Units of Curies
July 1955	0.0303	590.	1.03	48.8
August	0.0328	605.	0.147	10.9
September	0.0945	1950	0.05	40.0
October	0.0160	2.72	0.04	0.39
November	-	-	-	-
December	-	-	-	-
January 1956	-	-	-	-
February	-	-	-	-
March	-	-	-	-
April	0.007	-	0.004	0.93
May	-	-	-	-
June	-	-	-	-
TOTAL TO DATE	0.181	3150.	1.27	101

TABLE XVII

DISPOSAL SITE: 216-C-6 CRIB

WASTE STREAM: CONDENSATE FROM WASTE SELF-
CONCENTRATOR SINCE SEPT. 1955

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Grams	Units of Curies
September 1955	0.00174	-	-	0.65
October	0.00533	0.068	<0.01	0.60
November	0.00268	-	-	0.40
December	0.00363	-	-	0.01
January 1956	0.00714	4.54	0.01	0.27
February	0.00699	4.54	0.01	0.16
March	0.00367	4.54	0.01	0.17
April	0.0136	4.54	0.01	0.62
May	0.00922	-	-	1.00
June	0.00480	-	-	0.5
TOTAL TO DATE	0.0582	18.2	0.05	4.38

UNCLASSIFIED

- 26 -

HW-44784

TABLE XVIII

DISPOSAL SITE: 216-ER-1,2 AND 3 CRIBS

WASTE STREAM: 221-224-U CONCENTRATOR CONDENSATES
SEPT. 1952 TO DATE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS(total)	R ₁
	Units of 10 ³	Units of kg.	Units of Grams	Units of Curies	Units of Curies
July 1955	48.4	184.	2.45	15.4	3.34
August	80.5	283.	5.91	34.9	13.8
September	46.5	675	19.0	26.4	14.1
October	62.4	445	41.2	87.3	7.43
November	62.0	667	6.38	45.5	6.54
December	67.3	95.7	30.2	21.5	16.0 ✓
January 1956	36.8	505.	5.09	54.5	5.55
February	35.1	245.	2.44	25.1	4.64
March	42.8	698	7.52	525.0	4.98
April	57.8	473.	4.87	103.	17.3 ✓
May	87.7	202.0	1.24	288.	34.8
June	87.3	289.	1.87	34.2	7.6
TOTAL 7/55-6/56	715	4,760	128.	1320.	136.
PREVIOUS TOTAL ³⁾	2540	15,600	226.	453.	-
TOTAL TO DATE	3260	20,400	354.	1770.	136.

TABLE XIX

DISPOSAL SITE: 241-B-1 & 2 CRIBS

WASTE STREAM: 224-B - OCTOBER 2, 1946 TO
MARCH 1953; 221-B, 5-6 WASTES
FROM OCT. 3, 1947 TO AUG. 12,
1948 AND DEC. 1954 TO DATE

SETTLING FACILITY: 201 TANK, OCT. 1946 TO OCT. 1948;
204, 203-202 CASCADE FROM OCT. 1948
THRU MARCH 1953. 112,111,110
CASCADE FROM OCT. 20, 1955 TO DATE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
July 1955	2.51	0.321	4.77
August	2.27	4.48	32.0
September	1.75	1.46	12.8
October	1.26*	11.5	118.0
TOTAL 7/55-6/56	7.79	17.8	168
PREVIOUS TOTAL ³⁾	438.	4,240.	5,180
TOTAL TO DATE	446.	4,260.	5,350

* Starting 10/20/55 waste was routed to Cribs through the 110-B, 111-B and 112-B Cascade series. This tank series is approximately half filled at this time.

TABLE XX

DISPOSAL SITE: 216-S CRIBS 1 & 2

WASTE STREAM: (D-1 Waste) 202-S BUILDING CELL
DRAINAGE FROM JANUARY 1952 THRU
JANUARY 1956

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ³	Units of Grams	Units of Curies
July 1955	0.070	0.135	-
August	0.057	8.71	11,200.
September	0.525	30.7	7,040.
October	0.340	22.4	5,510.
November	0.567	344.	34,400
December	0.120	1.94	913
January 1956	*0.0817	2.16	77.8
TOTAL 7/55-6/56	1.76	410.	59,100
PREVIOUS TOTAL ³⁾	20.8	188.	20,000.
TOTAL TO DATE	22.6	598.	79,100.

* Use of these cribs was discontinued on 1/12/56. Wastes previously sent to ground at this site are now being disposed of in Crib 216-S-7.

TABLE XXI

DISPOSAL SITE: 216-S CRIBS 1 & 2

WASTE STREAM: (D-2 Waste) 202-S BUILDING
REDISTILLED CONDENSATE FROM
JAN. 1952 THRU JAN. 1956

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
July 1955	39.1	1.89	246.
August	48.1	3.75	4,240.
September	54.1	3.20	5,040.
October	50.7	76.6	161,000.
November	45.5	12.4	95,600
December	36.1	14.8	10,600
January 1956	* 0.154	0.00177	38.9
TOTAL 7/55-6/56	274	113.	277,000
PREVIOUS TOTAL ³⁾	1230.	469.	397,000.
TOTAL TO DATE	1500.	582.	674,000.

* Since January 12, 1956 these wastes have been routed to the 216-S-7 Crib for disposal.

UNCLASSIFIED

- 30 -

44784

TABLE XXII

DISPOSAL SITE: 216-S-3 CRIB

WASTE STREAM: 101-104-S TANKS CASCADES

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
June 15 thru July 1955	0.0737	0.00867	8.87
August	0.0737	0.00247	1.50
September	0.208	0.0243	2.43
October	0.286	0.0233	2.38
November	0.522	0.00721	4.07
December	0.0780	0.000980	0.715
January 1956	0.234	0.0369	3.63
February	0.182	0.000701	2.17
March	0.234	0.000905	2.79
April	0.104		6.53
May	0.102	0.000977	3.62
June	0.132	0.000511	10.9
TOTAL 7/55-6/56	2.23	0.107	49.6
PREVIOUS TOTAL ³⁾	thru 6/30 39.8	thru 6/11 0.261	thru 6/11 208.
TOTAL TO DATE	42.0	0.368	258.

TABLE XXIII

DISPOSAL SITE: 216-S-5 CRIB
WASTE STREAM: 202-S PROCESS VESSEL COOLING WATER
SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
June 15 thru July 1955	1,600	30.5	15.3
August	1,050	8.1	11.0
September	1,010	47.5	9.45
October	1,030	23.2	68.0 ✓
November	845	18.9	44.7 ✓
December	212	2.54	3.94
January 1956	525	7.30	14.5
February	540	24.3	15.9
March	635	7.20	7.35
April	563.	17.3	5.46
May	822	102	55.0 ✓
June	660.	15.2	20.7
TOTAL 7/55-6/56 PREVIOUS TOTAL ³⁾	9,490 thru 6/30 26,000.	304. thru 6/14 248.	271 thru 6/14 657.
TOTAL TO DATE	35,500	552.	928.

TABLE XXIV

DISPOSAL SITE: 216-S-6 CRIB

WASTE STREAM: 202-S PROCESS VESSEL COOLING WATER

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
June 15 thru July 1955	1,600	30.5	15.3
August	1,050	8.10	11.0
September	1,010	47.5	9.45
October	1,030	23.2	68.0
November	845	18.9	44.7
December	212	2.54	3.94
January 1956	525	7.30	14.5
February	540	24.3	15.9
March	635	7.20	7.35
April	563	17.3	5.46
May	822	102.	55.
June	660	15.2	20.7
TOTAL 7/55-6/56	9,490	304.0	271
PREVIOUS TOTAL 3)	thru 6/30 5,530.	thru 6/14 76.7	thru 6/14 228.
TOTAL TO DATE	15,000.	381.	499.

TABLE XXV

DISPOSAL SITE: 216-S-7 CRIB

WASTE STREAM: D-1 WASTE FROM JANUARY 12, 1956 TO DATE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
January 1956 *	0.120	0.02	114
February	0.0937	2.02	2,750
March	1.31	1.77	21,500
April	-	-	-
May	0.019	0.318	109.
June	-	-	-
TOTAL TO DATE	1.54	4.13	24,500.

* This crib was first used January 12, 1956 for disposal of wastes previously sent to ground in the 216-S-1 and 2 Cribs.

TABLE XXVI

DISPOSAL SITE: 216-S-7 CRIB

WASTE STREAM: D-2 WASTE FROM JANUARY 12, 1956
TO DATE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
January 1956 *	27.5	62.5	8,220.
February	46.7	11.2	11,100.
March	52.5	19.3	2,870
April	43.0	3.55	2,390
May	50.6	9.58	6,640
June	35.5	6.81	3,820
TOTAL TO DATE	256.	113.	35,000

* This crib was first used January 12, 1956 for disposal of wastes previously routed to the 216-S-1 and 2 Cribs.

TABLE XXVII

DISPOSAL SITE: 216-SL-1 and 2 CRIBS

WASTE STREAM: WORKS LABORATORY WASTE IN
300 AREA FROM JULY 1953 TO DATE

SETTLING FACILITY: 340 WASTE TANKS

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
July 1955	3.02	0.340	24.2
August	4.16	3.41	33.3
September	4.54	2.54	1.32
October	3.40	0.0478	8.50
November	4.16	0.267	16.6
December	3.02	0.583	15.4
January 1956	4.54	1.02	8.17
February	4.16	0.555	6.24
March	4.91	2.69	4.42
April	5.67	1.84	30.6
May	6.05	1.01	24.2
June	2.65	3.18	9.28
TOTAL 7/55-6/56	50.3	17.5	182.
PREVIOUS TOTAL ³⁾	36.0	7.08	159.
TOTAL TO DATE	86.3	24.6	341.

CLASSIFIED

- 36 -

TABLE XXVIII

DISPOSAL SITE: 216-SL-1 and 2 CRIBS
 WASTE STREAM: 222-S CRIB WASTES FROM
 JANUARY 1952 TO DATE
 SETTLING FACILITY: 102-S TANK

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10^5	Units of Grams	Units of Curies
July 1955	0.366	0.468	1.91
August	0.384	1.16	0.852
September	0.316	0.109	0.115
October	0.332	0.562	0.369
November	0.226	0.168	0.143
December	0.200	0.328	0.001
January 1956	0.229	18.7	0.236
February	0.220	0.338	0.0768
March	0.226	11.6	0.0915
April	0.224	0.327	0.148
May	0.228	0.369	0.096
June	0.129	0.0577	0.049
TOTAL 7/55-6/56	3.08	34.1	4.09
PREVIOUS TOTAL ³⁾	14.6	19.7	12.8
TOTAL TO DATE	17.7	53.8	16.9

Isotopic analysis performed on samples collected during April, May and June showed values of 0.00592, 0.00724 and 0.00409 curies respectively for Cesium and 0.0077, 0.042 and 0.0375 curies respectively for Strontium.

TABLE XXIX

DISPOSAL SITE: 216-SL-1 and 2 CRIBS

WASTE STREAM: 207-SL BASIN FROM DECEMBER 1954
THROUGH JANUARY 1956

SETTLING FACILITY: 207-SL BASIN

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
July 1955	17.6	0.0465	0.0291
August	17.2	0.0415	0.0292
September	17.0	0.0150	0.0207
October	17.6	0.0482	0.0111
November	0.567	0.391	0.000153
December	16.4	1.85	0.00007
January 1956	1.13	0.131	0.000667
TOTAL 7/55-6/56	87.5	2.52	0.0905
*PREVIOUS TOTAL ³²¹⁾ 454.		6.63	6.52
TOTAL TO DATE	542.	9.15	6.61

* The waste reported going to the 216-SL-1 and 2 Cribbs in HW-33591 from February 1952 through June 1954 and in HW-38562 from July 1954 through November 1954 was reportedly sent to the 222-S Swamp. Previous totals have been corrected accordingly.

UNCLASSIFIED

- 38 -

44784

TABLE XXX

DISPOSAL SITE: 216-SL-1 and 2 CRIBS

WASTE STREAM: SUMMARY OF TABLES XXVII, XXVIII AND XXIX

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
July 1955	21.0	0.855	26.1
August	21.7	4.61	34.2
September	21.9	2.66	1.46
October	21.3	0.658	8.88
November	4.95	0.826	16.7
December	19.6	2.76	15.4
January 1956	5.90	19.9	8.41
February	4.38	0.893	6.32
March	5.18	14.3	4.51
April	5.89	2.17	30.7
May	6.28	1.38	24.3
June	2.78	3.24	9.33
TOTAL 7/55-6/56	141	54.3	186
PREVIOUS TOTAL ³⁾	505.	33.4	178
TOTAL TO DATE	646.	87.7	364.

TABLE XXXI

DISPOSAL SITE: 216-SX-1 CRIB
WASTE STREAM: SX TANK FARM CONDENSATE
SETTLING FACILITY: 106-SX TANK FOR SOME OF THE
CONDENSATE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
June 15 thru July 1955	8.73	0.0778	29.1*
August	5.43	0.0622	0.550
September	4.15	0.0779	1.07
October	6.00	0.0969	1.29
November	5.10	0.130	3.52
December	3.08	0.0460	2.53
January 1956	1.17	0.0430	0.155
February	1.35	0.0841	0.331
March	6.16	0.190	0.228
April	3.63	0.0174	4.51*
May	1.06	0.0269	0.141
June	3.48	0.0134	1.79
TOTAL 7/55-6/56	49.3	0.866	45.2
PREVIOUS TOTAL ³⁾	thru 6/30 14.3	thru 6/14 34.7	thru 6/14 9.77
TOTAL TO DATE	63.6	35.6	55.0

* Includes significant volume pumped direct from 106 SX Tank.

TABLE XXXII

DISPOSAL SITE: 222-S SWAMP
 WASTE STREAM: 207-SL RETENTION BASIN WATER FROM FEB.
 1952 THRU NOV. 1954 AND NOV. 1955 TO DATE
 SETTLING FACILITY: 207-SL RETENTION BASIN

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
July 1954	82.0	0.849	0.351
August	82.0	0.628	0.455
September	79.4	0.608	0.453
October	82.0	1.00	0.533
November	79.4	0.882	0.667
December *	-	-	-
January 1955	-	-	-
February	-	-	-
March	-	-	-
April	-	-	-
May	-	-	-
June	-	-	-
July	-	-	-
August	-	-	-
September	-	-	-
October	-	-	-
November	16.4	0.0557	0.0974
December	0.567	0.00142	0.0001
January 1956	15.9	0.00589	0.00634
February	17.0	0.00830	0.00513
March	17.0	0.00931	0.00734
April	17.0	0.0149	0.0102
May	17.0	0.012	0.000223
June	17.0	0.010	0.00473
TOTAL 7/1/54-6/30/56 523.		4.09	2.59
PREVIOUS TOTAL ^{2&4)} 1310		13.8	8.08
TOTAL TO DATE	1830	17.9	10.7

* Waste routed to 216-SL-1&2 Cribs from Dec. 1954 thru Oct. 1955.

TABLE XXXIII

DISPOSAL SITE: 276-S CRIB
WASTE STREAM: 0-2 AQUEOUS FROM 276-S BUILDING
SINCE FEBRUARY 1951
SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
July 1955	0.586	0.0234	0.267
August	0.586	0.0196	0.208
September	0.582	0.0795	0.0669
October	0.0189	0.00283	0.016
November	0.00170	0.00196	0.0461
December	0	-	-
January 1956	0	-	-
February	0	-	-
March	0.0113	-	-
April	0.00378	-	-
May	0.015	0.000146	0.0003
June	0.015	-	-
TOTAL 7/55-6/56	1.82	0.128	0.604
PREVIOUS TOTAL	*31.1	2.12	8.52
TOTAL TO DATE	32.9	2.25	9.12

* Estimate of volume prior to July 1955 was based on 15,500 gallons per month. An estimate of the total activity prior to July 1955 was based on the laboratory analysis of 116 samples taken during July, August, and September 1956.

TABLE XXXIV

DISPOSAL SITE: 216-TY-CRIBS
WASTE STREAM: SCAVENGED FIRST CYCLE WASTE SUPERNATANT
SETTLING FACILITY: TANKS AS INDICATED

DISPOSAL SITE	DATE EMPTIED	TANK NUMBER	VOLUME N _x 10 ⁵ LITERS	Pu GRAMS	URANIUM kg.	Total Beta	UNITS OF CURIES							pH
							Cs	Sr	Ru	Sb	Ce	R.E.	Zr-Nb	
TY-1	Aug. '55	1-104-TY	20.7	7.09	17.7	3760	22.5	252	286.	110.	1230.	194	460	8.4
TY-1	Aug. '55	2-103-TY	16.5	6.38	1.56	6330	55.0	263	418.	360	2000.	945.	2230	9.7
TY-1	Oct. '55	3-101-TY	19.2	24.4	66.9	5600	76.4	112	407	153	321	72.8	1610	9.6
TY-1	Dec. '55	4-103-TY	20.0	7.66	47.9	6550	1.58	23.8	1100.	158	876	1050.	776	9.95
TOTAL TO DATE			76.4	45.5	134.	22,200	155.	651.	2210.	811.	4430.	2260.	5080.	

TABLE XXXV

DISPOSAL SITE: 241-T.3 CRIB

WASTE STREAM: SECOND CYCLE FROM APRIL 1948 THRU
NOVEMBER 1955.
224-T FROM JUNE 1952 THRU NOV. 1955 AND
5-6 WASTES FROM JUNE 1951 THRU NOV. 1955

SETTLING FACILITY: THRU 110-111-112 T TANK CASCADE
PRIOR TO DISCHARGE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
July 1955	30.9	4.87	4.20
August	32.6	0.94	26.3
September	39.0	0.90	0.0581
October	29.6	1.02	3.10
November ⁽⁵⁾	24.2	3.06	0.200
TOTAL 7/55-6/56	156.	10.8	34.9
PREVIOUS TOTAL ³⁾	917.	120.	3060.
TOTAL TO DATE	1070.	131.	3090.

(5) Beginning noon 12/1/55 all T facility wastes from the 5-6,
2nd Cycle, and 224 wastes were routed to the 241-TX-153 Crib.

UNCLASSIFIED

- 44 -

N-44784

TABLE XXXVI

DISPOSAL SITE: 241-TX-153 CRIB

WASTE STREAM: (a) 242-T WASTE EVAPORATOR CONDENSATE FROM SEPT. 1951 THRU JULY 1955.
 (b) T-PLANT 2nd CYCLE, 5-6 WASTE, AND 224-T FROM DEC. 1955 TO DATE

SETTLING FACILITY: (a) NONE (b) 112-T TANK CASCADE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Curies
July 1955 *	2.26	< 0.001	< 0.001
August	-	-	-
September	-	-	-
October	-	-	-
November	-	-	-
December (5)	21.2	0.0291	0.0538
January 1956	16.0	5.41	0.0363
February	18.7	1.88	1560.
March	17.9	1.37	224.
April	16.1	0.487	166.
May	5.25	0.316	33.9
June	5.07	0.154	22.9
TOTAL 7/55-6/56	100.	9.65	2010.
PREVIOUS TOTAL ³⁾	350.	4.37	5.59
TOTAL TO DATE	450.	14.0	2020.

* This unit was shut down on 7-20-55.

(5) T-Plant 2nd Cycle, 5-6 and 224-T wastes were routed to this crib beginning at noon 12-1-55. Wastes were previously routed to 241-T-3 Crib for disposal.

TABLE XXXVII

DISPOSAL SITE: 216-U-3 CRIB

WASTE STREAM: CONDENSATE FROM 110-U TANK
CASCADE MAY 1954 TO DATE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ³	Units of Grams	Units of Grams	Units of Curies
July 1955	0.189	2.27	0.00118	0.00680
August	0.189	6.89	0.00177	0.000712
September	0	-	-	-
October	0	-	-	-
November	0	-	-	-
December	0	-	-	-
January 1956	0	-	-	-
February	0	-	-	-
March	0	-	-	-
April	0	-	-	-
May	0	-	-	-
June	0	-	-	-
TOTAL 7/55-6/56	0.378	9.16	0.00295	0.0075
PREVIOUS TOTAL ³⁾	7.50	17,900.	0.038	0.412
TOTAL TO DATE	7.88	17,900.	0.0410	0.420

TABLE XXXVIII

DISPOSAL SITE: 222-U DRYWELL

WASTE STREAM: 222-U LABORATORY WASTE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	PLUTONIUM	BETA PARTICLE EMITTERS
		Units of μg	Units of μc
July 1955	2.80	50,500	12,200
August	2.80	50,500	12,200
September	2.12	3.96	25,800
October	2.80	4.83	14,000.
November	-	-	-
December	1.80	3.06	4.87
January 1956	8.30	33.3	24,100.
February	3.95	4.19	10,900.
March	3.73	2.50	7,540.
April	110.	0.437	934.
May	1.99	2.92	9,660
June	1.95	2.61	7,550
TOTAL TO DATE	142.	101,000.	125,000

Isotopic analysis of all samples collected showed trace quantities only of Uranium, Cesium, Strontium and others. Details may be obtained by contacting the Exposure Illustrator.

TABLE XXXIX

DISPOSAL SITE: 216-WR, 1, 2 & 3 CRIBS

WASTE STREAM: 221-U CONCENTRATOR CONDENSATES
JULY 1952 TO DATE

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS	Ru
	Units of 10 ⁵	Units of kg.	Units of Grams	Units of Curies	Units of Curies
July 1955	48.4	184.	2.45	15.4	3.34
August	80.5	283.	5.91	34.9	13.8
September	46.5	675.	19.0	26.4	14.1
October	62.4	445	41.2	87.3	7.43
November	62.0	667	6.38	45.5	6.54
December	67.3	95.7	30.2	84.5	16.0
January 1956	36.8	505.	5.09	54.5	5.55
February	35.1	245.	2.44	25.1	4.64
March	42.8	698	7.52	525.	4.98
April	57.8	473	4.87	103.	17.3
May	87.7	202.	1.24	288.	34.8
June	87.3	289.	1.87	34.2	7.6
TOTAL 7/55-6/56	715.	4,760.	128	1,320	136
PREVIOUS TOTAL ³⁾	2160	18,400	224.	379.	-
TOTAL TO DATE	2880.	23,200	352.	1,700.	136

UNCLASSIFIED

- 48 -

HW-447

TABLE XL

DISPOSAL SITE: 361-WR CRIBS

WASTE STREAM: 224-U, 276-U, 221-U, & 5-6
WASTE FROM NOV. 1951 THRU JULY 1955

SETTLING FACILITY: 241-U - 361 SETTLING TANK

PERIOD	VOLUME IN LITERS	URANIUM	PLUTONIUM	BETA PARTICLE EMITTERS
	Units of 10 ⁵	Units of Grams	Units of Grams	Units of Curies
July 1955	0.378	454	0.649	0.310
TOTAL 7/55-6/56	0.38	454	0.65	0.31
PREVIOUS TOTAL ³⁾	92.6	3,120.	37.6	947.
TOTAL TO DATE	93.0	3,570.	38.3	947.

TABLE XLI

DISPOSAL SITE: 216-Z-10 CRIB

WASTE STREAM: RECUPLEX CRUCIBLE SLAG SLURRY
SINCE JULY 1954

SETTLING FACILITY: NONE

PERIOD	VOLUME IN LITERS	PLUTONIUM
	Units of 10 ⁵	Units of Grams
July 1955	0.212	67.4
August	0.435	40.3
September	0.507	70.8
October	0.429	85.9
November	0.409	82.3
December	0.556	130.
January 1956	0.288	58.4
February	0.092	31.5
March	0.486	134.
April	0.416	112.
May	0.438	68.6
June	0.510	111.
TOTAL TO DATE	4.78	992.

UNCLASSIFIED

- 50 -

TABLE XLIII

DISPOSAL SITE: 231-W TRENCH

WASTE STREAM: STANDARDS LABORATORY WASTE AND
PROCESS WASTE FROM FEB. 1947 TO
DATE

SETTLING FACILITY: SUMP 1 & 2

PERIOD	VOLUME IN LITERS	PLUTONIUM
	Units of 10 ⁵	Units of Grams
July 1955	0.303	0.57
August	0.258	0.17
September	0.238	1.03
October	0.341	25.9
November	0.0576	0.39
December	0.216	8.33
January 1956	0.473	0.12
February	0.0662	0.04
March	0.0655	0.05
April	1.85	0.05
May	0.220	0.746
June	0.166	0.160
TOTAL 7/55-6/56	4.19	37.6
PREVIOUS TOTAL ³⁾	412.	438.
TOTAL TO DATE	416.	476.

TABLE XLIII

DISPOSAL SITE: 234-5 - #1, 2 CRIBS AND CULVERT

WASTE STREAM: ANALYTICAL LABORATORY WASTE ,
DEVELOPMENT LABORATORY WASTE,
AND PROCESS WASTE FROM JUNE 1949
TO DATE.

SETTLING FACILITY: SUMPS D-4, D-5, D-6, D-7, & D-8

PERIOD	VOLUME IN LITERS	PLUTONIUM
	Units of 10 ⁵	Units of Grams
July 1955	29.6	29.8
August	48.2	32.6
September	47.2	96.1
October	39.2	38.4
November	18.6	56.6
December	36.4	25.5
January 1956	18.9	16.1
February	21.3	19.2
March	20.7	47.4
April	39.9	38.5
May	9.69	199.
June	20.7	35.9
TOTAL 7/55-6/56	350	635
PREVIOUS TOTAL ³⁾	772.	573.
TOTAL TO DATE	1,120.	1,210.

UNCLASSIFIED

- 52 -

HW-28121(1)

LARGE VOLUME WASTES TO OPEN DISPOSAL SITES

In addition to the radioactive wastes discharged to ground large quantities of relatively uncontaminated water from the separations process were discharged to open storage areas in and near the separation facilities. Periodic process difficulties allowed trace quantities of radioactive material to enter these streams and thus cause these locations to become disposal sites for radioactive wastes.

Prior to this publication, volume data for these locations was estimated in HW-28121(1) for the period 1945-1953, and in HW-38562(3) for the period January 1954 thru June 1955. Subsequent volume data was obtained from Earth Sciences Unit of Radiological Sciences.

Weekly liquid samples were collected by Regional Monitoring and analyzed for the activity density of gross alpha and gross beta particle emitters. Estimates of the total activity discharged to these sites were calculated by the Radiation Measurements Evaluation Group(6). Tables XLIV thru XLVI summarize these data for individual sites. Large fluctuations in volume and low sampling frequency necessitate re-emphasizing that the curie and gram values should be regarded as estimates only.

TABLE XLIV

DISCHARGE TO THE 200 EAST AREA "B" SWAMP

PERIOD		VOLUME	BETA PARTICLE EMITTERS	PLUTONIUM
FROM	THRU	Units of liters	Units of Curies	Units of Grams
Apr. '45	Dec. '49	6.5×10^9	2.2	1.0
Jan. '50	Mar. '52	7.75×10^9	7.1	0.18
Apr. '52	July '54	2.58×10^9	1.1	0.25
Aug. '54	June '55	1.82×10^8	0.056	0.012
July '55	June '56	2.67×10^9	1.5	1.4
TOTAL		1.97×10^{10}	12.0	2.84

TABLE XLV

DISCHARGE TO THE 200 WEST AREA "T" SWAMP

PERIOD		VOLUME	BETA PARTICLE EMITTERS	PLUTONIUM
FROM	THRU	Units of Liters	Units of Curies	Units of Grams
Nov. '44	Dec. '49	1.05×10^{10}	0.47	1.2
Jan. '50	Dec. '51	6.92×10^9	2.60	0.28
Jan. '52	May '53	2.93×10^9	3.20	0.19
June '53	July '54	3.22×10^9	48.0	0.26
Aug. '54	Oct. '54	1.04×10^9	2.10	0.036
Nov. '54	June '55	2.80×10^9	26.9	0.0886
July '55	June '56	3.54×10^9	27.0	0.081
TOTAL		3.10×10^{10}	110.	2.14

TABLE XLVI

DISCHARGE TO THE 200 WEST AREA "U" SWAMP

PERIOD		VOLUME	BETA PARTICLE EMITTERS	PLUTONIUM
FROM	THRU	Units of Liters	Units of Curies	Units of Grams
Nov. '44	Dec. '48	1.98×10^9	0.040	0.42
Jan. '49	Nov. '52	2.70×10^9	0.19	1.2
Dec. '52	Mar. '53	1.52×10^9	0.41	0.91
Apr. '53	June '54	7.77×10^9	6.77	5.64
July '54	June '55	6.20×10^9	370.	7.90
July '55	June '56	6.69×10^9	88.	8.90
TOTAL		2.69×10^{10}	465.	25.0

UNCLASSIFIED

- 56 -

HW-44784

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- (4) Letter H. V. Clukey to H. J. Paas, November 1, 1955.
- (5) Letter H. V. Clukey to P. R. McMurray, December 2, 1955.
- (6) Letter H. T. Norton to K. R. Heid, July 11, 1956.

END

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4 / 23 / 92