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April 7, 1961

RADIOACTIVE CONTAMINATION IN LIQUID WASTES
DISCHARGED TO GROUND AT SEPARATIONS FACILITIES
THROUGH JUNE 1960

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INTRODUCTION

This document summarizes the amounts of radioactive contamination discharged to ground from separations facilities through June 1960. Detailed data for individual disposal sites are presented on a month-to-month basis for the period of January through June 1960. Previous publications of this series are listed in the bibliography and may be referred to for specific information on measurements and radioactivity totals prior to January 1960.

Tables I and II list the major disposal sites in the separations facilities, total volume of waste discharged to each location, and the gross amounts of plutonium and beta particle emitters discharged to ground since start-up. Tables III through XXIV present this same data on a monthly basis for cribs still in use, and also include information on the source of the waste stream and the settling facility if used.

Isotopic data are included for disposal sites from which the waste was analyzed for specific contaminants. Estimates of contamination and volumes discharged to swamps are also included in Table XXV.

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ABSTRACT

Swamps

Open disposal sites at the separation areas have received approximately 1.55×10^{11} liters since start-up. Approximately 2514 curies of fission products and 450 grams of plutonium were contained in this waste.

Other Disposal Sites

Exclusive of large volume open waste disposal sites, the estimated volume of waste discharged to ground since start-up was 1.61×10^{10} liters. Included in this is over 2,517,600 curies of fission products and 46.91 kilograms of plutonium.

TABLE I

SUMMARY OF RADIOACTIVE WASTES DISCHARGEDTO MAJOR DISPOSAL SITES IN THE 200 EAST AREA THROUGH JUNE 1960

Disposal Facility	Volume in Liters	Plutonium in Grams	Beta Particle Emitters in Curies
<u>"A" Facility</u>			
216-A-2 Crib	1.54×10^5	127.0	466.0
216-A-3 Crib	1.06×10^6	2.41	382.0
216-A-4 Crib	6.23×10^6	140.0	267.0
216-A-5 Crib	1.32×10^9	48.0	2,499.0
216-A-6 Crib	2.48×10^9	18.2	1,131.0
216-A-7 Crib	8.0×10^4	--	17.0
216-A-8 Crib (a)	1.03×10^9	49.0	10,300.0
216-A-9 Crib	1.31×10^9	--	54.3
216-A-10 Crib	2.34×10^8	--	--
216-A-21 Crib	1.70×10^7	13.3	717.0
216-A-24 Crib	6.94×10^8	< 1.3	4,026.0
216-A-28 Crib (b)	3.0×10^4	0.0	31.0
<u>"B" Facility</u>			
5 and 6 Crib (c)	3.60×10^7	174.0	7,800.0
216-BC Crib	3.88×10^7	49.5	319,000.0
216-BC Trenches	7.98×10^7	62.7	601,000.0
216-BX Trenches	1.48×10^7	5.66	15,800.0
216-BY Crib	3.38×10^7	60.9	409,000.0
216-ER Crib	3.72×10^8	367.0	2,570.0
241-B-1 and 2 Crib	4.46×10^7	4,260.0	5,350.0
241-B-3 Crib	2.72×10^7	29.0	710.0
241-B-361 Rev. Well	3.06×10^7	4,280.0	3,800.0
242-B-1 and 2 Crib	2.96×10^7	3.73	38.9
"B" Swamp (Incl. Purex)	4.79×10^{10}	4.21	36.4
"G" Mtn. Swamp	1.89×10^{10}	0.36	26.9
<u>"C" Facility</u>			
216-C-1 Crib	3.24×10^7	8.21	11,400.0
216-C-4 Crib	4.77×10^4	1.40	119.0
216-C-5 Crib	3.89×10^3	--	93.9
216-C-6 Crib	7.43×10^3	0.05	4.5
200 East Area (Excluding Swamps)	7.83×10^9	9,701.0	1,396,600.0

(a) 2.05×10^7 gallons of test water included in column for 216-A-8 Crib.

(b) Started up January 1960. Receives 203-A waste formerly discharged to 216-A-22.

(c) Alternate nomenclature - 241-B-361 Crib.

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TABLE II

SUMMARY OF RADIOACTIVE WASTES DISCHARGED

TO MAJOR DISPOSAL SITES IN THE 200 WEST AREA THROUGH JUNE 1960

Disposal Facility	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	1,180.0	753,000.0
216-S-3 Crib	4.21×10^6	0.37	267.0
216-S-5 Crib	4.06×10^9	582.0	960.0
216-S-6 Crib	2.71×10^9	448.0	1,083.0
216-S-7 Crib	1.94×10^8	302.0	265,300.0
216-SL-1 and 2 Cribs	8.82×10^7	154.0	2,569.0
216-SX-1 Crib	3.14×10^7	2.15	151.0
276-S Crib	3.43×10^6	6.05	14.1
222-S Swamp	1.74×10^8	18.1	11.2
202-S-1 Swamp (Abnd.)	6.35×10^9	3.27	1,050.0
202-S-2 Swamp	6.73×10^9	282.6	671.9
<u>"T" Facility</u>			
216-TY-1 Crib	1.11×10^7	58.6	28,800.0
216-TY-3 Crib (a)	4.06×10^5	2.89	22.8
241-T-1 and 2 Cribs	2.90×10^7	3,720.0	1,500.0
241-T-3 Crib	1.07×10^8	131.0	3,090.0
241-T Trenches	6.50×10^6	178.0	3,430.0
241-T-17 Cribs (b)	9.68×10^5	1.43	840.0
T-361-A Reverse Well	1.13×10^7	3,350.0	2,800.0
241-TX Trenches	8.02×10^6	7.10	33,500.0
241-TX-153 Crib	4.56×10^7	14.2	2,040.0
361-T-1 and 2 Cribs	4.50×10^7	392.0	17,800.0
"T" Swamp	3.10×10^{10}	0.01	111.0
<u>"U" Facility</u>			
216-U-1 and 2 Cribs	1.79×10^6	4.17	235.0
216-U-3 Crib	7.88×10^5	0.04	0.42
216-U-8 Crib (c)	3.75×10^8	367.0	2,686.0
216-U-12 Crib (d)	2.57×10^6	--	0.82
222-U Drywell	1.41×10^3	0.58	0.78
361-WR Cribs	9.31×10^6	38.3	947.0
"U" Swamp	4.40×10^{10}	141.3	606.3

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TABLE II Continued

Disposal Facility	Volume in Liters	Plutonium in Grams	Beta Particle Emitters in Curies
"Z" Facility			
216-Z-3 Crib	2.06×10^8	5,698.0	--
216-Z-8 Crib	8.29×10^3	40.0	--
216-Z-9 Crib	2.76×10^6	16,660.0	--
216-Z-12 Crib	6.02×10^7	3,000.0	--
231-W Trench	4.17×10^7	479.0	--
231-1 and 2 Crib	3.08×10^6	340.0	--
231-W-150 Reverse Well	1.00×10^6	50.1	--
200 West Area (Excluding Swamps)	8.24×10^9	37,207.0	1,121,000.0

- (a) 221 T waste handling and decontamination as of February 1960.
 (b) Alternate nomenclature 261-U-10 Crib.
 (c) Formerly called 216-WR-1, 2, and 3 Crib - discontinued end of March 1960.
 (d) Disposal began April 1960; Receives waste formerly discharged to 216-U-8 Crib.

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TABLE III

Disposal Site: 216-A-2 Crib

Waste Stream: Spent organic extraction from May 1956 to date

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Beta Particle Emitters
January, 1960	--	--	--	--
February	--	--	--	--
March	0.016	3.629	3	*
April	--	--	--	--
May	--	--	--	--
June	0.015	0.454	21	179
6 Month Total	0.031	4.08	24	179
Previous Total	0.123	37.6	103.0	287
Total to Date	0.154	41.7	127.0	466

* Analysis not reported

TABLE IV

Disposal Site: 216-A-3 Crib

Waste Stream: Silica gel waste from 203-A From March 1952 to date

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Units in Curies			
				Beta Particle Emitters	Cs ¹³⁷	Sr ⁹⁰	Ru ¹⁰⁶
January, 1960	0.024	14.52	0.0	0.058			
February	0.024	0.45	0.0	0.037			
March	0.012	3.63	0.0	0.126			
April	0.036	12.70	0.0	0.17			
May	0.036	26.31	0.0	0.16			
June	0.019	0.45	0.0	0.46			
6 Month Total	0.151	58.06	0.0	1.01			
Previous Total	0.906	822.9	2.41	380.7	0.006	0.019	0.058
Total to Date	1.057	881.0	2.41	381.7	0.006	0.019	0.058

TABLE V

Disposal Site: 216-A-5 Crib

Waste Stream: Process condensate from 202-A from November 1955 to date

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Beta Particle Emitters
January, 1960	42.392	0.0	0.0	39.9
February	24.830	0.0	0.0	91.9
March	16.427	$<1.61 \times 10^{-6}$	2.31	255
April	45.798	3.697	5	141
May	26.116	0.907	0.0	35.0
June	16.276	0.454	0.0	13
6 Month Total	171.8	5.06	7.31	575.8
Previous Total	1,148.0	200.81	40.7	1,923.0
Total to Date	1,319.8	205.87	48.01	2,499

TABLE VI

Disposal Site: 216-A-6 Crib

Waste Stream: Coil and jacket steam condensate from 202-A from November 1955
to date

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Beta Particle Emitters
January, 1960	62.07	0.0	0.0	10.4
February	52.61	0.0	0.0	1.53
March	38.99	$<1.3 \times 10^{-8}$	0.12	3.7
April	53.37	0.4	0.0	11
May	43.91	0.0	0.0	2.5
June	35.58	0.0	0.0	12.3
6 Month Total	286.5	0.400	0.12	41.4
Previous Total	2,197.0	152.0	18.1	1,090.0
Total to Date	2,483.5	152.4	18.22	1,131.4

TABLE VII

Disposal Site: 216-A-21 Crib (a)

Waste Stream: I¹³¹ caustic scrubber waste from October 1957 to date

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Beta Particle Emitters
January, 1960	1.24	1.36	0.0	35.6
February	0.90	0.91	0.0	17.5
March	0.36	0.45	1	5.4
April	1.72	1.81	1	30.1
May	0.95	0	2	41.0
June	0.42	0.91	8	31.3
6 Month Total	5.59	5.44	12	160.9
Previous Total	11.42	2.51	1.3	556.0
Total to Date	17.01	7.95	13.3	716.9

(a) Replacement for 216-A-4 Crib, abandoned December 1958.

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TABLE VIII

Disposal Site: 216-A-24 Crib

Waste Stream: Tank farm condensate and cooling water from May 19, 1958 to date

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Beta Particle Emitters
January, 1960	1.47	0.0	0.0	20.7
February	1.36	0.0	0.0	46.3
March	1.61	8.62×10^{-9}	0.32	11.5
April	1.51	0.0	0.0	10.7
May	0.87	0.0	0.0	4.0
June	2.27	0.0	0.0	6.2
6 Month Total	9.1	8.62×10^{-9}	0.32	99.4
Previous Total	685.0	48.9	<1.0	3,927.0
Total to Date	694.1	48.9	<1.32	4,026.4

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TABLE IX

Disposal Site: 216-A-28 Crib*

Waste Stream: 203-A Floor sump as of December 1959 (Receives 203 series tank flushes and condensate from heating coils in 203-A)

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Beta Particle Emitters
January, 1960	0.0	0.0	0.0	0.0
February	0.0	0.0	0.0	0.0
March	0.0	0.0	0.0	0.0
April	0.0	0.0	0.0	0.0
May	0.030	623.2	0.0	31
June	0.0	0.0	0.0	0.0
6 Month Total	0.030	623.2	0.0	31.0
Previous Total	0.0	0.0	0.0	0.0
Total to Date	0.030	623.2	0.0	31.0

* Located north of 203-A UNH storage area; largely a replacement for 716-A-22 Crib which now receives only flushes from the UNH truck pad at 203-A.

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TABLE X

Disposal Site: 216-S-6 Crib

Waste Stream: 202-S Process Vessel cooling water since October 1954

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Units in Curies			
				Beta Particle Emitters	Cs ¹³⁷	Sr ⁹⁰	Co ⁶⁰
January, 1960	16.654	1.700	0.053	33.396			
February	4.921	2.186	0.006	1.365			
March	14.004	0.404	<0.007	6.845			
April	13.626	0.103	<0.007	32.292			
May	11.355	0.423	0.030	5.070			
June	16.276	1.329	0.017	13.975			
6 Month Total	76.84	6.145	0.120	93.2	3.634	<0.031	<0.203
Previous Total	2631.0	31.491*	447.4	990.0	38.51	178.15	0.221
Total to Date	2707.8	37.64	447.5	1083.2	42.14	178.15	<0.424

* As a result of a calibration error in a low level fluorimeter, the uranium "6 month total" for the period July 1959 - December 1959 and the uranium "total to date" values reported in HW-64375 were understated by 7.821 kilograms. This error is corrected in this report.

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TABLE XI

Disposal Site: 216-S-7 Crib

Waste Stream: D-1 and D-2 wastes from January 12, 1956 to date

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Units in Curies			
				Beta Particle Emitters	Cs ¹³⁷	Sr ⁹⁰	Co ⁶⁰
January, 1960	2.814	3.176	0.268	147.195			
February	1.591	8.024	0.420	110.995			
March	1.827	30.714	4.633	302.136			
April	2.708	13.985	0.462	191.047			
May	1.469	0.811	0.124	457.934			
June	4.331	Sample Composite Lost					
6 Month Total	14.7	56.71	5.9	1209.3	9.424	<0.006	<0.039
Previous Total	179.4	2345.768*	296.0	264,092.0	216.1	2773.0	1.91
Total to Date	194.1	2402.5	301.9	265,301.3	225.5	2773.0	1.91

* As a result of a calibration error in a low-level fluorimeter, the uranium "6 month total" for the period July 1959 - December 1959 and the uranium "total to date" values reported in HW-64375 were understated by 24.768 kilograms. This error is corrected in this report.

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TABLE XII

Disposal Site: 216-SL-1 and 2 Cribs

Waste Stream: 300 Area works laboratory since July 1953 (340 waste tanks)

Period	Volume ($n \times 10^6$ L)	Uranium (kilograms)	Plutonium (grams)	Beta Particle Emitters
January, 1960	0.473	--	0.069	9.750
February	0.435	--	0.068	16.215
March	0.416	--	0.187	9.130
April	0.507	--	0.104	21.440
May	0.507	--	0.064	28.140
June	0.545	--	1.440	144.0
6 Month Total	2.88	--	1.93	228.7
Previous Total	28.5	--	83.8	2311.0
Total to Date	31.4	--	85.7	2539.7

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TABLE XIII

Disposal Site: 216-SL-1 and 2 Cribs

Waste Stream: 222-S Crib wastes from January 1952 to date

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Units in Curies		
				Beta Particle Emitters	Cs ¹³⁷	Sr ⁹⁰
January, 1960	0.023	0.169	0.019	0.238		
February	0.013	0.111	0.024	0.100		
March	0.011	0.244	0.0	0.009		
April	0.011	0.058	0.020	0.107		
May	0.008	0.775	0.001	0.030		
June	0.013	0.147	0.0	0.111		
6 Month Total	0.079	1.504	0.064	0.595	0.001	0.0
Previous Total	2.51	2.135*	58.66	22.0	0.307	1.37
Total to Date	2.589	3.639	58.72	22.6	0.308	1.37

* As a result of a calibration error in a low-level fluorimeter, the uranium "6 month total" for the period July 1959 - December 1959 and the uranium "total to date" values reported in HW-64375 were understated by 1.845 kilograms. This error is corrected in this report.

TABLE XIV

Disposal Site: 216-SL-1 and 2 Cribs

Waste Stream: Summary of 300 Area Works Lab., 222-S, and 207-SL Basin*

Period	Volume ($n \times 10^6$ L)	Plutonium (grams)	Beta Particle Emitters
January	0.496	0.088	9.988
February	0.448	0.092	16.315
March	0.427	0.187	9.139
April	0.518	0.124	21.547
May	0.515	0.065	28.170
June	0.558	1.440	144.111
6 Month Total	2.962	1.996	229.270
Previous Total	85.21	151.61	2339.6
Total to Date	88.2	153.6	2568.9

* 207-SL basin is inactive. In the past a total of 54.2×10^6 liters of waste containing 9.15 grams of plutonium and 6.6 curies of beta particle emitters were discharged from 207-SL basin to 216-SL-1 and 2 Cribs. Thus these totals are included in the grand totals to date for 216-SL-1 and 2.

* As a result of a calibration error in a low-level fluorimeter, the uranium "6 month total" for the period July 1959 - December 1959 and the uranium "total to date" value reported in HW-64375 were understated by 0.198 kilograms. This error is corrected in this report.

Period	Volume ($n \times 10^6$ L)	Uranium (kilograms)	Plutonium (grams)	Beta Particle Emitters	Cs 137	Sr 90	RE+Y	Co 60
January, 1960	0.508	0.007	0.0	0.512				
February	0.489	0.028	0.0	0.305				
March	0.512	0.080	0.0	0.321				
April	0.516	0.024	0.0	0.369				
May	0.459	0.001	0.001	0.748				
June	0.459	0.002	0.0	0.351				
6 Month Total	2.94	0.142	0.001	2.61	0.670	<0.001	0.093	<0.008
Previous Total	28.43	3.008+	2.15	148.0	76.5	17.6	38.8	0.04
Total to Date	31.37	3.15	2.15	150.6	77.2	17.6	38.9	0.04

Disposal Site: 216-SX-1 Cr1b
Waste Stream: 241-SX Tank Farm condensate since November 1954

TABLE XV

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Beta Particle Cs 137 Emitters	Sr 90
January, 1960	0.002	0.0	0.001	0.034	
February	0.002	No Samples Received			
March	0.002	0.0	0.002	0.052	
April	0.002	0.0	0.0	0.047	
May	0.002	No Samples Received			
June	0.006	0.0	0.0	0.005	
6 Month Total	0.016	0.0	0.003	0.138	--
Previous Total	3.41	0.021	6.05	14.0	0.008
Total to Date	3.43	0.021	6.05	14.1	0.008
					0.04

TABLE XVI

Disposal Site: 276-S crib

Waste Stream: 0-2 Aqueous from 276-S Building since February 1951

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TABLE XVII

Disposal Site: 216-TY-3 Crib

Waste Stream: 221-T waste handling and decontamination operation since February 1960

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Beta Particle Emitters
January				
February	0.088	0.702	1.651	2.882
March	0.062	4.545	--	6.787
April	0.016	0.210	0.040	2.358
May	0.061	2.504	0.143	1.738
June	0.179	1.708	1.060	9.054
6 Month Total	0.406	9.669	2.894	22.819
Previous Total	--	--	--	--
Total to Date	0.406	9.669	2.894	22.819

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TABLE XVIII

Disposal Site: 216-U-8 Cribs*

Waste Stream: (a) 221-U concentrator condensate - July 1952 to April 1957
 (b) 224-U concentrator condensate - July 1952 to April 1960

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Units in Curies	
				Beta Particle Emitters	Ru ¹⁰⁶
January, 1960	1.035	92.988	0.161	0.085	--
February	0.894	58.968	--	0.011	--
March	1.037	8.1648	--	0.030	--
April	Discontinued as of March 1960**				
May					
June					
6 Month Total	2.97	160.12	0.161	0.126	--
Previous Total	372.1	24,063.0	367.0	2,686.0	224.0
Total to Date	375.1	24,223.1	367.2	2,686.1	224.0

* Formerly called 216-WR-1, 2, and 3 Cribs

** These wastes are now being discharged to 216-U-12 Crib

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TABLE XIX

Disposal Site: 216-U-12 Crib

Waste Stream: 224-U concentrator condensate - April 1960 to date

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Units in Curies	
				Beta Particle Emitters	Sr ⁹⁰
January, 1960					
February					
March					
April	0.821	2.9	--	0.124	--
May	1.098	23.6	--	0.44	$< 8.78 \times 10^{-5}$
June	0.652	58.1	--	0.26	$< 5.22 \times 10^{-5}$
6 Month Total	2.571	84.6	--	0.824	$< 1.40 \times 10^{-4}$
Previous Total	0.0	0.0	--	0.0	0.0
Total to Date	2.571	84.6	--	0.824	$< 1.40 \times 10^{-4}$

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TABLE XX

Disposal Site: 222-U Drywell

Waste Stream: 222-U Laboratory waste

Period	Volume (liters)	Uranium (grams)	Plutonium (grams)	Units in Curies			
				Beta Particle Emitters	Cs ¹³⁷	Sr ⁹⁰	Ru ¹⁰⁶
January, 1960	432	0.0	0.0	0.016006	--	0.000004	--
February	9	0.0	0.0	0.000019	0.0036	--	--
March	51.5	0.0	0.0	0.140	0.140	--	--
April	0.0	0.0	0.0	0.0	--	--	--
May	50.3	0.0	0.0	0.273	0.020	--	0.253
June	20.5	0.0	0.0	0.001034	0.000034	--	0.001
6 Month Total	563.3	0.0	0.0	0.4301	0.1636	0.000004	0.254
Previous Total	850.0	8,860.0	0.581	0.3476	0.0075	0.00832	<0.027
Total to Date	1413.3	8,860.0	0.581	0.778	0.171	0.00832	<0.281

TABLE XXI

Disposal Site: 216-U-1 and 2 Cribs

Period	Volume (n x 10 ⁶ L)	Uranium (kilograms)	Plutonium (grams)	Beta Particle Emitters
January, 1960	0.035	2.280	0.027	9.202
February	0.070	0.991	0.891	37.903
March	0.051	1.959	0.053	46.898
April	0.033	0.640	0.048	2.371
May	0.112	11.989	0.178	24.871
June	0.033	1.436	0.081	3.372
6 Month Total	0.334	19.295	1.278	124.617
Previous Total	1.46	181.3	2.89	110.2
Total to Date	1.79	200.6	4.17	234.8

TABLE XXII

Disposal Site: 216-Z-8 Crib

Waste Stream: Recouplex slag slurry since July 1955

Period	Volume (liters)	Plutonium (grams)
January, 1960	400	1.74
February	300	1.31
March	200	0.872
April	300	1.308
May	300	1.308
June	200	0.872
6 Month Total	1700	7.410
Previous Total	6590	32.60
Total to Date	8290	40.01

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TABLE XXIII

Disposal Site: 216-Z-9 Crib

Waste Stream: Recouplex silica supernatant overflow since October 1957

Period	Volume (n x 10 ⁶ L)	Plutonium (grams)
January, 1960	0.046	289.0
February	0.051	370.0
March	0.030	294.0
April	0.051	377.0
May	0.045	286.0
June	0.056	306.0
6 Month Total	0.279	1,922.0
Previous Total	2.48	14,638.0
Total to Date	2.76	16,660.0

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TABLE XXIV

Disposal Site: 216-Z-12 Crib

Waste Stream: Analytical laboratory wastes, development laboratory wastes and process wastes from March 11, 1959 to date

Period	Volume (n x 10 ⁶ L)	Plutonium (grams)
January, 1960	3.158	371.42
February	3.402	29.04
March	3.091	60.83
April	3.550	1102.08*
May	3.244	71.41
June	3.981	89.13
6 Month Total	19.43	1723.9
Previous Total	40.76	1276.0
Total to Date	60.19	2999.9

* A defective J-7 concentrator coil resulted in 1027 grams of plutonium to sump during period 4-25-60 through 4-30-60

LARGE VOLUME WASTES TO OPEN DISPOSAL SITES

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

Prior to this publication, estimates of volume and radioactivity were reported in documents HW-59359, HW-63646, and HW-64375. Subsequent volume data were obtained from the process and operating groups.

Monthly samples were collected by the Environmental Monitoring Operation 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 Radiological Chemical Analysis Operation when not supplied by the operating groups. Large fluctuation in volume and low sampling frequency necessitate re-emphasizing that the curie and gram values should be regarded as estimates only.

TABLE XXV
SWAMPS CURRENTLY IN USE

January-June 1960

Disposal Site	Volume (Liters)		Plutonium (Grams)		Beta Particle Emitters (Curies)	
	January-June	Total to Date	January-June	Total to Date	January-June	Total to Date
"B" Swamp	1.30×10^9	4.79×10^{10}	0.03	4.21	0.49	36.4
"U" Swamp	7.96×10^8	4.40×10^{10}	3.3	141.3	0.32	606.3
202-S-2	1.19×10^9	6.73×10^9	<0.630	282.6	<1.92	671.9
222-S	1.36×10^7	1.74×10^8	<0.010	18.11	<0.013	11.20
Gable Mt.	3.81×10^9	1.89×10^{10}	0.054	0.356	1.93	26.9

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