BOOK80R

Notes:
"INV 83" on front
"1893" on spine

Blank pages: 4, 10-26, 47-49, 78-95

-paper clip at top of inside cover sheet
-page 1 has 3 (8.5x11) sheets stapled to it and red tab at top of side with "PL-25 UO_3 H_2O" written on it
-page 25 has red tab at side with "5-25" written on it
-pages 38/39 has 3 sheets taped between pages
-pages 44/45 has 1 large sheet (with 1 (8.5x11) green sheet stapled to it) stapled at top of page
-page 51 has red tab at side with "UO_2 F_2 PL" written on it
-page 53 has large sheet stapled to it, with smaller sheet stapled to large sheet
-page 60 has calendar sheet (12/28/53) stapled to it
-page 63 has large sheet stapled to it
-page 64 has 1 sheet stapled to it
-page 97 has 1 large paper stapled to it

Scanned by:
Sheila Finch
RSICC /Oak Ridge National Lab.
August 30, 1999

SOME INSTRUCTIONS FOR USE OF THIS NOTEBOOK

1. This notebook is assigned to personnel performing research and development work and must be used for all original calculations, notes and abstracts from reports.

2. Assignee is responsible for the safeguarding of this notebook in accordance with security regulations.

3. This notebook must be returned to issuing office when completed or upon termination of assignee.

4. Every page or entry should bear a date and the signature of the person who made the entry.

5. Entries should be made in ink whenever it is reasonable to do so.

6. Alteration or amplification of entries made on previous dates should be made as separate entries under their own dates and cross referenced to the previous entries.

7. Charts, drawings and graphs drawn on special paper should be glued or otherwise securely fastened in place and should individually bear a date and signature. Do not obscure any information.

8. The notebook should be periodically reviewed by one or more independent persons in the department and should be signed and dated by them. Likewise, they should make a statement that they have "read and *understood* the foregoing material." Witnessing stamps for this purpose are available in your department's office.

9. It is advisable to preface each new item, such as a heat treatment, process or reaction, etc., with a very brief description of the purpose, objective or approach.

10. Description of the invention or discovery should be complete enough to be understood by anyone skilled in the art.

11. Reference to name or catalogue number should be made when standard items are being discussed, i.e., *Westinghouse* pump.

12. In cases where work is conducted in cooperation with others, it is often necessary to meet with them from time to time and to discuss new developments. The occurences of such conferences should always be entered in your notebook regardless of recording elsewhere, giving the date, who was present (if possible), and an outline of the subjects discussed. This often will establish error in occasional claims of other parties that you have appropriated information from them revealed during an interview, and thus provide you with patent protection.

CARBIDE AND CARBON CHEMICALS COMPANY

OAK RIDGE, TENNESSEE

"This document consists of 100 pages. No. X of X copies, Series A"

NOTEBOOK NO. Y-NB-1893 2/7/97

C. Hoppe

Assigned to: D. F. Cronin

Department: 3405

Location: Bldg. 9735

Date: 1-13-53

This notebook is assigned to personnel performing research and development work and must be used for all original calculations, notes and abstracts from reports.

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Subject

SF Material Inventory

8-5-91/BFC

11/15/89 d

11-5-90 INV/BFC

RESTRICTED DATA

This document contains restricted data as defined in the Atomic Energy Act of 1946.

Classification changed to: Unclassified (level and category)

By authority of: CRG ltr 2/24/86 (classification guide)

6/24/94 Date

ADC or ADD signature (first reviewer)

Ted Davis 6/24/94 Date

ADD signature (final reviewer)

"This document consists of 112 pages. No. 1 of 1 copies, Series A"

5-25-60

VERNON ROYAL LINE U. S. A.

UO_3 oxide } 1923 — U_3O_8 25

nitrate — 43

floride — 37

sulfate — 66

acetate —

metal —

water wash = 41 Com. Salvage 67

5% = 10 - - - Misc = 1999

½" = 7 - -

Act	87	84	83	86
Not	1937	1901	1920	1922
		1025		
		720		
		1923		
		233		
		1037		

Pellets Drying Test. From 11/16/59 to 11/19/59

avg for all bottles = 2.16%

Bottle #1		1st weighing	2nd weighing	Bottle #2	1st w	2nd w
Gross	737.8	723.1	723.1	715.0	702.2	702.2
Tare	90.9	90.9	90.9	91.8	91.8	91.8
Net	646.9	632.2	632.2	623.2	610.4	610.4
	646.9			623.2		
	632.2			610.4		
1st diff	14.7			1st diff 12.8		
	2.27%			2.05%		

Bottle #3		1st w	2nd w	Bottle #4	1st	2nd
Gross	705.1	692.9	692.9	775.0	760.8	760.8
Tare	94.2	94.2	94.2	87.8	87.8	87.8
Net	610.9	598.7	598.7	687.2	673.0	673.0
	610.9			687.2		
	598.7			673.0		
1st diff	12.2			14.2		
	2.00%			2.07%		

Bottle #5		1st w	2nd w	Bottle #6	1st	2nd
Gross	754.3	741.0	741.0	797.7	782.5	782.5
Tare	91.5	91.5	91.5	95.4	95.4	95.4
Net	662.8	649.5	649.5	702.3	687.1	687.1
	662.8			702.3		
	649.5			687.1		
	13.3			15.2		
	2.005%			2.16%		

Bottle #7		1st w	2nd w	Bottle #8	1st w	2nd w
Gross	749.0	735.7	735.1	653.5	639.6	639.6
Tare	93.3	93.3	93.3	87.7	87.7	87.7
net	655.7	642.4	642.4	565.8	551.9	551.9
	655.7			565.8		
	642.4			551.9		
	13.3			1st diff 13.9		
	2.029			2.46%		

Bottle #9 ✓		1st w	2nd w	Bottle #10	1st	2nd
Gross	745.5	731.5	731.5	669.0	657.0	657.0
Tare	96.5	96.5	96.5	93.7	93.7	93.7
net	649.0	635.0	635.0	575.3	563.3	563.3
	699.0			575.3		
	635.0			563.3		
	1st diff 14.0			1st diff 12.0		
	2.16%			2.09%		

Bottle #11		1st w	2nd w	Bottle #12	1st w	2nd w
Gross	747.6	734.1	734.1	630.0	622.2	622.2
Tare	96.8	96.8	96.8	87.5	87.5	87.5
net	650.8	637.3	637.3	548.5	534.7	534.7
	650.8			548.5		
	637.3			534.7		
	13.5			1st diff 13.8		
	2.052%			2.52%		

12/11/59

5.93 o/o

906.95 = amount received

923.05 = amount (weighed)

19.94 = amount of water for 12 bottles

923.05
19.94
903.11 = amount - water.

906.95
903.19 (On machine no. = 903.19)
3.84 Kg = amount of salvage @ 230.4 gr ea

Bottle no	
1	78.9
2	79.1
3	81.3
4	79.4
5	78.8
6	55.7
7	80.0
8	63.0
9	82.35
10	81.8
11	78.8
12	83.9
total =	923.05

Date

Material Code: 1923 [redacted]

[redacted]

Material Recd as dry powdr $U_3O_8 \cdot H_2O$ 12-[8-9]1952
on Wayhills 5 & 6 From Dept 77 to 84

Container	Net Wgt Oxide	Anal. Req.	Wgt U	Wgt X
I	2296.27	984195	1810.56	1686.36
II	2293.35	984196	1808.63	1685.10
III	2289.68	984197	1804.77	1681.32
IV	2295.53	984199	1811.13	1688.15
V	2283.83	984200	1802.88	
VI	2165.56	984201	1707.50	1591.56
			10745.5	

Amt put in storage System 12/18/52 3,571.97 gms U

Amt of Sample sent to lab 12/23/52 0.648 gms U 20.55 gms @ .03249 gms/gm

" " " " " " 12/30/52 0.754 20.47 gms @ .03685

" " " " " " 1/8/53 42.57 @ .03486 = 1.484 gms

" " " " " " 1/14/53 35.23 @ .0323 1.139

" " " " " " 1/15/53 25.714 gms @ .0514 = 1.323 gms U

1 Req #130331 – Rinsings (total) from Containers I + IV

Gross 804.4

Tare 287.

517.4 gms sol'N

Sample to lab 1-20-53 Req #130333

35.6017 gms Net

[redacted]

Date

[redacted]

[redacted]

[redacted]

[redacted]

Signed

Slurry $UO_3 \cdot H_2O$

Date 1/22/53

Jan 1953

				INCOMING		OUTGOING	
Waybills 5 + 6				9212	our		
1 Container # I				1796.85	1796.78		
II				1808.63			
IV				1811.13	1809.80		
V				1802.88			
VI				1707.50			
III				1804.77			
Samples: Rq. No.	gm U/gm	Our Wgt (Net)	9212				
12/30/52 130325	.03249	20.5486					.668
12/30/52 130326	.03685	20.4740					.754
130327	.03230	35.2442					1.138
130328	.03486	42.6673					1.487
130329	.05141	25.6535	25.6082			1.319	1.342
130332	.04902	36.1017	36.0663			1.770	1.770
130331	0.000485	514 =	514.7				0.249
130333	0.006936	570.4 =					3.959
130334	.05052 / .05019 (.05036)	42.0737					2.119

Total U. 10731.76 ~~15.186~~

~~11.79~~ 11.42 ~~13.726~~

Jan 1 ~~1/1~~ Total U on hand ~~10,7??.97~~ 12.07

as Slurry + waste 10,730.34

12.07

Feb 1 Inventory 10718.27

Signed [signature]

Records off 7232

Date March 2-53

on hand	gms U		10,718.27
Samples Sent out	gms U/gm	~~wet Sample~~ ~~weight~~	gms U
130335	.043510	30.8996	1.34
336	.03990	52.2431	2.09
337	.06572	53.0570	3.49
338	.07014	51.3709	3.60
339	.05590	53.1584	2.97
340	.09575	53.1462	5.09
341	~~.~~ <.01/gm	~~5~~ 2.41 cg	~~.075~~
Sample total			~~.24~~ 18.58 gm 6.15
		Net	10,693.54 6.15
April 1-53 Salvage sent to 9212 recd by 4/1/53			~~.84~~
		9212 fig. corr.	10699.69 10699.61

Samples sent in March

Reg #	gms U/gm	net wgt	wgt U
130342	.1177	52.25	6.15
130343	.1647	49.8895	8.21
130344	.2261	48.2927	10.92
130345			water sample
130346	.09848	22.1139	2.18
130347	.10170	51.8482	5.27
130348	.06376	30.1024	1.92
130349	.09850	33.0781	3.26
~~21~~ 214075	.062780	22.1405	1.39
214076	.04 624/2240	23.1522	1.07
214077	.004697	225.5753	1.06
78	.008331	240.060	1.999
79	.007713	214.377	1.65
80	.018230	236.706	4.32
81	.07879	178.097	14.03
82	.009445	221.795	2.09
(over cont.)			65.52

Signed

Date 3/18/53 Bottles for storage

Bottle #10 - tare = 1919.9 gms not used

" #80 - " = 1944.6 gms

Signed

Date

	gms U/gm	gm U/l	net	wgt U	
214083	.007074		215.266	1.52	1.52
84	.000990	.992	210.579	.21	.21
85	.01124		254.600	28.62	2.86
86	.000110	.110	405.553	.45	.045
				96.32 gms	70.16
				10,689.61	
				96.32	70.16
On Hand April 1				10,603.29	10629.45
Sebastian Waylill 84-77 No. 4				~~10,603.29~~	4.05
					10,625.40

Waylill Slurry Washings:

	Cont'r	G.	T	Net	Sample Req #	gm U/gm or gm U/l	Batch
5	S-1	10 I			214077		130008
5	S-2	10 I			214078		130009
5	S-3	10 I			214079		130010
9	S-4	13,116.	1931.0		214080		130011
8	S-5	13,824.0	1855.4		214081		130012
6	S-6	10 Libs			214082		130013
7	S-7	10 I			214083		130014
7	S-8	10 I			214084		130015
8	S-9	14895.0	1903.4		214085		130016
6	S-10	10 I			214086		130017
	S-11	UO_2F_2					
11	S-12		1893.2		214085		130022
	S-13	die UO_2F_2					
	S-14	→ die UO_2F_2					
	S-15		19666				

Salvage com Batch No's 130018

" 19

20

see next page

Signed

Date March Samples	G.	T	Net	~~Wgt~~ gm u/gm	~~analysis~~ gm u/~~gm~~	Reg #
				.004697 5.275 gu/Liter		214077
				.008381 6.431 gu/Liter		78
				.007710 8.052 gu/Liter		79
				0.018230 ≡ 20.47 gm u/L		80
~~April Samples~~			178.10	.078790 gu/gm -83.6 gm u/l	14.03	81
			221.8	.009445 10 g/L	2.09	82
			215.27	.007074/7.279/l .000990	1.5 ~~0.15~~	83
			210.58	.992 gm u/L	0.21 ~~.002~~	84
			254.60	.011240	2.86 ~~2.7~~	85
			405.55	.000110 .110 gm/L	.05	86
April			45.98	.000230	.01	97
			284.38	.001121	.32	98
				Total	21.07	

Earlier sample taken on 3-12 Reg # 214095 *

.001121	98
.000230	97

.000044 214095

Signed

Date 4-23-51

Waybill	Cont.	Batch	Gross	Tare	Net	Est wgt U	Recovered
5	S-1	130008			10 liters		
5	S-2	0009			10 l	1710.26	
5	S-3	0010			10 l		
9	S-4	0011	13118	1931			
8	S-5	12	13824	1855.4			
6	S-6	13			10 l		
7	S-7	14			10 l		
7	S-8	15			10 l		
8	S-9	16	14395.0	1903.4			
6	S-10	17			10 l		
	Salvage cans	18					
		19					
		20					
S-13-S14	S-11	Fluoride washings see UO_2F_2			1		
11	S12	22	12458.3	1893.2	10565.1	1.18	10.12
11	III	27	7021.4	1805		1.20	
11	GI cans	28	------			<5 gm	75-20?
11		29	------			<5 gm	
14	Stepan cans	30	------			<200 gm	
		31	Tygon tube vent with dry ofil			500 gm	
			Polyethylene bottles				2.15
			stainless steel tubing				

Account closed out. DH.

Signed

Date

Signed

Date 1/15/53

Left in Bldg (Rm 105 in annular) ~~Stratex~~ April Mix H/x = 756

168,343.2 Kg U = 8230.3 gm X

Shipped as UO_2F_2 sol'n (Stored in Rm 105) Waybill 0506 (15-84)

A = 20125 gm B = 14,500 total 34,625 gm mix.

Date	INCOMING	OUTGOING
1-12/53 Waybill #506 Containers A = 20,125 gm B = 14,500 gm	15034.175	
1/19/53 Waybill #507 Containers #3, 16.850 gm mix #4 16,045 gm mix	14513.274	
508 #5 16,955 gm mix #6 14,010 gm mix	14020.952	
	43,568.401	
	[illegible]	
Waybill #0509 Total 1/26/53	43,568.40	
Shipped IN 1/28/53 34800 @ 46.24 gm U/gm	16,091.52	
Net gms U as UO_2F_2	59,659.92	—
as U_3O_8 - ~~Stratex~~	168,343.2	

Batch No. Reg #

Signed DHL.

98

Date 2/25/53

Container	Wgt (Net)	Batch No	Gm U/gm	Gm U	gm F	NO_3	D
A	20125	1001-1	0.4342	8738.3	.07086	431 ppm	1.899
B	14600	1001-1	"	6295.9	"		
3	16850	1002	0.4412	7434.2	.06614		1.8977
4	16045	1002	"	7079.1	"		
5	16955	1003	0.4528	7677.2	.06637		2.052
6	14010	1003	"	6343.7			
7	18140	1004	0.4624	8387.9	.0721		2.0941
8	16660	1004	"	7703.6			
9	17775	1005-1	0.4498	7995.2	.07007		2.3095
10	17305	1005-1		7783.8			
11	15630	1006	.4118	6436.4	.06499		1.878
12	16545	1006		6813.2			
13	15590	1007-1	0.4284	6678.8	.06758		1.9465
14	14555	1007-1		6149.7			
				NO_3 for 1004, 1005-1, 1006		= 1.418 ppm	

composite of ~~1001~~ 1001 - 431 ppm (NO_3) for 1002-1003 = 1079 ppm

16	16310	1008	.4389	7158.5	.06941	1.9908
17	14685			6445.2		
	261,480					

Total U in Vault as UO_2F_2 sol 115,120.7

Oxide Steno 168,343.2 gms U

Signed

Date Rec'd	Contr.	Net wgt	Batch	gm U/gm	Kgm U	gm F/gm	D
3-19-53	22	12785	1011-1	.4443	5.6804	.07074	2.0775
	23	11220	1004	~~.4624~~ 0.4443	~~5.1881~~ 4.985	.07210	2.0261
	24	2250	1011-1	~~.4443~~ 0.4624	~~1.0408~~ 1.0408		
3-9-53	18	17165	1009-2	.4330	7.432	.06715	1.9676
	19	17535	1009-2	"	7.593		
3-10-53	20	18045	1010	.4452	8.0336	.06928	2.019
	21	18180	1010	.4452	8.0937	.06928	2.019
		35 8660			41.921.24		
					42858		

April Inventory: 4/1/53

Total UO_2F_2 sol'n - 115,120.7 (from Mar. 1

41,921.24 (during Mar

Total ~~157,041.9~~ gms

as Apr 1 mix 168,343.2

Total 325,385.1 gms

115120.7

42858

157,978.1

Signed

Date

Samples:

	Reg #	Card #	Analysis	G	T	Net	gm U
			Sp. G = 1.9797				
April	635250	5-1	0.43886 gm U/gm	34.9600	19.7393	15.2207	6.68
	635251	5-2	.20939 / 1.3133 sp. gr.	52.6441	19.2559	33.3882	6.99
	635252	5W-2	.08479	83.6923	35.3253	48.3670	4.10
5/2/53	635253	5-3	.4398 gm U/gm	186.8235	19.5476	167.2759	73.57
			Sp Gr. 1.984				
	635254	5-4	.40026 gm U/gm	129.786	19.2651	110.5209	44.24
			Sp Gr. = 1.822				

Obtained from 5-2

[redacted]8

April Samples

17.77 gms U

Signed

Date 4/8/53

Filling liquid System. note: our gross is with some bags still in cntr.

Shipping Cntr.	Gross	Tare	Net. gms UO_2F_2	Wt. U
A	22035.8	1973.3	20,062.5	
11	17507.3	1976.8	15,530.5	

Cylinders were rinsed out and dist water rinsing placed in one tank and then acid washed & these in a 2nd tank. Cylinders grossed & tared on Silk balance ±0.1 gm

Cont.	Gross	Tare	Net	Anal.	gm U	nearest gm Rounding off figures
A	22035.8	1936	20099.8	.4342	~~9[illegible]3~~ ~~8726.6~~ 8727.3	8727.4
B	16384	1896	14,488.0	.4342	6290.7	
3	18782	1949	16,833.0	.4412	7426.7	
4	17891.6	1876.5	16,015.1	.4412	7065.7 .8	7065.8
5	18915	1971.8	16,943.2	.4528	7671.~~8~~ 9	7671.9
6	15878	1896	13,982.0	.4528	6331.1	
7	20,042	1926	18,116.0	.4624	8376.8	
8	18,543	1905	16,638.0	.4624	7693.4	
9	19,664	1912.5 (3.0)	17,751.5 (1.0)	.4498	7984.6	7984.4
10	19,170.4	1888.5	17,281.9	.4498	7773.4	7773.①
11	17,507.2	1903.0	15,604.3	.4118	6425.~~8~~ 9	6425.7
12	18,411	1903.1	16,507.9	.4118	6798.0	
13	16,252.5	1931	14,321.5	.4284	6135.3	6135.5
14	17,511.2	1950	15,561.2	.4284	6666.4	6666.3
16	18,157	1884.5	16,272.5	.4389	7142.0	7141.8
17	16,585.5	1924	14,661.5	.4389	6434.9	5.2
18	19081.3	1960	17121.3	.4330	7413.5	3.4
19	19464.0	1966.5	17497.5	.4330	7576.4	.2
20	19907.7	1899	18008.7	.4452	8017.5	.6
21	20,100.5	1932 1929	18168.5	.4452	8088.6	.8
22	14662.9	1918	12744.9	.4443	5662.6	
23	13169.0	1963	11206.0	.4443	4978.8 (turn page)	7
24	4160.2	1918	2242.2	.4624	1036.8	

358,066.5 × 0.4388 = 157,719.1 gm U

Signed

358066.5 × .4388 = 157141.06 = U/

157718.5

32

Date 4/29/53

	Req 635251	Req 635252
Bottle #	A	18
Gross (gm.)	14079	12157.4
Tare "	1936	1960.0
Net "	12143	10197.4
Comments:	2542.6 gms U	864.6 gms U

Bottle # 18 contains rinsings with distilled H_2O only. Bottle #A contains washings.

Totals from preceding page:

Net Wgt	Gms U (carrying all fractions
358,066.5	*157,718.5
	157,718.1 (as recorded (leaving off <.05)

avg analysis = 0.4405 gms U / gms

from Req # 635250 sample taken after mixing = 0.4388.6 gms U / gm 157,141.1 gms U

" " " 635253 " " before dilution = 0.4398 gms U / gm 157,477.6

From Petretzky's wgts =

	Net	U
P's	358,660	157,978.1 (9.0)
Ours −	358.066	(57,718.5
diff =	594	259.6
Rec'd =	157,718.5	157,717.6 (By rounding to nearest gm)
April Samples =	17.77 gms	17.8
Net Inventory UO_2F_2 Solution		157,699.8 5/1/53 as UO_2F_2 soln
As Aqueous =	168,343.2	154

Total on Hand 5/1/53 = 326,043.9

Signed DAC 5/4/53

Samples	Date	Nit	gm U/gm anal.	Wgt U.	Sp Gr
Ry # 635255	6/29	142.0473	0.4003	56.86	1.817
254	5/2	110.5209	.40026	44.24	
253	5/2	167.2759	.43982	73.517	
Auto in 252	4/28	48.37	.08479	4.10	
apart 251	4/28	33.39	.20939	6.99	1.313
5-2-53 253	5/2/53	167.2759	4.3982	73.517	1.984
256	6/8/53	137.7765	0.37483	51.64	1.732
257	6/15	86.989	.35104	30.54	1.663
258	6/15/	110.913	.31104	34.50	1.547
259	6/15/53	78.4577	.311210	24.42	1.547
260	6/15/53	54.1531	.311060	16.85	1.553
~~X~~	6/16/53	76.1265	.3174	24.16	1.563
Total as of June 19 →				182.11	
adder 262	6/19/53	66.6114			

see page 36 (cont'd)

UO_2F_2 soln T=

Signed

Date

Check on tare wgts of Polyethylene Cylinders. Returned & reweighed 6/17/53

	9206	Cyl	9213	6/17/53 ∠WG.	DTC	6/22/53	6/27/53
*	7575	A	1936				
*	7450	B	1896				
	1930	3	1949				
	1850	4	1877				
	1960	5	1972	1963.3	1963	1962	1961.5
	1880	6	1896	1890.5			
	1910	7	1926				
	1885	8	1905	1895.3	1895	1895	1894.0
	1855	9	1913				
	1890	10	1889				
	1890	11	1903				
	1880	12	1903	1892.1	1892	1891.5	1890.9
	1910	13	1931				
	1935	14	1950	1942.0	1942	1942	1941.0
	1855	16	1884		1873	1873	1872.0
	1900	17	1924				
	1935	18	1960				
	1955	19	1966	1954.6	1955	1954.5	1953.0
	1900	20	1899	1898.5	1899	1898	1897.4
	1935	21	1932	1929.5	1930	1929.5	1928.0
	1875	22	1918	1919.0	1917	1916.3	1915.3
	1945	23	1963	1960.4	1960	1960	1959.5
	1900	24	1918	1916.5	1917	1915.5	1915.0

* Evidently weighed with ~~cans~~ carrying cans

still evidence of moisture inside.

Signed

Date 6/27/53 - Blown off with dry air 15 min

	1st Δ	Final Δ	subt 3 gm fatigue
1960.0	+12	0	-3
1893.5	+10.3	+8.5	+5.5

[redacted]

1890.5	+23	~~+20.5~~ 10	+7
1939.0	+15	+4	+1
1871.5	+29	+16.5	+13.5
1952.0	+11	-3	-6
1896.5	-1	-3.5	-6.5
1927.0	-3	-8	-11
1914.0	+43	+39	36
1957.0	+18	+12	9
1913.0	+18	+13	10
	+15.9	~~[illegible]~~	9.86

Signed

Date Inventory June to July 1

Samples out:

date	Req #	Gross	tare	Net	gms U/gm Result	Est. U.	Sq Yds
6/19	635262	85.8851	19.2743	66.6114	0.3182	x1.196	1.560
6/16	635261	95.6784	19.5519	76.1265	0.3174	24.163	1.563
6/15	635260	73.9023	19.7492	54.1531	0.31106	19.261	1.553
	635259	98.2987	19.8410	78.4568	0.31121	24.417	1.547
6/13	635258	130.173	19.260	110.913	0.31104	34.498	1.547
	635257	107.018	20.029	86.989	0.35104	30.537	1.663
6/8	635256	158.3493	20.5728	137.7765	0.37483	51.643	1.732
						105.715	

No other 5% Mat'l shipped.

[redacted]

Water Sample from Ext Storage tank

<2.01 Req. 635265 – 7/30/53 ppm U.

.000340 635264 – 340 ppm wash water in manifold 7/30/53

.0000042 635263 – 0.42 ppm = Reflector water in storage tank.

.0000004 635279 from 54 gal drum of column effluent.

635280 .0000001 ppm U from Regeneration waste of Resin column

Signed

Date 5% Storage

Cuts	Tare	Tare	
27	2,127.3	2127.2	
28	2.747.0	2746.8	
29	2556.0	2556.0	
30	2768.5	2768.5	
31	2741.7	2740.2 ✓	2738.9
32	2900.5	2900.2	
33	2582.5	2580.5 ✓	2581.0
34	2688.4	2686.6 ✓	2685.0
35	2630.5	2628.7 ✓	2628.8
36	2797.5	2796.5 ✓	2795.5
37	2652.0	2650.5 ✓	2651.0
38	2696.0		
39	2431.5		

Signed

Date

Container No.	Gross	Tare	Net	Sample container No.	Reg. No.	Analysis gm U/gm Pu
	grams					
25	42,150	2732	39,418 ✓	5-11	635266	.31746
26	42,736	2505	40225 ✓	5-2	635267	.31770
27	41,030	2127	38 903 ✓	P-5-5	268	.29584
28	42,050	2747	39303 ✓	5-10	269	.31761
29	42,450	2556	39894 ✓	5-9	270	.31754
30	42,260	2768	39492 ✓	5-16 ~~5-15~~	271	.31738
31	41,733	2740	38993 ✓	5-15	272	.31763
32	41,265	2900	38365 ✓	5-1	273	.31779
33	42,360	2588	39779 ✓	5-12	274	.31775
34	40,400	2686	37714 ✓	5-14	275	.29190
35	42,605	2629	39976 ✓	5-13	276	.31759
36	43,100	2797	40303 ✓	5-6	277	.31783
37	35 535	2651	32884 ✓	5-17	278	.15067
38	17 9570	2696.0	15254 ✓	5-19	635 285	.01224
39*	24,445	2432	22,013 ✓	5-18	281	.011870
1-W*	441.0 lbs	78.5 lbs	362.5 lbs 113,059.8 gms	SW-5	282	.003958
2-W*	317.75 lbs	68.5 lbs	249.25 lbs.	6-W-6	283	.008145

→ 1-W leaked so transferred to new drum and resampled

	456.50 lbs	82.50	368.0 lbs 166,924.8 gms		1284	200 x.3	.003477

1-W - 2-W and 5 ~~5~~ I cans + 2 step cans + Van pump air shipped 8/21/85 to PP-9204 Way bill 0457 84-15

1 no nitrate

*note contains acetate citrate and nitrate plus Florida

Signed

Lot No. 11 Page 237

	DEPT	REQ	CODE	WT	ASSAY	MTC	WC	T	B 1	B 2	B 3	B 4	B 5	NO	DATE
															237
Composite of Req. 635266 thru 635278 —	84	A635266	1	.98	4.950	1037	3	.82							
		A635284	1	.57	4.920	1099	3	.48							
		2		1.55				1.30							

Composite of Req 635 281 thru 284

9/1/53

Total 5% Samples

Reg. No.	Wt. U.		Reg. No.	Wt. U.
635250	6.68		635279 }	PPM < .01
251	6.99		280 }	
252	4.10		281	~~0.64~~ 0.62
253	73.57		282	0.87
~~254~~	44.24		283	2.45
~~255~~	56.86		284	1.43
256	51.64		~~285~~	
~~257~~	30.54		sub. Total	~~702.57~~
258	34.50			
259	24.42		285	0.63
260	16.85			
261	24.16		Total	702.58
262	21.20			
263 }				
264 }	PPM < .01			
265 }				
~~266~~	24.2			
267	24.23			
268	22.28			
269	24.78			
270	24.81			
271	24.81			
272	24.81			
273	24.93			
274	24.83			
~~275~~	21.82			
276	24.88			
277	24.88			
278	9.57			
~~279~~				
Total	696.58			

.317

TAG	BATCH	MTC	NET	REQ	BATCH T	TOTAL T	GROSS	TARE	SEP 1, 53
84001	25	1037	39418.00	635266			42150	2732	
84002	26	1037	40225.00	635267			42730	2505	
84003	-27	1037	38903.00	635268			41030	2127	
84004	28	1037	39303.00	635269			42050	2747	
84005	29	1037	39894.00	635270			42450	2556	
84006	30	1037	39492.00	635271			42260	2768	
84007	31	1037	38993.00	635272			41733	2740	
84008	32	1037	38365.00	635273			41265	2900	
84009	33	1037	39779.00	635274			42360	2581	
84010	-34	1037	37714.00	635275			40400	2686	
84011	35	1037	39976.00	635276			42605	2629	
84012	36	1037	40303.00	635277			43100	2797	
84013	37	1037	32884.00	635278			35535	2651	
84014	38	1043	15254.00	635285			17950	2696	
84015	39	1099	22013.00	635281			24445	2432	
84020		1025			168576.20	168576.20			
16*			542516.00*		168576.20*	168576.20*			

~~1037~~
1043 NO3
1037 [illegible]

~~1340-50~~ 1340-54

[illegible]

51,370 2

42,342

93,712

22013

93.7

21919.3

79.0997

64.7839

143.8836

35.5391

3 5 3 9 1

64.4615

19.5550

44.9065

63.4570

19.6652

43.7918

41,030

- 43,79

40,986,21

21 27

38,859,21

40,400

44.91

40,355.09

268

37,669.09

541

72

1.7

.318

1.7

2226

318

540.6

Date

Sample Gross	Tare	Net	Gm. U in sample	Gm. U in container	Total Gm. U
97.5048	19.2677	76.2371	24.20	12,513.6	4 25
97.5435	19.2685	76.2750	24.23	12,779.5	4 26
95.1525	19.8525	75.3000	22.28	11,509.0	4 27
98.5952	20.5872	78.0080	24.78	12,483.0	4 28
98.8966	20.7600	78.1366	24.81	12,667.9	4 29
96.9428	18.7772	78.1656	24.81	12534.0	4 30
97.5990	19.4749	78.1241	24.81	12,385.3	4 31
98.1857	19.7533	78.4329	24.93	12,192.0	4 32
98.1822	20.0360	78.1462	24.83	12639.8	4 33
93.9183	19.1729	74.7454	21.82	11,008.7	4 34
97.9369	19.5937	78.3432	24.88	12696.0	4 35
98.3252	20.0390	78.2862	24.88	12809.5	4 36
82.7779	19.4314	63.5465	9.57	4954.6	4 37
70.9501	19.4627	51.4874	0.163	186.7	153620.9
72.3300	19.7333	52.5967	0.62	261.29	
254.00 gms	35.3648	218.63	0.87	650.81	— STW = 154,097.9
147.40	446.40	301.0	2.45	920.87	307.9 / 154405.8 gm U
868	457	411 gms	1.43	580.40	1-W 2-W shipped to Petrolia via Wayhill 84-5 #457

Total Samples as of 8/31/53 — 396.3 gms U

total U on hand 9213 8/31/53 — 153434.2 not including #38 or 1-W 2-W

Assay on composite — Cores 25→37 = 4.950%

#38 = 186.7

~~#39~~ ~~2873~~

153620.9 On hand

Received from Wayhill 457 samples 1446.06

Combustibles 609.88

filtrate 4.31

Signed 155,677.271

Date

Inventory Summary - Solution

As of 4-1-53 157,979.0 gms

Shipped as samples 702.58 Req. 635250 Item 635285

157276.4

On hand 8/31/53 153620.9

3655.5

Est. Salvage liquid 1,501.3 (1-W)(2-W) Wagstaff 457 84-15

Est in Combustibles etc. 2,154.2

Removed 609.0 - from ash samples

1,545.2

Total left 3,655.5 gms

sol'n 1446.06 Salvage from Wagstaff 457

filtrate .431

Combustibles 609.88

2,056.371 total Salvage

1,599.1 gms U

Signed

[redacted]

Date

UO_2F_2 density Exp –

Sample	Req test	Cnts	G. T	Vit	gms U / gms sol	wgt % U
635287	6.3177	5-20	65.0048	19.5947	45.4101	0.31748	14.42
635288		5-21	65.2112	19.9610	45.2502	0.11442	5.18
635289		5-22	76.9914	20.8415	56.1499	0.27668	15.54
635290		5-23	61.6319	19.8134	41.2185	0.18073	7.45

Containers No. 26 – Removed 1.7 kg of solids

Req 635287

Gross weight of container 41030 gms.

Tare " " " 2505

net weight of solids 38,525 gms.

Container No. 40

Gross weight 3131.8 gms 635

Tare weight 874.6 gms

Net weight 2257.2 gms. Est. 499 gms U

Containers # 27 and 34 resampled

Cont. #	Sample cont. #				
27	5-24	63.4570	19.6632	43.7918 Req. # 635-292	13.1
34	5-25	64.4615	19.5550 44.9065	" " 293	13.1 gms.

Analysis answer by phone (91231-3): cont. #27 = 0.30027 g U/gm soln 635-292

cont. #34 = 0.29228 g U/gm soln. 635-293

Analysis of rinsings in solution storage system (91231-3) by phone = 0.001492 g U/gm soln. Req # 635-291 This sample probably not good due to uranium in tube leading from sump well where sample was taken.

Req. 635286 – .0000021 ppm/U

Req 635-291 – .001492 g U/gm

Signed

Date 9/28/53

		Req.	Gross	T	Net	% U	wt. U
Resample Entry 37	Sample cat. 14	635296	98.2603	19.1606	79.0997	0.1577	
	15	635297	84.2484	19.4685	64.7839	.1592	
39	10	635295	71.9572	20.5870	51.3702	.01748	
	11	635298	61.6051	19.2631	42.3420	.01735	
Washwater sample 50ml 635299. approx 50 L						9.1 ppm	
Water from Resin Column 300						.05 ppm	
washwater 5% strong 635294						24.6 ppm	
Sample of West tank 635301						1.2 ppm	
Final Rinse of 5% strong 635302 approx 50 L						7.5 ppm	

38.2

Entry	Net Previous	% U	new Net	% U	wt U	1.8
26	40225	31.770	38525			
27	38963	~~31.761~~ 29584	38859.2	30.027	11,668.2	
34	37714	29190	37669.09	29.228	11,009.9	
39	22,013	011870	19487.3			
37	32884	15067	32740			
40	22572					gm/gm

10/9/53		Req #	Entry	Gross	Tare	Net	% U	
Resample #26		635304	5-21	122.1547	21.2592	100.8955	.31756	
Resample #31		635305	5-22	102.6979	19.7360	83.3218 ~~82.9618~~	.31789	
Acetate elute from column		635306	5-23	121.8778	19.3951	102.5327	.004052 ± 1.6%	
Resample #38		635307	5-24	105.0214	19.4700	85.5514	.004503 ± 1.9%	
HNO_3 rinse of column	-635308	F-119	50 ml				50 ppm	
Water rinse	-635309	F-104	50 ml				13 ppm	

Resin Column in: #41 G 12920 T = 1845 N = 10975 Req # 635306 44.47 gm

acid	#4	13850	1865	11,985	0.599
water	#10	13295	1885	11410	0.15

Reweighed #38 Req # 635307 G = 22,505

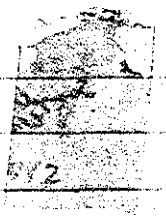
Signed

44

Date 10-19-53

Shipped as Salvage

				Kit	Req #
Cuts	# 38	22505	2696	19809	635307
	39	24445	2432	22013	635-281 295 298
	41	12920	1945	10975	635306
Waybill 0458 84-15	3-W	146.5 lbs	69.75 lbs	76.75 lbs	685311



also on waybill 0459 (84-15) 2 slip on cans estim total < 4 gms T.

76.76 × 46456.4 = 35,628.7 gms × .000088 = 3.0825

Uctalum Samples

Req	wgt sample	gms U/gm = gms U
635287	45.41	.31798
288	45.25	.11442
289	20.84	.27668
290	41.219	.18073
291	50 ml	.001492
292		.30027
293		.29228
294	50 ml	34.6 ppm
4/9 295	51.37	.01748 .90
296	79.1	.1577 12.47
297	64.78	.1592 10.31
298	42.34	.01735 .73
299	50 ml	9.1 ppm
300	50 ml	.05 ppm
301	50 ml	.12 ppm
302	50 ml	7.5 ppm
303	50 ml	2.2 ppm
304	100.896	.31756 32.04
305	83.32	.81789 26.49
306	102.53	.00405 .42
307	85.55	.0095 .81
308	50 ml	5 ppm
309	50 ml	13 ppm

Req	sample wgt	gm U/gm	wgt U
635310	50 ml	3 ppm	
635311	106.4	.00008.8	.009

Total = 95.33 gms

Signed

11/1/53 — 5% INVENTORY — 1037

Con't No.	Gross	Tare	Net	Req. No.	gm^u/gm	gm^u
✓ 25	42150	2732	39,418	635266	0.31746	12513.6
✓ 26	40929	2505	38,424	635267	.31770	
				635287	.31748	
				*635304	.31756	12201.9
				Ave.	.31758	
✓ 27	40986	2127	38,859	635268	0.29584	
				*635292	0.30027	11668.2
28	42050	2747	39,303	635269	0.31761	12483.0
✓ 29	42450	2556	39,894	635270	0.31754	12667.9
✓ 30	42260	2768	39,492	635271	0.31738	12534.0
31	41650	2740	38,910	635272	0.31763	
				*635305	0.31789	12369.1
✓ 32	41265	2900	38,365	635273	0.31779	12192.0
33	42360	2581	39,779	635274	0.31775	12639.8
34	40355	2686	37,669	635275	0.29190	
				*635293	0.29228	11009.9
✓ 35	42605	2629	39,976	635276	0.31759	12696.0
✓ 36	43100	2797	40,303	635277	0.31783	12809.5
37	35391	2651	32,740	635278	0.15067	
				* 635296	0.1577	
				* 635297	0.1592	
				Ave.	0.15845	5187.7
40	3105.2	874.6	2230.6	635312	0.23029	513.7

Con't No.	Gross	Tare	Net	Req. No.	gm^u/gm	gm^u	
						188.2	
38	22505	2696	19809	635307	0.0095	728.3 ?	
39	24351.3	2432	21919.3	635281	0.01187		
				635295	0.01748	383.1	
				635298	0.01735		
41	12920	1945	10975	635306	0.00405	44.5	
3-W	146.5 Lb	69.7 lb.	76.75 lb	635311	8.8×10^{-5}	3.08gm	
			35028.7gm		Total	1186.7 gms shipped	
Two (2) cans of combustibles estimated				$4gm^u$			
Containers 38, 39, 41 and 3-W were shipped on Waybill 458(84-15)							

1.5155 gm/cc
0.29834 gm U/gm

4000 gm
.5
12000

25 I x 1.5155 = 37,887.5 gms
.27831
11,30.3. gm U
.05
56X5.15 gm 25 cm

Total U = 86 Kg
.05
4,30 3

12 000
.05
600 gm 25 cm
600 gm

#35
#27
#26
#25
#36

29
30
32

Bill Belden
7678

gm/gm + gm/cc

1980
.0095

Date 11/6/53 sample from Cortes #40 Reg #655312 26.5772 gms net
analysis = 0.23029 gms U/gm. = 6.18 gms U
Subtract sample from Nov. Inventory

Dec. 1 Inventory
Cortes in Rm 105 not inc #40 same as Nov. 1 = 153002.5 gms
#40 (513.7?) 513.5
153,516.0 gms
As. dpsd (168343.✓) 168,576.2 (?)
322,092.2

Signed

Date 12-8-54

Sample to lab Req 635313 Gross 167.8024

Tare 19.2518

Net 158.5506 gms solution

1.31543

Sp Gr 1.563 → 50.01 gms U

12-6-54

Sample to lab Req 635314 G 101.4062

20.7634

80.6428 gms net

0.31670 gms U/gms → 25.54 gms U

1.5656 sp Gr.

12-9-54 Req 635315 G = 146.3144

T = 20.5831

125.7313 gms = 0.31672 gms U/gm 1.5668 Sp. Gr. = 39.82 gms U

Page 39 in Record book

12-15-54 Req 655316 G 91.0402 = 0.31696 sp Gr = 1.5666 = 25.08 gms U

20.0256

71.0146

12-15-54 Req 655317 128.6032 = 0.31611 sp Gr = 1.5638 = 34.70 gms U

19.8243

109.7789

1-7-55 635318 G = 150.1587 = 0.31602 sp Gr = 1.5752 = 41.41 gms U

20.0558

130.1029

2-17-55 635319 111.7982 .30572 gms U/gm 1.537 sp Gr 28.29 gms U

19.2680

92.5302

2-25-55 635320 129.5252

19.7450 .29834 sp Gr 1.5155 32.75 gms U

109.7802

Signed

MH 10-38
Act 84 to 26

	Can #	G	T	Net	gms U	Reg	gms U/gms	
x	.25 ✓	41.800	2732	38068	11,357	635320		←
x	.26 ✓	41710 ~~42960~~	2505	39205 ~~40455~~	11,696.4			
x	.27 ✓	42960	2127	40833	12,182.1			
	.28 ✓	42050 ~~635269~~	2747	39303	12,483.0	635269	.31761	
x	.29 ✓	42120	2556	39564	11,803.5			
x	.30 ✓	41430	2768	38662	11,534.4			
	.31 ✓	~~42650~~ 16,835	2740	~~38910~~ 14095	~~12,369~~ 4,205	~~635305~~	~~.31789~~	
x	.32 ✓	42000	2900	39100	11,665.1			Net
	.33 ✓	~~42360~~ 40,250	2581	~~39779~~ ~~12,639.8~~	11,960 ~~[illegible]~~	635274	.31775	→ 37669 gm ←
	.34 ✓	40355	2686	37,669	11009.9	635293	.29228	←
x	.35 ✓	41.780	2629	39.151	11,680			
x	.36 ✓	41690	2797	38893	11,603 →			
	~~37~~	~~35391~~	~~2651~~	~~32740~~	~~5187.7~~	~~635296~~ ~~635747~~	~~Reg .15845~~	
	~~38~~	~~22505~~	~~2696~~	~~19809~~	~~188.2~~	~~635307~~	~~.01748~~	
	~~39~~	~~24351.3~~	~~2432~~	~~21919.3~~	~~383.1~~	~~635291~~ 635295	~~.01747~~	
	.40 ✓	3105.2	874.6	2230.6 ~~874.6~~	513.7	635312	.23029	←
	~~41~~	~~12920~~	~~1945~~	~~10975~~	~~44.5~~	~~635306~~	~~.00405~~	
	? ✓	10,500	2360	8,140	2,428			
	? ✓	42,000	2875	39,125	11,673	635320		

* Reg 635 320 .29834 gms U/gms 1.5155 gm/cc
= 0.45213 gms U/cc

Rinsings 22,550 2500 20,05 2.00 Est no Reg
on 7-25-56

		waybill	Wt. T
Shipped cans	26-27-29	#2	35682.0
	30 32 36	3	34802.8
	35-31-37-? ✓	#4	23,501
	28 - ? -	#5	24,156

Shipped 7-30-56
25
33
34
40
1 bottle Rinsings

Run 105

TAG	BATCH	MTC	AM	NET	REQ	ANAL	SCH	TOTAL T	ASSAY	A	X	AE	NOV 1, 53
84001		1025					377	168576.20	4.885	3	8234.947	2	
				*				168576.20*			8234.947*		
84006	25	1037	2	39418.00	635266	.317460	376	12513.64	4.950	1	619.425		
84007	26	1037	2	38424.00	635287	.317480	376	12198.85	4.885	3	595.914		
84008	27	1037	2	38859.00	635292	.300270	376	11668.19	4.885	3	569.991		
84009	28	1037	2	39303.00	635269	.317610	376	12483.03	4.885	3	609.796		
84010	29	1037	2	39894.00	635270	.317540	376	12667.94	4.885	3	618.829		
84011	30	1037	2	39492.00	635271	.317380	376	12533.97	4.885	3	612.284		
84012	31	1037	2	38910.00	635305	.317890	376	12369.10	4.885	3	604.231		
84013	32	1037	2	38365.00	635273	.317790	376	12192.01	4.885	3	595.580		
84015	33	1037	2	39779.00	635274	.317750	376	12639.78	4.885	3	617.453		
84016	34	1037	2	37669.00	635293	.292280	376	11009.90	4.885	3	537.834		
84017	35	1037	2	39976.00	635276	.317590	376	12695.98	4.885	3	620.199		
84018	36	1037	2	40303.00	635277	.317830	376	12809.50	4.885	3	625.744		
84019	37	1037	2	32740.00	354402	.158450	376	5187.65	4.885	3	253.417		
84020	40	1037	2	2257.00	635312	.230290	376	525.88	4.885	3	25.689		
				505389.00*				153495.42*			7506.386*		
15**								322071.62**			15741.333**		

The above Requisitions were used on your Nov. 1st Inventory.
Req. # 354402 is an average of Reqs. 635296 and 635297.

Date

April Samples

Reg #	G.	T	N	gm/m	wgt%	Sp. G
214087	89.3563	70.7531	18.33	0.321570	5.89	1.5740
214088	62.0883	26.4595	35.62	0.296860	16.57	1.507
214089			29.20	0.149750	4.37	1.2017
214090	74.2845	26.1512	48.12	0.056620	2.73	1.0628
214091	86.9987	25.7311	55.26	.047560	2.63	1.0474
214092			51.50	.22445	11.56	
214093			64.10	.04751	3.05	
214094			108.57	.109630	11.90	
214096	67.6392	25.7995	41.84	.040480	1.69	
214099			261.98	.001027	0.27	
215250			273.10	.002186	0.60	
215251			257.24	.001949	0.50	
					55.76	

Samples

P-28

P-76

P-26

Waybill

15

15 10^{-3} x

15 10^{-3} x

15

Signed

Date

UO_2F_2 – PL

As Rec'd

	IN	OUT
Samples from Dec Inventory Req # 130300		37.164 gms
Jan Samples Req # 130301 → 130305		9.237 gms
Inventory Jan 1	53,618.50	
" Feb 1	9.24	
	53,609.26	

Cont A-4 used for Slurry Exp. Gross 16405.5 27878.65

Tare 16289.7 16405.5 5263.31 gms

Waybill #10 Shipped 6 cans 9112 Net 1058 USED = 11473.15 Batch 130021

→ 48.95 gms

after dilution placed in:

Req #	Cont.	Gross	Tare	Sample Req	gm U/gm	
	F-1	13094.5	1908.8	214093	.04751	531.43
	F-2	16066.5	1949.8	214093	.22445	3168.49
	F-3	13335.4	1944.9	214094	.109630	1246.55
214096 gms U/	F V	6349.63	1802.8	214096	.040480	184.95 Est

In Washings in -

		Gross	Tare	Net	Sample Req #	Batch No.	U	
1.949×10^{-3}	S-14	11.902.5	1935.0	9967.5	215251	130032	19.43	
1.027	S-11	12512.4	1927.3	10585.1	214099	130033	10.87	
2.186	S-13	6643.4	1900.9	4742.5	215250	130034	10.37	
		Step on Can for solvent				130035	41.474	
							43.35	
					Total Shipped		55.76	
							47.16	

Page 54

See ~~next page~~ for Summary of Cont A-4

Signed

Date [redacted]

Water tanks Analyses 5/7/53 (Reflector Tanks)

Sample	G	T	N	8.7 ppm U on each
215254	4616	1464	3152	
215255	4932	1464	3468	
215256	4791	1464	3327	

These 3 composite for Assay & Opt. Spec.

Assay = 93.17 U-235

First sample on Reflector Water
Reg # 130316 (Taken by For + Moffat)
8.1 ppm U

Special Sample out of Resin Column
Reg # 215257
G 113.1953
T 69.0544
N 44.1409

*Reg 215274 .00000016 ppm/U
Grave 108
Tare 55
N 53

Signed

Date

9757

SPECTROGRAPHIC LABORATORY - VISUAL READING WORK-SHEET

Requisition Number		Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hg	In	K	Li	Mg	Mn	Mo	Na	Ni	P	Pb	Pd	Rb	Sb	Si	Sn	Sr	Ti	Tl	V	Zn
wide 407136	1		100	<20	<2	<.1	<4	<.02	<1	30	1.3	<2	6		12	80	<1	<4		<4		<.2	5	4	<4	5	15	<100	5	<2		<4	7	1	<20	20	<1	<.5	<20
Liquid 407136	2		5.6	<1	<.01	<.006	<.2	<.0001	<.06	1.7	.7	<.1	.3		.7	4.5	<.06	<.02		<.2		<.01	.3	.2	<.2	.3	.8	<5.6	.3	<.1		<.2	.4	.06	<1.1	1.1	<.06	<.04	<1.1
	3																																					
	4																																					
	5																																					
	6																																					
	7																																					
	8																																					
	9																																					
	10																																					

APR 20 1953

WB-LP

	11																																						
	12																																						
	13																																						
	14																																						
	15																																						
	16																																						
	17																																						
	18																																						
	19																																						
	20																																						

Chemical Reg. No. 214093 Batch No. 407136 Bldg. 9613 F-I

Report to Lenin

Spectrographic Answer in P.P.M.

Ag	Al	As	Au	B
Ba	Be	Bi	Ca	Cd
Co	Cr	Cs	Cu	Fe
Ga	Ge	Hg	In	K
Li	Mg	Mn	Mo	Na
Ni	P	Pb	Rb	Sb
Si	Sn	Sr	Ti	Tl
U	V	Zn		

Signed

Date

WCX-1655 (1-50)

Signed

Total U 133.08 gms
From Hexo used 4.36
From Cut only → 128.72

Signed

Simple Recs

45 x 1.5 x 10^{-6} = 1.000068 x 10^{-4} 1732 53

Date 5/19/53 Recovery of U from Resin Columns. To Lab

Sample Req.	Anal.	Contr. washings	Tare	Gross	Net	net Sample	Total U
215292	1.5 ppm	F-5				45.8 gm	
215293	0.00540%	Resin U T-5				52.1996	0.28
215294	0.00264%	T-9				52.5355	0.14
		from 4 H cm					
215295	687 ppm	T-4				59.6335	.04
E-326 215303	7.9 ppm	T-20	69.8805	116.5142		46.6337	.001 JJ/22
E-263 215302	0.00548% ±1%	S-7	71.0905	113.7647		42.6742	0.23 JJ/22
E-219 215301	24 ppm 24 ppm	S-5	71.9412	113.2735		41.3323	.001 JJ/22

Entre

S-5 Washings Compare with T-5 } may be composite no T-5 x 2 found

	Gross gm	Tare	Net	Anal	Wgt. U	
S-5	13,464	1855 gm	11609 gm		0.28	
S-7	14,676	1928	9748		53.46	NH_4Ac wash
T-20	13,377	1900	11,477		.03	Regen. with HNO_3
T-9	10,970	1933	9037		23.86	NH_4Ac wash
T-5	14,211	1888	9323		50.40	Wash sol'n HAc
T-4	8,239	1896	6343	.000687 gm/gm	4.36 gms.	Glass wool mine

Final Eluting rinse Sample = H-814 Req 215277 ≡ 33 ppm

Where was this sample taken? = last drops in tubing approx 50 cc.

Total U 133.08 gms

From Glass Wool 4.36

From Col only → 128.72

Signed

54

Date

Cntr A-4 used by DHC in Slurry Exp. see also page 51

Waybill #1-11-84 Analyt. Req = 984092 0.45875 gm U/gm

Orig 9212 wgts	Weighed 9213	Assay = 93.19 ? 93.20 %	U235
Gross 27880.80 gms	27878.65 gms		
tare 16299.70	16405.5		
net 11581.10	11473.15 ← amt used for Exp from this Cyl.		

by analysis Est. = 5263.3 gms

Cyl A-4 returned to 9212 for recovery Waybill # 10-84-77

Gross 16405.5

Tare 16299.70 – using original 9212 tare wgt

net 105.8 gms

Est. T. 48.54 gms. Actually Recovered by 9212 48.95 gms T

During Exp diluted with water + bleeding Cntrs:

	Gross	Tare	Net	Anal. Req.	gm U/gm	Est. T.
F-1	13094.5	1908.8	11185.7	214093	.04751	531.43
F-2	16066.5 / 10203.	1949.8		92	.22445	3168.49
F-3	13335.4	1944.9		94	.109630	1246.55
V	6349.63	1802.8		96	.040480	184.05

Samples.	Net wgt	gm U/gm	Est T
214092	51.50	.22445 / ~~.04751~~	11.56
093	64.10	.04751	3.05
094	108.57	.109630	11.90
096	41.84	.040480	1.69
215250	273.10	.002186	.60
214099	261.98	.001027	.27
215251	257.24	.001949	.50

Washings + Scrubbings Waybill in.		Req #	Net wgt	Est T		
S-11	15-84-77	214099	10585.1	10.87		
S-13		215250	4742.5	10.37		
S-14		215251	9967.5	19.43		43.35
also wash paper		no estimate				55.76

Orig T per 9212 = 5,312.83 gms

total Est used + returned + on hand not including wash paper = 5,249.3 + 58.85 our fig. 9212's = 5308.15

Signed

Date 6/1/53

Cntr	Present Gross Wgt gms	Previous Gross	9212's Tare	Net	Wgt %	Wgt u
A-1	25,048.6	25,049.10	13154.20			
A-2	25,952.0	25,953.10	14588.30			
*A-3	24,648.9	(24,655.80)	13256.10	11,391.9		
A-5	24,157.8	24,157.90	12859.40			
A-6	27,781.0	27,782.10	15972.80			
2*A-8	25,604.0	25611.5	15666.20			
A-10	27,074.5	27,075.10	15.464.5			
3* F-2	10,203.0		1949.8	8253		

→ See page 56

*Weighed after spill, with new cap on 0.9 gm heavier than old. Washings from spill in T-16 - Combustibles in labelled can.
Cntr A-10 has cracked flare cap. see page 57

*2 Previous wgt by Billy was with tag on - weighs 8.5 gm

A-7	27,956.0	27,955.40	16,265.3 13770.2			
A-9	13,866.0	25,333.10	13720.2			
A-11	1763.9	1763.99	375.44			

3* Polyethylene cylinder see page 51 from which some material was removed by J.W.M for MCW Epp

Signed

56 Date Sept 4, 1953

Inventory of 25 soln used in eta, η comparison
Expts 70-72 in Y-N B 1859
All soln used came from F-2

	F-2	cyl #21	cyl 19
Gross	3576 gm	7931 gm	12,847
Tare	1950 "	1927 "	1951
net	1626 gm	6004 gm	10,896 gm net

Sample req. #	215316	215328	215327
6-1-33		Sample net = 26.3267 gms wgt U = 1.63 gm	47.6545 gms net 4.85 gms U.
use ave:	22485 .22499 gm U/gm	.06185	0.10167 gm U/gm
U content	365.4 gm		1107.8

215 32C
.09352 gms U/gm
Net 41.7245 gms.
3.90 gms U.

Signed

Date 7-20-53

Sampling of Storage Cylinders.

Cyl	Sample	Analyt. Pg	Gross	Tare	Net	Analysis gm U/gm	Wt U
A-1	P-16	215 317	77.5135	25.6978	51.8157	0.44465	23.14
A-2	P-30	215 318	126.4872	26.0899	100.3973	0.45334	45.51
A-3	P-41	215 319	109.9494	28.3165	81.6329	0.46228	37.74
A-7	P-51	320	113.3049	27.3471	85.9578	0.4636	39.57
A-5	P-117	321	106.4372	25.0891	81.3481	0.45723	37.19
A-8	P-173	322	158.2601	27.0391	131.2210	0.46150	60.56
A-6	P-185	323	105.9397	27.1864	78.7533	0.44654	35.17
A-10	P-193	324	102.7689	26.9035	75.8654	0.46183	35.04
A-11	P-63	325	68.1514	27.4388	40.7126	0.45530	18.54

Cap and plug from storage cyl A-10 37.7 gms

new plug 26.8 gms

as subtract 10.9 gms from tare cyl page 55

Signed

[redacted]

50

Date 10-9-53

Sample from Reflux water Rg # 215330

50 ml C-35

0.32 ppm

Rg 215329

.0000007 PPM/L

[redacted]

Signed

Date Oct 7-53 Material Balance at U.F.

Cntr	Gross	Tare	Net	Analyt Req.	gU/gm	wgt U
A-1	24,996.78	13,154.2	11,842.58	215317	0.44651	5289.83
A-2	25,851.6	14,588.3	11,263.3	318	0.45334	5,106.1
A-3	24,567.27	13,257.0	11,310.27	319	0.46228	5,228.51
A-4	Empty	16,299.70		~~321~~		
A-5	24,076.45	12,859.4	11,217.05	321	0.45723	5128.77
A-6	27,702.25	15972.8	11,729.45	323	0.44654	5,237.67
A-7	27,870.04	16,265.3	11,604.74	320	0.46036	5,342.36
A-8	25,472.78	15666.2	9,806.58	322	0.46150	4,525.74
A-9	13,866.0	13770.2	95.8	984103		
A-10	26,998.63	15,464.5	11,534.13	215324	0.46183	5,326.8
A-11	1,723.19	375.44	1,347.75	325	0.45530	613.63
Sub total equipt		A-9	91,656.05			41,796.88 Avg U/f = 23.37
T-1	13309.3 ~~13414~~	1929.5	11370 ~~11485~~	911093 ~~215289~~	~~.11584~~	5199.72 ~~3861.3~~
T-8	14200	1958	12242	215281	.11436	1399.99
T-10	13090	1980	11110	215282	.08982	997.90
T-13	14428	1867	12561	215286	.12960	1627.90
T-20	13269.7	1900	11369.0	911089		5227.58
U-2	13054	1886	11168	215285	.04085	457.33
U-3	12859	1927	10932	215287	.02542	277.89
U-4	12505	1922	10583	215279	.007672	81.19
U-5	13110	1933	11177	215284	.04096	457.81
F-1	130945	19088	111857	214093	.04751	531.43
F-2	3576	1950	1626	215316	22445 22469	365.4
F-3	13335.4	19479	113905	214094	.10963	1248.74
#19	12,847	1951	10896	215327	.10167	1107.8
#21	7931	1921	6004	215328	.06185	
V	63496	18003	45467	214096	.04048	184.05
T-14	12217	1873	10344	215283	.01753	181.33
Sub total equipt F-2, 19, 21 Nt = 139,977						17691.5
					Total available	59,488.4

Signed

60 Date SUNDAY 27

DECEMBER
S M T W T F S
1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31

Nov. 2, 1953 samples sent in October

Reg No.	Sample Net	gm U/gm	wgt. U
215331	32.4998	.3516	11.42
215332	30.928	.3219	9.95
215330 } 215329 }	contaminated water ≤ .01 gm U		21.37

November Samples		and	U	By
215333	29.1606	.30028	8.76	Billy
334	24022	.11683	2.81	Fox
335	53.426	.09944	5.31	JKF
336	42.696	.09184	3.92	JKF
337	22.8015	.24352	5.55	Billy
			26.35	

Dec. 1 Invent. 61,688.8 gms as UO_2F_2

1-11-53 Inventory of cylinders to be returned for re-processing

Cyl. No	Gross gm	Tare gm	net gm	anal. req	gm U/gm	wt U
1	12950	1980	10,970	215360	.0513	563
2	12840	1950	10,890	215361	.04055	442
3	12890	1910	10980	215362	.03451	379

Sample	net wt.	gm/gm	wt U
215360	18,234	.0513	0.93 gm
361	12,577	.04055	0.51
362	32,805	.03451	1.13

Signed

60 Da

MONDAY

NOVEMBER						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

28

DEC. 1953

JANUARY						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

APPOINTMENTS

9:00

9:30 L-1

10:00 L-2

10:30 L-3

11:00 L-4

11:30 L-5

12:00 L-6

1:00 L-7

1:30 F-3

2:00 #1 12950 1980 10970 360

2:30 #2 12840 1950 10890 361

3:00 #3 12890 1910 10980 362

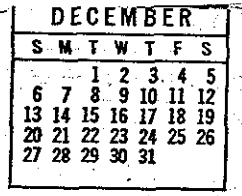
3:30

4:00 #1 .0513 563

#2 .040353 442

#3 .034351 379

Evening



SUNDAY

27

DEC. 1953

09

2 | 13200
2 | 1930
| 11270

Date

Reg 215349 .00000031 ppm U

7-2-54 Inventory

	Gross	Tare	Net	Reg. No.		ppm U
Drums A-1	125.4 Kg.	35.4	90.	215392	.000017	6.9
B-1	140.2	32.0	108.2	215393	.00026	
C-1	199.959 Kg	31.500 Kg	168 450	354663	13 ppm	2.18 gms
Bottle L-5	12,275 gm	1958 gm	10317	215394	.0848	875
L-4 pour out	11,990	1867	10123	215399	1.1 ppm	0.01
L-3	12510	1886	10624	215397	72 ppm	0.77
L-2	13400	1873	11527	215398	16 ppm	0.18
T-3 pour out	14550	1950	12600	354650	0.24 ppm	.003

dumped into waste tank

Washings from GE Uranium Foil

Reg 354664 anal = 8.6 ppm U

Gross = 85.933
Tare = 20.816
Net = 65.117
= .00036 5 gms U

7-2-54 Reg 354664 U = 0.05 ppm from reflector water

8-3-54 Reg 354666 U = 0.02 ppm from reflector water

9-8-54 Reg 354668 U = < 0.01 ppm < 0.01 ppm U (also spec total metal imp < 100 ppm)

9-16-54 Reg 354670 U = 0.56 ppm (1 gal sample) from 1000 gal "West" Lab waste tank

In West tank = 2.24 gms U - dumped 10-1-54

9-16-54 Reg 354669 Note on metal disc account Tot Eval - Net sample = 146.0 gms

Anal = .00458 gm - wgt U in sample = 0.6399 gm

Bulk stored in Vault 109 net = 1523.11 gms or 6.67 gms U

10-4-54 Reg 354678 - 102 ppm U (after spill into Reflector water)

354679 (Resample = 117.3 ppm U

Signed

Date

10-4-54 Req 354681 . Scrubbing = 41 ppm U

Req 354680 " 8 ppm

10-5-54 Req 354682 output from Resin column = 0.02 ppm U

10-6-54 " 354683 " " " " 0.01 ppm U

354684 " " " "

10-7-54 354685 " " " "

10-8-54 354686 " " " " 0.21 ppm

10-12-54 354687 from "East" Lab waste storage 0.14 ppm U

354688 from Scrubbing Drum B-2 = 0.44 ppm U

10-28-54 "East" Lab waste storage tanks dumped - 1000 gal = 4×10^6 gm

$\times 0.14 \times 10^{-6}$

0.56 gms U total

Signed

container	Gross	Tare	Net	Req. No.	gm U / gm	wgt U	new Req.	net wgt sample	new Net	gm U / gm	wgt U entire	wgt U sample					
25	42150	2732	39418	635266	.31746	12513.6											
26	42730	2505	40225	267	.31720	12779.5	635287	45.41		~~.31827~~							
27	41030	2127	38903	268	.29584	11509.0	635~~28~~ 42	~~45.41~~ 43.79		.30827 ~~.29584~~							
28	42050	2747	39303	269	.31761	12483.0											
29	42450	2556	37894	270	.31754	12667.9											
30	42260	2768	39492	271	.31738	12534.0											
31	41733	2740	38993	272	.31763	12385.3											
32	41265	2900	38365	273	.31779	12192.0											
33	42360	2581	39779	274	.31775	12639.8											
34	40400	2686	37714	275	.29190	11,008.7	635293	44.91		.29228							
35	42605	2629	39976	276	.31759	12686.0	635~~-~~										
36	43100	2797	40303	277	.31783	12809.5											
37	35535	2651	32884	278 I	.15067	4954.6	635296	79.10		.1577							
~~38~~							635-297	64.78		.1592							
38	17950	2696	15254	285	.01224	186.7											
39	24445	2432	22013	281 T	.011870	261.29	635-295	51.37		.01748							
"							635298	42.34		.01735							

5 - 83.0 kg — 172.5

$$\begin{array}{r} 80.7 \\ 2.2 \overline{)\,172.5} \\ 72 \\ \hline 30 \\ 22 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 2,205 \\ 453.6 \overline{)\,1000} \\ 907.2 \\ \hline 9280 \\ 9072 \\ \hline 208 \end{array}$$

$$\begin{array}{r} 86.1 \\ 2.2 \overline{)\,185.5} \\ 172 \\ \hline 135 \\ 132 \\ \hline 30 \end{array}$$

Date
10-26-54 Added the following solution contained to manifold from Vault 1

num #2 SCW acct.		7950 gm	Gross anal. .444 gm 25/cc
cyl 14		1872	Tare sp gr 1.345
		6078 gm	Net .3081 gm U/gm
		1872 gm U	
Cyl 424	K-25	3574.9 gm U	
Bottle 412	"	403.1 "	
" 413	"	196.3 "	

Material sent to Recovery; (9 or 10 th month, 54)

	gm from	Tare		Reg no.	gm U
L-2	17,090 gm	1873	15,217	354665	3898
L-3	16,940	1886	15,054	"	3856
L-4	17,020	1867	15,153	"	3881
L-5	16,770	1958	14,812	"	3794
L-7	16,295	1927	14,368	"	3680
T-1) L-1	7530	1929	5600	354673	1265
T-20	13,945	900	12,045	354672	1374
F2	12470	1950	10,520	354675	890.8
#3	13,110	1910	11,200	354674	4123
#2	14,400	1950	12450	354671	1523,
#1	16,960	1980	14,980	354665	3837
F-3	16,610	1945	14,665	"	3756
#4	16955	1955	15000	"	3843

Signed

Date 10-29-54 Washings sent to salvage:

Drum No	Gross	Tare	net	anal req	PPm	gms U
B-1	191.7 kg	32.66	159.04	354680	54	8.6
T-11908	256.74	45.13	211.61	354692	27	5.4
C-2	188.24	44.0	144.24	354691	24	3.5
C-1	228.84	31.75	197.09	354688	15	3.0
A-1	218.18	35.6	182.58	354681	41	7.5

12-1-54 Samples sent to lab.
representing salvage from water clean up three columns —

Waybill	Containers	Gross	Tare	Net	Req #	A. T	Net(sample)	Ran Anal
87-77-24	I	8.350 Kg	.830	7.520 Kg	354698	115.7118	25.7964	89.9154 .009524 gm U/gm
	II	8.490	.910	7.580 Kg	354697	130.9632	25.2426	105.7206 .002337 gm U/gm
✓	III	7.000	.870	6.130 Kg	354696	133.0286	26.2722	106.7564 .007315 gm U/gm
✓	IV	6.710	.850	5.860 Kg	354695	138.2788	28.1897	110.0891 .001952

Uranium wgts	gms U		gm U
#I	7.520 x .009524 =	71.62	Sample Req 354698 = 0.8564 gms
II	7.580 x .002337 =	17.71	354697 = .2471
III	6.130 x .107315 =	44.84	354696 = .7809
IV	5.860 x .001952 =	11.44	354695 = .2149
57090		145.61	2.0993

Signed

u 0 2 7 2

CONFIDENTIAL

Plate No. ____________ Spectrographic Laboratory Met Tabulations

Req. No.	Ag	Al	B	Ba	Ca	Cd	Co	Cr	Cu	Fe	Rb	Mg	Mn	Na	Ni	Si	Sn	RE/Ag	K	Mo	P	Pb	Zn
31-0568 975706	<1	17	2.1	<10	<50			<6	<2	100		6	<5	165	<25	10	11		52	200	<100	33	<40
31-0556 984317	4	<7	1.1	<10	70			16	10	127		4	<4	14	25	10	24		<50		<100	16	<40
31-0582 984318	2	<7	<1	<10	<50			16	<2	95		5	<5	<10	<25	<10	<10		<50	<200	<100	<10	<40
31-0563 975704	<1	<7	1.0	<10	<50			<6	<2	<10		<5	<5	<10	<25	<10	<10		<50	<200	<100	27	<40
31-0565 984322		20	1.6	<10	<50			<6	<2	35	<1	<5	<5	17	25	10	12		<50	<200	140	10	<40
			G/G		Assay																		
31-0556			.45715		93.18																		
31-0563			.46127		93.15																		
31-0565			.45519		93.11																		
31-0568			.45613		93.13																		
31-0582			.46472		93.21																		
31-0504			.46358		93.12																		

ppm in U_3O_8

White mer 1/1/15X
recd 1 7-8-7 {8 9

CONFIDENTIAL

RESTRICTED DATA

This document contains restricted data as defined in the Atomic Energy Act of 1946. Its transmittal or the disclosure of its contents in any manner to an unauthorized person is prohibited.

Date 1-5-55

Conc. soln added to manifold:

Container # → 1	4034	1874.9	gm U	See Waybill for details
Tare 1875 gm → 2	20691	9459.1	"	
" 1801 → 3	20476	~~9445.7~~	"	
1973				
1925 → 4	20523	9342.1	"	
1823 → 5	9772	4457.3	"	
414		1734.4	"	33,800
total		~~36378.4~~ 35312.2	"	= 33,870 gm U_{235}

Estimated total volume after rinsing 39.5 liters
This corresponds to a H/x g ~ 25
Eq 354702 taken from manifold: .44278 gm U/gm
sp. gr. 2.0136 gm U_{235}/cm^3 = .8309
~~8309 / 33.8~~ kg = 40.67 l
33.8 / .8309

6-2-55 Added Noah soln to manifold
This soln. was used by Thomas for 9" sphere expts H/x ~ 147 .03358 gm U/gm
1.6225 sp. gr.

Container # IX from 9195 gm
Tare 960
net 8235

Container #23 from 8585 gm
Tare 890
net 7,695

Signed

Date 11-1-55 Sample Taken from S.S. Barrel

P 141 reg #ND. 354728 Drum gr 103.0 kg

127.261 Tare approx. 33.0

28.409 70 kg net

98.852 Shipped = 70.000 gm

.00204

280000

140000

142.80000

Drum #	Net wt	Sample No.	Reg. No.		
3-429-72 = 357	162.4 kg	P98	354747	17 PPm	2.769 gm U
2-408-69 = 339	154	P150	354748	21 "	3.23
1-379-70 = 309	140.5	P28	354749	50 "	7.02
4-401-70 = 331	150.5	P128	354750	16 "	2.41
5-494-70 = 424	193	L578	354751	.0047899 gm U/gm	925.
6-536-97.5 = 438.5	199	L819	~~354752~~	1.1 PPm	.22
7-518-97 = 421	191	"	354759 →	1.1 PPm	.21

6 & 7 same cone.

Bottle L7 12,150 kg sample no. P53; Reg 354753

1930

10.220 kg net 59.144 gm

25.815

33.359 gm

.02

.6670 gm in sample

201.5 gm U .01972 gm U/gm

Cont # 5A

61.0 #

5.0

Net 56.0 = 25.45 kg

Reg. No.

354761 - 96.2 PPm

2.449 gm U Total

~~# 1 3~~

~~60.2~~ ← 2 PPm

~~5.0~~

~~55.2~~ Dumped

2 354756

66.5 ←

5.0 24 PPm

61.5 lb = 27.95 kg

total 7.27 gm U

Signed

Date 3-12-86 Spill & Inventory

#1 Drum	#2 Drum	#3 Drum	#4 Drum
570	553	498	553
99	99	101	99
471 lb Net	454 lb net	397 lb net	454 lb net
354771	ref. 354772	354773 ref.	354774 ref.
.000553 ✓	.001033 gm U/gm	.001786 gm U/gm	.0000227 ✓
recovered 119	236	220	0
+181 gm U	212.7 gm	321.69 gm U	4.7 gm

#5 Drum	#6 Drum	#7 Drum	#8 Drum cruddy soln.
437.5	271 contents drumled	251.5	366.0
66.7	48 see P. 70	97.0 70 lbs	69.5
370.8 lb net	203 lb net	154.5 lb. net	296.5 lb.
354775 ref	ref 354779	354780	134.5
S. Fluoro	Sample P198	Sample P229	354776 ref
.000429 ✓	129.88	100.42	S. Fluoro
	28.93 (.63) gm U	21.44	0.000223 ✓
52	100.95 ✓	78.98 ✓	74
72.2 gm U	.006254 gm U/gm	.012.985 gm/gm (1.03) gm U	3.09 gm U
	(575.9)	(57 gm U)	

#9 Drum	Poly. E Bottle cont #1	P.E.B. cont #3	P.E.B cont #2
470 lb.	24.31	27.80 kg	27.65 kg
69	2.40	2.40	2.40
401 lb.	21.91	25.40 Kg net	25.25 Kg
181.9 kg.			
354778 ref	P-210	B-35	P240
S. Fluoro	ref. 354781	ref 354782	ref 354783
0.000093 gm U/gm ✓	125.36	105.4 gm	106.65
	27.60	22.0 (.38) gm U	26.0 (.38) gm U
57	97.76 (.66) gm U	83.4	80.65
16.9	0.006808 ✓	0.004575 ✓	0.00476 ✓
	31		
	149.2	116.2	120.2

139

Signed

Date 3-12-66

10 Liter L Bottles

L-1	2-L	3-L	4-L	5L	6-L
~~Salvage~~	conc. sol.	conc. s.	conc. s.	conc. s.	salvage
12.350 Kg	19.270	18.440 Kg	11.030	18.750	14.960
1.867	1.886	1.970	1.925	1.873	1.873
10.483 Kg	17.384 ✓	16.470 ✓	9.105 ✓	16.877 ✓	13.087
P27-		P-70		P-85 reg 354786	P-31
87.49		52.53		54.12	74.60
26.49		25.0		26.0	27.85
41.00 gm net		27.53	(.3264) av anal	28.12	46.75
reg. 354784 (.53) gm u	(.3264) av	reg 354785 (8.97) gm u		.3264 (9.20) gm u	(3.52) Reg 354787
.01292 gm/gm		~~0.32590 gm/g~~ .3264		~~.32710~~	~~.07542~~ .01854
131 ~~135.4 gm u~~	5674.1 gm u ✓	5375.8 gm u ✓	2971.9 gm u	5508.6 gm u ✓	~~987.1 gm u~~

L-7 conc. s.	L.8 ✓ salvage	L-9 salvage?
18610	11.350	12.825
1.927	1.912	1.872
16.683 ✓	9.438	10.953
P-205	P201 354797	P-38 reg 354796
56.38	70.49	122.46
26.0 (9.91) gm u	27.12	29.99 (.77) gm u
30.38	43.37 (2.94) gm u	92.47
reg. 354788		
~~0.32629 gm/gm~~	.06781 ✓	~ .008328
av. anal .3264		
5445.3 ✓	611 ~~640.0~~	101 ~~91.2~~

Signed

Date

Clean Soln L-10 ✓	Clean Soln L 11	Clean Soln. L 12	Clean Soln L 13
~~salvage~~	Hx = 524		13.800
~~12.280 kg~~	11.910 kg	7.100 kg	1.912
1.875	1.898	1.947	11.888 ✓
~~10.405~~	10.012 ✓	5.153 ✓	

P-6 354801	P-11 354799	P236 354800	P226 354798
77.33	60.02	62.58 (5.38) gm u	75.22
25.69	28.24 (1.62) gm u	27.03	25.90
2.64	31.98	35.55	49.32
			4.47 mV
0.01381 ✓	.05096 ✓	0.15135 ✓	.04057 ✓
145			
~~143.7~~	510.2 mV ✓	779.9 mV ✓	1076.7 mV

A-1	A-2	A-3	A-4
21.440 kg	25690	22.480	27.88
13.154 ✓	14.588 ← see page 39 →	13.257 ✓	16.30 ✓
8.286 ✓	11.102 ✓	9.223	11.580

		P286 neg 354790	P33 neg 354791
		3243 AV ✓	.3243 AV ✓
.3243	.3243	.32586 gm/gm	0.3229 gm/gm
		43.47 (6.84) gms u	50.81
		22.48	27.85
		20.99	7.49 mV → 22.96
			av and .3243
2687.1 ✓	3600.4 mV ✓	2991.0 mV ✓	3755.4 mV ✓

Signed

Date

A-5	A-6	A-7	A-8
23.220 Kg	26.750	~~26.240~~	24.990
12.860	15.973	16.265	15.666
10.36	10.777 ✓	9.975 ✓	9.324 ✓
		P-52 ~~Req 354777~~ av .3243 ~~.324086~~	
.3243 gm/gm	.3243 gm/gm		.3243
		4344 (.56 gm) 2620 17.29 gm	~~3023.8 gm~~
3359.7 gm ✓	3495.0 gm ✓	3234.9 gm ✓	3023.8 g ✓

Drums; contents of #687 divided

A-10	#6	#11	#7	#10
24.210 Kg	168 lb. →	171 lb.	175 →	175
15.465	68	68	97	98
8.745 ✓	100	103	77	77
	45.36 Kg	46.7 Kg	34.9 kg	34.9
	req 354779	-779	354780	〃
.3243	.006254	〃	.012985	〃
	(samples on p 67)			
	234	248	389	495
2836. gm ✓	~~283.7~~	~~292.0~~	~~453.2~~	~~453.2~~

Total Recovered from salvage shipped prior to 6-19-56, including dry salvage; 5,412 gm

Use this instead of individual container values

Signed

Date 6-19-52

Washings from reactors

	Drum # 1	#5	#7
gr.	389.5 lb.	418.5	321.5
Tr.	90.0 lb.	66.7	97.0
Net	299.5	351.8	224.5
	135.85 kg	159.58 kg	101.83
	sample P64	sample B48	sample P232
	Reg 354 812	Reg. 354814	Reg 354813
	net wt. 953 gm 1.24 gm	net wt. 92 gm	net wt. 99 gm
	.00271 gm U/gm	.00138 gm U/gm	.001716 gm U/gm
	368.15 gm U	220.2 gm U	174.7 gm U

Also: 1 drum dry salvage & Bottle # — sum 763.9 gm

Total all shipments:

156 gm dry salvage R.

Cont #2 B → 19.44 kg. Reg. no. 354 802
2.40
17.04 kg net
anal. 97.2 PPm.
1.65 gm U

sample 7.8

24

80 gm

Total Recovered from #1, #5, #7 and 2B = 740 gm U

62,478

Signed

72

Date 9/12/56

Washings

Drum #1 Sample Reg # 354817

Gross 119.45 gm

Tare 20.50 gm

Net 98.95

47 PPM.

12-13-56

Sample from Ion Ex. Column

Reg 354839

79.56

20.36

59.20

.2173 gm U/gm

Batch S-1

Reg. NO 354873

10L Salvage

Gross 12.76
Tare 1.93
Net 10.83
Sample

gm 4 = 294.3

Sample S-1

49.85

22.5

27.35 gm

gm/gm = 0.02717

Batch S-2

Reg. NO. 354874

10L Salvage

Gross 14.14
Tare 1.90
Net 12.24

gm 4 = 918.5

Sample S-2

49.38

20.2

29.18 gm.

gm/gm = 0.07504

Batch S-3

Reg. NO. 354875

10L Salvage

Gross 12.71
Tare 1.80
Net 10.91

gm 4 = 10.2

Sample S-3

74.20

50.12

24.02 gm

gm/gm = 0.000935

Batch S-4

Reg. NO 354876

10L Salvage

Gross 15.05
Tare 1.90
Net 13.15

gm 4 = 18

Sample S-4

50.12

20.0

30.12 gm

gm/gm = 0.14154

Signed

7/15/57
Date

6- Polyethylene 5" dia bottles received from 9212 on about 6-7-57 (see spec. report filed) Av. Sp. gr. = 2.13
See waybills for details:

Total Solns. wt: 22,590 gm + 39,415 = 62,005 gm
Total gms U: 10,571 + 18,429 = 29,000 gms U

Total Vol. of Solns = ~ 29.1 liters

Approx. inventory of solns. in plastic bottles:

.407 mV/cm³	85 l	at H/L = ~ 65	9 l at ~ 1000 H/L
.381 "	13 l	" " = ~ 70	
.425	7 l	" " = ~ 62	
	2 l	" " = ~ 50	
	107		
	30 liters from 9212		
	137		

Signed

74

Date 4/28/58 Salvage Drum

#1	#1B	#2	#4
Req 354924	354921	354923	354922
gm U/gm .00229	.000233	.00078 gm U/gm	.000224 gm U/gm
Vol = 35.4 Liters	Vol = 169.6 Liters	Vol = 61.0 liters	Vol = 85.5

#1 repeat

#7 Vol = 81.0 Liters
354923
.000105 gm U/gm

354942 gm u/gm = .00216
153.5 gm Soln.

#2 repeat gm u/gm = .000599

354943
151.7 gm Sol.

4/28/58 10 Liter Bottles (Salvage Material)

#1	#2	#3
14040	12700	13610
−2000	1942	1912
12040 gm wet	10758 gm	11698 gm
gm u = 204.9 gm	gm u = 26.8	gm u = 325.1

#4	#5
13920	13700
2215	−2000
11705 gm wet	11700 gm
gm u = 194.1	gm u = 154.1

Samples for above 10-liter Bottles

Reg # 354926	Reg. # 354927	Reg. 354928
#1 85.5	#2 127.4	#3 73.3
20	20	20
65.5	107.4	53.3
gm/gm = 0.01702	gm/gm = 0.00249	gm/gm = 0.02779
gm u = 1.1	gm u = 0.3	gm u = 1.5

Reg # 354929	Reg # 354930
#4 86.1	#5 118.4
20	20
66.1	98.4
gm/gm = 0.01658	gm/gm = 0.01317
gm u = 1.1	gm u = 1.3

Total gm of U in 5 - 10 liter bottles = 905.0

Total gm u in 5 samples = 5.3

Signed

Date 6-17-58 Outside Tank

2B

~~354950~~ } gm/g ↓ 354951 - .2 ppm.
~~1255 gm soln~~ } gm = .00069
vol = 55.6 Liters

53.5
8.9
18.8
81.2

6/23/58 Sample from Drum # 3

Req. # 354955

G 126.72 gm U/gm = .001616

20

N 106.72

Vol = 33.1 Liters

33
1.62
66
198
33
53.46

6/30/58 Recieved from 9212 Concentrated White Salt Soln
material type 1938

container #	1	# 2	# 3	# 4
Gross	14 344	11 608	13 906	14 360
Tare	3 146	3 104	2 966	3 070
Net	11 198	8 504	10 940	11 290

# 5	# 6
12 478	6 849
2 709	2 948
9 769	3 901

Sample from Salvage drum # 1C
Req. # 354965 Vol of batch = 30.0 Liters
gm/gm = .00166

Signed

76

7428

Date 3-2-59 6 Bottles Salvage (UO_2F_2?)

Sample Reg Nos: & Bottle Numbers:

Bottle	1	2	3	4	5	6
	354982	354983	354984	354985	354986	354987
	0.001521	0.002475	0.001884	0.01181	0.02110	0.01424
Dwt	16.600	17.210	18.375	18.560	13.410	19.280
Tare	2.679 kg.	2.679	3.146	3.146	2.679	3.146
	13.921	14.531	15.229	15.414	10.731	16.134
	21.174 gm U	35.964 gm U	28.691 gm U	18.204	22.642	22.975

7/6/59 (nitrate)

Bottle #7 Sample #7

Reg. # 593091

G 141.00 gm G 113.18

T 19.13 T 29.0

N 121.87 N 93.18 g

gm U/gm = 0.04189

(fluoride)

Bottle #8 Sample #8

Reg. # 593091

13775 gm 132.76

2900 20.00

10875 g 112.76 g

gm U/gm = 0.00086

7/28/59 Harvey (78211).

Finds in the 3/2/59 bottles the following

Their batch #1 (our Bottles 1+2+3) ≡ 117 g

" " #2 (our Bottles 4+5+6) ≡ 1324 g (their analysis after combining ≡ 0.028 g/g which is greater than any of ours).

Signed

Date
6-30-59 11-14 liter Bottles UO_2F_2 at H/X=100 are in Vault

7/6/59
Drum containing salvage (nitrate solution) from draining storage tanks (SiDs) and ~10 liters from pump house leads.
9/33 x 55 gal = 15 gal
3.785(15)13.59 = 771.57 g of U in drum (9" deep)

7/7/59
Samples taken from drums #2 & #3

~~Req #~~ Drum #2	Drum # 3
Req. # 593093	Req. # 593094
gm U/gm = .000627	gm U/gm = .000654

12-28-60 Solution to be shipped to Hanford
Taken from Bottle received from Y-12 6-30-58
Item #3 waybill 74-84-3 original analysis
Req # 166088 Recheck Req No. 593128

Bottle # 1	Bottle # 2	
4.512	4.357	4.132
.245.0	.925	4.267
4.267	4.132	8.399

Req No. 593128 – 0.46489 mU/gm
" " 166088 – 0.4655 " "

Signed

Date 9-18-59

Pellet Inventory

Bottles as received:

	#1*	2	3	4	5
Gross	85.05	82.85	82.40	82.90	83.0
	+.05	+.05	+.05	+.05	+.05
	85.1 kg	82.90	82.45	82.95	83.05
	2.8†	2.8	2.80	2.80	2.8
	82.3 net	80.1	79.65	80.15	80.25

Some pellets poured from #1 into 15" Al. reactor

#6	7	rec. 10-16-59 8 not full	9
82.75 kg	84.0	26.5	82.6
+.05	+.05	2.8	2.8
Tr. 82.80	84.05		
2.8	2.8		
80.0	81.25	23.7	79.78

Pellets + Water up to top of pellets

#1 Bottle 90.85 kg
85.05
5.80 kg H_2O at room temp.

#10	11	12	Total net wt.
82.7	82.85	82.6 kg	906.85 kg
2.8	2.8	2.8	Received
79.9	80.05	79.8	

† ~~approx~~ av. wt. of cylinder

* Balance reads -.05 kg at zero

X-494

TO: P. K. Fox

FROM: W. R. Laing

SERIES NO.

CONTROL NO. S. F. 588

DATE 10-8-57

ANALYTICAL DATA REPORT SHEET

THIS FORM IS TO BE USED **ONLY** FOR REPORTING ANALYSIS FOR VERIFICATION OF INVENTORY, VERIFICATION OF MATERIAL CONTENT BEING SHIPPED FROM THE LABORATORY TO OTHER INSTALLATIONS AND VERIFICATION OF MATERIAL CONTENT RECEIVED FROM OTHER INSTALLATIONS.

ANALYZED FOR: Thorium, Uranium METHOD OF ANALYSIS: Th gravimetric; U, carbonate

	Sample Code	% Th	% U											PRECISION OF ANALYTICAL METHOD	REMARKS
1018	$ThO_2 \cdot UO_2$	81.82	5.95												

Activity in _____ REMARKS

Concentration wt %

Sample Counted at _____ % geometry

DISTRIBUTION: 1 (White) Requestor
2 (Canary) S. F. Accountability
3 (Blue) Analytical

SAMPLES RETURNED TO SENDER

W. R. Laing
Laboratory Supervisor

4-18-59

Date

Pellet Drying tests:

Pellets as Received:

Gross 8.99
Tare 3.98
Net 5.01

Pellets submerged in H_2O and set in hood to air dry.

after Drying 1 hr at 120°C

Gross 8.99 – not wt. change

Pellets from Bottle #5

After air drying to 9-23: Gross 9.01

~~2nd Pellet Drying Test 11/17/59~~

~~II~~

Pellet Inventory 11/24/59.

Amount in each bottle or numbered.

II 1
81.7 kg
2.8
78.9

II 2
~~81.9~~
~~86.7~~ kg
2.8
79.1

II 3
84.1 kg
2.8
81.3

II 4
82.2 kg
2.8
79.4

II 5
81.6 kg
2.8
78.8

II 6
~~58.5~~
~~58.7~~
2.8
55.7

II 7
82.8
2.8
80.0

II 8
65.8
2.8
63.0

II 9
85.15 kg
2.8
82.35

II 10
84.6 kg
2.8
81.8

II 11
~~86.7~~
~~84.4~~ kg
81.6 kg
2.8
78.8

II 12
86.7 kg
2.8
83.9

Signed

98 Date From 11/16/59 to 11/19/59

Pellet drying test

avg amount of water for the bottles I show 12 = 2.16% by weight.

Bottle no 1.	1st weighing	2nd weighing	Bottle no 2.	1st weigh	2nd weigh
Gross	737.8	723.1	723.1	715.0	702.2	702.2
Tare	90.9	90.9	90.9	91.8	91.8	91.8
Net	646.9	632.2	632.2	623.2	610.4	610.4
	632.2			610.4		
	14.7 = 2.27%			12.8 = 2.055%		

Bottle no 3.	1st weight	2nd weigh	Bottle no 4.	1st weight	2nd w
Gross	705.1	692.9	692.9	775.0	760.8	760.8
Tare	94.2	94.2	94.2	87.8	87.8	87.8
Net	610.9	598.7	598.7	697.2	673.0	673.0
	598.7			673.0		
	12.2 = 2.009%			14.2 = 2.07%		

Bottle no 5	1st weight	2nd weight	Bottle no 6	1st weight	2nd w
Gross	754.3	741.0	741.0	797.7	782.5	782.5
Tare	91.5	91.5	91.5	95.4	95.4	95.4
Net	662.8	649.5	649.5	702.3	687.1	687.1
	649.5			687.1		
	13.3 = 2.005%			15.2 = 2.16%		

Bottle no 7.	1st weight	2nd weight.	Bottle no 8	1st weighing	2nd weigh
Gross	748.0	735.7	735.7	653.5	639.6	639.6
Tare	93.3	93.3	93.3	87.7	87.7	87.7
Net	655.7	642.4	642.4	565.8	551.9	551.9
	642.4			551.9		
	13.3 = 2.029%			13.9 = 2.46%		

Bottle no 9	1st weight	2nd weight	Bottle no 10	1st weight	2nd weight
Gross	745.5	731.5	731.5	669.0	657.0	657.0
Tare	96.5	96.5	96.5	93.7	93.7	93.7
Net	649.0	635.0	635.0	575.3	563.3	563.3
	635.0			563.3		
	14.0 = 2.16%			12.0 = 2.09%		

Signed

Cont page 99.

Bottle No 11	1st weight	2nd weight	Bottle No 12	1st weight	2nd
Gross	747.6	734.1	734.1	636.0	622.2	622.2
Tare	96.8	96.8	96.8	87.5	87.5	87.5
Net	650.8	637.3	637.3	548.5	534.7	534.7

637.3
13.5 = 2.052 %

534.7
13.8 = 2.52 %

11/27/59.
Shipped to Y-12.
UO_2 ThO_2 Salvage.
Six - 15 liter bottles (liquid) No's 13, 14, 15, 16, 17, 18,
1 - 55 gal drum (combustible)
Total = @ 1 kg. @ 230.4 gm U

12/15/59:
Shipped Via A.E.C. Truck, bottles 1 thru 12, containing amounts shown on page 97.

Signed

100 Date

SECRET
SECURITY INFORMATION

10731
16134
26865

SECRET
SECURITY INFORMATION

Signed

? - Libby