

BOOK32R

Notes:

"Sample Info" on spine

Blank pages: inside cover page opposite page 1, 1, 7, 20, 34-152, inside back cover sheets

-2 small sheets of paper between pages 18 & 19

-page 21 has sheet of paper taped to it

-3 brown small envelopes between pages 30 & 31

1 addressed to C. Cross 9213 has 3 small sheets in it

1 addressed to J. L. Thomas 9213 has 1 small sheet and 1 calendar sheet in it

1 addressed to C. Cross 9213 has 1 small sheet in it

Scanned by:

Sheila Finch

RSICC /Oak Ridge National Lab.

August 6, 1999

Log Book # 7217

chemical facility

data book given to R. Gwin

By S. T. Thomas

?

THE PAPER USED IN THIS BOOK WILL
GIVE COMPLETE WRITING SATISFACTION.
IT WAS SELECTED FROM MANY PAPERS
FOR ITS FINE WRITING LEDGER SURFACE



No. 168 BLANK BOOK

JOURNAL	}	WITHOUT UNITS
SINGLE ENTRY LEDGER		
DOUBLE ENTRY LEDGER		
RECORD		

IN 150, 200 AND 300 PAGES

M A D E I N T H E U . S . A

Sample Info book

4-8-58 Sample taken from Bottle #1 - (Sampling Bottle)
 Contr. #1 Approx 60 ml Reg # 354918
 .015648 gm/gm 1.0206 gm/ml

4-8-58 Sample taken from Bottle #2 enriched U²³⁵ Salvage
 Contr #2 Approx 60 ml Reg # 354917
 0.001051 gm/gm 0.0154 gm/ml

4-8-58 Sample taken from Bottle #3
 Contr #3 Approx 60 ml Reg # 354916
 .014283 gm/gm 1.0214

4-29-58 Sample taken from Bottle #1 - (Sampling Bottle)
 Contr #19 60.9457 g Reg # 354931
 .017837 gm/gm 1.0210 gm/ml

4-29-58 Sample taken from Bottle #1 For Mr. Cooper (X-10)
 Contr #23 Net wt 39.442 g

4-30-58 Sample taken, (for Mr. Cooper (X-10) U²³⁵ from
 Bottle in RM 211. Net wt 20.8463 g

5-23-58 Sample taken from Slab Storage tank RM # 113
 Contr #1 Net wt 85.6128 g Reg # 354935
 93.652 0.084562 gm/gm soln 1.1075

5-23-58 Sample taken from Slab Storage tank After
 soln had been diluted with 1.7 liters, (Rinsings
 From Reactor used For Dilution), And Recirculated
 for mixing.
 Contr #2 Net wt 113.472 g Reg # 354936
 .082764 gm/gm soln Sp gr. 1.1042
 91.388

5-29-58 Sample taken from Bottle #1 (Sampling Bottle U/235)

For Mr. Cooper X-10

Contr. #1

Net wt 21.1123 g

5-29-58 Duplicate Sample taken from Bottle #1 (Sampling Bottle U/235) For Mr. Cooper X-10.

Contr. #2

Net wt 20.9079 g

6-2-58 Sample taken for Mr. Cooper X-10 From sample Bottle used in Exp #30 containing 20 ml U/235 taken from stock soln

#30 Approx .15 g

6-2-58 Sample taken for Mr. Cooper X-10 From sample Bottle used in Exp #31 containing 15 ml U/235 taken from stock soln in Rm #211

#31 Approx .2 g

~~6-20-58 Sample taken from 25 L Bottle containing washings from 15" Annular Reactor~~

~~Contr #2 Net 11.11273 g Reg # 354954~~

6-20-58 Sample taken from 25L Bottle labeled
Washings from 15" Annular Reactor

contr #1 Net 40.1774 g Reg # 354953

0.000124 $\mu\text{Ci/gm}$; 0.9974 gm/mL

6-20-58 Sample taken from 10L Bottle previously
sampled with Reg # 354916 Bottle #3

contr #2 Net 41.4273 g Reg # 354954

0.019730 gm/gram sol. Sp Gr. 1.0210

6-25-58 Sample #100 used in Exp # 53 as recorded
in log Book. Gr wt 156.3529 g After Exp

Net wt U-235 0.4 g 2.94 mg/g

taken to Mr Cooper (X-10) for Analysis

7-8-58 Sample #111 U²³³ used in Exp # 58

taken to X-10 (Cooper) for Analysis Phone J. Cooper
to R. G. G. 3.20 milli gram/gram
Per Sample?

7-8-58 U-235 Sample #27 contains precipitate
sent to 1-12. Requested Soln. Analysis
and spec. analysis of precipitate

gram U/ per gram = 0.001452

Density

= 0.99913 g/ml @ 28.8°C

The precipitate

was ~60% U

and 24% Fe

#27 continued - A phone conversation with
Mr. Hong King → Weight of precipitate =
0.6 milligram

7-18-58 Sample U/235 Salvage Reg # 354957
Net wt 40.505 g #13

7-18-58 Sample U/235 Salvage Reg # 354958
Net wt 41.183 g #1

7-18-58 Sample U/235 Salvage Reg # 354959
Net wt 40.5578 g #6

7-23-58 Sample U/235 Salvage Reg # 354960
cont #102 Net wt 42.231g 1.521 gm/L

7-29-58 Sample $UO_2(NO_3)_2$ taken from slab storage
tank for Mr Cooper (X-10) cont #1 Net wt 101.214g

7-29-58 Sample $UO_2(NO_3)_2$ taken from slab storage
tank for Mr White (Y-12) cont #2 Net wt 99.9645g

7-29-58 sample $UO_2(NO_3)_2$ taken from slab storage tank
for Mr Cooper (X-10), After 1 l of Distilled H_2O
Had been Added to storage tank. Sample taken
After Exp[#] 80 contr #3 Net wt 100.81 g

7-29-58 Duplicate Sample (Same AS Above) taken for
Mr White (Y-12) contr #4 Netwt 102.272 g

7-29-58 #5 same as above Aug 6 taken to Cooper

#6 " " " Aug 6 taken to Vaughan

Date	Reg. No. Cont. or No.	Sample Description	Net WT
Dec 19, 1957	354 908	Solution from 27.5" 00 Sphere when critical.	
"	354 909	" " " " " "	
"	"	" " " " " "	
"	"	" " " " " "	
			U-233 U-235
Apr 8-1958	354 916	27.5" Sphere Solution -- Bottle #3 (15L)	
"	354 917	U ²³⁵ Salvage Bottle #2	
"	354 918	27.5" Sphere Solution Bottle #1 (25L)	
Apr 29, 1958	354 931	27.5" Sphere Solution Bottle #1 (25L)	
"	#23	27.5" Sphere Solution Bottle #1 (25L)	
Apr 30, 1958	J-233	U-233 Stock Solution [UO ₂ (NO ₃) ₂]	20.84
May 23, 1958	354 935	6" x 15" Annular Reactor Solution	85.61
"	354 936	6" x 15" " " " " After Dilution (1.7L @) 113.47	
May 29, 1958	#1	27.5" Sphere Solution -- Bottle #1 (25L)	21.11
"	#2	" " " " " "	20.91
June 2, 1958	#30	Solution from Bottle EXP #30 (20 mL U ²³⁵ Stock Soln)	
"	#31	" " " " EXP #31 (15 mL U ²³⁵ Stock Soln)	
June 20, 1958	354 953	Annular Reactor Washings U-235	
"	354 954	27.5" Sphere Solution Bottle #3 (15L) Same as 354916	
June 25, 1958	#100	Solution from Bottle in EXP #53	
July 8, 1958	#111	" " " " " 58	
"	354 956	" " " " " 27	
July 18, 1958	354 957	U-235 Salvage	
"	958	"	
"	959	"	
July 23, 1958	960	"	
		ORIG. STOCK soln. ~ 20.7 mg/gm	Pu-1
		12 ML STOCK Soln	4
		6 ML STOCK Soln	2
			3
		0.434g Pu(SO ₄) ₂ or 0.211 g Pu + 0.0566 g S 3.5 mL 70% HNO ₃ → 4.975 mg Pu	

UT	Date		gm U/gm sol.	Analyses or Results	mg U/ML
	Dec 27	Y-12	.019 693	1.0444 @ 25	20.57
	Dec 27	Y-12	.019 530	X 1.021 1.0449 @ 25	20.11 19.94 20.41
		ORNL-Y-12			20.14
		ORNL-Y-12			20.11
33	4-8	24809 X-10	.0267	1.052	
35	4-8	" X-10	.0197	1.028	20.25
		Y-12	.014 283	1.0214	14.54
		Y-12	.001 051	0.0154	
		Y-12	.015 048	1.0206	15.26
		Y-12	.017 837	1.0210	19.21
	4-8 - 24844	X-10	.01993	1.025	20.43
84	4-8 - "	X-10	.02718 -0267	1.044 +052	
5.61	6-4	Y-12	.084 562	1.1075	
2.47	6-4	Y-12	.082 764	1.1042	
1.11	6-16	24863 X-10		1.0867	20.1
0.91	6-16	24863 X-10		1.0256	20.2
	6-16	24863 X-10		1.0060	2.95
	6-16	24863 X-10		1.0015	3.07
		Y-12	.000 124	.9974 @ 25	
		Y-12	.019 730	1.0210	20.14
	24903	X-10	2.94 $\frac{mg}{gm}$		
	24903	X-10	3.20 $\frac{mg}{gm}$		
		Y-12	.001 452	.99913 @ 24.8	
	7-21	Y-12	2000.069 $\frac{gm}{L}$		
	7-22	Y-12	2001.642 $\frac{gm}{L}$		
	7-22	Y-12	1.675 $\frac{gm}{L}$		
	8-6 (Phone)	Y-12	1.521 $\frac{gm}{L}$		
1		X-10	0.369 $\frac{mg}{gm}$		
4		X-10	1.43 $\frac{mg}{gm}$		
2		X-10			
3		X-10			
			5.12 x 10 ⁷ gross α		
75 $\frac{mg}{gm}$	24903	X-10	1.44 $\frac{mg}{gm}$ corrected	1.52	Total wt = 159.714 - 20.322 = 139.392g

Average of 27.5
= 20.15 $\frac{mg}{ML}$

60% U 24% Fe
0.6 mg of precipitate

Date	Reg No or Cont. No	Sample Description	
7-29-58		#1 101.2 [UO ₂ (NO ₃) ₂] 27.5" Sphere Solution (Rad @ 17.67) g = 32.5 f	8
7-29-58		#2 99.96 " "	8
7-29-58		#3 100.8 " 27.5 Sphere Solution g = 3.5 f	8
7-29-58		#4 102.3 " "	8
7-29-58		#5 102.0 " " (To ^{Copper} Vial 8-6-58)	8
7-29-58		#6 103.0 " " (To ^{Vial} Copper 8-6-58)	8
8-6-58	354961	#7 102.855 UO ₂ (NO ₃) ₂ 27.5" Sphere Solution from Slot Tank	8
8-6-58	354962	#8 102.813 " from Slot Tank	8
8-6-58		#9 102.899 " (To ^{Copper} Vial 8-7)	8
"		#10 102.819 1.02853 @ 20.7°C " (To ^{Vial} Copper 8-7)	8
"		#11 102.834 1.02949 @ 25.0°C " (77°F)	8
"		#12 102.895 " "	8
8-7-58	354963	98.41% Acid RINSINGS OF SPHERE AND TANK #21 & #22	8
8-7-58	354964	98.10% H ₂ O FINAL RINSINGS OF SPHERE AND TANK #23 & #24	8
8-20		15 101.846 U ²³³ O ₂ (NO ₃) ₂ 27.5" Sphere Solution from Slot Tank	8
8-20		16 102.412 T = 21.6 thermometer "	8
8-20		17 102.147 " "	8
8-20		18 102.074 " "	8
8-20		19 102.055 1.02156 @ 21.6 "	8
8-20		20 102.277 1.02075 @ 25 "	8
8-20		21 102.265 " "	8
8-20		22 102.178 " "	8
9-8		23 23 27.5 Sphere Sol + 35g Boron	8
9-8		24 " "	8
9-8		25 " "	8
9-8		26 " "	8
9-8		27 " "	8
9-8		28 " "	8

Date	Analytical Lab.	Results.		
		$\frac{mg\ U}{gm}$	$\frac{gm}{ML}$	
8-5-58	X-10	19.49	1.0289	0.0186 g (NO ₃)/g soln.
8-5-58	ORNL-Y-12	21.29	1.0247 @ 77°F	[MW. = 235.158]
8-5-58	X-10	19.49	1.0290 ^{20.00}	0.0187 g (NO ₃)/g soln.
8-5-58	ORNL-Y-12	21.17	1.0248 @ 77°F	20.322
	X-10	19.57 60	1.0291 ^(19.60 cont) 20.14	—
8-8-58	ORNL-Y-12	19.65	1.0241 @ 77°F	20.124
8-22-58	Y-12	20.034	1.0289 → 20.69	.0172
8-22-58	Y-12	19.965	1.0289 → 20.54	.0172
	X-10	19.55 (19.61 cont)	1.0281	—
8-8-58	ORNL-X-12	19.74	1.023 @ 77°F	20.194
8-11-58	Y-12	0.100	—	
8-11-58	Y-12	0.002	—	
8	ORNL-X-12	16.95	1.0216	.017.316
	"	16.98	1.0208	017.333 NO ₃
	X-10	16.77	1.0228	17.152 11.8 mg/gm
	X-10	16.76	1.0233	17.151 11.9 mg/gm
	X-10	16.75	1.0216	17.11
	X-10	16.74	1.0225	17.12
	ORNL-Y-12	17.32	1.0199	17.66
	ORNL-Y-12	17.25	1.0210	17.61
200	ORNL-Y-12	18.02	1.0202 18.38	0.13 ^{11.803} mg/gm
	"	18.03	1.0240 18.46	0.11 " 10.82 61.8d
	X-10	17.43	1.0267 17.90	0.022 mg/gm
	X-10	17.43	1.0252 17.87	0.022 "
	X-10	17.40	1.0239 17.86	0.024 "
	ORNL-Y-12 Spec	17.91	1.0209 18.28	0.019 mg/g/ML

Reg No.

Bottle
No.

9-10-58	29	U-233 Solution + 50 g of Boron
"	30	"
"	31	"
"	32	"
"	33	"
"	34	"
9-11-58	35	U-233 Solution + 75 g of Boron ^{#109} / _{#108}
"	36	"
"	37	"
"	38	"
"	39	"
"	40	"
9-12-58	41	U-233 Solution + 100 g of H_3BO_3 { #110 } 1115
"	42	"
"	43	"
"	44	"
"	45	"
"	46	"
9-25	47	U-233 Solution ~ 50 l rinsings + acid
10-16	48	U-233 salvage sample 25 l bottle
10-16	49	" " 15 l "
10-27	50	U-235 Solution + 100 g Boric Acid 27.5" sphere
"	51	
"	52	
"	53	
" (Spine)	54	
" (Spine)	55	

	U mg/gm	Sp Grav	B mg/gm	
ORNL-Y-12	18.54	1.0242 18.99	0.24	mg H ₃ BO ₃ /gm .0420
"	18.43	1.0235 18.86	0.26	" .0455
X-10	17.96	1.0261 18.43	.045	mg B/gm
X-10	18.08	1.0307 18.43	.046	"
X-10	18.05	1.0253 18.51	.045	
ORNL-Y-12	18.51	1.0233 18.94	43 μg B/ML	
ORNL-Y-12	19.20	1.0256 19.69	.39	mg H ₃ BO ₃ /gm .0683
"	19.15	1.0245 19.62	.37	.0649
X-10	18.73	1.0288 19.27	.068	
X-10	18.63	1.0277 19.15	.068	
X-10	18.64	1.0259 19.12	.065	
ORNL-Y-12	19.17	1.0215 19.58	68 μg B/ML	
ORNL-Y-12	19.84	1.0257 20.35	.51	mg H ₃ BO ₃ /gm .0893
"	19.92	1.0237 20.39	.51	.0893
X-10	19.24	1.0275 19.77	.089	mg B/gm
"	19.29	1.0301 19.87	.090	
X-10	19.27	1.0281 19.81	.087	
ORNL-Y-12	20.19	1.0251 20.70	92 μg B/ML	
24936 X-10	.33	mg/gm		
X-10				
X-10				
	U mg/gm	gm/ML	B mg/gm	Cation as NO ₃ mg/gm
ORNL-Y-12	22.77	1.0322	0.091	1.0322
"	22.79	1.0319	0.091	1.0319
X-10	22.76	1.0332 @24	0.090	21.1 1.0326 @22
"	22.78	1.0334 @24	0.091	21.3 1.0326 @22
X-10	22.81	1.0347	.094	Sp. Grav.

56 U-235 + 200 g Boric acid

57 "

58 "

59 "

60

61

62 U-235 + 245 g Boric acid

63

64

65

66

67

(63)
12-1-58 Reg # 354973 80.8764g Acid Rinsings (salvage) U/235 - $UO_2(NO_3)_2$ #2

11-19-58 (60) U-233 salvage 30ml sample from 15L bottle

(70) " " 30ml sample " 25L bottle

12-10-58 (61) U-37 #3 UO_2F_2 37 1/2 % 5.0N Exp # 147A(62) U-37 #4 UO_2F_2 37 1/2 % 5.0N " "

(63) U-37 #1

(74) 2

12-16-58 (75) Reg # 354976 Net 60.21g 27.5 Sphere Acid Washings U/235 $UO_2(NO_3)_2$ ~~1-8-58~~ 76 354978 G 121.8 Net ~ 102g U/235 $UO_2(NO_3)_2$ 1-8-58 77 4' Sphere $UO_2(NO_3)_2$ Sol 100ML

" 78 " " " "

1-15-58 79

" 80

" 81 354979 Net 51.6g $UO_2(NO_3)_2$ Solution1-19-58 82 354980 Acid Washings U/235 - $UO_2(NO_3)_2$ Net 60.36g

gm/mL

	U mg/lqm	B	NO ₃	Density	
ORNL-Y-12	25.75	.175		1.0374	
"	25.77	.170		1.0371	
X-10	25.78	0.18	23.6	1.0388 @24	
"	25.76	0.18	23.8	1.0385 "	
"	25.90	0.186		1.0403	
ORNL-Y-12	27.27	.210		1.0395	
"	27.25	.210		1.0390	
X-10	27.21	0.22	25.1	1.0445 @24	
"	27.26	0.22	25.1	1.0445 "	
X-10	27.29	.222		1.0423	
Y-12	0.178 mg/gm			1.030	
To Parker X-10					
X-10					
to Cooper X-10	49.12			1.0575	
X-10	49.13			1.0569	
	49.14		5 37.45 ± 08 8 62.55 ± 08	1.0575	
	49.15		5 37.44 ± 08 8 62.56 ± 08	1.0573	
Y-12	0.387 mg/g				
X-12	18.15 mg/gm			1.0258	4 5-6 8
X-10	14.82 mg/g		11.3 mg/g	1.0190	.91 93.67 .31 5.11
X-10	14.81		11.2 mg/g	1.0197	.86 93.81 .26 5.07
X-10	14.84			1.0239	
X-10	14.82			1.0239	
Y-12	14.91				
Y-12	1.199 mg/g				

Hummer
 Casey
 4 4.06
 5 93.18
 6 .54
 8 5.22

Date Taken	Sample No.	Requid No		
1-23-59	83	635 339	20 ml sample for mass Spect. assay of ^{27" sphere 37%} 37% UO_2F_2 solution	1
	84		5 ml sample for J.R. Sites 4' sphere solution	
2-9-59	85		50 ml sample 4' sphere U-233 ^{G T} 69.94719.071	
	86		" " 69.94719.181	
	87		" "	
	88		" "	
2-10-59	89	354981	tap H ₂ O Rinsings 4' sphere Sol'n U/235 ^(60 ML) $UO_2(NO_3)_2$	2
2-11-59	90		5 ML Sample U/233 for J.R. Sites 4' Sphere Sol'n	
2-12-59	91		~50 ml sample from acid rinsing of U-233 solution	
3-10-59	92		Sludge and Acid Rinsings from SS Barre	
3-13-59	93	354988	U/235 $UO_2(NO_3)_2$ Salvage Acid Rinsings (Net 49.915g)	3-
3-20-59	94		U/235 $UO_2(NO_3)_2$ 5' sphere cyl. Exp 1-76	3-
"	95		" " " "	
"	96	593079	" " " "	
"	97		" " " "	
4-9-59	98	Sec	U/235 $UO_2(NO_3)_2$ 5' cylinder Exp 14-22	4-
"	99	109	" " " "	
"	100	Book	" " " "	4-
"	101	P-39	" " " "	
4-16-59	102	593077 593077	U/235 $UO_2(NO_3)_2$ 5' cyl Exp #26 (28" lit)	
4-27-59	103		U-235 103.71 g of solution to SA. Reynolds	4-
4-30-59	103	593080	(Returned from X-10) Net 91.148g (41"ht)	5-
5-7-59	104	593081	U/235 ^{($UO_2(NO_3)_2$)} Salvage Returned from Vaughn (Net 94.589g)	
5-4-59	104		$UO_2(NO_3)_2$ Exp #47 p 75	
"	105		} $h_c = 4.17$ 5' cyl	
"	106		"	
"	107		"	
5-20-59	108	593084	U/235 Salvage $UO_2(NO_3)_2$ Acid Rinsings Net 70.55g	5-

Date sent
to Lab

1-23-59

W = .26 X = 36.96 Y = 0.29 Q = 62.49
4 = 1.04 ± 0.01 5 = 93.25 ± 0.03 6 = .55 ± 0.01 8 = 5.16 ± 0.02

	Pot	Cond	NO ₃	Density	
50.749 g/some = 1.0149 1.0150	13.06	13.05	7.63	1.0152	
50.766	1.0153	13.00	13.07	7.63	1.0152
	13.03	13.01		1.0157	
	13.04	13.02		1.0150	

2-11-59 Y-12

0.46 mg/gm U 22.4 mg NO₃/gm

Barrels which stored 4' of U-235 soln. 116 mg U in soln 533 mg U in solid

3-16-59 Y-12

(Apr. 13) 0.001594 g/g U

3-20-59 X-10

" "

Y-12 Mass Spect.

Pot	Cond	NO ₃	Density
16.91	16.92	12.7	1.0227
16.91	16.94	12.7	1.0224
234	106	236	0.54
235	93.18	238	5.52
16.91	16.94	13.0	1.0235

4-10-59 X-10

4-10-59 X-10

14.95	14.95	11.9	1.0211 @ 23
14.95	14.96	11.9	1.0210 @ 23
14.96	14.98	12.0	1.0208 @ 25
14.94	14.96	12.0	1.0206 @ 25

Isotopic Analysis .014966 g/g soln.

4-27-59 X-10

Fraction per ml Analysis.

5-1-59 Y-12

Isotopic Analysis

234	1.04	236	0.54
235	93.12	238	5.30
234	106	236	0.52
235	93.11	238	5.31

2g)

5-6-59 X-10

"

Pot	Cond	NO ₃
14.30	14.31	1.0205 @ 24°C
14.30	14.31	1.0203

5-21-59 Y-12

Flux - 0.03191 g/g

18 Date TAKEN	Sample NO.	Reg NO	EXP NO	Date Sent
6-3-59	109		u/235 $UO_2(NO_3)_2$ 5' cylinder 80" ht 67-71	6-4-59
"	110		" " " " " "	6-4-59
"	111	593085	" " " " " "	6-5-59
"	112		" " " " " "	
6-12-59	113		u/235 $UO_2(NO_3)_2$ 5' cylinder 80" ht, 40ML	6-15-59 X-1
6-15-59	114		u/235 $UO_2(NO_3)_2$ 5' cylinder 80" ht, 50ML	RICKER
6-15-59	115		u/235 $UO_2(NO_3)_2$ 4' sphere soln Net 142.5503g	6-15-59 Coops
6-15-59	116		u/233 $UO_2(NO_3)_2$ 4' sphere soln Net 139.4227g	6-15-59 Coop
"Note"				
Approx 100 ML ea will be taken From samples #115-116 for shipment to Great Britain.				
6-17-59	117	593086	u/235 $UO_2(NO_3)_2$ Salvage (Acid Rinsings) 50g	6-17-59 Y-
6-19-59	118		u/235 $UO_2(NO_3)_2$ 4' sphere soln 100 ml	6-19-59
—	—	—	Duplicate of sample #115 for Mr Cooper	X-1
{ Solutions from J. Fox 9' - 8' hi } #11 & 11a sent to Cooper 2144g 102g				
6-7-2-59	119		Samples taken after #81, p127 heat ~ 18.43	
"	120			
"	121	593095		
7-16-59	122 124	593097	u/235 $UO_2(NO_3)_2$ Dilute H ₂ O Rinsings 16" slab system final washing for salvage N 80	
7-2-59	#122 #123		Samples taken after run #81 18.43 heat. (Duplicate Sample) (also a large 4 liter bottle was taken for reference)	U-2

JUL 1959		593097	
BATCH NUMBER		REQUISITION NUMBER	
REPORT TO: D.W. Magnuson			
BUILDING NO. 9213 PHONE: 78237			
DESCRIPTION OF MATERIAL:			
U/235 UO ₂ (NO ₃) ₂			
Salvage			
H ₂ O Rinsings			
ASSAY REQUESTED		AT CODE NO.	
AT <input type="checkbox"/>	DT <input type="checkbox"/>		
ANALYSIS REQUESTED		REPORTED ANSWERS	
GRAM U / GRAM <input checked="" type="checkbox"/>		.000247	
Fluorometric			
SIGNED: <i>[Signature]</i>		DATE: JUL 2 1959	
BY: <i>[Signature]</i>		DATE	

REQUISITION 593095	
TAREA	1000 1000 1000 1000 1000
	JUL 2-2 1959
	1.23
	93.02
	50
	5.45
	2-1.23
	93.02
	5.45
	5.41
REPORT TO	D.W. Magnuson
BUILDING NO.	9213
PHONE NO.	

Date
Sent to lab

6-4-59 X-10

Pot 13.79
Cond 13.79 1.0197 @ 24 NO₃ 12.6 mg/g

6-4-59 X-10

Pot 13.77
Cond 13.79 1.0197 @ 24 NO₃ 12.6 mg/g

6-5-59 Y-12

.013731 gm U/gm $\left\{ \begin{array}{ll} 0106 & 0107 \\ 9302 & 9300 \\ 0051 & 0052 \\ 0541 & 0541 \end{array} \right\}$ average .9301
.0052
.0541

6-15-59
X-10

B_u¹⁴⁰ 4.0 x 10⁹
12.6 x 10⁹ } 8.6 x 10⁹ f/ml ml or 162 watts

Rickard

6-15-59
* 10 Cooper

14.93 - 14.96 1.0192 @ 24 NO₃ = 11.4

6-15-59
Cooper

13.11 13.11 1.0173 @ 27.2 NO₃ = 7.6

6-17-59
Y-12

0.022326 gm U/gm soli

6-19-59
X-10

Pot Cond NO₃ g
13.34 13.34 13.5 1.0187 @ 24

16.59 16.61 14.1 1.0247 @ 21°C
16.62 16.63 14.2 1.0247 @ 21°C

.01613 g/g 1.023 sp grav
.000247 g/g $\left\{ \begin{array}{ll} 4 & 0103 \\ 5 & 9303 \\ 6 & 0051 \\ 8 & 0543 \end{array} \right\} \left\{ \begin{array}{ll} 234 - 0103 & 236 - 0050 \\ 235 - 9302 & 238 - 0545 \\ 234 & 0103 & .0052 \\ 235 & 9304 & 0545 \end{array} \right.$

N 80 g

U-235

Summary of weighings by R. Nisde (of the Phillips Pet. Co MTR)
for the sample exchange, July 23-24, 1959.

Bottle Number	Weight	Empty Wt.	Loaded Wt.	Sample Number	net wt
1	35.3595	35.3583	148.9698	11	113.6115
2	36.0442	36.0431	240.5620 - 3599	15	204.1590
3	35.3210	35.3181	228.1267 - 3599	54-59	192.4487
4	36.4046	36.4046	284.1280 - 3599	80-81	247.3635
5	34.7650	34.7770	278.8938 - 3599	69	243.7569
6	35.6491	35.6492	282.0390 - 3599	4 ^o U235	246.0299
7	<u>200 ml</u> 34.8056	34.8183	238.0227 - 3599	4 ^o U233	202.8445
8	35.3796	35.3769	137.0675	127	101.7806
9	35.5171	35.5172	136.9710	130	101.4538
10	35.0235	35.0203	238.3964 - 3599	133	203.0162
11	35.4843	35.4912	238.5417 - 3599	136	202.6906
12	35.0070				
13	35.9664				

Weight Correction 100 g brass = 99.6401 g
for samples 2-8 0.3599 g light

Wts. reversed = 99.6401
100.3589

Sample No	Date Taken	Reg. No.	Description	
125	8-5-59		After Run #99 U233O ₂ (NO ₂) ₂ @ 19.24lit	
126	"		" " " "	
127	"		" " 1 gallon approx	
128	8-7-59		After Run #103 U233O ₂ (NO ₂) ₂ @ 23.06"	
129	"		" " " "	
130	"		" " (1 gallon)	
131	8-12-59		after run # 112 U ²³³ O ₂ (NO ₂) ₂ 303	Cc
132	8-12-59		" " " "	
133	8-12-59		" " ~ 1 gallon	
134	8-18		After Run #122 before 123 U ²³³ O ₂ (NO ₂) ₂	
135	8-18		" " " "	
136	8-18		" " ~ 1 gallon	
137	9-3-59		U/233 Acid Rinsings 1 st Wash (salvage)	Xc
138	9-4-59		U/233 " " 2 nd Wash (salvage)	
139	9-8-59		U/233 Acid washings (15 liter Bottle #4) taken from	
140	9-8-59		U/233 tit washings from Mr Cooper 15L Bottle 101 From #	
141	9-8-59		U/233 Salvage taken from 25L Bottle	
142	9-8-59		" " " " 15L Bottle	
143	9-9-59		U/233 Acid washing (800gal Dilution) thru Valve	
144	9-9-59		" " " " " "	
145	9-23-59		U/233 Acid washings 50ML (Mixture of 1 st And 2 nd wash of 5' cylinder) see 137-138 SAMPLE #	Be
146	9- 17 ²³ -59		Final rinse after several caustic	
	1-20-60		U/233 Samples in vault Vented by cd	
	7-20-60		U/233 Samples (Bottles #1-#2) were Moved into vault for storage e.c	

Delivered to	Date	Analysis Results
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Lang X-10 Y-12 Y-12	4-17-64	soln Density @ 25°C 0.9990 Mg/g Boron 1.18
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Lang-X-10	7-22-64	1.48 mg/ml Boron
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Lang-X-10	8-3-64	1.49 mg/ml
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Lang-X-10	12-3-64	1.37 mg/ml Boron
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Lang-X-10	12-3-64	1.39 mg/ml Boron
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Lang-X-10	12-15-64	0.98 mg/ml Boron
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Lang X-10	2-19-65	18.0 mg/l Boron
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Lang X-10	3-30-65	1.01 mg/ml
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Sample NO	Date taken	Req NO	Description	
1-A	5-21-65	—	UO ₂ F ₂ Net 91.25g Approx 30g/lr 20" Cylinder	L
1-B	5-21-65	684479	" Net 93.95g " " " "	
2-A	6-3-65		" " 82.53g " " " "	
2-B	6-3-65		" " 80.27g " " " "	
3-A	6-4-65	UO ₂ F ₂	S-2 Stock Soln Mattype 1038 Approx 900g/lr Net 98.46g	
H-A	6-4-65		S-3 Stock Soln Mattype 1538 .47730 gu/g Net 102.94	
5	6-4-65	UO ₂ (NO ₃) ₂	S-4 " " " " 1943 .26550 gu/g Net 77.65	
6	6-4-65	92.14%	S-5 " " " " 2143 .24292 gu/g Net 77.20	
7	6-17-65		(see #2A Above) UO ₂ F ₂ Net 10.0g taken from duplicate Sample #2-C	E
8	6-17-65		taken from S-5 Stock Soln (see #6) Net 17.13g	
9	6-18-65	684483	UO ₂ F ₂ N 5.60g taken from duplicate Sample #2-C	
10	6-18-65	684484	UO ₂ F ₂ N 13.05g taken from S-2 Stock Soln	
11	6-18-65	684484	UO ₂ F ₂ N 14.27g taken from S-3 " "	
12	6-18-65	684485	UO ₂ (NO ₃) ₂ N 8.85 taken from S-4 " "	
13	6-18-65	684485	UO ₂ (NO ₃) ₂ N 11.30 taken from S-5 " "	
14	6-28-65		UO ₂ F ₂ N 12.59g " " S-3 " "	
15	6-28-65	93.2%	UO ₂ F ₂ N 15.45 taken from Sample #1	
16	6-28-65	5%	UO ₂ F ₂ N 15.89g " " " #2	
17	6-28-65	37 1/2%	UO ₂ F ₂ N 15.23g " " " #3	
18	7-1-65	97.4%	UO ₂ (NO ₃) ₂ N 15.5g " " " #4	
19	7-1-65	92.8%	UO ₂ (NO ₃) ₂ N 15.3g " " " #5	
20	7-7-65		UO ₂ F ₂ N 15.55g " " " #1	
21	7-7-65		UO ₂ F ₂ N 15.80g " " " #2	
22	7-7-65		UO ₂ F ₂ N 15.55g " " " #3	
23	9-28-65	97.4%	UO ₂ (NO ₃) ₂ N 16.3g " " " #9	
24	9-28-65	97.4%	UO ₂ (NO ₃) ₂ N 13.99g " " " #8	
25	10-12-65	97.4%	UO ₂ (NO ₃) ₂ N 20.5g " " " #11	
26	1-20-66	92.48%	UO ₂ (NO ₃) ₂ N 12.80g " " " #12	
27	1-25-66	5%	UO ₂ F ₂ Net 13.20g " " " #13	

Delivered to	Date	Analysis Results
L2mg x-10	5-21-65	g u/g 0.3080, mg/ml 31.93, Sp, Gr. 1.0367
Y-12	5-21-65	g u/g 0.3050
L2mg x-10	6-4-65	mg/ml 32.08 SP Gr 1.0354
L2mg x-10	6-4-65	mg/ml 896.53 SP Gr 2.0244
.94	6-4-65	mg/ml 977.48 SP Gr 2.1111
.65	6-4-65	mg/ml 410.66 SP Gr 1.5550
20	6-4-65	mg/ml 377.78 SP Gr 1.5559
c Eby Y-12	6-17-65	
ig	6-17-65	
-c Y-12	6-18-65	
v Y-12	6-18-65	
Y-12	6-18-65	
Y-12	6-18-65	
Y-12	6-18-65	
Y-12	6-29-65	
L2mg x-10	6-28-65	1.49 mg/ml SP Gr 1.0031
x-10	6-28-65	28.09 mg/ml SP Gr 1.0319
x-10	6-28-65	31.08 mg/ml SP Gr 1.0050 correction 3.89 mg/ml
L2mg x-10	7-1-65	1.52 mg/ml SP Gr 1.0022
x-10	7-1-65	1.57 mg/ml SP Gr 1.0024
L2mg x-10		
x-10		
x-10		
L2mg x-10	9-28-65	2.18 mg/ml SP Gr 1.0022
x-10	9-28-65	2.15 mg/ml SP Gr 1.0027
x-10	10-12-65	37.59 mg/ml SP Gr 1.0539
x-10	1-20-66	41.23 mg/ml SP Gr 1.0553
x-10	1-25-66	46.32 SP Gr 1.05300

28

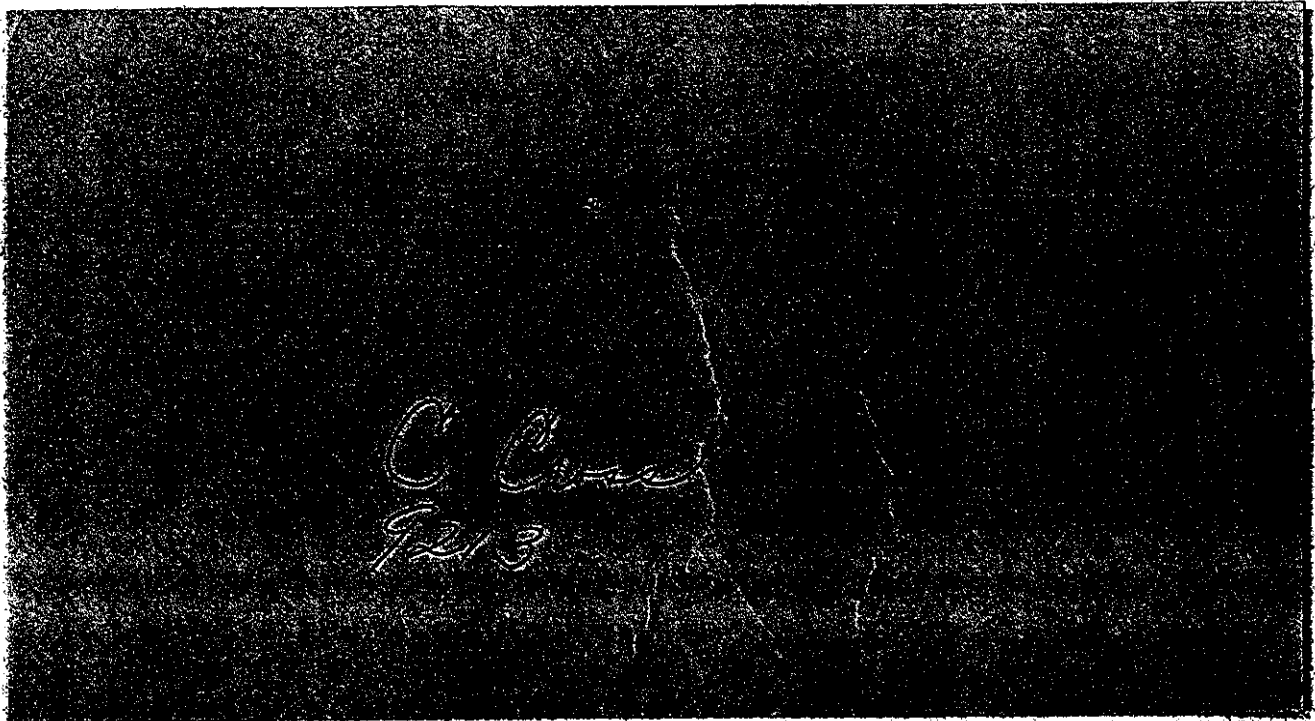
Sample NO	Date taken	Req NO	Description
28	2-23-66	SAMPLE # 15	.5 Normal HNO ₃ AND H ₂ O EXP # 467-480
29	2-24-66	# 16	25ml 1.5 Normal HNO ₃ AND H ₂ O EXP # 481-496
30	3-8-66	# 17	25ml 2.5 Normal HNO ₃ AND H ₂ O EXP # 500-512
31	3-10-66	5%	UO ₂ F ₂ 15ml taken from Sample # 18
32-A	7-14-66		H ₃ BO ₃ 20ml taken from Bottle # 25 539-546
33-A	7-15-66		H ₃ BO ₃ 25ml taken from Bottle # 25 1.5g/ 547-555
33-B	7-15-66		" " " " " " " " " "
34	3-28-67	593136	UO ₂ F ₂ Salvage 1 st Washings of 20" cylinder Net 27.15g
35	3-28-67	593137	" " 2 nd Wash from 20" " Net 31.89g
36	3-28-67	593138	#3 Salvage Bottle used for washings During Program with 20" cylinder Net 25.41g
1	3-28-67		U/233 O ₂ (NO ₃) ₂ from 20" Bare Cylinder Net 53.53g
2	4-10-67		U/233 O ₂ (NO ₃) ₂ " " " " " " Net 70.03g
3	5-1-67		U/233 O ₂ (NO ₃) ₂ " " " " " " Net 29.67g
4	5-17-67	Hold	U/233 Salvage 1 st Wash with Demineralized H ₂ O (Put
5	5-17-67	Hold	" " 2 nd " " " " " " } in
6	5-17-67		U/233 Salvage 3 rd Wash with HNO ₃ & H ₂ O Net 40.19
7	5-17-67		" " 4 th " " " " " " Net 49.89
8	5-17-67		" " 5 th " " " " " " Net 51.30
9	5-19-67	Bottle #	U/233 O ₂ (NO ₃) ₂ Dilute with Demineralized H ₂ O Net 52.07g
10	6-8-67	Control #	3ea Pyrex glass Rings used in U/233 Expr
11	6-26-67		U/233 O ₂ (NO ₃) ₂ from 20" Bare Cylinder Net 60.308
12	9-5-67		U/233 O ₂ (NO ₃) ₂ from 11 9/16" Sphere Expr. 98.74
13	9-14-67		U/233 O ₂ (NO ₃) ₂ " 15" Cylinder 25.65g
14 Returned	10-16-67	16601	U/233 O ₂ (NO ₃) ₂ Expr # 148 - 149 54.312g
15 Returned	10-17-67	16601	U/233 O ₂ (NO ₃) ₂ Expr # 150 43.24g

Delivered

	to	Date	Analysis Results	
0	X-10 ^{Lainy}	3-10-66		
96	X-10 "	3-10-66		
12	X-10 "	3-10-66		
	X-10 "	3-10-66		
546	X-10 "	7-15-66	0.78 mg/ml Boron	Sp.g. 1.0036
7.555	X-10 "	7-15-66	1.25 mg/ml Boron	Sp.g. 1.0056
"	X-10 "	7-27-66		Sp.g. 1.0055
7.15g	Y-12	3-29-67	0.002058	g u/g
31.89g	Y-12	3-29-67	0.00024240	g u/g
wing			Dumped Down Drain	} Reg Slips - gave to Reedy 10-21-69 for Disposal of salvage
1g	Y-12	3-29-67	0.008788	
3.53g	X-10 Lamb	3-31-67	339.1 340.2 mg/ml	Sp.g. 1.4632
03g	X-10 Lamb		360.0 mg/ml	Sp.g. 1.4838
67g	X-10 Lamb	5-1-67	353.2 mg/ml	Sp.g. 1.4750
Put Back in Bottle				
10.19	X-10 Lamb	5-18-67	0.90 mg/ml	
9.89	"	5-18-67	0.90 mg/ml	
1.30	"	5-18-67	0.45 mg/ml	
52.027	"	5-22-67	57.99 mg/ml	
	X-10 Lainy	6-8-67		
1.308	X-10 Lamb	6-27-67	208.1 mg/ml	Sp.g. 1.2804
1.74	X-10 Lamb	9-5-67	141.6 mg/ml	Sp.g. 1.1956 Free H ⁺ N 0.37
65g	" "	9-14-67	105.9 mg/ml	Sp.g. 1.1867 Free H ⁺ N 0.50N
312g	" "	10-17-67	133.5 mg/ml	Sp.g. 1.1832 Free H ⁺ N 0.40
4g	" "	10-17-67	119.3 mg/ml	Sp.g. 1.1625 " " 0.40

Coulometric titration AS 238 u

Sample NO	Date taken	Reg or Control No.	Description		
16	10-20-67		u/233 O ₂ (NO ₃) ₂ Expr 152	Net	48.46
17	10-20-67		u/233 O ₂ (NO ₃) ₂ Expr 153	Net	27.393
18	10-24-67		u/233 O ₂ (NO ₃) ₂ Expr 155-156	"	43.50
19 A	11-14-67		u/233 O ₂ (NO ₃) ₂ Expr 170	"	64.073
20 A	11-14-67		u/233 O ₂ (NO ₃) ₂ " 171	"	55.822
21 A	11-17-67		u/233 O ₂ (NO ₃) ₂ " 177	"	46.396
22	11-28-67		u/233 O ₂ (NO ₃) ₂ " 185	"	32.804
23 A	12-6-67		u/233 O ₂ (NO ₃) ₂ " 194	"	66.796
24	1-30-68		u/233 O ₂ (NO ₃) ₂ " 204	Approx	100.0 g
25	2-16-68		u/233 O ₂ (NO ₃) ₂ " 206	Net	102.845 g
26	2-19-68		u/233 O ₂ (NO ₃) ₂ " 208	"	52.656
27	2-19-68		u/233 O ₂ (NO ₃) ₂ " 210	"	52.78 g
1	1-30-68	684535	H ₂ O Sample from 30' Storage tank		
2	2-9-68	684536	H ₂ O Sample from 30' storage tank (After) cleaning		
28	2-22-68		u/233 O ₂ (NO ₃) ₂ Expr 218	Net	49.790 g
29	3-15-68		u/233 O ₂ (NO ₃) ₂ " 226	"	60.785 g
30	3-18-68		u/233 O ₂ (NO ₃) ₂ " 227	"	55.0527
31-A	3-26-68		u/233 O ₂ (NO ₃) ₂ " 235	"	61.33
32 A	4-1-68		u/233 O ₂ (NO ₃) ₂ " 242	"	60.95
32-B	4-1-68		Duplicate of 32-A 242	"	31.373
3	4-29-68	684543	H ₂ O Sample (Ref) H ₂ O from 50' storage tank) Expr #242		



C. Cross
9213

REQUISITION 684579 ✓

OCT 9 PM 1:33

REPORT TO A. Cross

BUILDING NO. 9213

PHONE NO. 35237

REQUISITION 684578 ✓

OCT 9 PM 1:33

REPORT TO A. Cross

BUILDING NO. 9213

PHONE NO. 35237

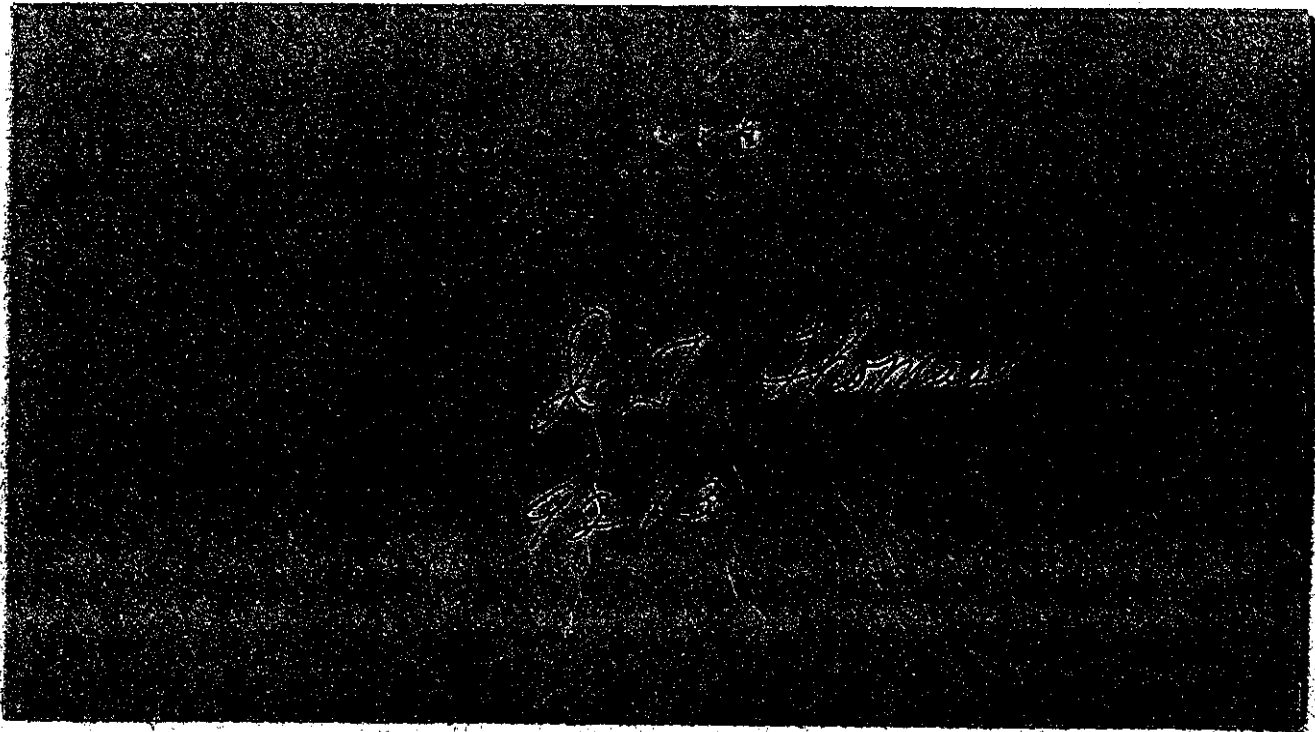
REQUISITION 684577 ✓

OCT 9 PM 1:33

REPORT TO A. Cross

BUILDING NO. 9213

PHONE NO. 35237



REQUISITION

684543

APR 29 AM 10:20

REPORT TO

J. F. Thomas

BUILDING NO.

9213

PHONE NO.

35237

MONDAY

1967 NOVEMBER 1967						
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		

13

NOV. 1967

June 16-17

All u/233 Sol
And Salvage Moved to
X-10 Bldg 3019 to
Mr Perrot.

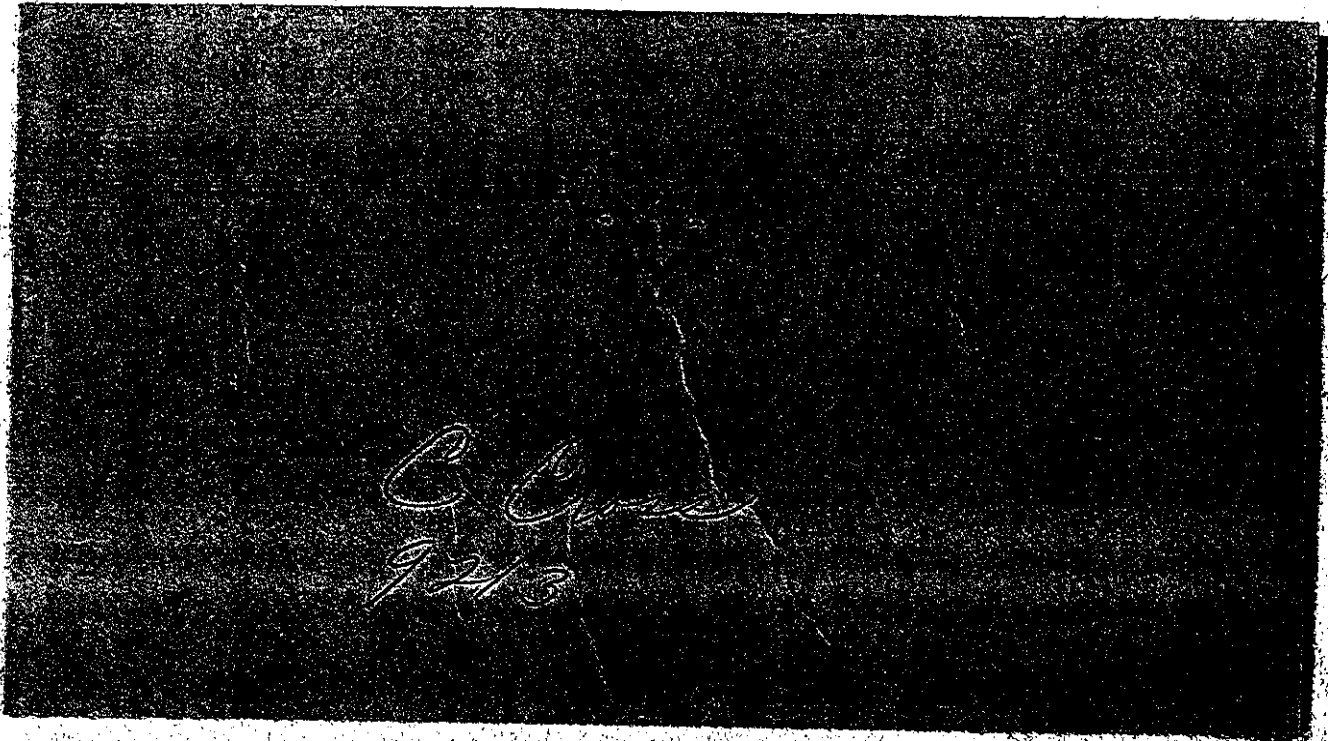
21 Bottles Solis
5 " Salvage
2 " Dilute Soln

11/13/67

317

MON., NOVEMBER 13, 1967

48



REQUISITION

684576 ✓

OCT 9 PM 1:33

REPORT TO

C. Cross

BUILDING NO.

9213

PHONE NO.

35237

234600		g U/g
		g A/g
		g D/g
		g H/g
		g Mo/g
		g F/g
		SPEC.
		ASSAY
15224 g/val		
Density		
JW		REPT. BY
10-14-69		DATE
		DEPT.

Delivered to	Date	Analysis Results				Sample Returned
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X-10 Lamb	10-20-67	104.7 mg/ml	Sp Gr 1.1442	H ⁺ N 0.34	11-15-67
X-10 "	10-20-67	102.9 mg/ml	Sp gr 1.2117	H ⁺ N 0.36	11-15-67
X-10 "	10-24-67	101.2 mg/ml	Sp G 1.1392	H ⁺ N 0.36	11-15-67
X-10 "	11-14-67	85.02 mg/ml	Sp Gr 1.1186		11-15-67
X-10 "	11-17-67	81.34 mg/ml	Sp G 1.1122		12-1-67
X-10 "	11-17-67	76.17 mg/ml	Sp gr 1.1063		12-1-67
X-10 "	10-6-67	52.73 mg/ml	Sp gr 1.0746		3-21-68
X-10 "	12-6-67	45.58 mg/ml	Sp gr 1.0599		3-21-68
X-10 Wyatt	1-3-68				5-8-68
X-10 Lamb	2-16-68	204.5 mg/ml	Sp gr 1.2796	No Return	3-21-68
X-10 "	2-20-68	194.5 mg/ml	Sp gr 1.2529		3-21-68
X-10 "	2-20-68	177.4 mg/ml	Sp gr 1.2357		3-21-68
		7.99 PPM			1-31-68
		10 ⁻² PPM			2-13-68
X-10 Lamb	2-22-68	134.4 mg/ml	Sp gr 1.1890		3-21-68
X-10 "	3-15-68	136.7 mg/ml	Sp gr 1.1848		3-21-68
X-10 "	3-18-68	112.6 mg/ml	Sp gr 1.1544		3-21-68
X-10 "	3-27-68	97.02 mg/ml	Sp gr 1.1401		4-3-68
X-10 "	4-1-68	48.82 mg/ml	Sp gr 1.0683		4-3-68
X-10 "	4-19-68	50.75 mg/ml	Sp gr 1.0658	H ⁺ N 0.24	5-8-58
Y-12	4-29-68	0.00000003	g/g		

Sample No	Date taken	Reg or Control No	Description	Net
1	5-20-68	684544	97% U/235 O ₂ (NO ₃) ₂ Expt # 1	97.13g
1	5-20-68		97% " " " # 1	48.32
1	6-21-68		97% " " " # 37	75.433
1	6-21-68		97% " " " # 38	87.53
4	7-17-68	684547	H ₂ O Sample from 30" storage tank	
5	10-8-69	684576	97% U/235 O ₂ (NO ₃) ₂ from Bottle # 4 of 5 Bottles Drained from System After final Dilution.	Net 74.867
6	10-8-69	684577	#1 Salvage Bottle 97% Dilute with H ₂ O + HNO ₃ N.	54.50g
7	10-8-69	684578	#2 " " " " " " " " " "	N. 44.30
8	10-8-69	684579	#3 " " " " " " " " " "	Net 51.61g

Delivered
to

Date

Analysis Results

3g	Y-12	5-21-68				
2	X-10	5-21-68	0.240 g/g	Sp g	1.5619	mg/ml N 65.6
33	X-10	6-21-68	374.8 377.7	mg/ml Sp g	1.5619	mg/ml NO ₃ 316
3	X-10	6-21-68	352.5 355.2	mg/ml Sp g	1.5301	mg/ml NO ₃ 296
	Y-12		.00000003	g/g	7-18-68	

lined						
67	Y-12	10-10-69	.012460	g/g		
.50g	Y-12	10-10-69	.012460	g/g		
30	Y-12	10-10-69	.002312	g/g		
66g	Y-12	10-10-69	.008768	g/g		