

## **BOOK 122R**

*Notes:*

front "Solution Handling (shipments etc...)"  
"DFC"

a lot of light pencil and red pencil marks

Blank pages: page opposite page 1, 16, 39, 42, 95, 100, inside back cover

page 33 has big sheet stapled to it

page 41 has sheet stapled and taped with hand-written '41' at top right

loose small sheet between pages 62 and 63

sheet stapled to page opposite 100

*Scanned by:*

*Sheila Finch*

*RSICC /Oak Ridge National Lab.*

*June 1, 2001*

~~SECRET~~

CARBIDE AND CARBON CHEMICALS CORPORATION  
OAK RIDGE, TENNESSEE

NOTEBOOK NO 7098

20  
21

Assigned to: Frank Cronin  
Department: Research Dept  
Location: K1095  
Date: 10-26-48



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

Assignee is responsible for the safe-guarding of this notebook in accordance with security regulations.

Do not use scrap paper.

Be sure to record all personal conferences.

This notebook must be returned to \_\_\_\_\_ when completed or upon termination of assignee.

Subject

Page


**CAUTION**  
This document contains information regarding the National Defense Program of the United States. Its transmission or disclosure of its contents to any unauthorized person is prohibited and may result in severe criminal penalties under applicable Federal laws.

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"This document consists of 102 pages  
No. 1 of 1 copies, Series A"  
5-25-68



LABORATORY RECORDS  
1954



CLASSIFICATION CANCELLED  
DATE 5-27-60  
Edgar J. Murphy  
CO-ORDINATING ORGANIZATION DIRECTOR  
OAK RIDGE NATIONAL LABORATORY  
AUTHORITY DELEGATED BY AEC 8-18-57 *EJM*

~~"This document consists of 102 pages  
No. 1 of 1 copies, Series A"~~

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

~~SECRET~~

Date 10-26-48

FOS No.	Lab. Reg. No.	Wgt % U Analysis	Wgt Material	Wgt. U.
R-3442	710048	0.38%	3980	15.12
R-3543	710049	0.17	4648	7.90
R-3644	710050	0.01	3693	0.37
R-3745	710051	11.10	574.077	63.72
R-3846	710052	.02	282454	0.49
R-3947	710053	.01	4065	0.41
R-4048	710054	.02	3948	0.79

Shipped 10/26  
 to Coled Chem.  
 Transfer form No. 01017

Black Opals (P5) <i>residual</i>	710045	83.51	2 88.527	240.95
-------------------------------------	--------	-------	----------	--------

329.75 Total gms U  
 307.99 gms X (at 93.4 assay)

Previously shipped as samples to lab. in Oct.

R-3442	710048	0.38	48.42	0.184
R-3543	" 49	0.17	54.18	0.092
R-3644	" 50	.01	45.16	.0045
R-3745	" 51	11.10	30.98	3.44
R-3846	" 52	.02	50.73	.01
R-3947	" 53	.01	50.77	.005
R-4048	" 54	.02	4252	.0099

3.75 gms U.  
 3.50 gms X  
 3.11 gms X

Signed *D.H.*

2 Date 11/9/48

### Estimate of material

Cyl #	Vol	Sp. Ht.	wgt total	wgt est % X	wgt X
1	3.78 L	1.144			
2	3.80				
3	5.63				
4	6.34				
5	6.00				
6	6.10				
<hr/>					
31.34 L					
x .1159					
<hr/>					
3.635 Kg X					

As UO <sub>2</sub> F <sub>2</sub> sold from Y-12	Batch #	Net wgt	wgt T	wgt X
Y-12		485.461	367.39	343.29
12-1265		423.660	320.71	299.70
12-1266		592.156	293.86	279.22
12-1267		712.156	712.156	712.156
<hr/>				
1301-277		986.96	986.96	922.91

wgt X = 736 gms X

From Y-12 analyses  
to K-25 coded chem

~~In 3" cyl storage (approx measurements)~~

In shipment from Y-12 (UO<sub>2</sub>F<sub>2</sub>)

< 160 ppm total impurities (per spectrograph)

Assay avg 93.4

Signed

Date 1/9

Volume needed:

6" cyl 36" tall = (7.82) π x 36 x 2.54

A = 18.71 58 π x 91.4 = 166.50 litres

2 cyl 33.300 = 33.3 litres

dead Vol. = 3.5 litres

10 ft h" pipe = 1.24 cm^2 x 10 x π x 2.54 = 377.5 cc

Minimum 37.18 litres of solution

at N+ / N+ = 50 = (37.2 / 50) x 26.12 = 19.41 Kg X

if only 30"

58 π x 76.2 = 13.88 litres

2.776 27.76 3.5 1.38

(31.68 / 50) x 26.12 = 16.5 Kg X 31.68

for 12 Kg X = total Vol of 2295 litres

dead Vol 3.88

2) 19.07 4.53 litres/cyl

6" cyl can be filled to 52.2 cm ea at 1/2 50

previous At = 70 cm at 1/2 58.8

Signed

4 Date 11/9

at  $\frac{1}{4}$  60 with 12 kg X

$$\frac{12 \times 60}{20.12} = 27.5 \text{ liters}$$

$$\begin{array}{r} 2) 23.6 \\ \hline 11.8 \text{ liters ea} \end{array}$$

or at  $\frac{1}{4}$  60 with 12 kg ea  $\stackrel{in}{=} 64.8 \text{ cm hd ea}$

at  $\frac{1}{4}$  70 = 32.15 liters

$$\begin{array}{r} 2) 28.25 \\ \hline 14.12 \stackrel{in}{=} 77 \text{ cm hd ea} \end{array}$$

5  $\frac{1}{2}$ " cyl

$$2.25 \times 2.54 = 5.72 \text{ cm}$$

$$\begin{array}{r} 9833 \text{ cm}^2 \\ \hline 70 \text{ cm hd} \\ \hline 68.81 \text{ } = 688 \text{ liters} \end{array}$$

5  $\frac{1}{2}$ " cyl can be filled at  $\frac{1}{4}$  50 with present amount X

Signed

Solution Inventory

Cyl #	Wgt	Temp	Wgt Lens	Sp Gr	Volume
31	35 lbs	2.9 lbs	2.7 K	1.460	
79	40 lbs	2.9 lbs		2.10	

~~re-measured as below~~

In. Ass. Storage

Cyl # 1	Cyl # 2	Cyl # 3
1 Liter Sp Gr. 2.03	1 Liter Sp Gr. 1.84	1 Liter Sp Gr. 1.26
1 Liter Sp Gr. 2.2	+ 1 Liter " "	1 Liter Sp Gr. <del>1.34</del> 1.34
1 Liter Sp Gr. 1.81	+ 1 Liter " "	1 Liter " " 1.34
1 Liter Sp Gr. 1.23	+ 1 Liter " "	1 Liter Sp Gr. 1.87
1 Liter Sp Gr. 1.23	+ 1 Liter " 1.86	1 Liter " " 1.87
1 Liter Sp Gr. 1.23	+ 1 Liter " 1.89	0.71 Liters " " 1.87
6 Liters Sp Gr. 1.66	6 Liters	1 Liter " " 1.29
+ 0.555 liters (measured) Sp Gr. 1.29		

1 cyl in pit with material in it.

nud to Evap sal from #1 cyl + from cyl in pit.



6

Date 12-2/48

12" Al Reactor (fixed type) painted with babelite +  
ready to go to shop for balancing - needs another coat of  
babilite (put on at shop).

All 3" cyls. now empty of material. separating  
from airpicking manifold.

Signed

Date 12-3/

Rack #1 (D) cyl #1 same as page 5 → to Evap to 2.0  
(E) cyl #2 taken out for cleaning  
(F) cyl #3 empty

Rack #2 (A) cyl #4 see tag } all washed out  
(B) cyl #5 " " } solution filtered  
(C) cyl #6 " " } & density 2.0 <sup>volume</sup> not measured

Floor around Rack #4 contains Call Decortam  
& Kingsbury (sawing) to clean up Mon.

Project:

Rails on tanks more forward about 8" & reset.

Clean all cyl in pits —  
fill pit with filtered solution

Clean pipes (to meet)

8

Date 12/6/48

3" cylinders (all) washed with distilled water until no visible dirt or sediment came through <sup>upon inversion.</sup> Cylinders replaced in wooden storage rack.

4" cylinder from #1 auxiliary manifold washed with <sup>(DD water)</sup> and Hake connection at top center re-soldered in place after chipping away cadmium coating near it

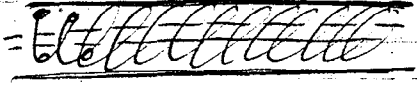
Washings consolidated and placed in hood ready for evaporation - <sup>SS</sup> beaker ca 1500cc must be filtered first.

Rails on tamper tank extended about 8" by repositioning rails to give about 40" travel.

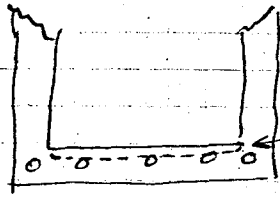
Floor in Rm 10 decontaminated and other surfaces tagged (balances - hood etc...)

Date 12-8-48

9

Cylinder 5" connected to dolly with everything in place - 2" ID Rubber hose binned and could possibly foul 1/2" Tygon - suggest a weak coiled spring inside larger hose: - 

The angle iron on base of tank must be cut away to allow clearance for fuel line for movable cylinder



cut away to salt -

Tamper indicators on both cylinders checked, & seem to operate satisfactorily. Position indicator checked -

Shock absorber for safety rods should have a second metal plate (duplicate of first to prevent cutting sponge -



Date 12/9/48

Solution - in #1 manifold cyl # A, B, C,

in #2 " cyl # D concentrated solution  
returned to cyl at 4:00 PM contents of cyl to be  
evaporated to Sp Gr. of 2.10.

Cleanse for feed line on movable cyl out out of tanks.

Source (approx 2c) mounted in fixed cyl. (had to be unweighted)

Instruments checked - Feed seems unstable.

Paper placed on floor in front of Hood #4

Rex Weld flexible hose tried for feedline cover to eliminate  
sinking of hose.

2" ID non sinking suction pipe ordered.

Signed

Cylinder (4") D - emptied for evaporation (it contained  
one full tray of solution).

D - cleaned + returned to rack.

Cylinder # E found to be about half full H/X = ?  
emptied into #10 #11 taken from #1 pit position

Cylinder #11 - About half full? H/X - in pit for storage  
needs to be concentrated

Cylinder B - Contain ~ 3 L solution, sp gr = 2.05 -  
The solution was put into cylinder from  
fun without filtering.  
Cylinder behaves as though the inner pipe  
leaks somewhere in its upper half. In  
attempting to remove solution (for sp. gr. measure)  
by air pressure on center opening, many  
air bubbles + little solution came  
out of side opening.

Cylinders 12 + 13 - Removed from pit positions 2 + 3 -  
Both showed contamination on outside -  
Each washed with citric acid solution +  
rinsed - left in tray, floor in Room 10  
to dry -  
Valve was barely removed from one  
& needs to be replaced - other one has  
to leak around solder joint - valve to  
cylinder - also may leak at "ell"  
weld -

Date 12/13/48

Empty #11 into pan for concentration -  
ca 2 R before evaporation -

Cylinders #12 - #13 repaired

Cylinder E had been repaired 12/10 - now has been  
leak tested. It was cleaned 12/10

Cylinders 12 & 13 leak tested ok.

Cylinder 11 cleaned & Concentrate (see above)  
added to #11 - ca 1.5 L App. = 2.03  
Stored in pit.

→ Cylinders 12 & 13 to be cleaned; do 13  
first since it contains washing  
from #11.

Signed

RLM/DC

12/14/48

Washed #13 into #12

Washed Feed line into eqs. 18 &amp; 19

Found "cnd" in dump pan drain line

Replaced in pit #11 containing about 1 $\frac{1}{2}$  l.  
sp gr 2.03

Replaced in pit #13 - empty

Washed #12 into #14

Replaced #12 in pit  
#14 washed into #15 emptied & placed  
in pit.#16 washed into #17 emptied & placed  
in pit.

#17 washed into #16

#17 empty sitting in pit to be installed

#16 containing washings stored in pit  
needs as have come evaporated  
& outside washed



12/15/48

Put about 3 liters from #16 cyl into  
evaporating pan. and started same  
washed #16 cyl into #15 and replaced it  
in pit.  
#17 installed in pit.  
#14 was tested and found to be empty. There  
was some question that it might have been  
used to drain into. We now feel sure  
that it has not had any sol. in it.  
Leaky solder joint repaired in #14 &  
#15 washed, drained into flask and vol.  
evap.; then installed in pit.  
Manifold tested with soap. No  
leak found.

Signed

2/16/48 Aligned cylinders & connected to  
valve extension handles.

Put an extension into hose valve  
connection to cyl #14. This has not  
been leak tested.

Evaporated cylinder washings were  
filtered into storage cylinder A  
fan and filter in front they run.

Mar 1/49

1. Transfer Material now in storage cyl. to Y-12 for purification and storage
2. Remove instruments and prepare for storage. (decontaminate if necessary.)
3. Clean pipe-lines and reactor assembly.
4. Decontaminate and prepare reactors for storage
5. Survey all rooms for alpha
6. Decontaminate rooms as necessary.
7. Prepare property for storage

1. Transfer material now in 4" cyl H and 14 (locked in pit) to 6" fixed reactor. Drain cylinders thoroughly. Mix material in reactor and drain back, filling # 6 & # 14 each with a known amount.

This to be shipped in containers 6 and 14 to Y-12 by John Arndt (ph. 8115 coded Chem) Include in shipment hose fittings for use at Y-12. To MacKay

Note: at time of filling reactor Dead Volume should be filled first. On drain back sample for Sp. G. and for U analysis.

B. Operating Room & Control Room should be cleared up and made ready for pictures of equipment.

Signed D.H.

Samples from Ex 20736 to lab for Analysis & Assay

2 - Fairchild Zentis to Instrument Repair

2 - C+CC Zentis back to FOS

Material Balance made out.

Wear tubes in Poppy replaced.

Arrangements made for shipping material (see P. 17)

" " " " photographing Equip.

total Volume 127 liters in cylinders (varying #/ft)

Signed

LL

3/2/49

Report from 4-12 on solution recovery

Will not be able to start processing until middle of next week. Can take 4 cylinders any time after today. Expect to be able to handle 2 cylinders a day therefore

pictures made of equipment including Control Room

Filling Cylinders for transfer to Y-12

in 6" cyl (A1 Reactor)

DV from # 9 to 3.4 cm  
44 cm when "E" is empty

$$\left(2.54 \left(\frac{6''}{2}\right)\right)^2 \times \pi = 5781 \times \pi = 181.5 \text{ sq cm}$$

Area of 6" cyl = ~~468.5~~ 181.5 sq cm

Drain back

Sol'n HT 72.0 cm  
71.60  
34.00

into cyl E 37.60 cm in 6" cyl

$$\begin{array}{r} 37.60 \\ \times 181.5 \\ \hline 6.82 \end{array} \text{ Liters} \approx 7.522 \text{ Kg. solution}$$

$$\begin{array}{r} 6.82 \\ \times 1.103 \\ \hline 2096 \\ 6820 \\ \hline 752246 \end{array}$$

Fill from #9 to 37.4 cm

$$\begin{array}{r} 37.4 \\ 1.9 \\ \hline 37.5 \text{ cm in 6" cyl} \\ \times 181.5 \\ \hline 6.80 \end{array} \text{ Liters} \approx 7.500 \text{ Kg solution}$$

$$\begin{array}{r} 6.80 \\ \times 1.103 \\ \hline 88240 \\ 6618 \\ \hline 750040 \end{array}$$

into Cyl F

Sample taken from reactor

Sp Gr. 1.103 at 18° ± 1°C

Sample = 20 ml (see analytical weighing book.)

21.8687 gm sample # 710068

Cyl. D G

$$\begin{array}{r} 67.3 \\ 29.8 \\ \hline 37.5 \\ \times 181.5 \\ \hline 6.80 \end{array} \text{ Liters}$$

Cyl. D

$$\begin{array}{r} 40.8 \\ 3.3 \\ \hline 37.5 \\ \times 181.5 \\ \hline 6.80 \end{array} \text{ Liters}$$

page 18  
of analytical  
weight  
book

Sp Gr. 1.103 at 18° ± 1°C about 20 ml sample # 710069

Date Compiled & Corrected on Page 4/11/49

21.9335 gms.

Signed JAL

Date 3/4/49

Four cylinders DEFG painted with Glyptal and locked ready for shipment

Analysis (by phone) DG =  $\begin{matrix} \text{Colorimetric} & \text{Gravimetric} & \text{assay} \\ & 715 & 0.0868 \text{ gm/gm} & 92.96 \end{matrix}$   
 EF =  $\begin{matrix} & 711 & 0.0766 \text{ gm/gm} & 93.18 \end{matrix}$

Wgt material

Req 710069

	D = 6.802	E = 6.802
	<u>x 1.103</u>	<u>x 1.103</u>
	7,500 gm	7,500 gm
	<u>x .077</u>	<u>x .077</u>
	577.53 gm U	577.53
	<u>x .934</u>	<u>x .934</u>
	539.62 gm X	539.62 gm X
	<u>539.62</u>	
	1079.24 gm X	

based on gravimetric      based on colorimetric

7500	<u>x .0868</u>	651.00	<u>x 92.96</u>	605.169 ea	<u>x 2</u>	1210.338 gm
------	----------------	--------	----------------	------------	------------	-------------

	E = 6.822	F = 6.802
	<u>x 1.103</u>	<u>x 1.103</u>
	7,522 gm	7,500 gm
	<u>x .0766</u>	<u>x .0766</u>
	576.19 gm U	576.75 gm U
	<u>x .9318</u>	<u>x .934</u>
	536.89 gm X	538.68 gm X
	<u>538.68</u>	
	1078.94	
	<u>1079.24</u>	

Shipped 3/15/49      Shipped 3/15/49

amt X to ship =  $\begin{matrix} 2158.78 \text{ gm X} \\ \underline{2158.2} \\ 2158.18 \text{ gm X} \pm 2 \text{ gm} \end{matrix}$        $\begin{matrix} 2,310.25 \text{ gm U} \\ \underline{x .934} \\ 2,157.77 = 2158 \text{ gm X} \end{matrix}$

These analyses by colorimetric method precision about  $\pm 5\%$ .

note discrepancy between samples for colorimetric and gravimetric analyses.

Signed

Pit cyl in position 4 (cyl H) emptied and readied for shipment

Cyl C

64.20 cm in 6" reactor,
<u>26.70</u>
37.50 cm in 6"
<u>x 181.5</u>
6.806 liters
<u>1.101</u>
7.4868 Kg
7.493 Kg

Sp. gr. 1.101  
~~1.107~~  
 Temp. 20.0 ± 0.1

Cyl H.

37.8
<u>0.3</u>
37.50 cm in 6" reactor
<u>x 181.5</u>
6.806 liters
<u>1.101</u>
7.4868 Kg
7.493

Sample 3 (page 18 analytical uncertainty B<sub>2</sub>)  
 cyl H + C

101.8399
<u>79.9980</u>
21.8419 gms.

Total of 6 - 4" cylinders filled ready for shipment  
 Cylinders C + H have been sampled and have NOT been  
 decontaminated (note - valve on H is very slow)  
 Cylinders DEFG sampled and decontaminated ready to go.  
 #9 pit cyl contains only Dead Volume.



Cyl. A  $\frac{61.3 \text{ cm in } 6'' \text{ reactor}}{23.80}$   
 $\frac{37.50 \text{ cm in } 6''}{\times 181.5}$   
~~6.806~~ liters  
 6.806

or 7,500 grams soln

Sample AB  $\frac{76.4752}{54.6030}$   
 21.8722

Sp. Gr. 1.102 at  $13. \pm 1^{\circ}\text{C}$

Cyl B  $\frac{43.0 \text{ cm in } 6'' \text{ reactor}}{5.3}$   
 $\frac{37.7 \text{ cm in } 6''}{181.5}$   
~~6.818~~  
 6.8426 l or  $\frac{7541 \text{ g soln}}{7500 \text{ g soln}}$

5-X (in plastic beaker in shipping box) gross  $\frac{2710.675}{880.395}$   
 1830.280

Sample on p. 18 of Analytical wgt. bk.

24

Date

3/8/19

8 - 4" cylinders ready for shipment to Y-12  
except for X and U analysis. Cylinders painted with Glyptal

Cyl - D E F G }  
          H C A B }

also Plastic beaker in shipping box.

Signed

PL

3/10/49

Analysis rec'd on Cyl. E.F.

4- Combustible material cans wired shut  
2- 1 gal jugs of visible solution.

all above material ready for shipment and forms filled  
and for shipment Monday morning.

## Cylinder Inventory

Cyl No	size	Vol. amount	By 12/1	approx force 1/4	approx 1/2 cc	Total X
3	3"	2.94 Liters	1.111			
4	3"	1.5 "	1.187			
7	3"	3.38 "	1.100			
2	3"	3.19 "	1.187			
1	3"	approx 3.50 DV	1.187			

## Rack Cyl.

ready to ship as lot	{ C	4"	6.800	1.101
		{ H	4"	6.800
ready to ship as lot	{ A	4"	6.800	1.102
		{ B	4"	6.848

## Pit Cyl

#11	4"	
#12	4"	
#13	4"	
#14	Removed	
#15	4"	
#16	4"	
#17	4"	
#18	4"	
#19	4"	DV

Cylinders D E & L shipped to Y-12  
Cyl E.F. returned empty.

Cyl 14 locked in pit 4" cyl 6163 & Sp. H. 1.2

Filled read volume + to <sup>70.5</sup> 70 cm in 6" #1 reactor on sightless from # 19, 18, 17 in pit position 9, 8, & 7. on attempting to mix with air from manifold, splashed few cc over edge of reactor. Drained in #17 to 68.3 cm.

Filling E - Sight glass 68.3 cm  
 to go into #E 37.5  
 TARGET → 30.8 cm } → Actual H after filling = 30.8 cm

Filled from #17 to 38.6 cm } Actual H after filling = 1.0 cm.  
 to go into #F 37.5  
 TARGET 1.1 cm

Contents	E	F	Sp g. 1.101 @ 19°C ± 1°C
cm in 6" eye.	37.5	37.6	Samples Taken
		Reg# 710073	EF-1 for g/L/gm
		Reg# 710074	EF-2 for spec.

Cyl. #18 is MT  
 #17 contains unknown amount.  
 #19 contains D.V.

Cyl E 37.5 6" cm.  
 6.800 liters  
 1.101 sp gr.  
7,486.8

Cyl F 37.6 6" cm  
 6.815  
 6.824.4 liters  
 x 1.101 sp gr  
7513.67 gms

Data compiled & Corrected  
 on page 81  
 4/11/69 JHC

Material to be shipped

Cyl ~~467~~

A } .0773 g/gm 92.65% X Reg # 710070  
B }

A = 6.800 Liters  
 sp gr. 1.102  
 7493.6 gm 7500g  
 gH/g ~~x .0773~~ x .0773  
 579.255  
 assay 1.9265  
 gmo X 536.68 ✓  
 7533

B = 6.8426  
 sp gr. 1.102  
 7541 gm  
 754.06  
 gH/gm x .773  
 582.89  
 assay 1.9265  
 gmo X 540.05 ✓  
 7577

Cyl  
H } .0762 g/gm 92.9 Lab X Reg # 710070 710071  
C }

C = 7.4868 Kg  
 gmH/g x .0762  
 570.49  
 assay .9296  
 530.33 gm ✓

H = 7.4868 Kg  
 → 530.33

5X 1830-280 .2687 g/gm at 92.41% X Reg # 710072  
 gmo H 491.796 ✓  
 gmo X 454.469 ✓

Spectroscopic analysis for AB and HC

Data Compiled + Corrected  
 on page 41 4/11/49

Signed D. L. Corwin.

Date 3/18/49

Assays for X from K-25 66

92.91 } as shipped to F-05  
 92.91 } page 23 note books # 22  
 92.91 } avg of 3 samples = 92.91 ± 0.28%

93.26 } ~~Page 7100~~ } see page 40 notebooks # 22  
 93.10 }  
 93.29 }  
 92.89 }  
 92.58 }  
 93.07 }  
 93.05 }  
 93.18 }  
 92.96 }  
 92.65 }  
 92.96 }  
 92.41 }  
 92.88 }

710 055

" 56

" 66

" 67 \* 7.0 = 1.123

" 68

" 68

" 70

" 71

710072

710019

not  
 (run by Mass spectrometer  
 but by counting.)

total avg 92.94

from Y-12 (page 24 books 22)

93.4 }  
 93.4 } as shipped to F-05  
 93.4 }  
 93.4 }  
 93.5 }  
 93.5 }  
 93.4 }  
 93.5 }  
 93.4 }

Y-12 assays are by mass spectrometer

K-25 assays are partly by mass spectrometer and partly by counting.

Doubtful etc.

K-25 product analyses Aug 1947 93.3 ✓  
 March 1949 93.12

Signed

30 3/22/

Cylinders AB and HC plus 5X were shipped to Y-12 via Caded Chem on 3/21.

Cylinders D & returned empty from Y-12 much less contaminated than previous cylinders returned - only blank-off fittings with counts over 2000.

Fill from pit cylinders 19, 17, 16, 15

# 19 = DV	} to 66.6 cm ht.
# 18 = MT	
# 17 = MT	
# 16 = MT	
# 15 = come from 28.90 to 39.96	

into cyl. G. ~~to~~ 66.40 cm  
 28.90  
 ---  
 37.50 net.  
 1.815  
 ---  
 6806.25  
 1.101  
 ---  
 7493.7 gms

into cyl. D ~~40.0~~  
 39.5  
 2.0  
 ---  
 37.5

Sample from Dead Volume.

# D G - 1 (wt. Burette)  
Reg # 710075

sp gr. 1.101  
Temp 20.0 ± 1.0 °C

Ht	Height in G cylinder	Vol.	Spgr	Mass	U analysis	U assay	X		
cm	cc	gm	gm/cc	gm	gm/gm	gm	gm.		
1149	D-2	37.50	6806.25	1.101	7493.68	0.0772	578.51	93.22	539.29
	G-2	37.50	6806.25	✓	✓	✓	✓	✓	✓

Signed *FL*



#19 DV  
 from #15 to about 5 cm #15 MT  
 from #13 to 36 cm #13 MT  
 #12 to 35 from 30.1 + #12 MT  
 from #11 from 35 to 39.7

into cyl. C 7.7 cm. at start

$$\begin{array}{r} 30.1 \\ \hline 37.6 \text{ cm in cyl C (from 6" cyl)} \\ \hline 181.5 \\ \hline 6824.4 \times 1.100 = 7506.8 \end{array}$$

Sp Gr. 1.100  
 at 23°C ± 1

into cyl H - start 39.7

$$\begin{array}{r} 2.2 \\ \hline 37.5 = \frac{6806.3}{1.100} = 6187.5 \\ \hline 7486.8 \end{array}$$

$$\begin{array}{r} 37.5 \\ \hline 182.4 \\ \hline 6840 \text{ (circled)} \\ \hline \times 1.100 \\ \hline 7524.00 \text{ MS} \\ \hline \times 1.0762 \end{array}$$

Sample Reg # 710076 for assay & U analysis,

$$\begin{array}{r} 573.33 \text{ gm U} \\ \hline \times 93.18 \end{array}$$

0.002 gm      0.0762 gm U/gm -      93.18% X

$$\begin{array}{r} \text{C-2} \\ \text{Cyl H} = 6858.24 \\ \hline 1.100 \\ \hline 7544.06 \text{ wgt sol. gms.} \\ \hline .0762 \end{array}$$

$$\begin{array}{r} \text{Cyl C} = 534.20 \text{ gm X} \\ \hline \text{Cyl H-2} \end{array}$$

$$\begin{array}{r} 574.86 \text{ gm U} \\ \hline .9318 \\ \hline 535.65 \text{ gm X} \end{array}$$

Pit cyl inventory

#19 DV    #18 MT    #17 MT    #16 MT    #15 MT    #14 locked in pits about 6 liters Sp Gr. 1.2  
 #13 MT    #12 MT    #11 about 6 liters

Also in storage are 5-3" cylinders with about 14 liters vol.  
 also in lab = 3 liters of recoverable wash water.

Material shipped to Y-12 since shutting down

Date	Container No	Wt in gms	Reg No. Sample	Wgt %	% X	Wt. X
3/14/49	E	7522	710068	7.66	93.18	7008.99
	F	7500	"	"	92.96	6988.50
3/16/49	D	7500	710069	8.68	"	6972.00
	G	7500	"	"	"	6972.00
3/21/49	A	7500	710070	7.73	92.65	6948.75
	B	7541	"	"	"	6948.75
	C	7493	710071	7.62	92.96	6965.49
	H	7493	"	"	"	6965.49
	S-X	1830.3	710072	26.87	92.41	1691.88
9 shipping containers						57761.35 gms X
						50746135 X

Ready to ship except for analysis

Shipped	Container No	Wt in gms	Reg No. Sample	Wgt %	% X	gms U	gms X
3/28/49	E-2	7486.8 (EF-1)	710073	0.0772	92.01	577.98	537.58
	F-2	7513.7 (EF-2)	710074	-	-	580.06	539.51
	D	7493 gms	710075				
	G	7493	"				
	H	7506.8	710076				
	C	7486.9	"				

Signed

Y-12 Data on F-05 Shipments

ad  
416749

MEMO	CYL NO	Batch	Reg NO	K-25 EST	TDS	ASSAY	Y-12 Assay	K-25 counting
84 xg.	F	6915	835951		195.41	93.42	} 93.37	} 93.14
"	F	6916	952		198.49	93.35		
"	F	6917	950	576	195.26	93.44		
"	E	6918	955		177.52	93.38		
"	E	6919	953		210.47	93.29		
"	E	6920	954	575	205.60	93.35		
				1151	1182.75			
85-xg.	G	6952	957		190.34	93.42	} 93.38	} 93.16
"	G	6953	958		195.35	93.34		
"	G	6954	956	651	207.27	93.39		
"	D	6955	961		186.70	93.37		
"	D	6956	959		198.28	93.38		
"	D	6957	960	651	203.94	93.40		
				1302	1181.55			
86 xg.	C	6026	965		189.99	93.35	} 93.37	} 93.16
"	C	6027	963		213.77	93.37		
"	C	6028	964	571	188.02	93.37		
"	B	6037	968		197.33	93.31		
"	B	6038	967		210.16	93.39		
"	B	6039	966	583	191.88	93.34		
"	A	6059	970		196.02	93.43		
"	A	6060	971		197.49	93.38		
"	A	6061	969	579	197.36	93.36		
"	H	6070	973		196.15	93.35		
"	H	6071	972		197.26	93.38		
"	H	6072	974	571	194.42	93.41		
Beaker 5x		6021	962	492	491.83			
Total				5249.00	5226.31	Diff	-22.69	

## Decontamination

6" Al top temper (fired cyl) washed in  $\text{CO}_3^{2-}$  sol, + nitric acid rinsed dried + some tygon paint scraped off. Placed in oven at  $110^\circ\text{C}$  to completely dry + possibly soften paint.

Several sections of tygon tubing washed in  $\text{CO}_3^{2-}$

Source guide tube (fired cyl) washed in acid (nitric) + carbonate solutions -

Tools, heshes, nuts, bolts, washed in  $\text{CO}_3^{2-}$  + mineral part in SS can to dry before checking with Poppy

note  $\text{H}_2\text{O}_2$  ca 5% mixed  $\text{CO}_3^{2-}$  seems to work more rapidly as decontaminant than  $\text{CO}_3^{2-}$  alone.

Checked recorders in Rm 1 + all done  $> 100\%$  on surfaces exposed

Vacuum cleaned floor + desks in laboratory.

6" Al top temper painted with babelite - should air dry over week end or at least 1 hr. + then bake 3 hrs at  $245^\circ\text{F}$

Also exposed desk surfaces or those from which phenoplast peeling off were painted with babelite.

3/28/48 Emptied cylinder #387 into 6" reactor for mixing; this was then used to fill cyl. (A-2)

Emptied #14 into 6" reactor and mixed by blowing air thru empty cyl. & then thru slight glass line; this was used in filling cyl. H-2

34

Date 3/28/44

Cyl A - 2

Ht at start. 49.75  
 9.90  
 39.85 cm from 6" cyl  
 X 181.5  
 7233 ml

Sp Gr 1.102<sup>fx</sup> @ 22°C.797.05 gm  $\pm$  10 gmSample Taken in 30cc  
 labelled A-2 Reg 710077Cyl H - 2 actually cyl B  $\infty$  = B-2

Ht at Start 39.85  
 2.36  
 37.49  
 6.800 liters

Sp Gr 1.112 @ 22°C

Sample Taken in 30cc Sample Reg# 710078

Labelled H-2 wrong label

Cyl. F

(F-3) Ht. at start 18.9 cm = 6" A.L.R.

Note

Misump on shipping + cyl labeled H-2 was actually found to be  
 cyl B originally,  $\infty$  label was changed to correspond = B-2

cyl A-2

39.85 6" cm  
 X 182.4 of cm  
 7268.64 cm<sup>3</sup>  
 1.102 of sp.  
~~8010.04~~  
 8010.04 gms solution  
 .0787 gm U/gm  
 630.39 gm U  
 .9315 % X  
 587.21 gm X

cyl B-2

37.49 6" cm  
 X 182.4 of cm.  
 6838.18 cm<sup>3</sup>  
 X 1.112 of sp  
 7609.056 gms solution  
 .0855 gm U/gm  
 650.15 gm U  
 .9318  
 605.81 gm X

Signed

Fry  
Callahan

Measured vol. in # 11 + # 19, in pit, with manometer + N<sub>2</sub>-

	# 9	# 1
manometer		
h <sub>1</sub>	62.7 cm	56.3 cm.
h <sub>2</sub>	39.4	45.1
Δh	23.3	11.2
2.96	62.7	30.3
1.10		
x 80.4 cm	5.04 L	2.44 L

- PROGRAM:
- Empty pit cylinders into reactor (6") ~ 7.4 ✓  
 Draw to 0 into 4" shipping cylinder ~ 3.5 L ✓  
 add ~ 2 L washings + drainings from run 10 - ✓  
 Mix well + sample -
  - Put dead volume from pit into printed + tared 3" cylinder ✓  
~~measure~~ add remainder, if any, of washings above. ✓
  - Ship HX = 169 material now stored in 3" cylinders (8.2 L; 124 kg).  
 in 3" tared + printed cylinders.  
 A total of two prepared 3" cylinders for shipping will be adequate.

Employed # 11 + # 19 in 6" reactor &

H = 18.9 cm drained into cylinder F to

$$\frac{0.1 \text{ cm}}{18.8 \text{ cm}} \times 182.4 = 3429.1$$

18.8 x 18.5 = ~~3429~~ cc volume into F from 6" cylinder.

9000 cc washings  
~~6472~~ cc

[Spgr = 1.088]

Less sample 25

Net ~~6387~~ cc x 1.088 = ~~6949.1~~ gm. → 6948.1 gm

6404 cc

Put DV into # 3 - 3" cylinder

Gross 17146.0  
 Tare 13355.0 gm  
 3791.0 gm  
 Spgr = 1.108

3791.0 gm Sol.  
 10803 gm H/gm  
 304.42 gm H  
 9313 2. X  
 283.51 gm X

SAMPLES # 3  
 GROSS 103.1788 gm  
 TAKE 77.0257  
 NET 26.1531  
 Lab Bq # 710079

# F-3  
 99.6255 gm  
 73.1023  
 26.5232  
 710080

Signed

F-3  
CONTENTS

3  
TENTS

F-3 = 6967.55  
 .0675  
 gm H = 470.31  
 93.25

gm X 438.56

36

Date

3/4/49

fox  
Cesium

Rm 10 + 16A

Micromax - cleaned up + ready to ship.  
Variac's -

- 2 - 5 gal cans of washings to ship to Coded Chem
- 1 - gal jug
- 4 - cylinders to Y-12

Signed

Date 3/5/49

shipped to Y-12  
cyl H - 2  
" C - 2  
" D - 2  
" G - 2

cyl ④, F-3 } filled but no analysis  
A-2 }  
B-2 } also cyl 3 (3" cyl)

cyl E = empty



38

Date 4/7/49

For  
Crown

Cyl # 7

from 3" cyl #1

	18301.0 gms
tare	13381.0 gm
Net solution	4920.0 gms
sample wgt	29.11
	<u>4890.89 gms</u>

Req # 710081

From Cyl # 4

gross	14,529 kg
tare	13,105
	<u>1,424 kg</u>

into cyl E-3

1.424 kg from 3" cyl #4

Cyl # 2

	17.142
	13.225
	<u>5.917</u>
	3.917

5.917 kg from 3" cyl #2

adds + ends

	1535
	731.0
	<u>804.0</u>

gm?

804.0 from adds + ends

8.145 Kgms

sample Req # 710082

16.21  
8128.79 Kg

Re Cylinder E-3

to  
4/26/49

	1.424 kg
	<u>5.917</u>
	1.424
	3.917
	0.804

Sample

	6.145 kg
	0.01621

6.12879 kg = 6128.79 gm solution

Analysis of

assay

	<u>0.1310</u> gm U / gm
=	802.87 gm U
	93.03%
=	<u>746.91 gm X</u>

Signed

6" cyl = 182.4 sq cm area

Shipping No.

Page

Ht. in

6" cyl

0030

20-21

37.6

"

"

37.5

33

"

37.5

"

"

37.5

22

37.5

"

37.5

23

37.5

"

37.7

0035

27

37.5

"

"

37.6

0036

30

37.5

"

"

37.5

"

31

37.5

"

"

37.5

0038

34

39.85

"

"

37.4

"

35

missed

"

35

"

38

38

0034

23

"

"

"

"

"

"

22

37.5

"

37.5

23

37.5

"

37.5

Signed

Yl No	Volume	Sp. Gr.	Weight Sol <sup>n</sup>	% U Wgt U/gm	Wgt U	% X	Wgt X	Reg No
E	6858.24	1.103	7564.64	7.66	579.45	93.18	539.93	710068
F	6840.00	1.103	7544.52	"	577.91	93.18	538.50	710068
D	6840.00	1.103	7544.52	8.68	654.86	92.96	608.76	710069
G	6840.00	1.103	7544.52	8.68	654.86	92.96	608.76	710069
C	<del>6840.00</del>	<del>1.101</del>	<del>7530.84</del>	<del>7.73</del>	<del>582.13</del>	<del>92.65</del>	<del>539.34</del>	<del>710070</del>
H	<del>6840.00</del>	<del>1.101</del>	<del>7530.84</del>	<del>7.73</del>	<del>582.13</del>	<del>92.65</del>	<del>539.34</del>	"
A	<del>6840.00</del>	<del>1.102</del>	<del>7537.68</del>	<del>7.62</del>	<del>574.37</del>	<del>92.96</del>	<del>533.93</del>	<del>710071</del>
B	<del>6876.48</del>	<del>1.102</del>	<del>7577.88</del>	<del>7.62</del>	<del>577.13</del>	<del>92.96</del>	<del>536.78</del>	"
E-2	6840.00	1.101	7530.84	7.72	581.38	93.01	540.74	710073
F-2	6858.24	1.101	7550.92	7.72	582.93	93.01	542.18	"
D-2	6840.00	1.101	7530.84	7.72	581.38	93.22	541.96	710075
G-2	6840.00	1.101	7530.84	7.72	581.38	93.22	541.96	"
C-2	6858.24	1.100	7544.00	7.762	574.86	93.14	535.42	710076
H-2	6840.00	1.100	7524.00	7.62	573.33	93.14	534.00	"
A-2	7268.64	1.102	8010.04	7.87	630.39	93.15	587.21	710077
B-2	6838.18	1.112	7604.06	8.55	650.15	93.18	605.81	710078
F-3	6404.10	1.088	6967.66	6.75	470.32	93.25	438.57	710080
#3	Gross 17146.0	Tare 13355.0	3791.0	8.03	304.42	93.13	283.51	710079
#7	<del>18301.0</del> 18271.89	13381.00	4890.89	14.71	719.45	93.07	669.59	710081
E-3	(from annual see page 38)		<del>8128.79</del>	13.10	<del>1064.87</del>	93.03	<del>990.65</del>	710082
S-X	2710.675	880.395	1830.280	26.87	491.80	92.41	454.47	710072
C	6840.00	1.101	7530.84	7.62	573.85	92.96	533.45	710071
H	6840.00	1.101	7530.84	7.62	573.85	92.96	533.45	"
A	6840.00	1.102	7537.68	7.73	582.66	92.65	539.83	710070
R	6876.48	1.102	7577.88 7577.83	7.73	585.77	92.65	542.72	"
E-3			6128.79	13.10	802.87	93.03	802.87 746.91	710082

4/12/49

Stainless steel pipelines including air manifold, solution cylinders and reactor (6" A) were washed with a 5% solution of  $\text{Na}_2\text{CO}_3$  containing about 1%  $\text{H}_2\text{O}_2$ . This solution owing to violent gassing in contact with the stainless steel was very difficult to pull by suction into storage container, so dump valve was opened, and solution remained in dump pan over night - solution now stored in two 4" cylinders.

Cyl C-4 = 7.29 Liters of solution measured  
 sample req # 710083 resampled 4/22  
 Sp Gr. 1.015 Req # 710093

Cyl G-4 = 7.21 Liters of solution measured  
 sample req # 710084 resample  
 Sp Gr. 1.015 Req # 710094

Signed

Storage system and reactor feed lines were rinsed with dilute nitric acid and water.

Dump pan washed out with acid & rinsed with water.  
Seals developed in Valves #15 + 13

4 fired stainless steel reactors & tanks were washed in hot nitric acid and rinsed with hot water - all visible material removed and reactors stored in Pm 10A

Aluminum reactor ditto except for 2 (2 in Pm 7, 1 in Pm 2)

Wash solution bottled:

	R66	5210		R67	5.145		R68	5520
		<u>1722</u>			<u>1.417</u>			<u>1413</u>
		3488.2			3.728			4107
sample		<u>52.8</u>		sample	<u>52.1</u>		sample	<u>47.9</u>
g/l		3435.2			3.675.9			4059.1
	R-69	5595		R-70	5400		R-	
sample		<u>1417</u>			<u>1.417</u>			
		4178		sample	3983			
		<u>54.3</u>			<u>49.5</u>			
		4123.7			3933.5			

4/19/

Samples taken

R-66	710085		
R-67	710086	.0010	90.89
R-68	4 87		
R-69	4 88		
R-70	4 89		
R-71	4 90	.000189	
R-72	4 91	.0054	92.6
R-73	4 92		

Signed

46

Date

4/21

Pit cylinders washed with  $\text{HNO}_3$  + rinsed off  
all Cd removed from top - H<sub>2</sub>O<sub>2</sub> values removed.

Signed

Date 4/22

4" cyl C-4 resampled

54.12 gm sample  
sp. Hr = 1.015 reg # 710093

11" " G-4 "

53.44 gm sample  
Sp. Hr. 1.015 reg # 710094

cyl C-4

Vol = 7290 cc  
Sp Hr. 1.015  
7399 gm  
T .0045  
33.309 m  
X .9133  
30.414 m X

cyl. G-4

Vol. 7210  
1.015  
7318 gm  
.0042  
30.74  
.9034  
27.77 gm X

see page 44 for R-66 - R70 shipments.

R-71 Reg # 710090  
5035  
1415  
3620

R-72 Reg # 710090  
5376  
1797  
4079

R-73 Reg # 710092  
5365  
1182  
4183

R-74 Reg # 710095  
5725  
1565  
4160  
42.  
4118  
156.5  
5683

R75 710096  
5273  
1260  
4013  
48  
3965  
1360  
5325

R-76 710097  
5648  
1569  
4079  
41  
4038  
1589  
5627

R-77 710098  
5443  
1265  
4178  
35  
4143  
1265  
5408

R78 710099  
4214  
1247  
2967  
34  
2923  
1247  
4170

7100100  
R-79  
4979  
1282  
3697

R-80 7100101  
5009  
1278  
3731

also 5-5 gal buckets of soda ash sol.

40  
3657  
1282  
4939

44  
3687  
1278  
4965

weight corrections are for sample wgt



48

Date 4/22

Lab floor scrubbed still about 200 ppm in general.  
with hot spots beside Hood #3

all visible material bottled + in place ready  
to ship for recovery.

All rooms surveyed for alpha's  
Rm 1 = under vent  
Rm 2 under dump pan + in pit  
Rm 3, 4, 5, 6, 8, 9 clean Rm 7 floor hot  
Rm 10 + 10A - contain. storage.

Signed

Storage Pit scrubbed out using carbonate-peroxide  
Dump and wooden shield scrubbed to try to remove hot spot. Pans #1  
In Pan 10 + 10A - floor scrubbed by hand + mopped to  
attempt to lower count.

Stainless steel reactors and all top temper shipped to K-1410  
for decontamination. (see list at back of book)

Ⓢ Material contaminated with 30% decontaminated  
by Residue Services + to be stored in 31X tomorrow.

Pan 7 swept - ready for decontamination.

50 Date 4/26/49

Material from cleaning stored in 31-X  
tube furnaces + equipment for them. Also cube dollies.

Wooden dolly, bench + small table sent to hot salvage -

5- 5gal buckets of washings sent to Coded Chem.

2- 4" storage eye. sent to Coded Chem.

Contaminated Cd sheet wrapped up in paper.

Janitors scrubbed Rms 1, 2, 3, 4, 5, 6, 8, 9, + hallway.

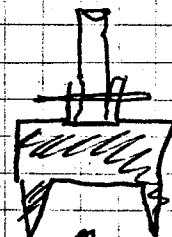
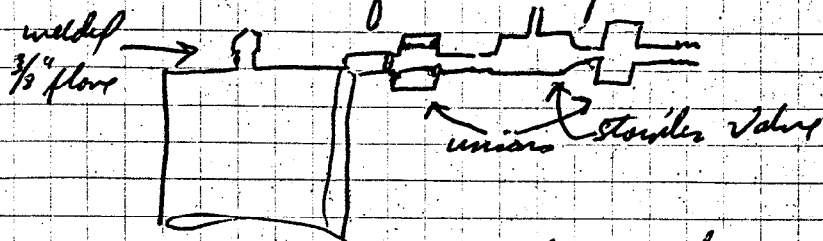
Signed

Rm 7 scrubbed and wiped scrubbed with carbamate prepulse  
fluorescent lamps were hot  $>1000$  c/m these also scrubbed off & replaced.

Roms 1, 2, 3, 4 & ~~5, 6, 7, 8, 9~~ wiped by janitor.

Paraffin and aluminum spacers from cube experiment  
wrapped up & stored in Rm 10A. These are contaminated  
and covered to prevent spread of contamination.

Valve system made up for 4" storage cylinder and  
sketch made of same filed under equipment sketches



use a fingered attachment for present valve rods to fit  
present valve handle.

packing in SS valve must be replaced with Teflon head  
& possibly lapping of seat to shut tight for  $H_2O_3$  w/v.

Tape strips in Rm 7 still have  $>1000$  c/m

52

Date 4/28

all corrected for wgt of sample sup. 47

Reg# 710095 R-74

Gross	5683
Tare	<u>1565</u>
Net	4118 gms
gm <sup>U</sup> /gm	<u>.0014</u>
	5.77 gms U
	5.34 gms X

Reg# 710096 R-75

	5225
	<u>1260</u>
	3965
	<u>.0020</u>
	7.93 gms U
	7.34 gms X

Reg 710097 R-76

Gross	5607
Tare	<u>1569</u>
Net	4038
gm <sup>U</sup> /gm	<u>.0063</u>
	25.439 gms U
	23.54 gms X

Reg 710098 R-77

	5408
	<u>1265</u>
	4143
	<u>.0061</u>
	25.27 gms U
	23.38 gms X

Reg# 710099 - R-78

gross	4170
Tare	<u>1247</u>
net	2923
gm <sup>U</sup> /gm	<u>.0041</u>
	11.98 gms U
	11.08 gms X

Reg# 7100100 R-79

	4939
	<u>1282</u>
	3657
	<u>.0010</u>
	3.66 gms U
	3.39 gms X

Note: composite X = 92.52%

Reg 7100101 R-80

gross	4965
	<u>1278</u>
	3687
gm <sup>U</sup> /gm	<u>.0055</u>
	20.28 gms U
	18.76 gms X

Signed

Date 4/28

wts originally on p. 44 corrected for sample wts

R-68 Reg # 710087

gross 547.2  
 tare 141.3  
 net 405.9  
 x .0018  
 7.31 gms U  
 x 91.02  
 665 gms X

R-67 Reg # 710086

5094.9  
 1417  
 3675.9 net gm  
 .001  
 3.68 gms U  
 90.89  
 3.34 gms X

Reg 710085

~~557~~  
~~1722~~  
 3435.2 net gm  
~~1722~~  
 1.0005 gm U/gm  
 1.72 gms U  
 1959 gms X

Reg # 710088

R-69 5540.7  
 1417.0  
 4123.7  
 1.0021 gm U/gm  
 8.6597 gms U  
 71.96 gms X

Reg # 70089

R 70 5380.5  
 1417.0  
 3963.5  
 1.0053 gm U/gm  
 20.84 gms U  
 191.16 gms X

Reg # 710090

on page 47  
 R 71 5035  
 1415  
 net 3620  
 .00189  
 U = 0.68 gms  
 assay = .9251  
 0.63

Reg # 710091

R-72 5376  
 1297  
 4079  
 .0054  
 22.03 gms U  
 92.62  
 20.40 gms X

R-73 Reg # 710092

5365  
 1182  
 4183  
 gm U/gm x .0074  
 assay 30.95 gms U  
 x 92.74  
 28.70 gms X

total U  
196.20

total X  
181.26 = 92.385% X

54

Date 5/4

Shipped all full gallon jugs R-66-80 total 196.20 gms T

Rearranged Rm 3 for more space

Brought back Recorders and placed in Rm 1

Cleaned up Rm 9 putting in new lamps + removing  
junks

Cleaned some in Rm 10

Signed

Date

5/5

55

Removed all loose junk from Vestibule  
Blueprint of Reactors taken to Morris for re-drawing  
Plastics obtained from Blue

Rm 9 rearranged, Rm 10 A used as storage for empty  
wastecans, bottles etc. . . .

Signed



Tried out plastic fittings -

Plastic flow fittings  $\frac{3}{8}$ " works nicely - easy to put  $\frac{1}{4}$ " or  $\frac{1}{8}$ " pipe threads on one side & seal without any lubricant to ~~to~~ 40#  $N_2$  pressure no leaks.

low polymer plastic (flonethene) tried as lubricating seal for stainless steel pipe. also stands up under 40# pressure flonethene (G) is lubricating & sealing is just plastic @ r.m. temp.

to make valve packing for alloyed valves used another flonethene "H" which has a higher melting range melted and poured into packing gland to make seal works all right. Objection when packing nut is tightened severely some packing squeezes out. Not much tightening is needed to make a seal however.

also tried machining a polyethylene rod for packing - easy to fit, but stainless steel stem galls the ethylene and tears out packing.

suggest rods of poly flonethene for packing - machining out on lathe.

Tried flonethene rod machined to make packing and seems satisfactory - no leaks under 75#  $N_2$  pressure and packing nut not completely tight.

Suggest however, that flonethene "G" be used as a lubricating seal. This should give a vacuum tight valve down to  $10^{-6}$ .

Signed Cronin

Date 5/6

57

W.O. and revised drawing for new reactor  
in shield metal shop. copy of revised drawing in cabinet.  
Also Frank Morris started on stainless steel shells  
and aluminum annuli.

Cross section (longitudinal) started of interaction  
sechup.

Possible trouble with weight of stainless steel  
shells - ca 931 lbs + wgt of water in 15" cyl  
is over 1000 lbs. Floor should stand wgt +  
probably tanks will also.

Typing on report back from Mrs. Jackson -

Rm 10 still contaminated in spots.

Signed *Cusum*

58

Date 5/17/49

R81882 are washings from pit (2<sup>nd</sup> time)

R81  $\begin{array}{r} 4905 \\ 1305 \text{ gm} \\ \hline 3400 \text{ gms net} \end{array}$

R82  $\begin{array}{r} 4735 \\ 2ax \ 1272 \text{ gm} \\ \hline 3463 \text{ gms net} \end{array}$

Signed

Meeting - AEC AUDITORS }  
 DOUGLAS GEORGE  
 HOWARD KILBURN  
 ANDERSON  
 LARCY  
 CALLIHAN.

Two questions posed by auditors concerning April 1949 Inventory.

① Closing inventory values not checked by auditors -

This was clarified when it was pointed out that F-05 closing inventory <sup>①</sup> recognized samples sent to Lab for analysis; auditors had not included these -

② F-05 did not include decontamination recovered material shipped on OO43 dated 4/26/49. These two items reconciled the closing inventory.

② Assay of F-05 residue > 100% -

It was explained that the K-25 assays by which shipments were made ran lower than Y-12's by which the charge was originally made: Y-12 original assay = 93.4 - K-25 average shipment assay: 92.8 - Y-12's assay upon receipt = 93.4 - results in complete. It was agreed that the Y-12 shipment & Y-12 receipts would be compared and also the K-25 receipts would be compared with K-25 shipment. It was pointed out that the accuracy of F-05 volumetric measurements is not great.  
 of solution ships. DC.

Signed

Y-12 reported, through Memphis, the following amounts of material recovered by them, during 1949 & later, for F-05.

For Shipping Manifest #	Container #	Mass U gm.		
0030	F	589.16	}	1180.62 1102.34
	E	593.59		
0033	G	592.96		591.90 552.73
	D	588.92		587.85 548.95
0034	A	590.87		589.80 550.81
	B	599.37		598.28 558.47
	C	591.78		590.72 551.57
	H	587.83		586.77 547.93
	J	491.83		490.94 455.20
0035	E-2	589.69		588.63 549.67
	F-2	588.72		587.66 548.76
0036	D-2	598.76		597.88 558.13
	G-2	587.83		586.77 547.79
	C-2	594.09		593.02 553.67
	H-2	590.38		589.32 550.47
0038	A-2	634.30		633.16 591.41
	B-2	645.83		644.67 602.05
	F-3	464.90		464.06 433.39
	3	318.96		318.38 297.21
	7	741.54		740.2 691.88
	E-3	828.09		826.6 771.91
0042	C-4	63.14	12472.58 gm U	12450.10 740.2 691.88
	G-4		+296.44 gm U.	
0027	R61		12472.58	
0031	R64 & R65	} 252.49		
0040	R74-R80 inc			
0044	R66-R73 inc			
0045	{ R81+82 4 can paper }	4.04		2.63 gm in paper
0019	{ R49-R58 inc R59+R60 }	} 331.17	(Now on UO2 F)	63.23 gm in paper acc other UO3
0026	{ R59+R60 R62+R63 }			
0027	{ R62+R63 5 can paper }			
Y-12 Salvage of materials used by Y-12 in above recovery		49.94		49.94 46.61
and assay 93.35		13 110.22 gm U		
		12 238.39 gm U		

\* See pg 6261

Signed

During the period 1/1/49 - 6/20/49 F-05 shipped to Colod chemicals for analysis and to the Lab. material listed below - Analyses were obtained on these:

Date	Samples	7100.55 60	gm U	gm X	
Jan 1949	← 0018	60	19.00	17.73	✓
	← 0021		5.85	4.55	✓
	← 0022		2.18	2.04	✓
	← 0023		0.58	0.54	✓
Feb	Samples 71100.61 63		3.23		
	0023		0.75	6.84	✓
	0025		3.07		
	0029		0.28		
March	Samples 66 80		29.77	27.66	✓
April	Samples 81-100 inc		9.58	8.89	
	0037		1.58	1.23	
	0041		6.68	6.08	
May	Samples 101-107 inc		0.24	0.22	✓
	0045		5.14	4.80	?
* 2 cans combustible shipped to Y-12 10/48 - Credited by K-25 7/49			54.00	48.00	

The tabulation at left does not include material recovered by decomposition reported on memo 0043 = 32.20 gm U + 1.71 gm X.

Y-12 recovery see preceding page

13110.22	12238.39
13252.15 gm	12366.97 gm

Assuming Jan 1, 1949 opening inventory to be correct:  
Rec'd from Y-12 Feb 1949

Credit from above  
on hand 6/20/49

Recoveries

	gm U	gm X
12683.19	11863.79	
725.87	672.34	
13409.06	12536.13	
13252.15	12366.97	
156912 U	169.16 gm X	
98.8%	98.7%	

2/49 \* Inventory of combustibles sent to Y-12 for recovery:

Material description	Date	Quantity	Notes	Recovery
2 cans - Recovery reported	10/48	2		2/29 (see above) 5400 gm U.
0020	11/29/48	3		Reported with R-41 - R-43 = 63.2
0028	2/4/49	2		
0032	3/14/49	4		
0045	5/23/49	4	Reported with R-81 & R-82	2.6
2	7/12/49	3		

Signed 

62

Date 6-22-49

VP-82 sample Reg# 710104

	5530
	<u>1300</u>
Net	4: 30

OLD K-25 + 28-12 WEST END  
 209 BOOKS TOTAL OF 13

16900 ✓  
 899.6

Signed

Date 6-18-99  
7

Storage Cylinder tare weights  
weighed at Vault 8-A Scale # 183401 (check prep. no.)

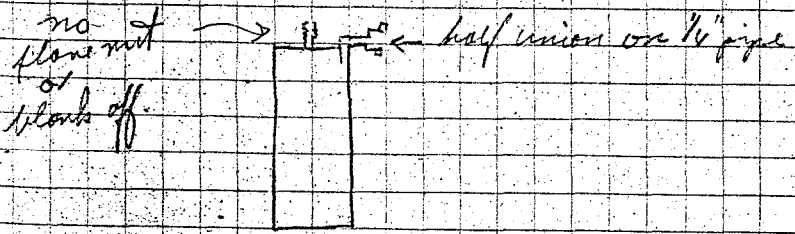
Werner  
Crown

Cyl No.	Wgt alone*	7/19/44 **	Lettered Plugs
A	17760.8 gm	101.7	102.0 gm.
B	18289.9	97.4	101.4
C		{ 18135.0 gm as 78134.3 101.6	96.9
D	16722.2		94.8
E	17692.4**	100.5	100.5
F	17945.4		94.4
G	16224.1	16223.2 gm	98.5
H	16624.8		102.7
J	18469.5		99.6
K	16899.6		100.3
L	17954.0 (17952.0 2nd tare 9/22/99)		98.0

{ remaining after tip to Kings returned to  
 cylinder on right pan - left -

Cylinder on right pan 18  
 18050  
 18050 gm

\* Note - cylinders weighed without any pipe fittings except  
 \*\* See pg 66 note dated 8/3 re. Tare Cylinder E half union



\*\* wt of N<sub>2</sub> signed in 1st measurement



64

Date

7/21/49

11:10 AM.

4<sup>1</sup> Cylinders A B D E received at vault SA by Codes Chan.

ABD contain solution

E contains washings.

Cylinders weighed balance # 183401 with P-10 flare

& leaf union blank off attached (It is necessary

to weigh these at F-05 and modify the tare.

Gross Weights (Cylinder on right pan). Arendt  
Wagner

A 28046.1 gm

B 27628.6 gm

D ~~26855.0~~  
26854.2 gm.

E 18472.5 gm

7/22/49 Weight of leaf-union plus flare-P-10 plug: JRF

A 101.7 gm

B 97.4

D 101.5

E 100.5

Signed

Date 7/22/49

Solution Recd from Y-12 - Net wts

	Revised Gross gm	Tare gm	Net gm
A	28046.1 - 101.7 = 27944.4	17760.8	10183.6
B	27628.6 - 97.4 = 27531.2	18289.9	9241.3
D	26855.0 - 101.5 = 26753.5	16722.2	10031.3
E	18472.5 - 100.5 = 18372.0	17692.4	679.6
			<u>30135.8</u>

7/26/49 Analytical Results

Cylinder	Sample #	wtd % U	% X	% W	Sample Wtd gm	Sample Contents U gm	X gm
A	710	0.2486	93.33	1.113	5.81	1.41	1.34
	107	0.2483	93.22	1.105	6.03	1.50	1.40
	Ave.	0.2485	93.28				
B	109	0.2388	93.22	1.106	4.04	0.96	0.89
	110	0.2377	93.28	1.119	5.68	1.35	1.26
	Ave.	0.2383	93.25				
D	111	0.2551	—	—	5.41	1.38	1.29
	112	0.2557	93.22	1.105	6.11	1.56	1.45
	Ave.	0.2554	93.22				
E	113	0.0180	93.10	1.12	24.27	0.44	0.41
	114	0.0181	92.62	1.10	20.55	0.37	0.34
	Ave.	0.0181	92.86			9.00	8.38

K-25 Values of Material Received from Y-12 on 7/21/49.

	Net wtd	wtd U	wtd V
A	10183.6 gm	2530.6 gm	2360.5 gm
B	9241.3	2202.2	2053.6
D	10031.3	2562.0	2388.3
E	679.6	12.3	11.4
	Total.	7307.1 gm	6813.8 gm

7/24/49 Net wts were changed with Y-12 report to credit  
 7306 gm U  
 7346.4 gm U  
 6812 gm V  
 6818.6 gm V  
 (Ave = 93.25 gm)  
 less samples taken from cylinders at Y-12 after filling. F-93

9/23 Received from Y-12 enriched U in cylinder L -

7864.8 gm (see pg 77)  
 12.2 gm Sample L-1  
 7877.0 gm total = 167 gm U = 1561.44 gm X from sample L-1 (830029)  
 Signed 1674.65

14. Hutton says wts are changed with 1676 gm U 1263 gm V

66

Date

Aug 2, 1949

by W. W. Fox  
CrownINVENTORY

Cyl	Gross	Tare**	fittings	Net
A	27915.5 gm	17760.8 gm	102.0 gm	10052.7 gm
B	27138.0	18289.4	101.4	8746.7
C	18469.8	18135.0	96.9	237.9
D	26507.4	16722.2	94.8	9690.4
* E	18774.0	17692.4	100.5	

\* Cyl E has lost Cd coating from bottom in the amount of 76 g  
 \*\* These tare values ~~obtained~~ were obtained without the bleed off -  
 being attached to the cylinders; i.e. tare with all fine gross in 2" column was  
 obtained is ~~not~~ "Tare" plus "Fittings".

8/3- Tare of E should be revised downward by 76 gm

due to loss from E of some Cd coating -  
 Samples taken from cylinders after weighing on 8/2/49.

JWM  
DE

8/4/49 Revised Tare of E = 17692.4  
 76.0  
 17616.4 gm  
 plus fittings. 100.5  
 Corrected Tare = 17716.9  
 Gross 18774.0  
 Net. in E 1057.1

## INVENTORY AS OF 8/2/49


Cylinder	Sample #	Cylinder		% U	% X	Cylinder Contents	
		Net gm	wtd			U gm	X gm
A	830005 830006	10052.7		0.24557 0.2447 } 0.2451	93.34 93.31 } 93.33	2463.9	2299.6
B	830004	8746.7		0.2432	93.29	2127.2	1984.5
C	830002	237.9		0.2508	92.04	59.7 59.67	54.9
D	830003	9690.4		0.2554	92.65	2474.9	2293.0
E	830001	1057.1		0.0173	92.53	18.3	16.9
Total		29784.4				7144.0	6648.9 (ave assay 93.0)

Signed

Carl 1976

## Sample Conduct.

Wt gm	V gm	X gm
11.44	2.81	2.62
5.58	1.37	1.28
9.04	2.20	2.05
9.24	2.32	2.13
<del>8.42</del> 8.42	2.15	1.99
17.36	0.30	0.28

Signed 

Aug 26

Date Shipped	Container Sample No.	Sample Rep. No.	Shipping Memo No.	Analysis g/g	Assay % X	Net Weight
7/13/49	J-4	—	1			
7/13/49	J-5	—	1			
"	J-6	—	1			
"	J-7	—	1			
7/13/49	J-1	—	2			
"	J-2	—	2			
"	J-3	—	2			
7/11/49	N-2	710105	3	.760 gm/gm	.707%	393.91 gm
7/11/49	N-1	710105	3	"	"	392.71 gm
7/11/49	N-3	710106	4	.593 gm/gm	.709%	549.15
7/22/49	1-A	710107	—	.2486 gm/gm	93.33%	5.81
7/22/49	2-A	710108	—	.2483 gm/gm	93.22%	6.03
7/22/49	1-B	710109	—	.2388 gm/gm	93.22%	4.04
7/22/49	2-B	710110	—	.2377 gm/gm	93.28	5.68
7/22/49	1-D	710111	—	.2551 gm/gm	93.22	5.41
7/22/49	2-D	710112	—	.2557 gm/gm	93.22	6.11
7/22/49	1-E	710113	—	.0180 gm/gm	93.10	24.27
7/22/49	2-E	710114	—	.0181 gm/gm	92.62	20.55
7/22/49	R-83	710115	—	.0007 gm/gm	92.34	30.07
7/27/49	R-84	710116	—	.0002 gm/gm	92.34	29.89
7/27/49	R-85	710117	—	43 ppm	92.34	29.22
7/27/49	R-86	710118	—	.0006 gm/gm	92.34	28.95
7/27/49	Comp. R83-87	830007	—		92.34	1029.41
7/31/49	E-3	830001	—	.0173 gm/gm	92.53	17.36
7/31/49	C-1	830002	—	.02508	92.08	9.24
7/31/49	D-3	830003	—	.02554 gm/gm	92.65	8.42
7/31/49	B-3	830004	—	0.2432 g/g	93.29	9.04
7/31/49	A-3	830005	—	.2455 g/g	93.34	11.44
7/31/49	A-4	830006	—	.2447 g/g	93.31	5.58
7/9/49	R-90	830008	—	0.0218 g/g	93.15	31.19
7/9/49	R-87	830009	—	.0005 g/g	86.16	165.33
7/9/49	J-8		6			
	J-9		6			
	J-10		6			
	J-11		6			
	J-16		6			
7/9/49	J-12		7			
"	J-13		7			
"	J-14		7			
"	J-15		7			
8/10/49	R-88	830010	—	0.0002 gm/gm	90.55	389.45 gm
"	R-89	830011	—	0.0007 "	91.61	424.55 "
"	239-B	830012	—	0.2481 "	92.29	7.38 "
"	239-A	830013	—	0.2480 "	92.52	15.18 "
7/26/49	F					

Signed

Weight K	Weight X	Sub total Wgt. U	Sub total Wgt. X	Remarks
5.00	4.00			} 5 gal cans of washings
<del>819</del>	<del>819</del>			
299.372	2.117			} Normal U <sub>2</sub> used in making acids
298.460	2.110			
325.646	2.309			
1.474	1.348			
1.497	1.396			
0.965	0.900			
1.350	1.259			
1.380	1.286			
1.562	1.456			
0.437	0.407			
0.372	0.345			
0.012	0.011			
0.006	0.006			
0.001	0.001			
0.017	0.016			
0.300 gm	0.277			
0.300	0.278			
2.319	2.133			
2.150	1.992			
2.199	2.051			
2.809	2.622			
1.365	1.274			
0.680	0.633			
1.495 gm	1.28			<del>1.495 gm</del>
24.48	<del>24.48</del>			} 5 cans combustible
includes 5-1, 2, 3	22.76			
2.00	2.00			} 5 gal. cans wash sol.
0.078	0.071			
0.297	0.292			
1.831	1.690			
3.765	3.483			
60.12	55.25			Signed

Date	Container No.	Sample Reg. No.	Shipping Memo. No.	Analysis $\mu$	Assay X	Net Weight
8/49	R-83	830007 710115	8	0.0004 $\mu$ 1/2	92.34	3639 gm
"	R-84	710116	8	0.0002	92.34	3035 "
"	R-85	710117	8	43 ppm	92.34	3375 "
"	R-86	710118 830007	8	0.0006 $\mu$ 1/2	92.34	3178 "
"	R-87	830009	8	0.0005 $\mu$ 1/2	86.16	2990 "
"	R-88	830010	8	0.0002	90.55	3142 "
"	R-89	830011	8	0.0007	91.61	3047 "
1/49	C-2	830014	-	2485	92.64	12.07 "
"	C-3	830015	-	0.2484	92.72	17.47 "
"	E-4	830016	-	0.0324	92.31	26.41 "
"	E-5	830017	-	0.0324	92.39	31.05 "
1/7	A-5	830018	-	0.2485	92.91	11.82 "
"	A-6	830019	-	0.2485	93.03	9.38 "
"	K-1	830020	-	0.2486	92.71	8.10 "
"	K-2	830021	-	0.2488	92.95	6.96 "
"	K-3	830022	-	0.2488	92.95	14.05 "
9/8	R-91	830023	-	0.0012	92.98	321.6 "
"	R-92	830024	-	0.0017	92.99	330.0 "
"	R-93	830025	-	0.0012	92.66	457.5 "
"	R-94	830026	-	0.0016	92.56	413.0 "
"	R-95	830027	-	0.0018	92.67	357.4 "
9/19	J-16	-	9			
"	J-17	-	9			
"	J-18	820161	9			96302
"	J-19	-	9			
"	J-20	-	9			
"	J-21	-	9			
"	R-93	830025	10	0.0012	92.66	3540
"	R-94	830026	10	0.0016	92.56	3234
"	R-95	830027	10	0.0018	92.67	2933
"	J-22	-	11			
"	J-23	-	11			
"	J-24	-	11			
"	R-96	830028	-	0.0016	92.41	466.0
7/22	R-91	830023	12	0.0012	92.98	3868
"	R-92	830024	12	0.0017	92.99	3525
7/3	L-1	830029	-	0.2126	93.24	12.24
"	K-4	830030	-	0.2490	93.17	10.00
"	A-7	830031	-	0.2487	92.82	13.20
"	C-4	830032	-	0.2490	93.05	10.81
"	E-6	830033	-	0.0427	93.01	2525
"	R-97	830034	-	0.0004	92.85	238
"	N-4	830035	-	0.262	0.718	116
10/11	292	830036	-	0.0970	93.01	12.86 gm
"	R-98	830037	-	0.0455	93.12	31.73
"	R-99	830038	-	0.0152	93.13	31.57
"	R-100	830039	-	0.0057	92.20	31.55

Signed

Weight W	Weight X	Sub total wgt W	Sub total wgt X	Remarks
1.456	1.344			
0.607	0.561			
0.145	0.134			
1.907	1.761			
1.495	1.288			
0.628	0.569			
2.133	1.954			
2.999	2.778			
4.340	4.024			INVENTORY SAMPLES TAKEN BEFORE CYLINDERS WERE WEIGHED.
0.856	0.790			
1.006	0.929			
2.937	2.729			
2.331	2.169			
2.014	1.867			
1.732	1.610			
3.496	3.250			Sample for spec. U analysis and assay consumed
0.386	0.359			
0.561	0.522			
0.55	0.509			
0.661	0.612			
0.643	0.596			
3.0 (3.0)	2.0 (2.0)			Six 5gal cans - dilute washings from decontamination. After combination designated as Contama 7197.
4.25	3.936			
5.174	4.789			
5.28	4.892			
37.	34			THREE CANS CONTAMINATED COMBUSTIBLES.
0.746	0.689			
4.642	4.316			
5.992	5.572			
2.60	2.42			
2.49	2.32			
3.28	3.04			
2.69	2.50			
1.08	1.00			
0.10	0.09			
(30.39)	(0.22)			
1.83	1.70			
1.44	1.30			
0.48	0.43			
0.18	0.17			
115.15	105.54			Signed

52.90

Discarded  
Mass 15

Signed



72 Date Shipped.	Date Container No	Sample Ref #	Shipping Memo #	Analysis	Assay	Net Weight.
10/11/49	R101	830040	-	0.0013 gm/ltr	92.55	234.0 gm
✓	N-5	830041	-	0.0010	0.822	1160
✓	R-102	830042	-	0.0002	92.62	980
0/26/49	R-96	830028	13	0.0016	92.41	2947
✓	R-97	830034	✓	0.0004	92.85	3353
✓	R-98	830037	✓	0.0455	93.12	3325
✓	R-99	830038	✓	0.0152	93.13	3743
✓	R-100	830039	✓	0.0057	92.20	3695
✓	R-101	830040	✓	0.0013	92.55	3303
✓	R-102	830042	✓	0.0002	92.62	16783
✓	N-5	830041	14	0.0010	0.822	16143
✓	J-25	-	15	-	-	-
✓	J-26	-	15	-	-	-
0-31-49	K-5	830043		0.24844	93.28	9.09 gm
✓	B-4	830044		0.09604	93.28	8.06
✓	A-8	830045		0.09669	93.28	7.24
✓	C-5	830046		0.09655	<del>93.28</del> 82.28	8.21
✓	C-6	830047		(0.09655)	93.28	15.41
✓	C-7	830048		(0.09655)	93.28	25.18
✓	D-4	830049		0.09588	93.28	9.28
✓	E-7	830050		0.09566	93.28	7.25
11-1-49	F-1	830051		0.09680	93.28	6.44
✓	G-1	830052		0.09646	93.28	9.73
✓	H-1	830053		0.09641	93.28	8.75
✓	J-1	830054		0.09703	93.28	9.59
11-4-49	310	830055		0.0964	93.28	22.88
	(N-6)	(830056)		(0.2749)	(93.28) 0.714	(30.81)
0-28-49	J-27	-	16			
✓	J-28	-	16			
✓	J-29	-	16			
✓	J-30	-	16			
11-17-49	R-103	830057	17	0.0020	93.07	172.0
✓	R-104	830059	17	0.0011	92.37	186.5
✓	R-105	830058	17	0.0059	93.31	147.0
✓	R-106	830060	17	0.0046	93.34	124.0
✓	R-107	830061	17	.0014	91.78	69.5
✓	R-108	830062	17	.0019	92.59	80.0
✓	R-109	830063	17	.0005	91.49	93.5
11-28-49	R-103	830057	17	.0020	93.07	3538
✓	R-105	830058	17	.0059	93.31	3004
✓	R-104	830059	17	.0011	92.37	3598
✓	R-106	830060	17	.0046	93.34	3162
✓	R-107	830061	17	.0014	91.78	3727
✓	R-108	830062	17	.0019	92.59	3370
✓	R-109	830063	17	.0005	91.49	2815
11-28-49	J-31	-	16			
12-1-49	F-2	830064	-	0.09668	93.30	27.89
"	F-3	830065	-	.09668	93.30	30.18
12-12-49	M-1	830066	-	.09690	93.31	21.44
12-12-49	N-1	830067	-	.0982	93.31	29.09

Signed  
830067

Date	Weight U	Weight X
	0.30	0.28
	1.10	0.01
	0.20	0.19
	4.71	4.35
	1.34	1.24
	151.29	140.88
	54.89	52.98
	21.06	19.42
	4.29 g <sup>15mm</sup>	3.97 g <sup>15mm</sup>
	3.36 g <sup>15mm</sup>	3.11 g <sup>15mm</sup>
	16.10	0.13

Included in memo 11 figures (37, 34)

{ Contaminated Combustible  
" " "

2.26	}
0.77	
0.70	
0.79	
1.49	
2.43	
0.89	
0.69	
0.62	
0.94	
0.84	
0.93	
2.21	
8.47	
7	

for spectrochem.

3.47	3.24
0.344	0.320
.205	0.189
0.867	0.809
0.570	.532
.097	.089
.1537	0.141
.046	0.043
7.08	6.59
17.72	16.53
3.96	3.66
14.55	13.58
5.22	4.79
6.40	5.93
1.41	1.29

Contaminated Combustible  
method - (see below)

2.70	2.52
2.92	2.72
2.88	1.94
2.86	2.67
331.66	308.49

Included in memo 16 (above), 3.47, 3.22

Contaminated Combustible

also for spectrochem.

Signed

74 Date

Cont. No.	Sample Req. #	Shipping Memo	Analysis	Assay	Net Wgt.	
2-12-49	N-2	830068	—	.09668	93.30	28.54g
2-16-49	339-A	830069	—	.06991	93.30	28.84
2-16-49	339-B	830070	—	.06991	93.30	29.17
2-23-49	U-104	830071	—	.274	.0720	164.
2-23-49	U-105	830072	—	.274	.0720	164.
2-27-49	B-5	830073	—	.06985	93.30	25.18
2-27-49	B-6	830074	—	.06985	93.30	26.95
2-27-49	U-590	830075	—	.274	.0720	302.
2-12-49	M	830066	18	.09690	93.31	7211.30
2-12-49	N	830066	18	.09690	93.31	7114.30
2-30-49	R-110	830076	—	.0032	92.84	84.5
1-16-50	R-110	830076	20	.0032	92.84	4015.0
2-30-49	R-111	830077	—	.0041	92.75	95.5
1-16-50	R-111	830077	20	.0041	92.75	3865.0
2-30-49	R-112	830078	—	<.0001	—	433.6
1-16-50	R-112	830078	20	<.0001	—	17706.0 <del>17706.0</del>
1-16-50			21		2 cans	Combinatorial
2-30-49	R-113	830079	—	<.0001	—	453.6
2-30-49	M-2	830080	—	0.4332	0.711	127.6
2-30-49	U-3001	830081	—	0.1167	0.710	21.2
1-11-50	K-6	830082	—	0.24854	93.31	21.11
1-11-50	L-2	830083	—	0.21194	93.36	19.27
1-11-50	B-7	830084	—	0.06476	93.31	29.98
1-11-50	H-9	830085	—	0.07038	93.28	25.57
1-12-50	369	830086	—	0.05238	93.3	26.92
1-12-50	370	830087	—	0.05233	—	24.69
1-12-50	371	830088	—	0.05249	—	25.00
1-12-50	372	830089	—	0.05241	—	29.82
1-12-50	373	830090	—	0.05233	—	25.53
1-12-50	374	830091	—	0.05244	—	31.29
1-18-50	380	830092	—	0.0355	—	25.17
1-23-50	J-2	830093	—	.03557	93.30	29.29
1-23-50	H-2	830094	—	.03570	93.33	33.50
1-23-50	G-2	830095	—	.03581	93.26	34.22
1-23-50	A-10	830096	—	.05209	—	10.63
1-23-50	F-4	830097	—	.03575	93.33	31.15
1-23-50	E-8	830098	—	.03579	93.27	29.96
1-23-50	D-5	830099	—	.03568	93.33	31.77
1-23-50	M-2	830100	—	.03571	93.30	28.77
1-23-50	C-8	830101	—	.03569	93.33	30.29
1-23-50	Q-1	830102	—	.05230	93.25	33.62
1-23-50	R-1	830103	—	.03569	93.33	33.10
1-23-50	U-1230	830104	—	.165	0.719	17.10
2-3-50			—	.273	0.721	21.40
1-16-50	A	830085	19	.09038	93.28	4161.6
1-16-50	B	830084	19	.06976	93.31	3912.6
1-16-50	L	830083	19	.21194	93.36	7835.4
1-16-50	K	830082	19	.24854	93.31	6255.4

Signed

wgt. U

wgt. X

Excluded sample from cylinder N.

2.76	} 6.43	2.58	} 6.36
2.02		1.88	
2.04		1.90	
44.94		0.32	
41.91		0.32	
1.76	} 3.54	1.64	} 3.39
1.88		1.75	
2.75		0.60	
698.77	} 1388.15	652.07	} 1295.28
689.38		643.26	

0.27	} 29.36	} 27.25
12.85		
0.39		
15.85		

$\leftarrow \begin{matrix} 2.00 \\ 1.77 \end{matrix}$ 
 $\begin{matrix} 2.00 \\ 1.64 \end{matrix}$ 
----- combined with mens 27.

0.87	} 35.15	} 32.89
1.26		
5.25		
4.08		
2.09		
1.80		
1.41		
1.29		
1.31		
1.56		
1.34		
1.64		
0.89		
1.04		
4.20		
1.23		
0.66		
1.11		
1.07		
1.13		
1.03		
1.08		
1.76		
1.18		

292.89	} 3781.18	273.21	} 3528.96
272.94		254.68	
1660.63	} 1550.36	} 496.13	
554.72			1450.71

Signed

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Date 9/1/49

September 1, 1949 *Inventory*

	A	C	D	E	K
Brass cylinder with gm	26785.8	28399.2	16823.1	23721.8	25556.5
Tare <del>Net</del> including fittings	17862.8	18231.9	14817.0	17716.9	16999.9
Net gm	8923.0	10167.3	06.1	5404.9	8556.6
Analysis gm U/gm	0.2485	0.2485		0.0324	0.2487
gm U	2217.4	2526.6	1.5	175.1	2128.0
Assay	92.97	92.68		92.35	92.83

10/3/49 new fittings were made up as follows:

Letter	A	C	D	E	F	K
Net	100 gm	100 gm	100 gm	98 gm	100 gm	98 gm

Therefore the adjusted tares are

17962.8	18,331.9	16,917.0	17,819.9	17,097.9
---------	----------	----------	----------	----------

These values are incorrect. DC 10/20/49 -

Tare on cyl B - 18,306.9 gm without fitting  
 18,404.5 " with "   
 97.6 gm fittings

Revised tare:	A	K	C	E	L	
10/20/49	17760.8	16899.6	18134.7	17692.4	179520.9	for pg 63.
Fittings	100.0	98.0	100.0	98.0	98.0	
Tare including fittings	17860.8	16997.6	18234.7	17790.4	18050.0 gm	
				76.0 calcs		
				17714.4		

Signed

Cylinder	A	K	C	E	
Gross cyl. wt.	28,827.5	25,948.0	24,607.0	23,451.5	
Tare (inc. fitting)	17,962.8	17,097.9	18,331.9	17,814.9	These incorrect 10/20/49 DC
	10,864.7g	8,850.1gms.	6,275.1g	5,636.6	
				Sample 25.2	
				5611.4 gm	

Cyl A, K, C weighed after taking sample  
Cyl E weighed before so net is correct

10/17/49 Cyl L (weighed after sample)

Gross	25,914.8 gm
Tare	18,050.0 (extra plugs included)
Net	7864.8

NOTE ADDED 1/9/50 - RE-NORMAL INVENTORY -

HUTTON ADVISES F.O.S CHARGED WITH 4959 gm T + 353 gm X - shipped to  
F.O.S 9/20/49 on material trans-far # 228

10/3/49 Normal UO<sub>2</sub>NO<sub>3</sub> Sample N-4 Reg # 830035 10/1/49 -

113.55 L of solution  
D<sub>1</sub> = 1.56  
177.1438g solution analysis 0.262 gm/gm assay 0.718 %

Sample 46 411.47 gm U = 333.23 gm X.  
30.39 / 444.86 gm 0.22 333.45 gm

#	Emitted Inventory - 10/1/49			Revised DC 10/20/49		E-97
	A	K	C	E	L	
Gross	28,827.5g	25,948.0	24,607.0	23,451.5	25,914.8	
Tare	17,860.8	17,097.9	18,234.7	17,790.4	18,050.0	
Net	10,966.7	8,850.1	6,372.3	5,661.1	7,864.8	3353g
Analysis	0.2487	0.2490	0.2490	0.2427	0.2126	0.0004
U	2727.42	2228.65	1586.70	240.70	1672.06	1.34
Assay	92.82	93.17	93.05	93.01	93.24	92.85
X	2531.59	2076.43	1476.42	237.85	1559.03	1.24
Sample 20/170	U 3.28g	2.49	2.69	-	2.60	0.10
	X 3.04	2.32	2.50	-	2.42	0.09

T = 8472.30 gm  
X = 7882.93  
Signed

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Date 10/31/49.

Inventory -

Container	Gross gm	Tare gm	Net gm	Analysis	U gm	conv	X gm
A	18025.3 <sup>3</sup>	17860.8	164.5	0.09669	15.91	93.28	
B	25713.7	18404.5	7309.2	0.09604	901.98	93.28	
C	26102.8	18234.7	7868.1	0.09655	759.67	93.28	
D	23827.0	16822.2	7004.8	0.09588	671.62	93.28	
E	24625.3 <sup>+44.4</sup> =24669.7	17740.4 <sup>17714.4</sup>	6955.3	0.09566	665.34	93.28	
F	25766.5*	18045.4*	7721.1	0.09680	747.40	93.28	
G	22871.8	16321.7	6550.1	0.09646	631.82	93.28	
H	24591.1	16724.8	7866.3	0.09641	758.39	93.28	
J	22136.7	18569.5	3567.2	0.09703	346.13	93.28	
K	23291.2	16992.6	6293.6	0.24844	1563.58	93.28	
L	25914.6	18020.0	7894.6	0.2126	1672.01	93.28	
Samples taken after gross wtd.					8533.85	93.28	7960.37
					90		42

[3] \* After obtaining above gross some CO was removed from cylinder F and then it was re-weighed (=25745.1 gm). The difference (25766.5 - 25745.1) = 21.4 gm is a correction to be applied to earlier obtain above tare to obtain correct tare in the future.

Signed

Date

11/30/49

all weights in grams

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Containers	Gross	Tare	<del>Net</del>	Net	wtd	wlx
A	17998.5	17860.8 ✓		137.7		
B	19179.5	18404.5		775.0		
C	26798.8	18234.7 ✓		8564.1		
D	25,144.6	16822.2		8322.4		
E	24,832.0	17714.4 ✓		7117.6		
*F	25,359.0	18017.0		7342.0		
*G	24,866.0	16,323.2		8542.8		
*H	25101.8	16724.8		8437.0		
*J	23,019.5	18,570.5		4449.0		
				53687.6		
K	23,278.0**	16997.6 ✓		6280.4	1560.30	1455.45
L	25914.4	18050.0 ✓		7864.4	1671.97	1559.61
				Total	8422.79	7857.82

0.09668 gwt/g  
 53,687.6g  
 = 5190.52  
 grams

93.30%  
 in 5190.52  
 grams  
 = 4842.76  
 grams

\* Blank off fittings on: G 100gms  
 H 100gms  
 J 101gms  
 F 93gms - subtract 7gms from all tares

F tare 18045.4

- 7.0

18038.4

- 21.4

new tare 18017.0

Note.

Sample taken from Cyl. F Reg # 830064-65 for assay and analysis.  
 gl. F is representative of cyl's A-J.  
 Cyl. K and L not disturbed since last inventory except to  
 check gross wts

\*\* Sample 830043 taken from K subsequent to weighing for Oct inventory.

Signed



12/27/49

Wgt % U = 0.06985  $\frac{g}{g}$  sol'n  
Wgt % X = 93.32

Container	Gross Wgt. gms	Tare Wgt.	Net Wgt.	Wgt. U.	Wgt X
A	17,929.20	17859.3	69.9	4.88	4.55
B	25,405.30	18,404.9	7000.4	488.98	456.32
C	25,475.6	18,235.0	7240.6	505.76	471.98
D	21,576.3	16,820.7	4755.6	332.18	309.99
E	24,572.0	17,714.4	6857.6	479.00	447.00
F	24,736.4	18,024.0	6712.4	468.86	437.54
G	23,526.5	16,322.6	7203.9	503.19	469.58
H	23,858.0	16,722.8	7135.2	498.39	465.10
J	25,969.0	18,569.5	7399.5	516.86	482.33
K	23,277.1	16,997.6	6279.5	$\frac{1560.08}{438.62}$	1455.24
L	25,915.7	18,050.0	7865.7	1672.25	1559.87
		17372.08		7030.43	6559.50

Ref # 830071

Sample # 1052

Sample # 104

Ref # 830072

Normal

N-7 69.0 lb.  
27.0

N-8 86.5 lb.  
27.5

in Barrel = 82.266 liters

Sp. Gr. = 1.56

Net 42.0 lbs

59.0 lbs

128.34 Kg sol'n

Blank off

fittings:

12-27-49:

Normal = 174,152.59 gm. palm at 0.274  $\frac{g}{g}$

- A - 98.5 gm.
- B - 100.0
- C - 98.0
- D - 98.5
- E - 98.0
- F - 100.0
- G - 98.5
- J - 100.0
- K - -
- L - -
- H - 98.0

= 47,717.81 gm U, with 0.720 wt % X  
and 343.57 gm X

Sample taken on Cyl. B Ref # 830073-74

(Representative of all calibration checks 2 & L)

Signed

Date 1-6-50

Container	Tare Wt. without Fittings:					
	<u>7-18-49</u>	<u>8-3-49</u>	<u>9-22-49</u>	<u>10-3-49</u>	<u>10-31-49</u>	<u>1-10-50</u>
A	17,760.8					
B	18,289.9			18,306.9		
C	18,135.0					
D	16,722.2					
E	17,692.4	17,616.4				
F	17,943.4				17,924.0	
G	16,224.1					
H	16,624.8					
J	18,469.5					
K	16,899.6					
L	17,957.0		17,952.0			
M						16178.8
P						16212.0
Q						16,741.4 gms

Signed

Cylinders N - changed name to P to avoid confusion with designation for Normal material etc

Cyl M	gross	Cyl P	gross
16178.8	tare	16212.0	tare
	net		net
		Put in pit empty as #1 & #2 for dilution capacity	

Cyl K <sup>4854</sup>	gross	Cyl L <sup>7119</sup>	gross
23251.0		25885.4	
16,899.6	tare without fittings	17952.0	tare
<u>96.0</u>	fittings	<u>9.8.0</u>	fittings
16,995.6		18050.0	
6,255.4 gms Net wgt sd'n		7,835.4 gms Net wgt.	
1554.72		1660.63	

Cyl A <sup>07038</sup>	gross	Cyl B <sup>06976</sup>	gross
22021.4		22318.5	
17,760.8	tare	18306.9	tare
<u>99.0</u>	fittings	<u>99.0</u>	fittings
17,859.8		18,405.9 gms	
4,161.6 gms Net wgt sd'n		3,912.6 gms Net wgt.	
292.89		272.94	

Cyl. B A L K Shipped to Y-12 on Ship. Memo. #19 4/16/50  
Sample Reg. # 830082..... 85

Date 1/17/50

cylinder Q

tare 16,741.4 grams  
fittings 78.4

1/20/50 Cylinder A tare with fittings checked by JM  
as 17870.0 grams

1/23/50 Shipments

see notebook 29, p. 49

	Gross wt	Tare wt with fittings (@ 96.09 gm ea)	Net Wgt	approx Net. U	approx gms
Cyl A	24851.9	17870.0	6981.9	370	.053
C	25930.7	18231.0	7699.7	275	.036
Q	24266.8	16837.4	7429.4	395	.053
D	23195.3	16308.0	6887.3	245	.036
D	24325.0	16818.2	7506.8	270	.036
E	25320.8	17712.4	7614.4	270	.036
F	25647.7	18020.0	7627.7	270	.036
G	24053.5	16320.1	7733.4	275	.036
H	24165.0	16720.8	7444.2	265	.036
J	26166.6	18565.5	7601.1	270	.036
M	22687.2	16274.8	6412.4	230	.036

approx 3.135 kg

Normal inventory 1-31-50 reported by D. J. C. on 2-10-50:

Container	Sample Reg. no.	lbs net wt	grams net wt	g/u	% X	grams u	grams X
U-1230	830104	58.0	26,308.22	0.165	0.719	4340.86	
U-2267	830105	59.0	26,761.81	0.273	0.721	7305.97	
U-1101	830106	35.5	16,102.44	0.147	0.718	2367.05	
U-1259	830107	32.0	14,514.88	0.0032	0.733	46.45	
U-1231	830108	20.0	9,071.80	0.0004	0.712	3.63	
U-2046	830109	76.0	34,472.84	0.168	0.716	5791.44	
U-1079	830110	57.0	25,854.63	0.164	0.727	4240.16	
U-2073	830111	58.0	26,308.22	0.165	0.709	4340.86	
U-1586	830112	57.0	25,854.63	0.167	0.707	4317.72	
U-173	830113	42.0	19,050.78	0.271	0.730	5162.76	
F-53	830114	75.5	34,246.04	0.169	0.715	5787.58	
F-1042	830115	76.0	34,472.84	0.168	0.717	5791.44	
						49,495.92	355.27

Signed

	Gross	tare	Net	u	x
(MT) D	16,751.4 gms.				
	as rec'd from Y-12 before smoking				
B	26,730.2 gms	18,405.9	8,324.3	1428.45	1337.07
✓ J	26,910.7	18,565.5	8,345.2	1434.29	1358.48
✓ F	26,511.6	18,020.0	8,491.6	1451.38	1352.40
✓ C	26,441.4	18,231.0	8,210.4	1295.11	1208.08
H	24,877.3	16,720.8	8156.5	1378.12	1288.86
			41,528.0	6987.35	6514.85
Y-12 data →			41,568.2	6985.18	6518.3

Enriched inventory 1-31-50 reported by D.G.C. 2-6-50:

Container:	Sample	Reg. no.	gms. net wt.	g/g	% x	grams u	grams x
R-114	830116		3365	0.0060	93.31	20.19	
R-115	830117		3509	0.0121	92.76	42.46	
R-116	830118		(5 gal)	69 ppm	93.3		
R-117	830119		(5 gal)	0.0002	90.62		
R-113	830079		(30 lb.)	20.0001	87.97		
R-118	830120		(30 gal)	4 ppm			
						62.65	58.23

Rec'd from Y-12 (above, this page)

6987.35 6514.85

Total enriched inventory: 7050.00 6573.08

Date

85

gulf

93.25

.1716

93.32

.17187

93.38

.17092

93.28

.15774

93.16

.16896

(93.24)

(93.31)

.16504 *not inv.*

Signed

Date	Cont. No.	Sample Reg No	Shipping Memo	Analysis %U/gm	Assay %K	net Wgt.
1-23-50	U-1801	830106	—	.0147	0.118	51.1
"	U-1117	830107	—	.0037	0.733	11.1
"	U-1231	830108	—	.0004	.712	111.0
"	U-2046	830107	—	.168	.716	71.0
"	U-1519	830110	—	.164	.723	61.5
"	U-2073	830111	—	.165	.709	52.3
"	U-1506	830112	—	.167	.707	79.4
"	U-173	830113	—	.271	.730	95.1
"	F-53	830114	—	.167	0.715	72.2
"	F-1042	830115	—	.163	.717	76.4
"	U-1877	830116	—	.0060	93.31	214.6
1-24-50	U-1880	830117	—	.0121	92.76	180.0
1-24-50	U-1906	830118	—	69ppm		269.3
"	U-1988	830119	—	.0002	90.62	279.1
1-24-50	U-1992	830120	—	4ppm		272.00
1-31-50	H	830121	—	0.16896	93.16	21.62
	B	830122	—	0.17160	93.25	17.04
	C	830123	—	0.15774	93.28	18.51
	J	830124	—	0.17187	93.32	14.84
	F	830125	—	0.17092	93.18	11.85
1-24-50	A	830096	26	0.05209	93.3	698.19
	C	830101		0.03569	93.33	7699.7
	Q	830102		0.05230	93.25	7429.4
	P	830103		0.03569	93.33	6887.3
	D	830099		0.03568	93.33	7573.6
	E	830098		0.03579	93.27	7614.4
	F	830097		0.03575	93.33	7627.7
	G	830095		0.03581	93.26	7733.4
	H	830094		0.03570	93.33	7444.2
	J	830093		0.03557	93.30	7601.1
	M	830100		0.03571	93.30	6412.4
2-7-50	J 24		27			
	J 35					
	J 36					
2-7-50	NW-1		(28)			
2-7-50	R-114	830114	23	0.0060	93.31	3365
	R-115	830117		0.0121	92.76	3509
2-7-50	R-113	830079	25	2.0001		13,608
	R-116	830118		69ppm		11,567
	R-117	830119		.0002	90.62	14,288
	R-118	830120		4ppm		114,758
	R-119					
	R-120	720982		.0019	.893	
	R-121	721075		.0019	.890	
	R-122					
	R-123					

Signed

Continued on page 90

Date

Wgt. U

Wgt. X

11.93  
 10.27  
 1.98  
 13.26  
 25.17  
 11.20  
 62.84

104.82

2415

1.29  
 2.18  
 0.02  
 0.06  
 0.00  
 3.65  
 2.92  
 2.92  
 2.55  
 2.03

3.55

3.30

14.07

13.12

363.69  
 274.80  
 388.56  
 245.81  
 270.28  
 272.52  
 272.69  
 276.93  
 265.76  
 270.37  
 228.99

3130.35

2920.63

8.00

7.00

} rags, etc.

paper (still on hand at Chicago, 5-5-52)

20.19  
 42.46  
 1.  
 0.80  
 2.86  
 0.46

62.65

58.23

133.0

6.00

(Killion figures) - Audit transferred 5 containers into one and sampled - assay of audit, duplicate samples - 0.890% or about 116 grams X loss on the shipment.

3751-12  
10/1/52

3068.26  
Signed



Weighted before sampling.

Inventory 3-1-50

50.00  
 830128  
 0.08865  
 0.08859  
 0.088438  
 Sample on 830128  
 0.08865

CYL	With fittings GROSS	gms.	With fittings TARE	NET	gms/gallon	gms U
M	22365.7		16,274.8	6090.9	0.13394	815.82
J	25922.6		18,565.5	7357.1		
A	25510.5		17,970.0	7540.5		
C	25574.2		18,231.0	7343.2		
E	25351.6		17,712.4	7639.2		
F	25808.0		19,020.0	7788.0	0.09865	590.792
G	25160.3		16,320.1	8840.2		
H	25645.6		16,720.8	8924.8		
D	20978.4		16,818.2	4160.2		
B	25355.9		18,405.9	6950.0		

66,643.2

67.23.74

Date

89

4. x      gms X

93.2 x

62.67. 87

Signed

Date	Cont. No.	Sample Reg. No.	shipping memo	Analysis g up	Assay % x	net wt. (grams)
2-7-56						
2-23-50	M	830126	-	.13394	93.3	13.89
2-23-50		830127	-	<del>0.168</del> .13394	93.3	18.70
3-1-50		830128	-	.08865	93.22	37.84
3-8-50	M	830129	-	.13025	93.22	26.54
3-8-50	H	830130	-	.09149	93.25	32.82
3-8-50	Q	830131	-	.09015	93.22	21.32
3-8-50	J	830132	-	.09249	93.24	37.19
3-8-50	D	830133	-	.09125	93.21	27.08
3-16-50	F	830134	-	.06727	93.22	29.45
3-16-50	B	830135	-	.06728	93.26	26.95
3-16-50	G	830136	-	.06735	93.24	30.12
3-16-50	E	830137	-	.06751	93.24	32.33
3-16-50	C	830138	-	.06727	93.22	28.61
3-16-50	H	830139	-	.06727	93.25	33.83
3-16-50	P	830140	-	.0033	93.16	229.0
3-16-50	R-119	830141	-	.0104	93.12	218.9
3-16-50	R-120	830142	-	.0029	91.59	213.1
3-16-50	4-2028	830143	-	.0029	92.82	196.2
3-22-50	R-122	830144	-	.0002	91.09	242.0
3-22-50	R-123	830145	-	.0002	91.11	253.0
3-22-50	R-124	830146	-	.0002	92.60	225.1
3-22-50	R-125	830147	-	.0014	92.92	226.9
3-22-50	R-126	830148	-	.0008	92.28	216.8
3-27-50	P	830149	-	.03524	93.22	47.66
3-27-50	L	830150	-	.03492	93.24	47.49
3-27-50	M	830151	-	.03500	93.22	47.73
3-27-50	F	830152	-	.03588	93.31	43.22
3-27-50	Q	830153	-	.03575	93.28	39.87
3-27-50	H	830154	-	.03577	93.14	40.81
3-27-50	D	830155	-	.03552	93.08	44.54
3-27-50	J	830156	-	.03550	93.13	42.41
3-27-50	K	830157	-	.03851	93.12	46.63
3-29-50	418A	830158	-	.03574	93.20	51.37
3-29-50	418B	830159	-	.03594	93.20	56.64
3-14-50	J-37					
	J-38					
	J-39					
	J-40					
	J-41					
	J-42					
2-2-50	5-5	721170	30			99.60 liters

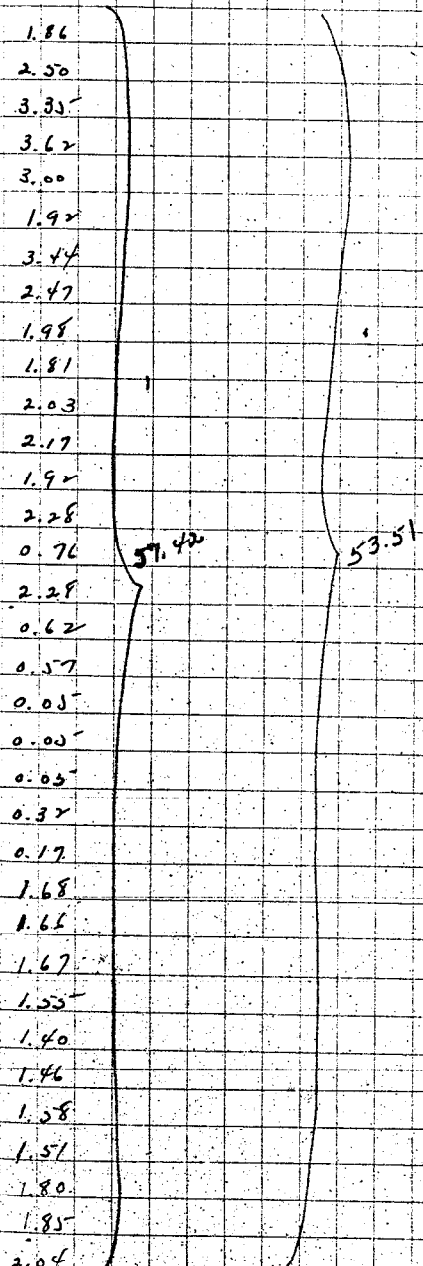
Signed

33

Date

grams  
u

grams  
x



57.42

53.51

2.00 }  
 57.42 }  
 53.51 }  
 Signed

Continued Paper  
 See page 90

Date 3-15-50

## Shipments of Uranyl Nitrate to Y-12

SF Material Transfer # 31

All weights with fittings @ 96.0 g per cylinder

Cyl #	Ref #	gross (g)	tare (g)	net (g)	g U/g	%X	g U	g X
D	830133	24071.5	16818.2	7253.3	.09125	93.21	661.84	
H	830130	25624.7	16720.8	8903.9	.09149	93.25	814.62	
J	830132	27487.2	18365.5	8921.7	.09249	93.24	825.17	
M	830129	22,333.3	16274.8	6058.5	.13625	93.22	825.47	
Q	830131	25829.4	16837.4	8992.0	.09015	93.22	810.62	

Cyls. sent to Arndt on 3-16-50

SF Material Transfer # 32

F	830134	24,641	18,090	6,551.0	.06727	93.22	440.68	
B	830135	24,531	18,406	6,125.0	.06728	93.25	412.09	
G	830136	22,949	16,326	6,623.0	.06735	93.24	446.06	
E	830137	25,983	17,711	7,772.0	.06731	93.24	523.13	
*C	<del>830138</del>	<del>24,128.5</del>	<del>18,236</del>	<del>5,892.5</del>	<del>.06727</del>		<del>396.39</del>	
*A	<del>830139</del>	<del>23,460</del>	<del>17,862</del>	<del>5,598.0</del>	<del>.06727</del>		<del>376.58</del>	
P	830140	19,252.5	16,313.0	2,939.5	.0033	93.16	7.70	

\*Correct Gross wghts on cyl C + A as follows

C	830138	26,126.7	18,236.0	7,890.7	.06727	93.22	530.81	
A	830139	25,458.5	17,862.0	7,596.5	.06727	93.25	511.02	
2AL 3/12/50 cyl reweighed by Arndt							6811.23	6350.29
orig. ship =							6985.18	

Signed

Date 3/23/50

SF transfer # 825  
3/23/50

93

Incoming Shipments from Y-12

Cyl	Gross	(no fittings) Tare	Fittings <del>Net</del>	Net <del>Fittings</del>	Sample Ref #	Wgt U	Wgt X	
P	2776.05	16,212.0	10/g	11,447.5 .03524	830149	(0.03524) 403.41	(93.27)	
L	29,348.5	17,952.0	100 gm	11,296.5 .03492	830150	(0.03492) 394.47	(93.28)	
M	27,025.0	16,178.8	100 gm	10,746.2 .03500	830151	(0.03500) 376.12	(93.27)	
F	29,137.5	17,924.0	98.5 gm	11,115.0 .03588	830152	(0.03588) 398.81	(93.31)	
Q	27,030.0	16,741.4	100 gm	10,188.6 .03515	830153	(0.03515) 358.13	(93.28)	
H	28,497.5	16,624.8	101 gm	11,771.7 .03577	830154	(0.03577) 421.07	(93.14)	
D	27,632.5	16,722.2	100.5 g	10,809.8 .03552	830155	(0.03552) 383.96	(93.08)	
J	30,126.0	18,469.5	101.0 g	11,555.5 .03550	830156	(0.03550) 410.22	(93.13)	
K	28,087.0	16,899.6	97.5	11,089.9 .03551	830157	(0.03551) 427.07	(93.12)	
total →				100,020.7	gms sol'n	9/30/50/54L	3573.26	3329.98
Received at: (Hutton)						3545	3305	

~~Received from Y-12: 3544.63 gms U 3305.26 (Y-12's figures, K-25 analyzed not complete in time for inventory)~~

Inventory 4-1-50:

Received from Y-12:	3544.63 gms U	3305.26	(Y-12's figures, K-25 analyzed not complete in time for inventory)
* samples to Lab:	18.27	17.04	
Inventory:	3526.36	3288.22	

\* 508.37 gms solution at 0.035944 gm/gm, 93.25% Signed on composite sample.

material on ~~Sample~~ Transfer #41 to X-12 for recovery

Cyl	Qty#	Gross	Tare	fitting	Net
A	830188	27,372.5	17760.8	101.5	9510.2
M	830189	26,406.0	16,178.8	102.0	10,125.2
Q	830190	26,290.5	16,741.4	98.0	9451.1
	S				
P	830191	23,448.5	16,212.0	102.5	7134.0
C	830192	26,525.5	18,135.0	100.0	8290.5
G	830193	23,904.0	16,224.0	100.0	7580.0

Signed

Date	Container no.	Sample Reg. no.	Shipping mens	Analysis ( $\frac{g}{g}$ )	Assay (% X)	net wt. (gms)
14-50			29			
15-50	D	830133	31			7253.3
	H	830130				8903.9
	J	830132				8921.7
	M	830129				6058.5
	Q	830131				8992.0
16-50	F	830134	32			6551.0
	B	830135				6125.0
	G	830136				6673.0
	E	830137				7772.0
	C	830138				7890.7
	A	830139				7596.5
	P	830140				2939.5
22-50	<del>9430</del> 55	721170	33			99.60 liter
22-50	R-119	830141	34	0.0104	93.12	3760
	R-120	830142		0.0029	91.59	3690
	R-121	830143		0.0029	92.82	3850
	R-122	830144		0.0002	91.09	3585
	R-123	830145		0.0002	91.11	3792
	R-124	830146		0.0002	92.60	3415
	R-125	830147		0.0014	92.92	3627
	R-126	830148		0.0008	92.28	3571
5-50	P	830160	—	0.03577	93.22	44.74
	H	830161	—	0.03562	93.22	44.88
	M	830162	—	0.03574	93.22	44.95
	L	830163	—	0.03578	93.22	52.56
	Q	830164	—	0.03563	93.22	61.60
	D	830165	—	0.03561	93.22	59.87
	K	830166	—	0.03561	93.22	58.89
	J	830167	—	0.03574	93.22	53.59
	F-1	830168	—	0.03553	93.26	58.98
	F-2	830169	—	0.03553	93.26	61.89
5-50	P	830160	35	0.03577	93.22	11,659.5
	H	830161		0.03562	93.22	11,003.2
	M	830162		0.03564	93.22	11,621.3
	L	830163		0.03578	93.22	11,885.2
	Q	830164		0.03563	93.22	10,839.9
	D	830165		0.03561	93.22	10,731.8
	K	830166		0.03561	93.22	6937.1
	J	830167		0.03574	93.22	11,343.2
	F	830168		0.03553	93.26	11,24.2
7-50	B	830170	—	0.10448	93.30	42.93
	A	830171	—	0.09781	93.36	42.23
	G	830172	—	0.12786	93.28	49.00
	C	830173	—	0.13367	93.28	46.84
10-50	R- <del>135</del> 134	830174	—	0.0024	92.64	203.7
	R-24	830175	—	0.0089	92.61	107.6

Signed



Date

grams U

grams X

9818.21

9150.59

(20 cans containing alloy slugs)

6811.23  
50.00

6350.28  
49.00

see calculation by DFC on page 92  
(minus 31 low by 50 g. according to Y-12.  
Credit of 50, 49 added by Colof Chem 5-5-50.)

4.00

2.00

slow washings, 8-5 gal. buckets  
nitric acid washings

39.10  
10.70  
11.16  
0.72  
0.76  
0.68  
5.08  
2.86

65.91  
66.84

72.06

1.60  
1.60  
1.60  
1.86  
2.19  
2.13  
2.10  
1.90  
2.10  
2.20

17.97

19.28

419.06  
391.93  
414.18  
421.69  
386.23  
382.16  
247.05  
403.14  
395.24

3458.68

3224.42

4.49  
4.13  
6.27  
6.26  
0.49  
0.96

22.60

21.08

20755.06

Signed

18,881.23  
Total page

Date	Container no.	Sample Reg. no.	Shipping memo no.	Analysis ( $\frac{g}{g}$ )	Assay (% X)
1-10-50	R-133	830176	-	100 ppm	
	R-132	830177	-	0.0002	
	R-131	830178	-	0.0003	92.85
	R-130	830179	-	48 ppm	
	R-129	830180	-	77 ppm	
	R-128	830181	-	0.0001	
	R-127	830182	-	0.0038	91.66
	NR-17		-		
4-7-50	R-127	830182	36	0.0038	
	R-128	830181		0.0001	91.66
	R-129	830180		77 ppm	
	R-130	830179		48 ppm	
	R-131	830178		0.0003	92.85
	R-132	830177		0.0002	
	R-133	830176		100 ppm	
	R-134	830175		0.0089	92.61
	R-135	830174		0.0024	92.64
4-7-50					
1-7-50	J-43		38		
4-7-50	Ustate can		39		
4-7-50	1758	721277	40		
	1759	721277			
1-12-50	424	830184	-	0.0805	93.33
1-13-50	427	830185	-	0.0812	93.30
1-18-50	432	830186	-	0.08535	93.28
	432A	830187	-	0.08535	93.28
	A	830188	-	0.08568	93.30
	M	830189	-	0.08528	93.28
	Q	830190	-	0.08355	93.29
	P	830191	-	0.08430	93.28
	C	830192	-	0.0460	93.23
	G	830193	-	0.0105	93.22
1-18-50	A	830188	41	0.08568	93.30
	M	830189		0.08528	93.28
	Q	830190		0.08355	93.29
	P	830191		0.08430	93.28
	C	830192		0.0460	93.23
	G	830193		0.0105	93.22
5-4-50	B	830194	-	0.0008	92.65
	L	830195	-	0.0004	93.73
	Q	830196	-	0.0013	92.95
	M	830197	-	0.0010	92.90
	P	830198	-	0.0001	93.30 (assumed)
2-5-50	B	830194	42	0.0008	92.65
	L	830195		0.0004	93.73
	Q	830196		0.0013	92.95
	M	830197		0.0010	92.90
	P	830198		0.0001	93.30 (assumed)

Signed

Date

Net. wt. (gms.)	grams u	grams x
150.2	0.02	
189.3	0.04	
205.2	0.06	
168.8	0.01	0.56
194.0	0.01	0.52
213.0	0.02	
104.3	0.40	
4026	15.30	
3565	0.36	
3797	0.29	
3769	0.18	
3679	1.10	62.17
3792	0.76	57.43
4006	0.40	
3992	35.53	
3436	8.25	
1514		0.06
14.40 d.	0	0
15.36 d.	0	0
51.34	4.13	
39.23	3.19	
45.96	3.92	
44.28	3.78	
39.40	3.38	39.64
44.72	3.81	36.97
38.46	3.21	
36.96	3.12	
194.0	8.92	
207.8	2.18	
9510.2	814.83	
0,125.2	863.48	
9451.1	789.64	3530.30
7134.0	601.40	3293.07
8290.5	381.36	
7580.0	79.59	
234.6	0.19	
256.7	0.10	
253.0	0.33	0.97
340.3	0.34	0.90
131.1	0.01	
7163.5	5.73	
7382.7	2.95	
5678.6	7.35	23.17
6411.4	6.41	21.54
5995.8	0.70	

on blank <sup>Contaminated paper</sup>  
 Contaminated paper  
 " "  
 " "  
 (Hutton's figures) 2 - 5 gal. buckets of glass scrubbing

→ Inventory 5-1-50.

Signed  
 3637.61  
 3410.43

3410.43  
 3410.43

4/6/49

Shipped to Decontamination Dept. 2512

to go to vault 31X unless otherwise noted

6 insulating jackets

5 tube furnaces monel (first day used + nichrome wire heater)

5 large blank offs

6 small blank offs

2 steel pipe pedestals

9 supports for tube furnaces A

1 cold trap insert

1 large steel cold trap complete about 2 ft high x 2 ft diam

40 Cadmium lined steel pots 12" x 15" with covers with handles } to clean vault, 8A (for Coded Chem)

assorted pipe fittings nipple etc -- } to go to stores or salvage  
monel traps on copper line }  
4- 2" Crane valves welded to 31X  
with fittings

1-flex coupling 2" 6" long SS bellows type

2- small cold traps

old temper tank + drum pen to salvage.

### monel trays flat for tube furnace

Cadmium heaters  
copper tubing 1/4"  
Assorted bar + flat steel brass + iron.