4048

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"This document consists of 200 pages.
No. 1 of 1 copies, Series A"

Run 21; see pages 38-72
Run 22; see pages 111-147
Run 22A; see pages 148-159

Notebook No. CL-1702

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ISSUED TO: H. Blauer

ISSUED BY: Evelyn Bonner

DATE: 8/27/47

p 42: couldn't neutralize bk of wind shift.
124: SNAFU
133: caustic from church.

For 706-D Log

p56: "the rest of the product is just plain gone"
p107: problems getting A1 vacuum.

[redacted]

[redacted]

Box T-295

CL-1702

CLASSIFICATION CANCELLED

DATE SEP 23 1971

For the Atomic Energy Commission

ROBERT L. JACKSON RLJ for the

Chief, Declassification Branch

CLASSIFICATION CANCELLED

Ted Davis 7-8-96

ADD signature Date

Single rereview of CCRP-declassified documents was authorized by DOE Office of Declassification memo of August 22, 1994.

This document has been approved for release to the public by:

David R Hamrin 7/8/96

Technical Information Officer Date

ORNL Site

9-13-47 P^{32} — cell 5.

12-8 1) Sampled P77-W1, P77-P1, P77-F2

Thompson 2) P77-P1 did not dissolve very much of the ppt in SR 2. After P1 was going thru the column, we added 30 ml 1:1 HCl to SR 2 and 970 ml H_2O to make P77-P1A which we sampled. P77-P1A dissolved most of the ppt; but there is still quite a bit of the ppt left in SR 2. This ppt looks the same as the original ppt which was thrown down with NH_4OH.

3) W-1 338 mc, F2-60mc., P1-746

P1A-not finished by lab.

4) There is still about 700 ml left to go thru the column. We have had quite a little trouble regulating the flow.

I, 31

1) Completed run # 326; run #327 now being distilled.

2) The pH of the evaporator when we first checked it was 2 — the steam was on but the outlet valve had not been opened; so the evaporator was still cold. Evaporator now — 600 ml, pH 10

Misc

1) Swept & hosed down cell 5.

2) Cleaned up in front of cell 5.

3) Had 105 instrument man work on cell

5 frisker.
4) Treated carrier & cone & plug with ammonium fluorsilicate in dilute HNO_3. Now being washed with water; cone, plug, + cover are in the barrel.
5) Hosed down make up room.
6) Swept + cleaned up N hot lab.
7) We could not find any charts for A5 + A6 instruments. Do we have any?
8) Put down new paper for isotope carriers.

OK
H.B.

9-13-
4-1
Rus

9/13/47
8-4
King

① Iodine - completed run #328; started #329.
Evaporation going; pH = 9.
② Stored carrier from decontamination room on 2nd level (one spot still reads 50 mr/hr). Boiled cone & plug in solutions of citric, weak nitric; plug still greater than 10R. Now plug & cone boiling in fluorsilicate sol'n.
③ S.J.R. filtration still going.
④ Cell 5 Phos: made 2nd extraction on P77-W1; called P77B. Used P77-P1A to take up new P-1 ppt.
Status at end of shift:
Column - 150 ml wash going thru after P77-P1.
P1 flask - P77B-P1.
W1 flask - P77B-W1.
Added 125 ml H_3PO_4 (.1 mg/ml) to P77-P3.

⑤ Filled two sulfur cans; will evening shift please take them to 105.
⑥ I. Whitney left some goo filtering behind low barricade in N. Hot lab; please turn off vacuum when nearly dry.

9-13-47 ① Delivered two sulfur cans to 105 building.
4-12 ② Regenerated nalcite column and sampled R-1.
Russell ③ Discarded P-77B, W-1.
④ Removed crud filter between P-6 and TV1, cleaned and replaced.
⑤ Cleaned P-6
Gissel says: "evaporate product solution now in the evaporator to dryness and bake one hour. Take the dry ppt up in 200 ml of H_2O, sample, etc. as per regular procedure. When evaporator is empty allow P77B, P-1, to go through column into evaporator and evaporate but leave in evap;"
Done H.R.
⑥ Turned off vacuum to I&W filter n. hot lab.
⑦ Kept S.J.R. filter going on 3rd level.
⑧ Completed I^{131} run 329. Started run 330. Completed run 330. Product evaporating pH=9
Evaporated product I^{131} solution to 200 ml. pH=9-10
⑨ Prepared I^{131} Run sheet for Double Run.
⑩ The vacuum line from iodine set up is reading 300 mr/hr at 1".
⑪ P-77B P-1 now going thru nalcite.
P77 P-3 is in P-3.
⑫ Removed plexiglas feed and lubricated valves in P^{32} glass ware.

(13) Thompson, owl shift maintenance are to replace three lights at settling basin, two were knocked out during storm, the other is at 1558.

9-14-47 1) Maintenance repaired leaky safety shower
12-8 valve by N. hot lab and leaky steam
Thompson valves on pot & pit jets + blow downs.
Called in Also did not replace light bulbs on tank farm.
H.B. 2.) Cleaned up decontamination room. Mopped floor in front + hosed down room.
3.) Moved IBW's column to E side cell A and put desk back in front of cell A. Moved table back to conference room.
4) Swept floor in N hot lab + put down new paper. Made up cleaning solution and 18N H_2SO_4
5) Put empty hot cans on 3rd level + in N hot lab, removed full ones.
6) The cone is now okay (HP). The plug and carrier lid are still in the barrel.
7) Made double I^{131} run 331 + 332.
8) Sampled and drew off P77-P3-598mc P77B rinse going through column.
9) I^{131} evaporator — 600ml pH 9

① Washed floor in Cell 5.

9/14/47 8-4 King

② Removed old $Ca(NO_3)_2$ cans (slugs) from dissolver & disposed of in hot can.

③ Evaporated iodine composite to 300 ml. (shows as 275 in burette flask). Took sample for lab.

④ Removed hot vacuum line in N. Hot lab, decontaminated and replaced. Replaced hot valves.

⑤ Got a new gasket for slug cutter & replaced slug cutter on dissolver.

⑥ Phosphorous - Cell 5 - P77B-P3 going to dryness.
- wash going thru column to P77B-R-1.

⑦ S.V.R. filtration still going.

⑧ Cleaned carrier cover to 20 mr at 4"; plug still in barrel - reads 400 mr/hr.

9-14-47 9-12 Russell

① Decontaminated plug. Still reading 75 mr-hr. and is being steamed in decont. room.

② Completed Rimshaw's filtration and cleaned up on third level.

③ Discarded P-77B-R1.

④ Made sulfur extraction, run P-78.
P-1 is going thru nalcite & evaporating
W-1 has been sampled.
F-2 has been sampled.
Carrier has NOT been added.

⑤ Decontaminated three carriers. Do not have results of smears.

9-15-47 P^{32}

12-8 Thompson

1) P78-W1 22 mc, P78-F2 32 mc both dumped down the drain.
2) Put 150 ml H_2O rinse through column.
3) P78-P1 analysis — 217 mc.
4) Column regenerating. HCl going through

1) Mopped wooden platform around samplers on 3rd level. HP took smears. The highest was 20 c/m.
2) Cleaned up decontamination room and make up room.
3) Held safety meeting.
4) Cleaned up lead floor (broom + mop) on 3rd level.
5) Made up cleaning solution for N hot lab.
6) Put down new paper in N hot lab.
7) The plug still reads 75-100 mr/hr at the ends of the crosspiece on top. We scrubbed it with conc HCl; NaOH, Na_2CO_3 + steam all to no avail.

9-15-47 8-4 King

① Got periscope (big 3 piece) back from optical shop.
② Got 4 doz rubber (thin) gloves & 4 doz thin white gloves from stores. Take one dozen & pass rest on to next shift.
③ Phos-cell 5 - P78-P3 evaporating to dryness. Added 5 mg of dead P. Sampled P78-R1.
④ Unable to get full header pressure on PB #2 high pressure (125#). Maintenance started on job but left to work on emergency job. Please follow up

9-15-
4-12
Russ

on shift. (Strainer seems to be plugged).

⑤ One sulfur can ~~to fill. Sulfur is heating (2000gms) on bench outside of low storage. Can also heating there.~~ filled & ready to go to 105, in decontam. room door.

9-15-47 ① Delivered sulfur can to 105 bldg.

4-12 ② Cleaned up in and around fan house.

Russell ③ Cleaned up the "garden", removed pieces of lumber, lead bricks, gloves, bottles, pipes, etc.

④ All steam pressure gauges on high pressure line are reading < 100# pressure since the maximum steam pressure on the boilers is 100 pounds. We may expect this pressure until the new power house is put into operation.

⑤ Rethreaded two nipples on solution addition lines from T-8 to addition funnels A Cell.

⑥ Also rethreaded L same line.

⑦ Discarded R-1 containing 17 mo's. (P-78)

⑧ The north still is down. The owl maint. is to repair same if possible.

⑨ Adjusted pH of P-78, sampled and stored.

⑩ Unplugged P-2 off gas line.

⑪ Adjusted packing on P-3, C-3 and C-2 agitators.

⑫ Began clean up on C^{14} equipment.

⑬ The tarps in the garden were left spread out to dry before folding.

⑭ Continued decontamination of plug. Still reads 100-175 mr-hr. @ contact.

⑮ Thompson, note your gloves on supv. desk.

9-16-47 12-8 Thompson sent back H.B.

1) Removed centrifuge from 3rd level to shed on E platform. This centrifuge was borrowed by Pennington from somebody in A bldg. Contact him on 8-4 to find out where to return it.

2) Cleaned up 3rd level.

3) Held training session on P32 equipment. In testing the lines, we drew off about 4 liters of solution from P-3. What was it + where did it come from? It read about 400mr + was poured down the drain. We had added no solution to P-3 prior to drawing off this 4 liters.

4-12 used water pressure to clean out P-2 off gas Line & Didn't take it out of P3

4) Hosed down Cell 5 floor.

5) The buzzer for the W-11 LL does not work in this bldg. Also, the green light over the shack at W11 is out - it doesn't come on either.... when the horn blows, that is.

Referred to A.C.V. H.B.

6) Decontaminated one carrier.

7) Put down new paper in N hot lab.

8) Put new hot can in N hot lab.

9) Maintenance worked on North still.

9-16-47 Blauer 8-4.

① Delivered Pennington's centrifuge to Baldwin Room 27 - 706 - A.

② Finished storage vault in 706-DA.

③ Flushed the stack + can steam engine for 4 hours.

4. Replaced glass wool in strainer at P.B #2 + cleaned the wire screens.

(5) Shortened the belt on 205 steam engine.

(6) Revised A1 – A9 – A8 – A-11 – A5 → W#1

(7) A16 fan on for 706-C

(8) Painted railing in front of cubicles + new ~~safe~~ vault in the fan house

(9) Solenoid is out of the N. still. Follow it through on shift maintenance.

9-16-47 4-12 Russell

(1) Repaired north still and put it into operation. Has not operated long enough to check performance.

(2) Decontaminated 8 or 10 carriers.

(3) The cleaning solution has been added to the P^{32} evaporator.

(4) Made carbon run.

Note: Do not remove waste solution from C-4.

Aluminum cans have not been removed from the dissolver.

Note: Does any one know where the two broken ~~Suction~~ filter discs from $Ba(OH)_2$ traps are? They were last seen on the small table in Cell V near traps. ???$$

9/17/47 1) Removed cans from C^{14} dissolver (left one
12-8 which we couldn't get).
Thompson 2) Cleaned up around bldg.
3) Cleaning sol'n still "soaking" in P^{32} evaporator.
4) Held a 3 hour session on the chemistry of iodine & phosphorus procedures.

9-17-47 ① Checked glass tubes in Cabinet #2 - ok.
8-4 ② Obtained repaired jet (big one) from shop &
King stored same in low storage.
③ King & Phillips took drivers test.
④ Maintenance working on P-9 agitator accessories.
⑤ Starting cleaning phosphorous equipment (oil bath) at cell 5; job not complete. Two shields are off and evap ~~flask~~ beaker is out on cabinet; beaker is hot. More oil for the bath is in supv. office.

9/17/47 (1) Completed clean up of glassware at Cell 5. Replaced
4-12 parts and tested with 150 ml water.
Perry (2) Spent entire shift trying to make a quantitative transfer in the sulphur extraction apparatus. First 1000 ml. delivered only 320 ml in P-5. The second 1000 ml. added as a rinse would not transfer to P-5. Temperatures were high enough and pressure in P-3 reached 38½#. Solution was transferred to P-4 but nothing would come out of the drain valve. Heated drain valve to 120°C but no solution passed through.
(3) Assembled run sheets for Ba run # 21.

(4) North still has only 35# steam pressure. Water level is still not high enough to cut off the solenoid valve.

(5) Plexiglass shields at Cells would not come clean. Used Bon Ami, Dutch Cleanser, soap, acetone, alcohol, CCl_4, steam and gasoline.

9-18-47 12-8 Thompson.

1) Unplugged P-5 off gas and P5 drain lines. Put through 3 rinses to clean out lines and to give operators practice in operating valves. (1st) in 500, out 490; (2nd) in 1000, out 1000; (3rd) in 1000, out 1000. The last rinse came out pretty clear and clean.

2) Made three tries at a quantitative transfer. Each operator ran 1 batch through.

Vol. in	Vol. out	Rinse	Vol out
1000	960	100	100
1000	990	100	100
1000	990	100	100

3) Maintenance checked still. They say it is operating okay.

4) Put in new strainers in floor drains on 3rd level. Washed out ducts.

5) Washed out T1 + T2. Made up new $Pb(NO_3)_2$ + K_2CO_3 + sampled.

12

9-18-47
King
8-4

① Maintenance continued work on A-9 agitator.
② Cleaned tops of tanks & floor (lead) on S.E. corner of 3rd level.
③ Made up more K_2CO_3 & sampled & resampled. Resampled $Pb(NO_3)_2$ after agitation. No results on resamples.
④ Assisted Pressley.
⑤ Made isotope container sketch for E.J.W.

9/18/47
Perry
4-12

(1) Centrifuged solutions on third level. Very little information was left on this process. If it is as dangerous as I was led to believe its a research job. Not finished. (See 15)
(2) Made up another $Pb(NO_3)_2$ solution and sampled.
(3) Replaced glassware in Cell 5 (with new funnel and Beaker).
(4) Sent C^{14} solution to waste (Cell 5)
(5) A-9 agitator completed. A check showed a variation in amps. from 1.1 to 1.3. Runs very quietly comparatively.
(6) Only one electrode on the Friskers at Cell 5 works, under ordinary conditions. Tonight they wouldn't stop ringing.
(7) Note - Don't cut off the main switch behind the S extraction P.B. It not only cuts off the friskers but the temp. micromax as well which has to be adjusted by instrument man when this switch is thrown. — [illegible] & [illegible] on the PB.
(8) pH at W-11 was 1.0 when checked. Jetted 300# caustic from A-6. pH 1.0. Made up caustic solution in A-5. (See 14) At total of 500# caustic pH 11.0.
(9) Installed new valve on A9-A8 DB jet. Located between steam inlet valve and pressure gage. This valve is to remain closed when starting to jet until the

9-1
12
thon

line is blown down good at the P.B. With steam valve open and vent valve closed open this new valve slowly and bring pressure up steadily.

(10) Obtained new bolts for 2 Ba carriers.

(11) Carried out greatly overloaded hot can from 3rd floor.

(12) The S.S. super-duper water cooler button pusher at Cell 5 is broken.

(13) Results of quantitative transfers at Cell 5-

Vol. in	Vol. out	Rinse	Vol. out.
1000	1960	100	100
1000	960	100	110

(14) Liquid level and sp.g. gage on A-5 are not working. Had to jet caustic to A 6.

(15) The knob on the rheostat on the centrifuge on 3rd floor fell off before we finished centrifuging solutions. Shift electrician can probably replace. The centrifuge belongs in the lab when you finish.

9-19-47 12-8 Thompson.

1) Cleaned up mess around carriers & in decontamination room. Hosed down decontamination room. Put down new paper under carriers.

2) Electrician repaired centrifuge.

3) Completed the centrifuging of solution on 3rd level. Washed dirty glassware and cleaned up one helluva mess around the hood & desk. Put down new paper on desk.

4) Cleaned up whole 3rd level.

5) Returned centrifuge to lab.
6) Put in empty red cans on 3rd level + in N. Hot lab.
7) Checked I^{131} set up – okay as far as we can tell. Made up solutions for weekend.
8) Made two attempts at a quantitative transfer in P^{32} extraction equipment.

Vol in:	Vol. out.	Rinse in:	Vol. out
1000	940	100	120
1000	930	100	140

Loss = 0.4% + 0.3%.

9)

9-19-47 ① Decontaminated valves on P^{32} set up.
8-4 ② Made sulfur extraction, Run P-79.
Russell a) W-1 has been sampled.
b) F-2 is on filter disc.
c) Product solution going thru column, into evaporator.
③ Decontaminated sink and scrubbed floor in Cell V
④ Thoroughly rinsed evaporator beaker, P-3 and funnel.
⑤ Obtained four Te samples from 105 bldg and started I^{131} runs 333-334.
⑥ Assisted Pressley with operations.
⑦ Lemons off to move.
⑧ $Pb(NO_3)_2$ analysis, 17.79%.

9-19-47 (1) Added more $Pb(NO_3)_2$ to solution & resampled,
4-12 (2) Completed Iodine run # 333-334
PERRY Started run #. 335-336
(3) Made up a barrel of caustic in A-6. Ring-balance checks OK.
(4) ~~Started on~~ Made housekeeping inspection & started on it. Pass it on & give to H.B.
(5) Made up lead removal soln. in B6 & B-17.
(6) Dumped 400# H_2SO_4 from bottles.
(7) Column at Cell 5 regenerating. P-1 analysis - 1388 mc. Dead P Not added yet.
(8) Instrument man attempted to sensitize the I.C. in N hot lab.

9/20/47 ① Added H_2O_2 to B-6 and B-17 as per instructions.
12-8 ② Worked on housekeeping inspection.
King ③ Cell 5 - Phos - 1. sampled R-1.
2. Added 20 mg of dead P to P-3. P79
④ Iodine - almost completed I 335-336; took off 5th distillate; waste draining.
Ionization chamber not working.
~~Distillation~~ Evaporation going on; pH and T = 7 to 8.
Gissel says don't take 2 samples if you can't get ionization tube to work today.

16

9-20-47 ① Dumped 264# HNO_3 from bottles
8-4 ② Made up K_2CO_3 solution and sampled
Russell ③ Took up P-79, F-2 and sampled.
④ Discarded P-79, W-1.
⑤ Added 500 ml. H_2O_2 to B6 and 200 ml H_2O_2 to B17.
⑥ Continued work on housekeeping inspection.
⑦ Ionization chamber not working.
⑧ P-79, F-2 analysis 58.6 mc's. Resampled 56.9
P-79, R-1 " 39.4 mc's. " 40.0
⑨ Discarded F-2 and R-1.
⑩ Product was taken up in 200 ml. H_2O, pH adjusted to 7.4 and stored in ship. room.
⑪ Started I^{131} Runs 337-338. Making seventh cut at shift change.
Product solution evaporating. PH 8.

9/20/47 (1) Continued work on housekeeping. Made a few additions.
4-12 (2) Completed Iodine run # 337-338
Perry Started # 339-340 – Composite evaporating.
(3) Note to E. King – W.Y.G. called & asked that you prepare for a C^{14} run at 8 tomorrow. Clean & rinse slugs & leave them dry.
(4) Nearly completed housekeeping as far as we can go. Please check & see if anything was omitted.
(5) Sample in isotope room sampler read >10 R/hr. On second level it read >300 mr/hr. Covered with lead brick. Such samples should be tagged as radiation hazards.
(6) Latest lab analysis $Pb(NO_3)_2$ – 19.4%.
(7) B-17 is full. Better discontinue adding H_2O_2.

9/21/47
12-8
King

① Obtained 100 $Ca(NO_3)_2$ slugs from 105 and cleaned them for Run #31; left drying in slug washer.
Filled drying & caroxite traps that needed filling; filled $Ba(OH)_2$ traps.
② Iodine - took 5th cut on #339-340; made run #341-42.
Composite evaporating; pH = 8.

.9
0

③ Added 500 ml H_2O_2 to B-6; B-17 is full.
④ Cleaned N. Hot lab floor & put down clean paper.
⑤ Hosed & swept floor of cell 5.

9-21-47
8-4
#R

① Sampled iodine composite. pH was 8.
② Decontaminated carriers.
③ Added H_2O_2 to B-6.
④ Made C^{14} run.
⑤ Housekept.

ditions.

9/21/47
4-12
PERRY

(1) Started a P^{32} extraction - Recovered 1000 ml from 1200 put in. Was unable to get ~~all the~~ much sulphur from P-4. P-5 seems plugged also. Punched some S from P-5 so steam is on to melt what is left. P-80 is filtering into W-1 at shift change.

Please

(2) a spot on second floor next to low storage room door reads 1100 mr/hr. area marked.

ON
! brick
ds.

(3) Maintenance fabricated plexiglass Lids for the open tanks at cell 5.

9/22/47 ① Scrubbed hot spot at door to low storage - down to 24 mr/hr.
② H.P. smeared N. Hot lab; scrubbed floor & spot on wall. H.P. again smeared - ok.
12-8 King
③ Added 500 ml. H_2O_2 to B-6.
④ Removed & discarded empty $Cd(NO_3)_2$ slug jackets from dissolver. Replaced (remounted) slug cutter.
⑤ Phos. extraction equipment:

1. Unable to unplug P-5 drain. Drain valve to P-5 does not heat; electrician reports open element in valve heater. Tried heat lamp above valve - still unable to unplug.

2. P4 is empty. Unable to blow from P3 to P4. All temperatures are between 135° and 145°C. Checked P4 drain & off gas (with wire) - both open.

3. Left steam on P3, P4, P5 and tracer line in effort to unplug P3 to P4 line and P5 drain. Left switch off on valve heaters.

⑥ P80 - took up P1 in HCl & started thru column; going thru at shift change.
⑦ Scrubbed floor & P^{32} Ext. tray in Cell 5 with soap & cleanser.
⑧ P 80 Results: C1 = 778 mc, F2 = 45 mc, W-1 = 461 mc, P1 = 113 mc.

9-22-47 ① K_2CO_3 analysis 39.6%
8-4 ② Sampled P-80, W-1.
Russell ③ Repaired wooden drawers in cabinet in shift supv. office.
④ Sampled B-6 and B-17
⑤ Drained A-4 205 off gas system and have good vacuum.

4 mo/yr.

⑥ Began pre run check on Ba^{140} equipment.
⑦ Maintenance that can be done on shifts:
a) Replace gasket inlet to T-7
8-4 b) Repair leak in hot drain line from I^{131} set up.
c) Repair water cooler foot valve cell V.
d) Check & repair if necessary frisker cell V.
8-4 e) Repair gate latches on tank farm.
8-4 f) Vacuum pump oil leaking over hot lab.
⑧ Analysis B-17 sample 12.4 mg total
" B-6 " 287 " "
⑨ Gissel did some work in Cell V on P^{32}

9/22/47 (1) Unable to get any of above repair jobs done
4-12 (2) Worked on pre-run check. Finished essentially
PERRY except for maintenance.
Note: "A" Bank of batteries charging until 150 A.
(3) Worked on trying to recover P^{32} from the SiO_2 ppt. on SR#2. P80C-P-1=7 mc.
P80B-P-1 going thru column. 3 mg P^{31} added to evaporator
(4) Expect trouble on this Ba run from low steam pressure. Can't we get 95# from the 100# pop-off boiler? (A6-A5 needs 100#)
(5) Cleaned A9-B26 A & B lines at P.B. There are no strainers in these lines. A9-B26 A has a place for a strainer on 2nd floor also.
(6) Worked on P^{32} extraction apparatus. P-5 drain valve is plugged tightly with sulphur. Still can't blow from P3 to P-4 or P-5.
(7) Made up 40% caustic. Cracked steam valve on 40%.

9/23/47 12-8 King

① Maintenance checked pumps in make-up room for leaks - ok. Greased pumps.

② Maintenance cleaned out jet lines from header to panel board valve on following jets:

A1-W11	A9-A8OA	A11-A9
A1-A9A	A9-A8OB	A11-A6D
A1-A9B	A8-A11	

③ Made up 40% caustic & 4% caustic.

④ Analysis on 40% caustic = 40.3%

⑤ Stopped Bank A batteries charging & started Bank B batteries charging $1\frac{50}{AM}$.

⑥ Added 150 ml. to phos column behind P80B-P1; wash going thru at shift change.

⑦ Left steam valve to 40% caustic slightly open.

9/23/47 8-4 H. Blauer

① Shut off steam to M-11 coil for the shift. Put it back on if it gets cold again.

② Can't get any more steam pressure at the Panel Boards because the line goes from an 8" line at the power house to a 5" line before it hits "D" building. The resultant friction losses & pressure drops are sufficient to cause our low pressures.

③ There has been an order issued to purchase winter outdoor jackets. As soon as ~~they~~ the jackets arrive the new men can get them.

④ Painted carriers over Nut lab.

⑤ Completed ~~shift~~ pre-run check

⑥ Installed new cables to floats at tank farm.

(7) A test on A9 with A9-A8DB indicated a jetting of 90 gallons in 25 minutes with 65# pressure. This material was water.
(8) Turned steam on cell heaters.

9/23/47 4-12 PERRY

(1) Cleaned out silica in SR#2. Passed acid & caustic through others but didn't clean the glass very well.
(2) Dissolved p.80 P-3 in 100 ml water & adjusted pH to 7.4.
(3) Tested speed of crud filter (B-25) - 1 liter in 3 min. Was unable to transfer from A9-B26A, A9-B26B, A9-B12.
(4) 3# water pressure on B-12 at 8:30 P. Used B-12 until this time.
Tried boiling water in A9, acid soln, agitation etc. No soap.
(5) Cleaned hot spots 3rd floor and SINK ON second floor.

9/24/47 12-8 King

(1) Held safety meeting.
(2) Cleaned up hot spots in N. Hot lab & on table outside of instrument room.
(3) Held meeting on Ba run - esp. glassware.
(4) Housekept - i.e. cleaned floor & east end of N. Hot lab, decontamination room, make-up room. Hosed & swept cell 5 & replaced hot can with an empty one.
(5) Stored Sr equipment in cabinet in N.E. corner of 1st level.
(6) Water on B12 jacket at 3# (see 4-12 log).

9-24-47 ① Jet A9 to B12 does work, now.
8-4 ② Replaced #2 stang reactor P^{32} glassware.
Russell ③ Painters began painting in tank farm area.
④ Made electrical check, found P-5 drain valve heater open. New one being made.
⑤ Turned water off B-12. No volume increase noted
⑥ Checking A-9 to B12, jet at shift change.

9-24-47 1) Jet A9-B12 does not work now. Maintenance
4-12 cleaned out line from header to strainer
Thompson by dismantling it completely and reaming out the joints. They report that the gauge is not working (only shows 32# at full open) and that the jet is probably plugged. The pressure, however, drops rapidly when the steam is turned off. My guess is that the jet intake line may be plugged.
2) Calibrated 2 5-liter flasks for I^{131}.
3) Decontaminated 12 carriers.
4) Tended SJR's stuff. (See inclosed note)
5) To H.B: Al plug dissolved in 40% NaOH in less than 30 min. Al plug in 60% HNO_3 had not dissolved appreciably after $3\frac{1}{2}$ hrs. There was not a collectable amount of ppt in the broken beaker — therefore, no analysis.
6) Put in mt hot cans on 3rd level + in N. Hot lab.
7) Picked up towels from laundry.

Thanks Bill
N.B.

9/25/47
12-8
King

① Checked jetting from A9-B12 several times. Jet seems to pick up ok as soon as pressure reaches 70 # - pressure seems to build to this press fairly quick each time.
② Checked jetting with jets A-9-B26A and A9-B26B - no kick. Checked ¢ lines open ok from header to cell wall.
③ Held session on barium.
④ Kept SJR's mtr'l as per inst.
⑤ Reconnected valve extension to receiving flask drain valve of iodine equipment. (was slipping).

9-25-47
8-4
Russell

① Made a 4000 ml. transfer from A9 to B12 with maximum steam pressure (70 Lbs.) in 55 seconds and picked up 350 ml. s.c.
② The 4-12 shift, 9-24-47, replaced gasket in flange on inlet line to T7.
③ Removed the seven steel drums of waste from third level at north-west corner to W-5.
④ Checked and repaired several instruments.
⑤ Returned 10 Hanford slugs to 105 building.
⑥ Continued the paint job at tank farm.
⑦ Sent one large periscope to instrument shop.
⑧ Putting legs on guards over gutters on 3rd level.
⑨ A6 is MT and there is more caustic for W-11 in the drum on the platform.

24

9-25-47 1) Cleaned out I^{131} filter, decontaminated
4-12 evaporator + lines. Checked calibration
Thompson of containers (see other log)
2) Operated IBW's column.
3) Decontaminated carriers, cleaned up decontamination area.
4) Brought Sulfur can down from cell 5.
5) Cleaned up decontamination room.
6) The I^{131} evaporator still reads 770 mr/hr, the rest of the hood is < 16 mr.
7) Held meeting on isotope operations.
8) Prepared I^{131} run sheets.
9) Put mt hot can on 3rd level.
10) Cleaned up around overshoe rack.
11) Jetted 1 drum caustic + 1 drum H_2O to A6

1) Followed inst. passed on from 4-12 shift on
9/26/47 I.B.W. Column.
2) Made up 2 bottles of 75% Sat. $Ba(OH)_2$ soln.
12-8 King
3) Flushed C^{14} tanks except Dissolver.
4) Checked C^{14} system for leaks; still leaking are gas monitor tube, one valve (marked) and agitator on aerator. fixed — not yet fixed
5) Did not fill sulfur can (now in decontamination room) because of very bad threads. Left 2000 gms sulfur in oven on 5th level which was for above can. No other can found.
6) Hold-up in Na_2CrO_4 make-up tank: to bottom of pipe = 4.1 liters (draining all possible); to top of pipe (aerator

still sealed) = 5.8 liters.
7) Scrubbed floor & sink in N. Hot Lab & put down clean paper.

9/26/47 8-4 Perry

(1) C^{14} - Replaced valve on aerator. Installed with a coupling. Took old gas monitor tube to shop. Numbered. New tube #1, old tube #2.
(2) Mtled leaking drum caustic.
(3) Made up Iodine solutions, checked equipment and ~~and~~ started double run # 344.
(4) Cleaned up hot spots at Cell 5. Decontaminated Cell 5 entire pie and delivered to Clark at 205 for repair.
(5) Returned scope from maintenance.

A6

(6) Hot spots on floor & steps of cell 5 has been cleaned up except for one spot on floor inside cell reading 10 MR/HR.

9-26-47 4-12 Thompson

1) Completed I^{131} run 344-345, started run 346-347. Evaporator vol. = 425, pH 8 (steam on)
2) Made housekeeping inspection & completed work except maintenance.
3) See attached sheet for maintenance work needed.
4) Did not get to hot spots on HP report.
5) Oiled clamps for SJR
6) Operated IBW's column

9-27-47 1) Completed iodine run 346 (Lemons)
12-8 2) Kept I.B.W.'s column going N. hot lab.
Russell 3) Did some clean up work.
4) pH check on iodine in evaporator indicated acid solution of pH 1. Added NaOH to adjust. pH now 8. Steam on.

9-2
12-
Ru

9/27/47 1) Kept I.B.W.'s column going.
8-4 2) Rep'd leaking radiator valve in bathroom.
King 3) Cleaned up hot spots on S extractor (except in few cracks ~~out~~). Scrubbed floor of cell 5 with soap.
4) Elect. replaced part of "out" lights.
5) Vacuum pump to iodine set-up went bad (motor ok). Replaced above with one from low storage. Bad pump is in decontamination room to be decontaminated.
6) Started (almost completed) iodine run # 348 - waste yet to be dumped.
7) Iodine composite evaporating; pH at 3^{30} = 8. So far it has been necessary to add a small amount of additional NaOH (over 2 ml.) to keep composite on basic side.

9-27-47 1) Made I^{131} run 350-351. Evaporating
4-12 product, pH 8-9
Thompson 2) Decontaminated carriers.
3) Cleaned out vacuum pump oil box. It still reads 20 mr. We only used

9/28
8-
Bla

steam on it. There is a broken part in the oil box which will have to be repaired before the pump will work.
4) Electrician put in conduit for Mrs Seal's phone in the office.
5) Completed rinses in IBW's column.

9-28-47 1) Decontaminated vacuum pump still reads 25 mr-hr with steam.
12-8 2) Cleaned up north hot lab. and decontaminated
Russell glassware, put down paper, emptied hot can. etc.
3) Made iodine run 352. Was necessary
Wing again to add NaOH over the 2 ml. as called for in procedure to keep composite on basic side. The product is evaporating now with a pH of approx 8.
4) Note to Gissel: ① We need a dry trap between the $NaHSO_3$ trap and the manometer in the iodine set-up. ② We also need a vertical vacuum line from the receiver instead of the horizontal line as now is.
③ A longer glass tube is needed in the dry trap into the vacuum header also.
④ The manometer needs cleaning. ⑤ The drain valve from the hold-up flask requires too much force to turn.

9/28/47 ① Cleaned cud filter with fuming + 60% HNO_3 + H_2O. Passes 1 liter in 50 secs. now.
8-4 ② Worked on decontamination of the oil pump. It
Blaser is still hot.

3. The calibrations are gone from the Iodine evaporation beaker. So we guessed at the final volume. There was a heavy precipitate in the evaporation beaker. Final volume app. 225 ml in the burette hold-up vessel. PH 8.

(4). Electrician pulled the intercom wiring through the conduit at Mrs. Seals desk.

(5) Cleaned up N. hot lab.

(6) Maint. replaced the leaking air trap which was running to the roof. The line is capped off until they can locate a new float for the trap.

(7) Checked C14 set up for leaks + couldn't find any. (I hope)

9-28-47 1) Repaired vacuum pump and put it
4-12 up in low storage.
Thompson 2) Decontaminated carriers.
3) Cleaned up around bldg.

9-30-47 1) Installed new glassware #4 trap in C^{14}, and
12-8 placed another clamp on each trap.
Russell Note - Gissel: Anything being done about heat in Cell V?
2) Made calibration charts.
3) Cleaned up hot lab. and decont. room.
4) Light bulb is needed in iodine set-up.

9/29/47 (1) Checked the large scope by assembling & noting images. O.K provided viewing mirror is opposite eyepiece.
8-4
Perry

(2) Repaired heater on P-5 Valve Cell 5.

(3) Prepared C^{14} equipment for run. Cleaned slugs, changed traps, checked for leaks.
(# 2 leaks too) ← Gas monitor tube # 1 leaks. Sent to shop.

(4) Redistilled iodine product solution because of high total solids.

(5) ~~F~~ Worked on charts; renovating & bringing to date

9-29-47 1) Redistilled iodine, making 4 cuts. Combined the 1st 3 cuts and neutralized them to a pH of approx 8. The 4th cut is in the suction flask behind the barricade. Sampled composite of 1st three cuts.
4-12
Thompson

2) Decontaminated ionization chamber in the decontamination room. HP okayed it to leave the area.

3) Did not have time left to work on S extraction equipment.

9-30-47 1) Completed transfer of iodine from evaporator to hold up flask.
12-8
Russell

The fourth cut is behind high barricade, north lab.

The residue is in the iodine dissolver.

2) Made C^{14} Run #32. Gissel, we need a tube of "Apiezon" grease for C^{14} glassware.

30

9-30-47 8-4 Blauer

(1) Unplugged drain valve on P-5. Sent one shot from P5 – P3 & the P-5 – P-3 valve plugged again. Still trying:

(2) Painted gauge board at W-5
(3) Carpenters are working on replacing tank covers & platforms.
(4) Pipefitters started to pipe services to W1 & W2
(5) Again thanks to H. T. Russell there are charts converting inches to gallons of A5, A6, A11, B6 at the respective panel boards.
(6) Fan house chamber taken to instrument shops
(7) Decontaminated B17 probe.
(8) Replaced nipple A1 – W11 jet line

9-30-47 4-12 Thompson

1) Thoroughly rinsed I^{131} setup from dissolver through the burette. The last rinse had 1.0 ml 0.38 N NaOH in 300 ml distilled H_2O; it came out of the burette still basic, so all acid is out of the system.
2) Installed new filter on I^{131} hold up flask. Old filter reads 38 mr/hr after cleaning. Left it in N. hot. lab.
3) Rinsed P^{32} extraction apparatus from P-3 to P5 until rinses came through clear. Rinsed from P-2 to P-5 until rinses came through clear. 7 rinses in all were put through. (1000 ml each)
4) It was necessary to unplug P5 drain again before we could start.
5) All lines on P^{32} extraction apparatus

9-30-47 were left unplugged and clean — ready for 4-12 P^{32} run on 12-8.

good work only

6) To HR: WYG says to use the S can which was pulled on Friday (the 19th?) that is the oldest of the 3 cans which are out of the pile.

6) Decontaminated 6 isotope carriers

7) Cleaned up floor at Cell 5.

8) Maintenance repaired P4 steam inlet valve and changed the P3 inlet water valve as per WYG's instructions.

9) Greased + oiled slug carriers.

10-1-47 12-8 Russell

1) Made sulfur extraction, run #81. Thanks to Blauer and Thompson for placing the equipment in such good shape.

a) The P-2 off gas line is still plugged.

b) P-1 to P-2 valve has a leak that should be checked into before the next run.

c) P81, P-3 is going thru column into a hot evaporator, 1 drop/3 sec.

d) Carrier has not been added.

e) F-2 is still on the SR-1 disc.

f) W-1 has been sampled.

2) Overhauled distilled H_2O ~~water~~ system Cell V.

3) Our ½ Ton Truck is at S.W. corner of settling basin with a dead battery?

4) Gissel, our HP man would like to be taught the fundamentals of our type air monitor in Cell V so he can service it on shifts.

10/1/47 8-4 PeRRY

(1) Removed mt. slugs from C^{14} dissolver.

(2) Dissolved & removed P-81 F-2. Sample analysis on this run as follows - C-1-591 mc's, F-2 9.86 mc's, P-1-591 mc's, W-1. 2.34 mc's.

(3) Changed paper under carriers over N Hot lab.

(4) Made up drum caustic solu. in A-6.

(5) Checking B20T & B21T with 1 liter of water and 12# pressure - No solution lost yet.

(6) Cleaned 100 $Ca(NO_3)_2$ slugs - Ready for run.

Gas monitor tube from shop installed. This one returned to shop.

(7) Obtained 2 Te slugs for Iodine runs.

(8) Maintenance doing painting, pipe fitting and carpentry in tank farm.

(9) P81 still going thru column. Rinse not added.

(10) Gas monitor tube leaks.

(11) Added 7.4 mg P^{31} to P81.

10/1/47 4-12 King

① Kept pressure on B20T & B21T for 8 hrs; no apparent change in water level. Blew water to B-19.

② Added 150 ml water to P-81 column. Added 10 mg carrier to P-81 P-3.

③ Added 3% sodium citrate to column in N. Hot Lab until cuts below 50 mr.

④ Cleaned east end of N. Hot lab.

⑤ Made C^{14} run #33.

⑥ Removed mt C^{14} slugs from dissolver & replaced cutter.

10-2-47 1) Regenerated nalcite column and sampled
12-8 P-81, R-1.
Russell 2) Discarded P-81, W-1 containing 2.3 mc's and
" P-81, F-2 " 9.8 "

Why remove Y from Tube by-pass position? not needed on tube. HR.

3) Installed glass "Y" connecting lines from dissolver and aerator to $Ba(OH)_2$ traps in C^{14} set-up for more convenience in operating.

4) Made sulfur extraction run P-82.
a) F-2 is on the disc in SR1.
b) The product solution is ~~ready for the NH_4OH precipitation. $La(NO_3)_3$ has not been added.~~ in flask above nalcite column.
c) W-1 has not been sampled.

5) P-81, P-3 is down to dryness. The steam bath is now cooling.

10/2/47 (1) Started Iodine run # 353. By mistake both slugs
8-4 were added & run became # 353-354.
Perry (2) Cleaned 100 $Ca(NO_3)_2$ slugs for C^{14} run tonight. Gas monitor tube should be ready from the shop by 4 o/p - (Bldg 717 B Zedler) 34 mc

(3) P-82 - Sampled W-1. Dissolved and sampled F-2. (19 mc)
P-1 analyses - 380 mc. Added to P81 - P-3 Total 971 mc's.
Don't add any more carrier. Double P^{31} added by mistake

(4) Started distributing Valve labeling signs in the TANK Farm.

(5) Started Checking jets in Cell A. See pre-run check clip board for progress.

(6) Note: the "Poppy" at 2nd level Cell 5 should stay on for a

Long period. HP wants an accurate survey of C^{14} activity there. Do not shut the Poppy off or unplug it.

7. Gauge board installed at W-7.

10-2-47
4-12
King.

① Completed checking jets in Cell A (see pre-run sheet clip board).

② Completed I #353. Adjusted composite pH to 7+ & evaporated to approx 50 ml. Stored product in vault in isotope room (radiation = greater than 6R).

③ In iodine set-up, put old filter back in place of new one - unable to pull vacuum through new one.

④ Made-up iodine run solutions for weekend.

⑤ P-82 - P1 going thru column. Ran F-2 & W-1 to drain.

⑥ Made carbon ^{14} run # 34. (Do not drain traps #3 & 4 tonight, please - making run tomorrow).

⑦ Removed empty $Ca(NO_3)_2$ slugs from dissolver.

⑧ Put repaired (installed) gas monitor tube in C^{14} set-up in cell 5. Instrument shop suggests we install this tube in upright position with connections on top.

10-3-47
12-8

1) Put three rinses through the iodine equipment, (the still and the cubicle). pH of final rinse through burette was approximately 5.

2) Cleaned up north hot lab.

3) Made sulfur extraction, P-83
   a) The product solution is in hold up flask above nalcite column. 572 mc's.
   b) F-2 has been processed to flask F-2 and sampled.
   c) W-1 has been sampled.
4) P-81-82 is still evaporating.
5) P-82, Regeneration was made and R-1 sampled. Analysis P-82, R-1 52.5 mc's.
6) It might be well to do the following before the next sulfur extraction:
   a) Heat P-5 drain valve (120-155°C) and P-5 (120-155°C) and drain out any sulfur that has accumulated during the past three runs. Some is ~~apt~~ to be there.
   b) Remove and clean the crud filter in line from P-6 to TV-1.
   c) Lubricate "sticky" valves in glass ware.

Gissel, OK? we will do these after all product is out of glassware

We have had no high air count in Cell V, so far, (I hope).

10-3-47 Thompson 8-4

1) Completed P^{32} runs P81 + P82. P83 started thru col. at 2^{30} P. 65 ml P^{31} sol'n added.
2) Repaired leak in P-5 jacket
3) Repaired steam reducing valve in Cell 5.
4) Started I^{131} runs 253-254
5) Tested A1-A9B - ok at PB.
6) Tested A9-B12 transfer ok

7) Brought down 3 5 cans from 205 + put oven up on 3rd level.
8) Maintenance painted float scales on tank farm.
9) Maintenance repaired wooden covers on tank farm. They are also building a special rig on W-4 for ~~special~~ Chicago carriers.
10) Put some of the tags on tank farm lines.
11) Cleaned out a carboy + got a sample from 205 canal. This is in the decontamination room. The whole carboy is to be evaporated to 100 ml.
12) Put up Face Shield racks.
13) Instrument man put in Slug counter amplifier + Stack ionization chamber.
14) Dumped P83-W1, P83-F2 and P82-R1
15) Filled 1 5 can — 6 more to go. Sulfur in the oven now heating, has not been weighed.

10/3/47
4-12
King

① Completed iodine Run #356. Started evaporation; pH of composite 7+. Did not start another run — [redacted] all exposure time used.
② Added 150 ml wash after P83-P1 — [redacted] rinse now going thru column.

③ Continued operation of Pressley's column until cuts read below 50 mr/50 ml.

④ Made housekeeping inspection. Started working on same.

⑤ Filled 4 sulfur cans. 5 cans have not been carried to 105 - are still on 3rd level. (All but 300 gms. in 5th can.)

⑥ Continued evaporation of carboy of 105 canal water in decontamination room.

⑦ Made C^{14} run # 35. Removed empty $Ca(NO_3)_2$ slugs from dissolver.

⑧ Housekept in cell 5; ie, washed floors, cleaned trays, etc.

⑨ Rimshaw mtr'l - evaporated mtr'l in 4 liter beaker to approx 500 ml & turned off heat.

⑩ Rimshaw mtr'l - followed instr. on soln in 600 ml. beaker. 1st 300 ml of HCl has been added and is now evaporating.

10/4/47 (1) Started Iodine run # 358. Exposure time per man 2½ hrs.

12-8 (2) Completed filling Sulphur cans and delivered 7 to 105.

Perry (3) Worked on housekeeping report.

(4) Put 2 more heaters on the solution evaporating in Dec. room.

(5) Completed Rimshaw's instructions.

(6) Started Regenerated column at Cell 5 - Rinse not added.

10-4-47 1) Added rinse to column. Completed run

Thompson P83.

8-4 2) Made I^{131} run 359-360

3) Decontaminated 3rd level sink (reading 1R on HP survey). - now < 10 mr

4) Continued evaporation of canal water.

5) Discarded P83-R1.

10/4/47
12
4-
King

① Made iodine run #362. Composite evaporating; pH = 10.
② Continued evaporation of canal water.
③ Took down jet line AA-B12 from header to panel board again (and replaced) – clean; also checked strainer-ok.
④

10/5/47
12-8
Perry

(1) Started iodine run # 364. General background gave approx working time of 1 hr. 20 min. Schafer worked on run 1½ hr. before HP survey. Shielded equipment partially with lead sheets. Working time 1 hr 55 min. If we can't get proper shielding let's go back to one can/run.
(2) Re-analysis of P81-C-1-633 mc.
(3) Continued evaporation of 105 water.
(4) The "Poppy" that was in Cell 5 was taken to instrument shop at 105 for repair of a short in the circuit.
(5) Replaced battery in micromax #12.
(6) Ba run # 21 ready to start. Two slug carriers are loaded and sitting at 706 D.
(7) I-364 run got through 1st cut before all exposure used up.
(8) If first analyses of C^{14} run #35 are correct that was a mighty fine run.

10-5-47
Thompson
8-4

1) Completed I^{131} run 364. Composite evaporating. Vol (350 ml), pH 10-11
2) Batch A dissolving — WATCH!
3) Loaned DCKing to 105 for slug loading.

4) Finished putting up jet line labels on tank farm.
5) Ring balances PB1-5, + PB1-11 need to have new red inking points installed. Day shift man couldn't find any and couldn't fix the old ones.
6) Decontaminated 3rd level sink again (700 mr).
7) Steam engine is running

10/5/47
4-12
King

① Evaporated iodine composite to 300 ml. (showed only 275 in holdup flask) & pH 9. Submitted sample to lab.
② Continued evaporation of 105 canal water; sample submitted to lab.
③ Run status:
A-1 – Batch B dissolving.
A-9 - Batch A settling hot.
④ 1MA = 278 c's S.T., 6.46 c's/skg.

10/6/47
12-8
Perry

(1) Repaired inking pens on PB #1.
(2) Cleaned up hot plates & lights from dec. room. Put clean paper in N Hot lab.
(3) Notes - Liquid level manometer #1 on A-9 sticks at 20". Be careful when decanting. A-5 ring balance does not register - A-5 contains a batch of carbo-phosphate.
(4) Run status.
A-1 – Batch C dissolving

A-11 – Batch A settling
A-9 – Batch B Digesting
(5) 1MB – 326 c's.

10-6-47 1) Slug loading in progress. 9 batches loaded
Thompson 2) Batch A in A6
8-4 Batch B in A9 settling until 4 47
Batch C in A11 waiting for A9
3) Made up $Pb(NO_3)_2$ – analysis: 21.6%
6WMA 19.4 c @ ST } Being return (both)
1MC }
(4) Cell B controller for heater removed for repair.

10/6/47 ① Completed slug loading.
4-12 ② Removed strainer from jet A6-A5.
King ③ Washed iodine glassware with 4 washes of dilute nitric; sprayed outside of glassware with dilute nitric. Still hot. Left all glassware filled with dilute nitric. Removed lead shielding.
④ Made up 40% caustic – still in M-1; sample in lab.
⑤ Followed inst on Kimshaw's mtrl; 300 ml. fuming nitric has been added & is going to 100 ml.
⑥ Run strokes: A-1 – Batch D dissolving
A-9 – Batch C settling
A-11 – heel from Batch B
A-6 – Batch B waste – sampled – not neutralized.
⑦ 1MC = 244 c's S.T. 6WMA = 4.99 c's S.T.

10/7/47 (1) Could not jet from A-6 to A-5 - Air monitor
12-8 for 3rd floor has not been registering for
PERRY some time, but monitor on 2nd level was O.K.
when A-5 jetted to A-6.

(2) Run status:
A-1 - Batch E - dissolving (Sampled)
A-9 - Batch D - settling hot until 8 45 A.
A-11 - Batch C settling until 9 00 A.
IMD - 356 C's St. 71 slugs dissolved.

(3) Replaced crud filter at cell 5 - Serviced stop cock behind this panel. (P-3 Biurrette)

(4) Cut out tygon that was hot in Iodine setup. Mt'd vessels. Bg now - 200 mr/hr at shield distance

(5) Placed new paper in Cell 5 & N hot lab.

(6) Tightened union on P5 off gas line.

(7) Put new chart on micromax # 15.

(8) ~~1st~~ NaOH in M-11 - 35.5%

(9) Kept up Rimshaw's evaporating soln. in N hot lab. Needs to evaporate to 100 ml. & sheet is finished

10/7/47. (1) Cleaned up chains + signs at the tank farm.
{8-4} (2) Helped Gissel on Iodine set up.
(3) Cleaned up 3rd level sink + lead floor.
(4) Repaired A5 L.L + Sp. Gr. The air tubes to the rings were shot.
(5) Maint pulled P3 agitator & replaced as it was found OC.
(6) Stored small S.S. blower in low storage
(7) D.C. King filled 6 drums of material from W7 for development groups.

(8) A6 ready for neutralization

(9) All stop cock on P32 glassware have been serviced. All funnels has been cleaned also.

Run Status

A1 – 1MF – Sampled

A9 – BATCH K – Digesting until 4:30 P.M

A8 – MT

A11 – BATCH D – SETTLING UNTIL 8:10 P.M.

10/1/47

4:12 P.M.

(1) Washed down balcony (including walls) in cell 5 with soap & water; also washed down 1st floor.

(2) Finished decontaminating lead in decontamination room & stored behind B cell.

(3) Continued cleaning up iodine setup; removed more hot tygon.

(4) Followed inst. on Rimshaw's mtl. Added 500 ml. fuming nitric; added 300 ml. 6N HCl – this is now going to 100 ml.

(5) Unable to jet 6WMC out alone so 6WMD was added to A-6 to jet both out together & neutralize in W-9.

Temp. Results:

	6WMD+C	6WMC	6WMD
AT	17.6	13.7	3.9
ST	12.8	9.8	3.0

(6) After combining were unable to neutralize 6WMC+D because of wind change to wrong direction; carefully neutralized in A-6. No noticeable rise in air count during or after neutralization.

(7) Status of run:

A-1 - Batch G dissolving
A-9 - Batch E settling until 12 30 AM
A-11 - Batch F ready for A9
A-5 - MT
A-6 - Batches D & C neutralized

10/8/47 (1) Note to Blauer - 8WME - 20.9 c/a.
12-8 (2) Nearly Completed evaporation of Rimshaw's solution (Heat still on.)
Perry (3) Cleaned manometer on I^{131} setup & decontaminated some.
(4) Run status:
A-1 — MT
A-9 — Batch F. settling cold.
A-11 — Batch G. waiting for A-9
A-6 — Batch E - Sampled.
A-5 — Carbo-phosphate
Analysis on 1MG were unlikely so another sample was taken.
(5) Slugs are in the carriers & ready to be loaded at 8 00 AM.

10-8-47 1) Shed on E platform almost has a light now.
[8-4] 2) Painted oky shims plate.
3) Carpenters have finished putting in the new covers on the tank farm.
4) Loaded 212 slugs.
5) 8WMF 58.3 C @ 5T.
1MC 222 C 69.8 slugs 5.0 c/slug
6WME 6.3 C
6) Batch F goes to A-6 (over 50 curies)

Batch F A-11 settling till 5:8 PM.
Batch G A-9 settling till 4:40 PM hot.
Batch H A-1 dissolving.
Batch E A-6 waiting to be neutralized.

7) Installed new lead trays under N hot lab sink for acid bottles.
8) Cleaned up special cone for IBW
9) Dumped 3 carboys HNO_3, 1 carboy H_2SO_4.
10) Put 15# oxalic in N hot lab
11) Put up brace for I^{131} shielding + put in lead.
12) Put up barbed wire fence at corner of tank farm by research shop.
13) Worked on portable motor in front of fan house — still waiting for a spare part.
14) Started work on periscope rack
15) Sampled BWMF — results high. HB says it will not be necessary to take any more samples from AB
16) There are some spare pens for the ring balances in the main drawer of the supv. desk. Please do not let these pens get lost — we can't get any more for a while.

10-8-47 1) Replaced lower brace on lead shielding iodine
4-12 equipment.
Russell 2) Removed loose paint on floor in iodine hood.
3) Began installation of glass ware, tubing, etc. in iodine set-up. Used all available time.
4) The hold up flask in evaporation vault is broken.
5) Cleaned evaporator in P^{32} equipment with H_2O. No luck
6) Dumped HNO_3 and H_2SO_4 in make up room.
7) Analysis 1 1M H 305.7 C's S.T
5.6 ~~slags~~ A.T. (Ci/slug)
396. C's A.T.
8) Analysis 6 WME + F 22.9 C's S.T.
" 6 WME 6.3 C's S.T.
9) 6 WME and F were neutralized in W-9.
10) Run status (Ran precipitation at glass shack)
A-1 Batch I dissolving
A-9 " H digesting until 12:15 Am
A-11 " G settling until 3:50 Am
A-8 MT
A-6 MT
A-5 MT
11) Made sulfur extraction P84
a) The product is now on SR-2 disc. ready for the first 25 ml. wash 1M NH_4OH.
b) W-1 has not been sampled.
c) F-2 is on the disc, SR-1
d) Nothing is to be done on the extraction equipment. Do not disturb solution and sulfur in s.s. pan under P-4 and P-5. Hold for Gissel.

e) Do not run this product through nalcite. Hold in P-1 or nalcite hold up flask.

10/9/47 (1) Replaced Iodine apparatus except for I.C. & receiver.
12-8 (2) P84 – P-1 in the vessel over the nalcite
Perry column. No results on this sample yet.
(3) Status of run.
A-1 – Batch "J" dissolving
A-11 – Batch "I" waiting for A-9.
A-9 – Batch "H" Settling cold until 8 15/A.
A-6 – Batch "G" ~~Awaiting~~ analysis – 15.7 c's S.T.
A 5 – CO_3 – PO_4 batch.
(4) Made up solution of NaOH. (35.6%)
(5) P84 – W-1 – 13.9 mc's
F.2 – 3.4 mc's
(6) 1MI – 252 c's S.T.

10/9/47
8-4 (1) P 84 – C-1 Special 99 mc's .078 mc's/ml
(2) 1MJ – 354 c's A.T 282 c's S.T.
5.4 c's/slug 65.4 slugs.
8W MH – 13.8 c's A.T.
11.0 c's S.T.

(3) P84 sulfur extract weighed
1700 gms. – 300 mc loss ??
?

(4) Maint installed hood under
P4 & P5. Pipe fitters will tie this
into cabinet duct monday.

(5) P84 special going to Dry news see other log for instructions.
6) Thompson was here, too.
7) Maintenance installed (or re-installed) brace for I^{131} shielding.
8) Worked on I^{131} equipment assembly: filled traps, put in new receiver, put in new hold-up flask; there is still some work left to be done.
9) Decontaminated 1250mr spot on E platform.
10) Maintenance is working on tank farm gates. They also painted the float scales.
11) A-1 - MT ready for dissolving
A5 - Batch H - neutralized
A6 - Batch G - not neutralized
A8 - MT
A9 - Settling until 7⁰⁰ cold (Batch I)
A11 - Batch J waiting for A-9.
12) Completed wiring of E platform shed.
13) Helped Pressley move samples from N hot lab to fan house.
14) Put screens away in low storage.
15) P84-P1 - 620mr.

10-9-47 1) Discarded old pH indicator bottle outside A-16
4-12 barricade and replaced with new one and
Russell new indicating solution.

2) Stored chemicals

3) Jetted A6 to W-9, A5 to A6 and then followed with a batch of CO_3PO_4 from M1 to A5 to A6 to W9.

4) P-84 special was taken up in 100 ml. H_2O and sample submitted to lab. carrier free. Product stored in isotope shipping room.

5) Installed dry trap between sodium bisulfite trap and manometer in I^{131} glass ware.

6) P-84 is going through nalcite into hot evaporator.

7) H_2O rinse has not been added.

7) Ba^{140} Run status –

A-1 Batch K diluted + sampled
A-9 " J settling hot 12:30 Pm
A-11 " I " until 1:45 Pm
A-8 MT
A-6 M.T
A-5 MT

8) Made sulfur extraction, Run #85
a) NaOH strike has been made. The solution is filtering thru. Vacuum off.
b) Extraction equipment clean-up has been completed except for rinsing P-5.

9) 8 WMI analysis 11.5 C's S.T.

10) 1 MK " 310.5 C's A.T
254 C's S.T.
64.7 slugs 4.0 C's/slug

11) Note: Do not add dead phosphorus to P^{32} runs until we produce 100 mc's carrier free product, or otherwise instructed by Gissel. Our carrier free product analyzed .5 mc. today.

10/10/47 (1) Phosphorus
12-8 (a) P-84 - P-3 in evaporator going to dryness.
Perry (b) P-84 - R-1 - Has Not Been sampled.
(c) P-85 - P-1 sampled
(d) P-85 - F-2 "
(e) P-85 - W-1 " —

(P-5 not rinsed)

(2) Run status -
A-1 - Batch "L" dissolving.
A-11 - MT
A-9 - Batch "K"
A-8 - Batch "J" - Awaiting 8 WMJ analysis,
A-6 - MT
A-5 - CO_3-PO_4 -

(3) Iodine - Made Last connections & installed I.C. - Distillation made - Ran smoothly, however care must be taken when heat is removed from the reactor to open reactor vent slowly to prevent pulling distillate back to reactor -

(4) Completed I^{131} check. The only way we could hold our soln. (H_2O) in the Receiver was to vent from the flask side. And open agitator line as soon as possible (Do Not close Agitator until Receiver Has Been Drained.)

10/10/47
8-4
Ning

① Brought carrier in from garden at east end of bldg & started decontamination. Cone & plug are in barrel in decontamination room.
② Painters still working on tank farm - gauges, etc.
③ Started carbonate addition to W_1 & W_2 (see tank farm log).
④ Instrument dept. checked skyshine inst.
⑤ Obtained 4 Te samples from 105 bldg.
⑥ Completed putting iodine equipment back together: drilled holes for valve extensions, got rec. flask to beaker line shortened, longer ext on valves, etc.
⑦ Strokes of run:

A-1 - Batch L diluted & sampled.
A-9 - Batch K settling
A-11 - Heel of batch J
A-5 - Batch J neutralized.

⑧ Made up iodine reagents in N. Hot lab.

10-10-47
4-12
Russell

1) Resampled P-85, F-2 and W-1 and submitted to lab.
2) Began assembling items for housekeeping improvements. Next shift make any contributions you wish by adding sheets.
3) Requested maintenance make up three gaskets for installing dutchman in steam header.
4) Removed all contaminated glassware from Cell V for cleaning and replaced with new glass ware.
5) Added five uranium slugs to A-1 (cold)

6) Heated P-5 and drained out all sulfur (hope)
7) Cleaned P-6 at 706-D bldg.
8) Cleaned out P-4.
9) There is glass ware in one barrel in decont. room being decontaminated.
10) Decontaminated cans (cone & plug are in barrel) in decont room to 25 mr-hr.
11) Made iodine run #366. Product is in evaporator pH 8
12) Ba^{140} Run Status:
A1 Batch M dissolving
A9 " L 225# 90% H_2SO_4 being added.
A11 Heel of batch K
A8 MT
A6 Batch K sampled @ 11:10 P.M.
A5 CO_3PO_4

10-11-47 1) P85-W1 – 10.0 mc ; P85-F-2 7.25 mc
Thompson 2) 6WMK 12.8c @AT, 11.1c @ST
12-8 MAL 252 c @ST 64 slugs 4.0 c/slug.
3) Batch K neutralized in A6 after jet
* A6-A5 would not work. Jetted batch K from A6-W9
4) Worked on housekeeping items on report.
5) Made I^{131} run 368. Started evaporation of product sol'n. Vol. 500 ml. pH 9.0
6) Batch L – A9 – settling until 8:47 AM
Batch M – A1 – diluted, not sampled.
* Precipitation on 3rd level during neutralization gave air count of 6.4×10^{-10} μc/cc
A5 – MT
A6 – MT
A8 – MT
A11 – MT

10/11/47
8-4
King

① Cleaned up decontamination room. Put extra buckets in low storage (after ok by H.P.); tagged one small tank "hot" to go to storage in burial grounds.
② Carrier surveyed by H.P. & stored; cone & plug still hot & in barrel in D room.
③ Cleaned up glassware in N. Hot Lab. Stored iodine equipment that was under hood in N. Hot Lab.
④ Phos: Column regenerating - water has not been added.
~~Water wash going thru behind~~ (info) R-1 (P85).
P85 - going to dryness in evaporator.
⑤ Iodine - made run # 370.
- composite evaporating; pH = 10.
⑥ Status of run
A-1 - Batch M diluted & sampled.
A-9 - 4th extraction cake wash settling
A-8 - Extraction cake wash
A-11 - Batch L waste
A-5 - Carbophosphate batch.

10-11-47 ① Decontaminated ~~cone and~~ cone still hot plug and stored.
4-12 ② Continued good housekeeping clean up work.
Russell ③ Disconnected and removed P-2 off gas line. A new one inch line is being installed.
④ Resampled P-85, P-1.
⑤ Column regenerated and R-1 sampled.
⑥ P-85, P-3 was taken up in 200 ml. H_2O, pH adjusted and duplicate samples submitted to lab.
⑦ Decontaminated P-6.
⑧ The dutchman and gaskets to be installed in high pressure steam line at PB-2 are on shift supv. desk.

⑨ Analysis on P-85, P-1, 230 mc's.
⑩ Discarded P-85, F-2 with 7 mc's.
⑪ " P-85, W-1 " 10 "
⑫ Made iodine run #372. The composite is evaporating to dryness with a pH of 10.
⑬ Ba^{140} Run Status:
A1 Batch M Diluted & sampled. stand-by.
A9 2nd K_2CO_3 settling until 1:10 Am.
A11 Heel of batch L
A8 1st metathesis waste
A6 MT
A5 Neutralized waste "420 gallons"

10-12-47 thompson 12-8
1) Evaporated I^{131} composite to 300ml, pH 9-10. Sampled — 2 samples 823mc ST
827mc ST
2) Decontaminated cone to 150mr
3) Put down clean paper in N hot lab & dumped hot cans.
4) Maintenance unable to install PZ off gas line.
5) Maintenance put dutchman in PBZ steam header.
6) B26LL manometer is blown. Instrument man worked on it, but could not remove plug to put in new oil.
lab. 7) Now attempting A9-B12 transfer without success.
8) 8WCW sample taken
ch desk. 9) All Cell B waste jetted to A5

10) Blauer & Witkowski are handling the transfer to Cell B.

10/12/47
8-4
Kling

① Transfer to cell B (of product) was tried by A9-B12 jet & then A9-B26 jet - neither worked. Transfer was made by ~~pull~~ breaking lines A9-A8DA and A9-B12 at cell wall 2nd level & putting a jumper from A9-A8DA steam side to A9-B12 jet side into cell; A9-A8DA steam valve then opened & transfer made to B12.

② Run now electrolyzing in B12 at 25 amps until 8 35 PM.

③ Put 2 liters water in A-9 for rinse. Have so far been unable to ~~sampler~~ sampler plugged; sampler blown with steam intermittently - still plugged. Added 2 more liters - now 4 liters.

④ Prepared product carrier for cell.

⑤ Put large periscope in cell B & adjusted.

⑥ Filled 2 sulfur cans but unable to find washers & lead plugs to seal them. Cans are on 3rd level.

⑦ Started replacing P-2 off gas line in Cell 5 - maint did not finish job.

⑧ B-12 probed 7.5 in. at 5 15 PM.

10-12-47 ① Capped sulfur cans and sent to 105 Bldg.
4-12 ② Installed P-2 off gas line.
Russell ③ Rinsed P-3 (Heated and agitated) with .2 N. HNO_3, to P-5 and sampled.
Repeated P-3 through P-5 rinse with one liter of H_2O containing dead phosphorus. The C.P. reading on this rinse was comparatively negligible.
④ Cleaned the evaporator with 20 ml 1:1 HCl and followed with 980 ml. dist. H_2O in five rinses through filter, and burette. Sampled this liter also. Recovered 580 mc's.
This solution is now going through the column.
⑤ Cleaned up around fan house grounds.
⑥ Sampled A-9 rinse. Analysis .46 C's.
⑦ The Ba^{140} product solution is now in B-6 going down to dryness. Note fuming HNO_3 added in next step.
⑧ Two P-6 samples were taken.
→ ⑨ Call E.J.W. when fuming nitric has been evaporated. He is to notify H.B.
⑪ Made sulfur extraction. NaOH strike filtering through. (3Am)

10-13-47 1) 6P — 267 c @ AT
Thompson 2) Resampled B6 sol'n after evaporating to dryness + taking up product in 2L H_2O
12-8 Analysis on resample 222 c @ AT
3) Sampled all cell B vessels with any solution in them.
4) Sampled A5, A6, A8, A11, + A9
5) Jetted A1 — A11 — A9 + sampled in A9 again.

6) Took cutie pie readings at W11, W9, W5, sampled W5. Also took cutie pie readings at A16, large fan, crud filter, & wall Cell B and on all samples.
7) Started Pb removal - 2nd shot in now.
8) Product (such as it is) is in B6 evaporated to dryness.
9) The rest of the product is just plain gone.
10) P86-Cl 293mc, P85-HO 23.7mc
11) P86-Fl is in TV-2, vacuum has been turned off (Russell made run on 12-8 up to product ppt).
12) Recovery sol'n (H Russell's) is evaporating to dryness on steam bath.
13) Maintenance increased low pressure steam header for panel boards to 15#.
14) Building completely relamped. Lights on 3rd level over monorail are off because circuit is overloaded & the breaker kicks out. The bulbs are too large & need to be replaced - 12-8 shift maintenance will get this if it is not done before.

10/13/47 8-4 King

① Washed ~~all~~ tanks as noted in instruct. log & sampled in A-5 (labeled "A-5 waste"). Jetted A sump to A-5 & sampled (labeled "A-5 sump water waste").

② Combined mtr'l in A8 & A9 & started evaporation; added mtr'l from B-6 & followed by rinses B6 → B3 → B10 → A9.

Instrs. (verbally from H. Blauer) are to evaporate A-9 to 67 gals. and make an extraction. In making extraction use 670 ml $Pb(NO_3)_2$ sol'n, regular amt of H_2SO_4, and no water.

③ Made up batch books & corrected first four (N, O, P, Q).

④ "A-5 waste" = 4.68 c's S.T.

"A-5 sump water waste" = 3.03 c's S.T.

⑤ Holding A-5 until results obtained on A5 sump water waste".

⑥ Recd periscope rack.

⑦ Phos: P86-P1 (220 mc.) going thru column on top of glassware rinse. This is to be taken to dryness, baked approx 2 hrs., residue dissolved in P85-P3.

⑧ Obtained special funnel from glass shop for phos; placed funnel on bench in cell 5.

⑨ P86-W1 = 43.8 mc; P86-F2 = 28.2 mc.

⑩ W-9 analysis = 2233 c's; W-5 = 0.127 c's.

Corrected by chemists to 223.3 c's.

IMM 302 AT 267 ST 60 slugs 5.0 c/slug

10-13-47 ① Melted sulfur out of P-4 and P-5 and flushed
4-12 P-3 through P-5 with five hot batches of
Russell 0.1 N. HNO_3. Hosed down the cell.
② Discarded P-86, W-1 and F-2.
③ The rinse is following P-86, P-1 through the column.
④ W-9 is reading 100 mr/hr gamma over open top.
W-9 is reading 200 mr/hr gamma & beta " " "
Resampled W-9 and submitted to lab for analysis.
⑤ Jetted A-5 waste to A-6 and Co_3PO_4 from M-1 to A-5.
⑥ Evaporated A-9 to 65 gallons and continued with making extraction. Now settling cold in A9 until 2:20 A.M.
⑦ Filled sulfur can #25 with 2030 grams of sulfur and delivered to 105 building.
Could not sparge A-9 before sampeling because of an easterly wind. However, sample was taken from about the middle of the liquid in the tank.
⑧ Made up $Pb(NO_3)_2$ solution and sampled.
⑨ " " K_2CO_3 " " "
⑩ " " 35% NaOH
⑪ Dumped HNO_3 and H_2SO_4
⑫ Analysis of W-9 ran 194 c's. A recheck on the day shift analysis was 223 c's.

10-14-47 1) Made up 35% caustic & transferred it to M-11
Thompson 2) Made up 4% caustic in M-10
12-8 3) Added coating removal soln to A-1
4) Loaded 2 carriers & brought them

down. 1 full carrier on the truck. 1 full carrier on the chute.

5) Recovered 767 curies which were held up in A9-A8DB decant line.
8WMM — 787c AT, 525c @ 5T

6) All settling cold until 8^50 AM
A9 - 10^9, just waiting

10/14/47
8-4
King

① Loaded 320 slugs into A-1.
② 8WMM showed 22.7 gms. Pb.
③ Washed B-25 crud filter with 2 liters 70% nitric. Sampled rinse in B-6 & ~~[illegible]~~ labeled "B-25 rinse".
④ Did not put any more HNO_3 in holdup tank on 3rd level - leaking outlet valve is to be fixed when tank is empty.
⑤ Removed jet line jumper from west side cell A.
⑥ Put jumper at cell wall from A6-A6 steam side to A6-A5 jet side. The jets are now labeled with a piece of paper - old A6-A6 is labeled A6-A5, old A6-A5 has a blank piece of paper over it.
⑦ Turned on steam fan at 205 stack.
⑧ P86 product was taken up with P85-P3.
⑨ P86-R1 wash going thru column - not sampled.
⑩ Picked up dirty gloves in cell 5 & carried up new clean supply.
⑪ Requested stores to order $Ba(OH)_2$.
⑫ A-16 NH_3 cyl. empty 3^30 PM; moved full cyclinder in

and called maint. Not changed - full cylinder still not connected.

(13) Status of the run:

A-1 - Batch N dissolving
A-9 - heel from Batch M
A-11 - heel from " M
A-5 - Carbo phosphate batch
A-6 - Batch M waste awaiting results.

10-14-97 1) Analysis P-86, P-3, 856 mC's
4-12 2) Analysis of B-25 Special Rinse, 169C's
Russell 3) Analysis of 6WMM, 7.67 C's Note: Four 6WMM samples were taken. Each sample contained a ppt. The first ppt was white, the others were black. The sample was centrifuged and the supernant analysis run.

4) Opened doors on Cells II and III and checked for radiation. Nothing found.

5) Jetted B-22 → B-10 → B-3 and sampled. The 1½ml. sample read 500 mr/hr at 2". No so!

6) Dissolved batch N. Jetted through A-11 to A-9 and sampled. The 0.5 ml. sample read 3300 mr/hr at 1".

7) Verbal instructions of H.Blauer concerning the Pb removal B-17 → B-8 and B-6 → B-11 (<2 liters) and B-9 (<2 liters) were passed on to W.E.T.

8) Kept Rimshaw's HCl evaporation going.

9) Installed NH3 cylinder.

10) Jetted W-8 until 8 P.M. as per A.C.V.

11) Sampled P-86, R-1.

12) A-9 sample on batch N, 2269 c's.
Lab. is rechecking dilutions, etc. 2014 c's
If this is correct, dissolve batch O,
Jet through A-11 to A-9, agitate 15 min.
in A9 and sample A-9. Continue
making dissolvings.

A-1 Batch O dissolving
A-9 " N settling hot until 1:38 A.M.
A-11 MT
A-8 MT
A-6 MT
A-5 MT

13) Analysis batch N 419.9 c's A.T.
14) " of B-22-B-10-B-3 rinse 116 c's A.T.

10-15-47 1) Put lead removal solution through B17
Thompson & B8, put another shot through B6, B11
12-8 and B9. Combined with B25 special rinse and sampled in
B3. Pb .075mg/L 90.9 curies AT
2) Combined lead removal solution + HR's B22-
B10-B3 rinse in B10 and jetted to A9
on top of batch O before sampling A9.
Total curies added to A9 from cell B:

B25 special rinse	169	(Showed 90.9c on resample in B3)
B22 rinse	116	
	285 curies	(or 206.9 curies)

3) All cell B vessels are now MT, although no
final rinse has been put through.
4) 1MN 419.9 c. 70.6 slugs 6.0 c/slug
1MO 419.9 c 65.5 slugs 6.4 c/slug

5) P86-R1 15.3mc AT
6) We need some more tubing for sample tube washers. Where is it obtained?
7) ~~[illegible]~~ Sampled P86-P3 ~~for~~ for lab; they did not have enough sample to finish Cl^- analyses.
8) Maintenance repaired HNO_3 line valve to scale tank. (3rd level
9) Removed MT NH_3 cylinder.
10) Thanks for the bell on W-11 ~~[illegible]~~ overflow.

P dissolving?

10-15-47
8-4
King

1) Resampled A-9 (Batch O + wastes); analysis showed 3300+ c's A.T.
2) Put Pb removal solution in B8 & B6. Washed B9 & B11 several times with Pb removal solution & then washed them with water. Pb Removal solution still in B8 and B6.
3) Cleaned decontamination room & decontaminated sample tube slips. ~~Obtained~~
4) Got rubber tube for sample tube ~~washer~~ gaskets.
5) Cleaned out chemical shack by W1 & W2.
6) Status of run: A-1 - Batch Q dissolving
A-9 - Batch O settling until 6 PM.
A-11 - Batch P ready for A-9
A-5 - Carbophosphate batch
A-6 - Waste from Batch N - sampled.

Neutralizing

10/15/47 (1) Followed SJR's instructions on "fuming Nitric Beaker"
4-12 until heat was turned on to evaporate solution after
Perry 300 ml conc HNO_3 was added. Beaker suddenly gave the appearance of being cracked & process was stopped at this point.

(2) Status of Run

A-1 — Batch Q diluted & waiting.
A-9 — Batch P settling cold until 4:12 Am.
A-11 — Batch O settling until 12:40 Am.
A-5 — CO_3 - PO_4
A-6 — MT

(3) Note — These are instructions from Blaner for Owl shift tonight:

(a) Hold Batch "Q" in A-1 until Day shift tomorrow.
(b) Decant Batch "O" from A-11 at 12:40 Am as scheduled.
(c) Decant Batch "P" from A-9 at 4:12 Am as scheduled, sample 8 wmp and transfer to A-11 for a 5 hour settling period.
~~(d) Sample Q~~

(4) Assembled run sheet for Batch Q considering it to be the last batch.

(5) Cleaned cells at following places - on balcony, on stairs, at water fountain, and sink. Smears not taken.

(6) SJR's filtration overshot desired 900 mark. Rinse ran through before filtration could be checked.

10-16-47 1) Finished cleanup work on Cell 5. Scrubbed
Thompson spots listed on the sheet from 14-23.
12-8 HP surveyed & we scrubbed them again.
HP took smears on spots 1-2 & 3 at

7⁰⁰ AM - Results not in yet.

2) Run status:

A1 - Batch Q diluted + sampled.
A9 - Batch P heel — 10"
A11 - Batch P settling
A5 CO_3PO_4
A6 MT

3) 8WMO 5.2 curies (jetted to A5 → W9)
1MQ 306 c ST 60.7 slugs 5.9c/slug
8WMP 71.9 c AT — 62.7 c ST

10/10/47 [8-4]

① B26 L.L + Sp. Gr. manometers are repaired.
② W-7 float installed.
③ Filling in dirt near W-4
④ Cleaned up part of the safety inspection
⑤ A9Q samples showed 3300 + 3700 curies at shipping time.
⑥ Sulphur can loading equipment is now in the decontamination room. The scales are on the table at the East side of cell A.
⑦ B9 + B11 were flushed with distilled water through B19.
⑧ Manual jet valve on W-11 replaced.

Plant

10/16/47 (1) The pick-up truck is in bad shape. Ladd thinks
4-12 it either has a cracked piston or blown head gasket.
Perry. (2) Cleaned N. hot lab except on the hood side.
(3) Replaced outlet valve on P-4 in Cell 5. Parts of the job not completed by maintenance were: (a) valve extension handle (b) brace for vent pipe. (c) check of electric circuit for P-4 (6R) valve heater. Old P-4 valve in decon. room.
(4) Completed charging A and B bank of batteries.
(5) Decontaminated tools for maintenance.
(6) Run Status.
A-1 — Batch R — held as standby. Sampled.
A-11 — Batch Q — Settling
A-8 — ~~MT~~ H_2SO_4 wash decant from A-9.
A-9 — First water wash settling until 12:25 p.m.
A-5 — CO_3PO_4
A-6 — MT.

10-17-47 1) Finished cleanup in N. hot lab. HP
Thompson took smears.
12-8 2) Completed work on P4 valve in Cell 5. Circuit okayed by electrician.
3) Run status:
8WMQ — 732 c ST
6WMQ — 13.3 c ST
9MR — 1956 c ST
1MR 308c 659 slugs 5.2 c/slug.
Batch R was jetted to A11, agitated + jetted to A9. Water wash solution in A8 was jetted into A9 up to 100#, the rest of the water wash sol'n is

still in A8.
A1 - MT (heels, dissolving not started)
A5 - CO_3PO_4
A6 - Batch Q 13.3c ST
A8 - approx 50# water wash sol'n.
A9 - Batch R settling hot until 9:45AM
A11 - MT
the 9MR sample, the lab reports, had a ppt in it — it was too late then to resample. Analysis: 1956c ST.
the last water wash was left in A9, not decanted - sol'n from A8 added on top of it to make 100#.

10-17-47 ① Made sulfur extraction, Run 87.
8-4 a) The product solution is going through column.
Russell b) W-1 has been sampled.
c) F-2 is on disc, SR-1.
② Ba^{140} Run status:
A-1 Batch S dissolving - stand-by
A-9 " R settling until 9:45 P.M.
(1st cake wash)
A-11 MT
A-8 Waste - do not move until analysis has been checked.
A-5 MT
A-6 MT
③ Decontaminated & repaired dissolver plug I^{131}.
④ Removed glass window above I^{131} hood.

(5) obtained Tc samples and placed in west annex. Note the 75 gr samples.

10/17/47 (1) Started Iodine run # 374 - Finished 4th cut. Got a late start because
4-12 of inability to find equipment. (mirror, carrier & cutter,
Perry and slug lid remover and several other items missing).

(2) Followed evaporation of SJR's "stuff". Beaker cracked so transferred solution to another beaker. Let this solution evaporate to 300 ml & pull the heater cord.

(3) Followed instructions for Pressley's column. Found out after working with it for some time that background in vicinity of column is 6 R/hr.

(4) Made housekeeping inspection. Every thing looks good except 3rd floor N.E. corner which is in foul shape as usual.

(5) Run status.

A-1 Batch - S dissolving
A-5 Neutralized batch R
A-6 Part of Neutralized batch R. (A5 wouldn't hold it)
A-9 Run 21 (Heating)
A-8 - 8 WW solution Sample at 11:55 pm.
A-11 - MT

(6) Dissolved & sampled Run P87 - F2

① Stopped evaporation on Rimshaw's "stuff" at approx 300 ml.

10/18/47 ② Followed instructions on Pressley's column.

12-8 ③ Iodine - finished run #374; made run #376.

King - Composite evaporating; pH = 8.

④ Water wash decants from A-9 were put in A-11; also tank A-8 washed with water after water washes and transferred to A-11.

⑤ Worked on housekeeping as noted on housekeeping inspection.

⑥ Maint. put chicago cupling on A9-A8DA & A9-B12 lines on cell wall - jumper can be slipped on when ready for transfer.

⑦ Phos. Cell 5 - P87-P2 going to dryness.

- Column regenerating - wash not added.

⑧ Analysis of SWW showed 176 c/s S.T.

⑨ Run Status -

A-1 - Batch 5 diluted & sampled

A-9 - 2nd metathesis settling til 8 41 AM.

A-8 - 1st metathesis waste

A-11 - Extraction cake wash waste (SWW).

A-5 } Neutralized Batch R
A-6

10-18-47 ① Added rinse to P-87, R-1 and sampled.

8-4 ② Discarded P-87 R-1, F-2 and W-1

Russell ③ P-87, P-3, carrier free, was taken up in 200 ml. H_2O, two 5 ml. samples submitted to lab.

④ Cleaned house in Cell IV.

⑤ Installed jumper 2nd level to A-9 B-26B jet. However, could not jet from A-9 to B-26. The transfer was made using A-9 to B-12 jet.

nl. A-9 was rinsed with 350 ml. HNO_3 + 350 ml H_2O.
The second rinse consisted of one liter water.
The product solution is now in B-12, we hope.
A-1 Batch 5 dissolved and sampled
A-9 10 liter H_2O and sampled.
A-8 Neut. carbonate waste
A-11 8 W.W.
A-5 ~~neut. waste Bath R~~
A-6

⑥ Made iodine run #376. pH of evap. 10.
⑦ The drain valve P-5 heating element is out.

10/8/47 (1) Note to HTR - Lab analysis for P.87 P-3 corrected to 220 mc's instead of 22 mc's.
[U-12]
(2) ~~Lowered~~ Raised working time on P-5 valve from 5 min to 15 min. Electrician can find no reason for failure to heat unless valve is shorted out as may have been caused when S.S. hood was installed. Shift maintenance will continue work on this job.
(3) Mt'ed B-6 & B-8 & rinsed.
(4) ~~B-P~~ 12-P Sample taken before electrolysis in B-12 gave analysis of 2087 c'a S.T. (ST = 8⁰⁰/p 10/8/47).
Lead analysis 118 gms.
(5) Run status -
R cell same as last shift
Product electrolysing in B-12 until 1³⁵/Am -
(6) Attended to Pressley's column. Present cut should be the last when it finishes.
(7) Started Iodine run # 381 - Oxalic acid addition just completed.

10/19/47
10-8
King

① Completed instructions on Pressley's column.
② Iodine - completed run #381.
- composite evaporating ; pH = 10. Volume = 300 ml. (Cooling before filtering)
③ Took two 6P samples - one by King, one by Walker.
④ Maint. reports heating circuit of P-5 valve is open inside windings on valve.
⑤ Washed glassware according to inst. in procedure.
⑥ Put carrier & conc in cell on dolly - it is still under chimney.
⑦ Run is now in B-6 evaporating to 350 ml.
⑧ 6P samples showed (average) 2600 c's S.T.
⑨ Note - 20 liters water in B-3 for fuming nitric waste.

10-19-47
8-4
Russell

① Transferred product I^{131} to vessel above burette.
Total volume, 300 ml.
Final pH 8
5 ml. sample read 850 mr-hr thru bottle.
② Discarded P-87, R-1.
③ Removed P-5 drain valve and installed gate valve, no heating element.
④ Flushed out system with 0.1 N. HNO_3 and H_2O.
⑤ Transferred Ba^{140} product solution from B-6 through glass ware processing and to B-19.
⑥ Made sulfur extraction, Run P-88

~~F-2 is on the disc SR-1~~
~~P-1 is going through column~~
~~W-1 has not been sampled~~

H+R. was optomistic.

3 WFN — 17.6 c/s AT
17.8 c/s LST.

10/19/47 (1) Phos. extraction was hung in P-5 at shift start.
4-12 Russell stayed over & extract was finally drained off.
Perry (2) Completed evaporation of Ba^{140}. Attempted sky shine but got no reading. Probe showed max. reading of 15 R/hr. Carrier brought back and ~~con~~ plug dropped in about 1". Instrument man found a bad switch on sky shine.
(3) Made housekeeping clean up. Sampling equipment decontaminating in barrel.
(4) Dumped 9 barrels of solution from 3rd floor into W-5 per instructions.
(5) Transfered soln. from B-3 to B-10. Added lead removal solution to B-12.
(6) Continued P^{32} run 88. W-1 sampled, P-1 sampled & run going through column. C-1 analysis 4.89 mc AT. F-2 ~~sampled~~. Not sampled on column.

10/20/47 (1) Completed B-12 lead removal; sampled in B-3.
12-8 (2) Made-up carriers for H-Cl-ether and glass rinse
King except for bottle for one carrier; unable to find 2 liter pyrex bottle. Approx 3 liter bottle in other carrier.
(3) Turned off south water still above 3rd level — condenser cooling water was leaking thru hole in drain line on 2nd level (S.W. corner); distilled water storage tank overflowing.
(4) Filled two sulfur cans and delivered to 105 bldg.
(5) Washed tanks, floor, wall, etc on balcony of cell 5; washed floor on 1st floor.
(6) P88-P1 still going thru column.
(7) Attempted skyshine at 7AM — got no reading. Probe

by H.P. shows 27 R.

8-4 ① Could not get sky-shine instruments to work
10-20-47 Reading with the probe was 28 R.
Russell Loaded carrier on truck @ 10:00 pm
② Dissolved P-88, F-2 and sampled.
③ Added water rinse to column.
④ H.P. Readings on shipment.

READINGS ON CARRIER

Top of cap 600 mr/hr at 4"
Top of carrier around edge of cap 90 mr/hr at 4"
Side 20 mr/hr at 4"
Inside truck cab 3 mr/hr above seat back
At Right rear wheel <5 mr/hr
at Left Rear wheel <5 mr/hr
at Rear above tailgate 6 mr/hr

Smears

Top of cap – 10,470 c/m
Top of carrier – 16,247 c/m
Flange of cap 1,939 c/m
Side – 2,238 c/m.

⑤ Shut down steam engine.
⑥ Emptied the drums of waste from 3rd level into W-5 and tagged drums.
Key made and received → ⑦ Request for pick-up truck key has been placed.
⑧ H_3PO_4 has been added to P-88, P-3.
⑨ Began Cell A, B tank clean up.
a A11, A8, A9, B3, B6 and B10 was jetted into neutralized metal waste in A6.
A6 was then jetted to W-9

b) The HNO_3 was added through B-3 as per regular procedure.
c) Made up CO_3PO_4 and sent to A-5
d) Batch 5 was jetted to A6 → A5 → A6 → ~~[illegible]~~ Going to A6 at shift change.
e) Heels in A1 are now dissolving.
f) Dumped acid
~~g) Made~~
(10) Made sulfur extraction Run #89.
a) NaOH strike has been made. Now filtering from SR-1 to TV-2.
b) The rinse has not gone thru P-3 see run sheet.

10/20/47 (1) Sampled HCl-ether in B-17 and transfered to
4-12 carrier. Carrier now reads → 10 R/hr. through
J. Perry one side and ~ 640 mr/hr. at other side Bg at entrance to dressing room 40 mr/hr. Friskers at entrance to dressing room off.
(2) Used almost all exposure on HCl ether so glassware rinse was stopped in B-24. Carrier in place next to J-1 blister.
(3) Solution in B-24 of dissolving proved to be a bottle-neck so instead of following rinse of B cell equipment, as outlined in instructions, to cell A, it was stopped at B-3 and sampled. This should give material balance as well as if it were sampled in A-6.
(4) P-89 taken through glassware P-1 now going through column and onto P88-P3.

⑤ Ba analysis on HCl-ether waste 231 c's.
⑥ Rinse of Cell B equipment instructions said "suck 1L from B-6 to B11 and then blow back." The liter went to B-11 but we couldn't blow it back. This liter was discarded through B-19. (1L HNO_3 & 1L water rinse) Sample of B-3 shows volume of 8 Liters which includes these 2 Liters for material Balance.

Heels still dissolving?

10/21/47
12-8
King

① Put glassware rinse in carrier and parked carrier in doorway. Carrier reads 200mr over top at hotest point (on contact).
② Rinsed B11 thru B19 with water.
③ Added 1 liter of water to B21R, sparged, filtered, sucked to B-24, & sent to B3.
④ Added 1 liter of water to B21R, sparged, filtered, pushed to B19.
⑤ Decontaminated adapter & sampling equipment in barrel.
⑥ Cell B rinse analyzed 49.4 c's A.T.
⑦ Followed (not complete) A cell wash –
Status: A-1 - 40 gals. water (2nd time)
A-9 - 40 gals. water (1st) heating till 8:20 AM
A-11 - Batch T heels - ready for A-5
A-5 - Carbophosphate batch.
⑧ Phos: P89-P2 evaporating to dryness.
Column regenerating - wash not added.

10/21/47 (1) Moved HCl-Ether, Ba Trinse glassware carriers to Garden East of 706-D.

[8-4]

(2) Housekept.

(3) Phos:

Regenerated Column — Completed

Dissolved out F-2 + sampled = 168.6 mc's

R1 — sampled = 33.5 mc's

3 Washes run through P-5 1 liter H2O each

Cleaned up cell 5 a little

(4) Washed the 3rd floor. It had high smears. It is to be resmeared as soon as it is dry.

(5) Reassembled A9-A8 DA jet.

(6) Completed + sampled all cell washings.

(7) Cleaned old cones from blisters

(8) Cleaned up desks.

(9) All micromaxes on P. Board shut off between runs.

(10) A 10 fan is off.

(11) Phosphorous again.

P-89 went to dryness in the evap. at 3 P.M 80 ml or 8.2 mg dead Phos. added.

Maint. is replacing P4 + P5 values They are working overtime to install these resistance values + their wiring. Follow them up on it.

(12) One barrel of Caustic sent to A5 + diluted. Nothing sent to W-11 jet.

(13) Cleaned blisters A8 + A9 + B3 + B6 partly May need more washing.

10/21/47
4-12
Perry

① - Washed A-16 fan for about 5 hrs. with water. Radiation did not decrease (2.5 R at contact) so coupled a steam hose TO line going over fan house. Turned on Low pressure steam, then high pressure steam. Found line to be blanked & this had to be removed before steam would go into A-16 pipe. ~~Note - If all the steam goes up the stack it may become necessary to blank the A-16 line above the steam coupling to get steam on A-16 fan~~ Steaming A-16 fan NOW.

② Decontaminated probes.

③ Tagged lines entering cell A & B from PB #2 & PB 4A. Correctly.

④ Checked jets and sparger lines & only one is hot. That is A-9 sparger line. Did not steam because of A-16 being off.

⑤ M'ted hot tank at 105.

⑥ Took up P88 & 89 P-3 in 200 ml H_2O. pH 7.5. Analysis 860 mc's. Disposed of all waste solutions.

⑦ Four electricians put the ~~resistors on~~ Transformers on P-4 & P-5 Valves. One more line & we won't be able to see the valves. Electricians were not at Cell 5 between 4 15/p & 4 30/p Nor between 5 10/p & 6 25/p. To my Knowledge the 4 men who got Time & half pay did not work between 4 15/p & 6 25/p. It was necessary to call maintenance supervisor to get them then.

Thanks John

⑧ - Worked on B-3 & B-6 blister. Still hot B-3 O.K. Acid rinse circulating in B-6.

10/22/47
12-8
King

① Continued steaming of A-16 fan.
② Air line to A-9 sampler reads 7R according to H.P.
③ Decontaminated (worked on - not low enough) A-8, A-6, A-5, A1 blisters, i.e. washed with dilute nitric.
④ Started making up coating removal solution in make up tank at W.1 & W.2. Added 430# caustic and 98# water, Nitric is ~~sitting on back of track at W1 & W2 to be~~ added (199#)
⑤ A-16 fan shows (by H.P.) 3.5 R on bottom N. side.
⑥ Hosed down N. Hot Lab.

10-22-47
8-4
Russell

1) Made weld to stop leak in water line at South west corner Cell A, 2nd level.
2) Continued decontamination of A-16 fan using steam and water alternately. Readings range as high as 7½ R @ 4". Steam on now.
3) Decontaminated hot spots 3rd level.
4) Cleaned up platform and make up room.
5) Had to jet W-1 manually.
6) Installed weight and pulley on W-1 lid.
7) Removed old conduit on east side Cell B.
8) Do not turn on electrical switch to P-4 and P-5 drain valve heaters until electrical completes installation, and valves are insulated.
9) There are 141 uranium slugs (cold) now in the make up tank at W-1, W-2 undergoing coating (Al) removal in a $NaNO_3$ solution. When all the Al has been dissolved, drop waste solution to

W-2 and flush slugs in tank with water, using hose, until all $NaNO_3$ has been rinsed down. Then remove slugs to 105 building and get ready slip.

10) Removed temperature control from inlet duct Cell B for repair.

11) Maintenance started insulating P-4 and P-5 drain valves.

12) Installed electrical leads connecting phone bell at W-7 to "big gong" at W-7. Final connections are not made as yet.

13) Installed lower limit switch to W-11.

10-22-47 1) Removed slugs from black iron tank by
4-12 W1. Drained coating removal solution to W2
Thompson There were only 74 slugs with the coating completely removed. These are now loaded in the bucket in front of the decontamination room. The rest of the slugs are soaking in 40% NaOH in the two buckets on the sled in the decontamination room.

2) Surveyed Cell 5 and cleaned up hot spots.

3) Continued running water and steam alternately through A-16. Steam is on now — ready for water any time.

4) Maintenance replaced floor drain grating by shipping room.

10/23/47
12-8
Rappy

① Took down A9 sampler air line & A9 sparger line (hot portions). Decontaminated part & replaced hotest part with new line.

② Washed down floor of N. Hot lab.

③ Partially shielded conc. pad under A-16 fan; used all exposure time in helping maint on hot lines (see above) and placing shielding.

④ There are 109 slugs in bucket with coards completely removed; other slugs are still in caustic in decontamination room.

⑤ A-16 Fan at working distance shows on east side 200 mr/hr (30 min.) and on south side 700 mr/hr (8.5 min) according to H.P.

H.P. reports that most of radiation is coming from fan itself — not base & pad.

10-23-47
8-4
Russell

1) Disassembled and reinstalled transformers and electrical leads to valves P-4 and P-5. No good
2) Installed cover on make up tank at W-1, W-2.
3) Made up iodine run sheets for two 150 gm runs.
4) Continued decontamination of A-16 fan.
5) Emptied 4 drums NaOH into M-1 → A-5 for use at W-11
6) Made up ~~oxalic~~ Chromic and 18 N. H_2SO_4 for Iodine Runs. Also made up fresh 0.32 N. NaOH.
7) Completed dissolving Al cans from U slugs and returned slugs to 105 vault.
8) Cleaned up decont room.
9) Replaced pigtail on A9 gauge to sample blister
10) Closed A4-205 value behind Panel Board 1.

(11) Cell 5 is being smeared by H.P. Clark. Hughes will count the smears + I want the 4-12 + 12-8 to scrub them to a below tolerance level.

HB. ⇒

(12) Repacked all steam valves at W-11

(13) Putting 2 transformers in parallel on each valve P_4 + P_5. These work fine.

(14) Housekept a little.

10-23-47 1) Filled 1 sulfur can #28 + delivered it to 105.

4-12 2) Cleaned up cabinets on 2nd + 3rd levels.

Thompson 3) Made up CO_3 sol'n at W1-W2 (tankful).

4) General building cleanup per HB's instructions.

5) Scrubbed down cell 5 with acid, soap and water — ready for HP to smear.

6) Continued alternate steam + H_2O on A16.

7) Held safety meeting.

10/24/47 ① Cleaned up decontamination room; decontaminated

12-8 sampling equipment, cone, bolts, etc. and stored same.

King Plug still reads 40 mr/hr.

② Continued decontaminating A-16 fan with steam & water alternately.

③ Hosed & scrubbed down N. Hot lab floor.

④ H.P. resmeared cell 5 except balcony floor (wet). Rescrubbed shelves on balcony and balcony floor.

⑤ Held information meeting; also short safety meeting.

10/24/47 ① Housekept - cleaned S loading table east of Cell A -
8-4 Stored some glassware from 3rd floor in
Perry low storage - Made up crock of cleaning soln.
on 3rd level.

② Checked Iodine equipment. Repaired bad
connection at vacuum pump. Brought down
4 slugs - Caution reading 1.5 R through scales.

③ Replaced bridge to W-11.

④ Replaced flank in A-16 line where steam
hose went.

⑤ Repaired spigot in changehouse.

10-24-47 1) Made housekeeping inspection + completed
4-12 all except replacing lights - and repairing
Thompson integron west of Cell B - 2nd level.

2) Started I131 run 384 - now taking 1st cut.

3) Vacuum pump for I131 failed. Replaced
it with one from low storage.

4) Took special sample of Ba for IBW

5) Looked after Rimshaw's beaker.

6) Scrubbed 3rd level, cleaned out gutters
and drains -

10-25-47 1) Made routine housekeeping clean up.
12-8 2) Replaced all burned out light bulbs.
Russell Shift maintenance could not replace light
fixture on 3rd level.

3) Decontaminated iodine vacuum pump.

4) Completed iodine run #384 and began
evaporating product solution with pH ~8.

5) Kept Rimshaws beaker going entire shift.
6) Started iodine run # 387. The oxalic is ~~just about~~ all in.
7) Jetted W-11 NT at end of this shift.
8) The iodine vacuum pump is being steamed and reading 20 mr/hr at the most.

10/25/47 ① Completed Iodine run # 387 & cleaned up N hot lab.
8-4 Washed pipettes. Unable to evaporate product
Perry solution because of steam shut down. 1st/cut read >10R/hr. Note - B.g. at top of product barricade reads ~1R/hr.
② Made up 25% caustic ~~in AA~~ and brought 5 barrels from settling basin storage of 50% caustic for W-11 additions.
③ Put in order to maintenance to cut acid-proof gaskets for SS. drums in tank farm next to the "whiskey barrels".
④ Held Safety & Information meeting.

10-25-47 1) Completed evaporation of I^{131} composite and
4-12 took 3 samples - 1 from beaker, 1 from burette.
Thompson 2) Housekept around bldg.

10-26-47 1) Began setting up strontium glassware. The
12-8 glassware is now on the long table at
Russell south side Cell A, first floor. Please do not disturb this equipment. We hope to locate and/or had made up the missing parts!

2) Made a double sulfur extraction, Run #90.
   a) The product solution is filtering through SR-1. The ppt. has not settled low enough to decant and filtration is slow.
   b) The sulfur is cooling in can under P-4.
   c) Note the contaminated spot near sink and marked on paper.
   d) In processing this batch, treat as a single run.
3) Hosed down north hot lab.
4) Analysis P-90, C-1 = 2064 mc's.
   Note C.P. reading through plexiglass is ~100 mr-hr.

10/26/47 ① Started running SARAN ~~Saran~~ line to decontamination room.
② Ran P-90 through glassware. Much silica. Sampled W-1 ~~[illegible]~~ - Now going through column. P90-W1-20mc AT
③ Maintenance changed air filters on 3rd floor.
④ Analysis I-387-2AC: #1 840 mc #2 748 mc.

10-26-47 1) Maintenance completed installation of
4-12 distilled water line to decontamination room
Thompson. 2) Broke the key to 706A store room
3) P90-P1 should be just about through the column at 12^00
4) P90-F2 sampled. — 367mc AT
5) Made another dissolving on SR-2 residue in the same way as P-1

P90-P1A

and sampled. Solution now in P-1 – 932 mc AT

6) Repaired vacuum pump and put it up in low storage.

7) P90-P1 analysis 580 mc's AT

8) Lost about 50 ml of F-2 because the sampling stopcock stuck.

10-27-47 1) Transferred P-1A to nalcite and combined
12-8 with the P-1 with 580 mc's. Rinse has not been added.
Russell 2) Rinsed the extractor equipment and melted out small amount sulfur in P-5.
Cleaned up Cell V
3) Reprocessed F-2 containing 367 mc's.
Done AR 4) Blauer, we need empty cans from the cafe for use in Cell V.
order placed 11-6 5) Worked on strontium equipment set up.
6) Blauer, the floor in Cell V needs a paint job.
7) The NaOH strike on F-2 reprocessing and ~~equipment~~ rinse is filtering thru SR-1.
? 8) ~~H_2O_2~~ has been added to evaporator.
Do not combine product solution from F-2 reprocessing to the product now in evaporator.
When product goes down to dryness, bake residue for at least one hour, cool, etc. and take up in 500 ml. dist. water.
9) The strontium glassware has been set up, the design has been such that it can very easily be moved and a run made at any available hood without difficulty.

10/27/47 ① Replaced 106-A Stock room key.
8-4 ② Decontaminated pad at A16 fan
Blower ③ Started setting up dump facility in tank farm.
④ Phosphorus:—
P1B — The recovery of F2 is holding up in P1 waiting for the column.
F2A is on the disk
P1A — going through the column
P1 + P1A is evaporating.
All dead P has been added.
⑤ Picked up one complete change (except for shoes) for each member of the 12-8 shift + stored in glass cabinet in the office.

10-27-47 1) Painters painted 3rd level, SE stairs,
4-12 locker room, + hot labs.
Thompson 2) Maintenance replaced leaking safety shower valves (2) on 1st level.
3) King did a thorough job on cleaning up the tank farm (boards, scrap, etc)
4) the tank farm scrap is on the bed of the large truck awaiting day shift to put it in the burial ground.
5) Sampled P90-F2A 654mc
6) P90-P1B going thru column - on top of other P1 solutions -
7) P90-W1-B 19.8mc - discarded.
8) P90-P1-B 160mc
DAY SHIFT 9) How about having the 2nd floor integron west of Cell B fixed? And get the

day crew to put in the lights over the monorail in front of N Hot Lab entrance. Shift maintenance cannot do these jobs.

10-28-47 1) P-90, F-2A (654 mc's) must have gone down the
12-8 drain. It was not to be found.
Russell 2) Suggest the vacuum header valve be turned off at all times except when necessary to make P^{32} transfers. Again tonight P-3 contained ~~unidentified~~ solution which had, ~~no doubt~~, been pulled over from the evaporator, and which necessitated a hot job transferring solution back to the evaporator.
3) 467 mc's of P^{32} were picked up in the final extractor rinse and processed along with F-2. This made a total of 2531 mc's for the two extractions, run 90.
4) Obtained 20 ml. HCl-ether waste from carrier, Ba run 20, and started strontium run #
Because of radiation hazards involved, only 20 ml. was used at this time. Completed the second fuming nitric precipitation. The product is now on the disc. Used all exposure time. Reading at the valves through plexiglass before the first nitric waste was discarded was slightly above one R. Extra shielding was employed and valve settings were made in a matter of seconds and rotating operators.

5) Product P^{32} solution is evaporating to dryness. Rinse has not gone thru column. Evap 2/3 full.
6) Shift maintenance cannot replace light fixture on third level. This is a day job.
7) Carried benches back into change house.
8) Winn was very sick last part of shift

10/28/47 ① Added rinse to P-90. Still going through column.
8-4 ② Filled ONE SS. drum with UNH.
PERRY Note. Leave this job for Day Shift tomorrow. Disregard H.B.'s note in "INSTRUCTIONS".
③. Completed hot Sr run # 2A. Started dead Sr run # 13 aa. Next runs will be 13b, 13c. etc until all of Ba run 13 is used up. Then Number the Next runs accordingly ie 14aa, 14b, 14c.
④ Put in order to do the building lights job.
⑤ Washed glassware (Ba) with HNO_3.
⑥ There is a 1 liter bottle of HCl-Ether solution from Ba run #13 on the table in the decont. room behind lead brick. This is only part of the HCl-Ether Waste of Ba run #13. This is to be the the next Sr. run. One run sheet is made up in the decont. room. Don't forget all of the runs made from Ba run #13 go into one product bottle.
⑦ P Phosphorous - Column rinse is going through now. Evaporator is still on.

10-28-47 1) Started Sr run # 13AA — 2nd distillation
4-12 now in process.
Thompson 2) Cleaned isotope carriers.
3) P^{32} still evaporating.
4) Painters worked on scheduled floors. They will finish up tomorrow night. They didn't have the right kind of paint to paint the carrier & post; but will get them later.
5) Cleaned Cell 8 again.

10-29-47 1) Made up strontium run sheets and placed in
12-8 mail box shift supv. office.
Russell 2) Held safety meeting and general discussion on operations.
3) Regenerated naleite column. The water rinse is now going through.
4) P-3 has just gone down to dryness. The T.S. may be high. Suggest around 600 ml. dist. water be used to take up product.
5) Continued strontium distillation which was very very slow. Down to ~10 ml. now, which is about low enough. Turned off variac to heater at 7:40 Am. Now cooling.

10/29/47 ① - Filled SS. drum with UNH from whiskey barrels.
8-4 ②. Moved ladder from E. side of A-16 fan-house
PERRY to W. side.
③ Finished Sr 13-1. Product is in isotope room behind lead shield reading much > 10R/hr at surface of soln. Note nomenclature of runs 13-1, 13-2, etc.
④. Put lead risers on 3rd floor lead apron.
⑤. Adjusted P^{32} run 90 to pH 2.45. Filtering now very slowly into P-3.
⑥ Shielded N side of A-16 fan for ~~placing ladder~~ removing blocks.

10/29/47 ① Removed blocks from north side of A-16 fan.
4-12 ② Painters painted floors as noted in "instructions log".
King ③ Started Sr run #13-2.
④ Held meeting on items covered in supr. meeting earlier in afternoon.
⑤ Sampled P90-P3 (took two samples A & B).
⑥ Stored P90-P3 in isotope room vault.

10-30-47 1) Analysis of P-90, P-3 no good. 10 mc's total P^{32}
12-8 2) Discarded P-90, R-1
Russell 3) The product of P^{32}, Run 90 is now going through the nalcite column into the hot evaporator. Follow the product solution through the column with 150 ml. distilled water. Do not add any dead phosphorus. Please do not add anything else to the evaporator except the 150 ml. H_2O rinse above,

Evap. to dryness and bake one hour.
Take final product up in 500 ml. dist. H_2O
adjust pH, sample, etc.

4) The P^{32} evaporator has been thoroughly cleaned and much foreign material was processed in order to recover the active P^{32} which we hope is now entering the evap.

5) Continued strontium run. HCl-ether distillation now in progress.

10/30/47 ① Continued transfer of UNH from whiskey barrels to
8-4 SS. drums.
Perry ② Completed shielding of A-16 fan (Bg at high spot 40 mr/hr)
Maintenance started pouring concrete for new fan base.
③ Assembled Iodine run sheets for the 3 runs this week-end.
④ Dug into manhole behind 706-C to investigate radiation source. Nothing found but the radiation from pipe line.
⑤ 150 ml H_2O going through P hoo. column now.

10/30/47 ① Put gasket & lid on drum of UNH at tank farm.
4-12 ② Completed Sr # 13-2. Added product to
Kirk product from Sr # 13-1.
③ Drew approx 900 ml. from HCl-Ether waste of run # 13; started run # 13-3. There is still some HCl-Ether waste in bottle in decontamination room and some in the garden.

④ Phos in cell 5 evaporating to dryness.
Column regenerating - acid (1:1) has been added, water rinse (100 ml.) has not been added.

10-31-47 1) Strontium Run 13-3 now in progress. A total of
12-8 800 ml. of HCl-ether waste from Ba Run 13
Russell has been added to flask 3 now evaporating.
2) Lights are out on big truck.
3) Have battery checked on pick-up truck.
4) TV-1 should be vented through P-6 when not in use. This is a steam jacketed closed vessel with no pressure release, and hazardous under certain conditions.
5) An attempt was made to remove P3 from the glassware. If the analysis (P-3C) indicates another hold-up on the disc, another recovery should be made and the disc replaced with a new one before the next filtration. Use 20 ml. 1:1 HCl + a little water, rinse and build volume up to one liter (H_2O). Suck up in P-1 → nalcite → evaporator.
6) House kept much as possible.
7) There is a steam leak in M-11 coils.

10-31-47 1) Sr run # 13-3 almost finished.
8-4 2) Started I^{131} run # 390.
Thompson 3) P90-P3-C 1280 mc AT
4) P90-R1 41 mc AT
5) A large excess of water flowing into W-1 + W-2 had caused the

W1-W2 diversion box to overflow sometime around 8:00 AM. Water was not stopped until 9:15 AM. Parts of the tank farm (gulley from W1-W2 to the road) and the ditch by the road are contaminated. Water only read 50 c/min/ml avg.

6) There is a full drum (SS) of UNH waiting to be sealed up. The Koroseal gasket maintenance made on 8-4 was too large; referred to 4-12 for final action.

7) 105 bldg is purging the deep pit and will be for the next few days. Dilution H_2O turned down ½ turn.

8) Maintenance pouring concrete pad for AIB.

9) Transferred UNH soln to SS drum.

10) Drew out the last of the HCl-ether from Ba run 13.

?

~~[illegible]~~

10/31/71
4-12
King

① Put gasket & lid on drum of UNH at tank farm.

② Transferred HCl-Ether of run #17 from carrier to storage in garden. Carrier on east end with lead box sitting around it is now empty.

③ Finished Sr run #13-3 and transferred product to Sr #13 product bottle.
Started Sr run #13-4.

④ Made up lead removal solution & put in B6 & B17 and B8.

⑤ Drained T_1 & T_2 & washed out tanks. Made up new $Pb(NO_3)_2$ & K_2CO_3 solutions; submitted samples to lab.

⑥ Key to 706A stores is in lower right hand corner of key cabinet. Do not lose this key – it is the only one 706A stores has; we have to return it at 8 AM Monday.

⑦ Made housekeeping inspection; please add any necessary items.

⑧ Painters repainted steps at supv. office & worn spots in bathroom.

⑨ Made up Ba^{140} run books but did not make corrections of wts., times, etc. Run books are on Blomer's desk on 3rd level.

⑩ Completed iodine run #390. Started evaporation; pH at start = 8

⑪ Analysis on $Pb(NO_3)_2$ soln = 20.0%; K_2CO_3 soln = 39.8%.

11/1/47 ① Housekept as noted on housekeeping report.

12-8 ② Almost completed HCl ether processing of Ba. run #13 for Sr.

Perry ③ Water rinse on 1BW.2 column on 1st floor gave no HP reading.

④ Sr. 13-4 – product solution of HCl ether evaporating to dryness.

⑤ Checked crud filter. Filtered 2 Liters in 1 min 12 sec. Crud filter however is very cruddy. Left periscope in for recheck.

⑥ Started Iodine run # 393. Ready for first cut at shift change

11-1-47 1) Completed Sr runs # 13 + sampled
8-4 composite. Rinsed glassware with
Thompson fuming HNO_3 - HCl now sparging
in flask #1 in an attempt to
remove the crud on the filter.
2) Completed I^{131} run # 393, started
run # 394
3) Instrument men repaired all ring
balances and worked on manometers.
They also took two integrons to
the shop.
4) No whiskey barrels dumped because of
the weather.
5) Removed IBW's column setup to
storage behind Cell A.

11/1/47 ① Cleaned up cell 5 some - washed floor, straightened
up cabinets, etc.
4-12 ② Still washing crud filter on Sr setup. HCl going
out now.
③ Completed I^{131} run # 396. Transferred product to
evaporator & started evaporation. pH checked 2;
necessary to add 40 ml N/3 NaOH to bring pH
to 7 to 8.
④ Took sample of iodine composite out of evaporator
at 550 ml & submitted to lab for gross beta

& total solids.

⑤ Put rest of product I-387-2AC in sample bottle (from burette holdup flask) and stored in isotope shipping room.

11/2/47 ① – Cleaned Sr. traps and flask #1. Replaced tygon
12-8 line eaten by ether. Replaced cracked flask #3.
Perry ② Started Sr. run # 14-1. First 300 ml. evaporating.
③ Iodine sample from beaker showed 7.4 to 8.1 mg/ml solids in 550 ml volume. Solution now filtering extremely slow into product flask. Take a good sample of this soln. when it finishes filtering and call IBW. when T.S. analysis is known. A redistillation may be necessary.
④ The pick up truck battery is very weak.

11-2-47 1) Thoroughly cleaned and rinsed I^{131} glassware.
8-4 Last rinse contained 1ml .3N NaOH & came
Thompson. out basic — so all acid was removed from the system. Cleaned out system up to & including evaporator.
2) Changed filters on I^{131} setup when 200 ml of composite had filtered. 100 ml came through the new filter before it plugged. This 300 ml was drawn off into a bottle and sampled. The pH was ca. 6.5. The other 100 ml remaining in the evaporator was sucked through glass into an ~~extra~~ filter flask. It was then filtered twice, once thru

a medium disc and the second time through an ultra-fine disc. Both discs with the ppt still on them are in a beaker just inside the lower (small) door of the hood, under the evaporator. This second portion was not sampled. The pH was ~5, and it was labelled I-397-AC, part II and put behind the lead bricks in the shipping room.

3) The second filter (which we had put in) was removed and both filters were cleaned. The smaller one was put back in the line.

4) Maintenance repaired steam leaks in main 706-D steam line in low storage. They repacked the main header valve and a smaller one. Condensate from this steam was causing the leakage in the hall. They also reported that the gasket on the inlet side of the main header valve is eaten out and leaks steam quite a bit. This was not repaired due to the lack of time.

5) Completed 5r run 14-1 almost. The product ppt. was awfully small — hardly enough to notice

6) I-397-AC 503 mc 5T, TS 10 mg/ml

7) Filled 2 ss drums with UNH from barrels. The second drum (still on the stand) is

not sealed because maintenance was too busy to cut a gasket for us.

8) Retamped bldg.

9) Titration of the sample of I-397-AC showed it to be .019N with respect to acidity.

10) TS on I-397-AC is being rerun.

11) Cleaned up decontamination room. Put down new paper.

12) Checked pumps & valves in make-up room for leaks — all okay except M10-M3 valve which leaks a little. Not repaired (M-10 not MT)

11-2-47
4-12

① Completed Sr run # 14-1. Stored product in isotope room in bottle marked "Sr #14 Product".
Started Sr #14-2.

② Filled two sulfur cans with sulfur & carried to 105 bldg.

③ Made corrections on wts., times, etc. in run books in all books except book for Batch M (last batch).

④ Lab reports T.S. on I 397-AC = 9.1 mg/ml.

⑤ ~~Made~~ Made gasket for & sealed drum of UNH on tank farm.

⑥ Addition of 1 ml of $\frac{N}{3}$ NaOH brought pH to 8 on I 397-AC part II. Took ~~the~~ two samples and submitted to lab.

⑦ Results on I-397-AC part II show 11.0 mg/ml and 172 mc. S.T.

⑧ Lights out on big truck - battery low on small truck.

98 (9) Hot spot near drain in decontamination room found to be reading 11 R at 10 30 PM. Removed paper & hosed floor; left water running on spot. Spot now reads 1 R.

11/3/47 (1) Finished cleaning up hot spot in decontamination room.
12-8 (2) Continued Sr run # 14-2. Second cut almost
Perry evaporated low enough.
(3) Cracked steam valve to M-11 tank.
(4) Pickup is out of gas.

11/3/47 (1) Instruments worked on P.B. # 1
8-4 (2) Dumped U N H in tank farm
Blaser (3) Cleaned up hot floor in N. hot lab
(4) Ran Sr. Ready to start another batch.
(5). Worked on A-16 standby installation
(6). Repaired leak on H-205 line where old Christmas tree used to be.
(7) Gathered up empty acid bottles and stored in cases
(8) Barium carrier came back. Cone & plug in decontaminating solution. Finish Batch 14 Strontium before decontaminating carrier.

① Put gasket & lid on drum of UNH solution at tank farm.

11/3/47 4-12 King

② Turned water on B12 jacket to 3# and probed 0.6 in. at 4 15 PM.

③ Sampled ~~B12~~ B17 and B6 for lead. (144 total) (200 total)
Results: B17 = 72 mg/liter; B6 = 5 mg/liter.

room

④ Put 2 liters of water in B21R & agitated; visibility good; time of filtering = 27 min.
Put transfer vessel under 12# pressure at 7 PM with 2 liters water in it; level looks same at 11 30 left pressure on.

⑤ Emptied garden vault ~~a~~ bottle containing Run # 14 NCl-Ether. Started Sr # 14-3.

⑥ H.P. man did not get time to smear & count N. Hot Lab this shift - he is requesting 12-8 H.P. man to do so.

⑦ Dumped nitric acid & filled up tanks upstairs and those in make-up room.

⑧ Emergency lighting equipment set up on tank farm by maint.

⑨ Washed out P^{32} glassware from SR #1 thru W-1 with HNO_3, then HCl, then water. Little help, even with long periods of sparging. Also washed evaporator with HCl and then water. Did not have time to clean small filter as requested by WLG.

⑩ Ran S^{35} set-up on 3rd level according to run sheet. Two liter wash is now going thru column and product is evaporating in S-5.

11/4/47 ① Dumped UNH wooden barrels remaining on platform (8)
Only one was dry enough to scrape. See (7) below
12-8 ② Completed Sr #14-3 which completes Ba run 14
Perry HCl-ether- Product has not been sampled.
③ Cleaned hot spots on first floor.
④ Continued S^{35} run on 3rd floor. Did not evaporate distillate 5-7 because if Cl^{36} is to be saved it should be basic before evaporation or Cl^{36} will evaporate. Instructions did not call for this step.
⑤ Cut off B-12 jacket water at 5:00 pm. Level still at 0.6".
⑥ Pressure off B21R at 3:00 pm. No noticable loss of solution. Found drying tube almost completely plugged. Changed Drycrite & rechecked speed of filter. 1 Liter/6 min.
⑦ Put gasket & lid on SS. drum full of UNH. One SS drum ¾ full another ½ full.

11-4-47 1) Started Sr run #15A
8-4 2) Decontaminated hot spots in N. hot lab,
Thompson hosed down the floor, + put in clean paper.
3) Decontaminated hot spots S of cell A from 750 to 200 mr/hr.
4) Hosed down decontamination room + put in new paper.
5) Put up lead shielding against wall behind duct over N. hot lab
6) Picked up new shoes for Phillips-
7) Dumped UNH
8) The concrete block barricade inside

the fan house is being put back up.

9) Ran steam engine 4 hrs., flushed 205 stack.

10) General housecleaning in 706-D.

11) Did not have time to make up new cleaning sol'n for N. hot lab.

(12) Instrument dept. worked on instruments on P.B. #1

13) There are 2 gaskets at the platform to be installed on 2 full S.S. drums. There are 2 full S.S. drums to be moved.

11/4/47 4-12 King

① Prosky requests we add distilled water to beaker marked 5-8 (on 3rd level) at intervals; keep volume low, add only 100 ml at a time. Add [redacted] enough to keep from going to dryness; digest contents all night at approx 70-80°.

Followed request this shift.

② Put gaskets & lids on two drums UNH at tank farm.

③ Removed lead shielding from A-16 fan. Left lead stacked on ground outside; stacked so that radiation is less than 10 mr/hr. Lead reads as high as 400 mr/hr — to be decontaminated when room available.

④ Started A-16 fan & assisted C bldg in X over from A-4-205 to A-16.

⑤ Started pre-run check sheet — not completed.

⑥ Added 150 ml. HCl-ether to run #15 HCl-ether

carrier. Sucked 1st 150 ml. over to S.E. corner storage bottle. Added 2nd 150 ml. HCl-ether to carrier and replaced plug. Washed thru tygon with 200 ml. HCl-ether into product receiver.

(7) Barium sampling equipment seems to be ok; however, the lab is short on S.S. parts for bucket type samplers.

OK. Ed. →

(8) Continued run Sr # 15A-1 — not quite complete

11/5/47 (1) Completed Sr # 15A-1 & started Sr # 15A-2 second shot evaporating.
12-8 (2) Added water to solution digesting in beaker 3rd floor
Perry per instructions.
(3) Cleaned hot spots in N hot lab.
(4) Rinsed glassware disc with acid & water three times. Final rate ~ 6 min/liter. Rinsed lines & equalized.
(5) Continued pre-run check.
(6) Made up 35% Caustic in M-11, Sampled.
(7) Mixed - B-6 lead removal solution for pre-run check & made up fresh lead removal solution.
(8) Scrubbed decontamination room floor with citric acid.
(9) Maintenance unplugged steam line to jets A5-A5B, and A1-A9B. A9-A8C is still plugged.

11/5/47 1) Sr run # 15A-2 still in process.
12-8 2) Bank A batteries charging 'til 5:00
Thompson 3) Continued with pre-run check.
4) Instrument men completed work on PB1 instruments.
5) Stored new chemicals on platform.
6) Butted caustic to 34.98%

7) Turned on W8-5B jet.
8) Riggers brought in HCl-ether carrier from run 97.
9) W4 pad pan was connected to drain into W4
10) A 16 standby fan outlet was connected.
11) Checked all samplers.
12) Sent out oven to be altered for S melting.
13) Maintenance finished work on jet lines.
14) Tightened cell ventilation fan belts

11-5-47 1) Switched to bank B batteries at 5:10 P.M.
4-12-47 Charge until 1:10 A.M.
Russell 2) Washed the 10 s.s. drums at W-4 with soap and water and brush. Four smears have been taken on each drum.
3) Shut down A-16 fan 6:45 P.M.
4) Drained A4-205 system. 6" vacuum on A-1
5) Completed Sr Run 15A-2 and stored product in bottle marked Sr 15A.
Began Sr Run 15A-3
6) Filled I^{131} receiver, condenser, transfer beaker, flask and evaporator with some cleaning solution. Now setting, until 2 AM. Transfer solution from evaporator and DO NOT pull this solution through the burette. See Gissel's note attached hereto.

7) Completed the pre-run check, except for A5 - A8 jet. A5 contains NaOH and A9 - B26B Blanked

8) Made double P^{32} extraction, Run #91.

(a) C-1 is in beaker in pan under P-5 and has been sampled. Hold for W.E. Thompson tomorrow.

(b) Cleaned TV-1, SR-1, PV-1.

Thompson suggest you clean the evaporator and filter before your product is ready for evaporation.

9) Cleaned up decont. room, spots >1R.

11/6/47 12-8 Perry

① Turned off battery charger from "B" bank at 1¹⁰ Am.

② Completed clean-up of Iodine equipment. Replaced dirty tygon trap lines & removed water from manometer.

③ Scrubbed Decontamination room.

④ There are at least 2 bottles of Sr F.P. labeled #14 and 2 bottles labeled #15A. Shouldn't these be combined & resampled (Resample 14)? 15A should be sampled after all products are combined as I understand it.

⑤ Made up 35% caustic (1300#) & sampled.

⑥ Continued Sr 15A-3. Last of HCl-ether waste from this Ba run evaporating now.

⑦ Jetted pot several times. Also tried jetting pit. Max. Vacuum on A-1 ~ 7".

Note: Valve handle on pot-well valve is broken off.

⑧ Repaired leaking steam valve at steam engine.

11/6/47 (1) Finished Sr 15-A and combined product in
Blaine one bottle. Sampled.
+ Thompson (2) Just starting Sr 16.
8-4 (3) Filled 5 S.S. drums of UNH. These need
gaskets + lids put on. Have maintenance make
up gaskets.
(4). Tried to get maximum vacuum on A4-205.
No luck. See Instructions to Shifts log.
(5) Rewashed one full UNH drum to be
shipped. Now O.K.
(6.) Instruments worked on.
(7) Replaced valve to barrel discharge jet in make up
room, + put in new flexible line.
(8) Repacked valves in make up room.
(9) Fixed extension handle to pot jet valve
(10) A4-205 shut off behind P.B. 1
11. P91 now going thru column. Started
at 2:45 PM. Evaporator on.
12. Sampled P91-C1, W1, + P1
13. Cleaned out evaporator + filter disc.
14. Removed P^{32} valves + equipment from
decontamination room to garden.
15.) A4-205 —
Vacuum at 205-bldg manometer = 7" mercury
Vacuum at pot with A4-205 valve closed =
1½ inches Hg. (H.T.R. note please this
is the test we suggested at 2:30 P.M.) The block in
the line is between the pot + 205-bldg.

11-6-47 1) Lined A.E.C. truck bed with special paper provided and parked truck east side garden.

4-12 Russell 2) Lubricated with Silicone grease the valves on burette and burette hold up flask in I^{131} equip.

3) Closed A4-205 valve at PB-1, emptied the pot, hooked up air line in pit and "puffed and blowed." Vacuum remained at 2" Hg. Closed all valves leading off A4-205 vac. line with no change in vacuum.

4) Sr run 16 now in progress.

5) Took up P-91, F-2 and sampled.

6) Our efforts to locate and recover P-91, the results of which now remain to be seen. Verbal instructions were passed on to 12-8 shift. P-90 going thru column.

7) Drain line from make up tank to W-1 and W-2 has been removed to unplug. Verbal word passed on to I.E.P.

Note: This is run P-91A. P91A C-1 has been sampled

8) Transferred roll of blotter paper to cell V.

11/2/47 ① P-91A- Now filtering into W-1.
12-8 P-91 - F2 & W-1 discarded. Column not
Perry regenerated in case P91A is to go on top of
P-91.
② SR16- 3rd/ fuming HNO_3 waste in flask #1.
③ ~~Completed~~ Put lids on 5 ss. UNH drums.
④ Repaired leak at steam line inlet to 706'D
per instructions log.
⑤ Checked iodine equipment from stem to stern.
Made up solutions for iodine run.
⑥ Unable to get good A-1 vacuum.

11/7/47 ① Loaded UNH drums on truck & wrapped with
8-4 leaded paper.
King ② Replaced cleaned drain line from W_1 & W_2 make-up
tank to tanks.
③ Completed Sr run #16-1.
④ Started iodine run #400.
⑤ P91A P1 going through column
on top of P91 P1 Shitto will carry
on from here. See supervisors
log for new pH adj. for all P3 P^{32}
products. No dead Phos has been
added to either of these runs.

⑥ Steamed A4-205 line for 1-2 hours; drained &
jetted. Little help.

108

(7) Dumped 19½ barrels UNH into 4 steel drums on tank farm. Did not get gaskets & lids on these drums - will 4-12 follow up on this?

(8) North hot lab floor smears high according to H.P. Has not yet been scrubbed (see attached sheet).

(9) Jib for unloading drums installed at W4 tank

(10) Signs mounted at valves from Hot pilot plant to metal Waste tanks.

11-7-47 4-12 Russell

(1) A total of 24 mg. of dead phosphorus has been added to run P-91A which is a sufficient amount for the 1944 mc's in P-1.

(2) Discarded P-91A, F-2 and W-1.

(3) Obtained approx 600 ml. HCl-ether waste from run 16 in garden and started St Run 16-2 now in progress, (Dunlap Ferguson)

(4) Made housekeeping inspection and completed as many items as time would permit.

(5) Disassembled, cleaned and replaced P-1 to P-2 valve in P^{32} equipment. (Winn)

(6) Painted metal electrode arm and clamp with tygon paint, P^{32} glassware.

(7) Painted yellow lines 706D floor.

(8) Completed Iodine run 400. (Lemons)

(9) The P^{32} solution now in the evaporator, and after going down to dryness, is to be taken up in 400 ml. water and pH adjusted to 3-5.

(10) Column is now regenerating. HCl going thru.

11-8-47 1) Completed housekeeping work on Russell's
12-8 report.
Thompson 2) Scrubbed down N hot lab + re smeared.
3) Took up paper in decontamination room + hosed it down.
4) Cleaned out overshoe rack, discarding torn + unmatched overshoes.
5) Started 1st run 401. Distillation ready to start. ~~under way~~.
6) Continued Sr run 16-2
7) Put rinse into column Cell 5.
8) Drew out the last of the HCl-ether from run 16 — 550 ml in the graduate in the decontamination room.
9) pH of 1st evaporator is 9.0. Steam off.
10) Maintenance repacked steam valve to 205 stack jet
11) Evaporator in Cell 5 is not dry yet, having about 100ml left to go.

11/8/47
8-4
King

① Rescrubbed N. Hot Lab floor.
② Put HCl-ether from runs #18, #19, #15 into vaults. In case labeling is destroyed they are located as shown by sketch to right.

#19	#18
#17	#15

↑ N

③ Made gaskets for and put lids on 4 UNH drums filled yesterday.
④ Continued Sr run #16-2.
⑤ Completed iodine run. #401; started #402.

⑥ Composite evaporating; pH = 8.
⑦ Lights were off in Cell 5 (all of 205 bldg.) because of electrical work from 10AM - 4PM - are supposed to come on about 4 30 PM.
P91A was evap to dryness, baked for 3/4 hr, and cooled to 35°C. 400 ml water was added to evaporator. pH has not been checked or adjusted because of lack of light.
⑧ On completion of 100 ml. water wash of column into R-1 there was only a total of 100 ml. in vessel R-1. A 3 ml. sample read approx 2 mr/hr. Outlet valves were not leaking (as best could see). Decided to wait for more light to check closer.

11-8-47 ① Removed Chicago coupling from AA-205 vacuum
4-12 line in pit and replaced blank. Filled
Russell pit with water.
② Repaired micromax recording Cell B temperature. Cracked steam valve bypassing automatic temperature control (now out) to Cell B.
③ Used electric lanterns in Cell V to check pH of P-91, P-3 (3.15), filtered, sampled and stored. Expect 1700 mc's in P-3! "Hope"
④ Completed iodine run 402. The product solution is evaporating on basic side.
⑤ Completed strontium run 16-2 and stored product in separate bottle for reprocessing because of HCl-ether waste residue left in flask 3 and picked up in product solution.

⑥ Started Sr Run # 16-3.
⑦ Emptied all Cell A tanks except NaOH in A-5

11-9-47 1) Jetted A5-W-11
12-8 2) Put coating removal solution in A1
Thompson 3) Dumped HNO_3 + H_2SO_4
4) Turned on steam fan.
5) Turned on W11 automatic jet.
6) Decontaminated 6 carriers.
7) Cleaned up acid storage area behind Cell B; took out empties & brought in full ones.
8) Continued Sr run 16-3
9) Continued evaporation of I^{131} sol'n. Note that the 1st hold up flask still has some solution in it. pH of evaporator - 10.0 at 7:15 AM.
10) Removed 2 carriers from sleds to paper on the floor near the cubicles.
11) One load of slugs is over the chute, another is on the truck (both full).
12) Brought ONE 83 back to 706-D
13) Maintenance not available to move whiskey barrels to platform.
14) The synchronous motor on the A5 L.L. + Sp.G Ring Balance does not work.

① Loaded 311 slugs into A-1.

② Continued Sr run # 16-3; the mtrl in this run is very crappy - hense very difficult to transfer from flask #3 to flask #1 and to filter.

11/9/47 8:4 King

③ Evap. iodine composite to approx 250 ml (shows only slightly over 200 in holdup above burette), pH = 10. Submitted samples to lab.

④ Dumped 3 drums UNH - which filled last S.S. drum. Put gasket & lid on drum.

⑤ Status of run:

A-1 - Batch A dissolving

11-9-47 ① Looked up full cylinder NH_3, & repaired leaks.

4-12 ② Replaced dead battery in Cell A micromax.

Russell ③ Installed new set of electrodes pH meter Cell V. Instrument checked ok.

④ Removed an accumulation of sulfur from P-5.

⑤ Checked P-1 to P-2 valve. Found leak around gasket at stem.

⑥ Combined Iodine Products 397 AC, 397 Part II and 402 AC now evaporating in vault, N. hot lab. Evaporate this solution to 250 to 300 ml. filter and call samples 402 AC, Part II, A and B. Request the lab. make regular I^{131} product analysis.

⑦ Completed Sr Run #16-3

⑧ Started reprocessing Sr #16-2.

⑨ Analysis Ba^{140} Run 22, 1 MA 428 c's AT
65 slugs
6.6 c's/slug AT

⑩ Ba^{140} Run Status:
A-1 Batch B diluted
A-9 " A settling until 4:30 PM
A-11 MT
A-8 MT
A-5 MT
A-6 MT

⑪ Did some clean up in Cell V.
⑫ Made up carbo-phosphate, dumped acid.

11-10-47 1) 402 AC Part II 477.5 mc ST; TS 12.6 mg/ml
12-8. 2) Completed evaporation of I^{131} product
Thompson soln. Final volume uncertain, estimated 250-275 ml. Called volume 240 on sample sheet (250 - 10ml for samples). Sampled 402 AC Part II A + B.
3) Changed filters on I^{131} as the small one was plugged. Cleaned + stored small filter.
4) Made up 4% NaOH in M10
5) Dumped HNO_3 + H_2SO_4
6) Made up a batch of CO_3PO_4
7) Continued reprocess of Sr 16-2
8) Ba^{140} run status:
A1 Batch C dissolving
A9 Batch B settling hot until 10^{15} AM
A11 Batch A settling until 10^{30} AM

A5 1 batch CO_3PO_4
A6 MT
A8 MT
1MB 424 AT 67.9 slugs 6.24 c/slug
8WMA — being rerun.

11/10/47
8-4 ① 8WMA — 6.7 S.T.
Blauer ② Loaded 312 slugs.
③ Besides the S. supervisors desk is a barrel scraper to be used for UNH barrels.
④ Finished Sr. The equipment is now being washed with acid - HNO3 in it now. It is to be dismantled + stored. (Decontaminate it)
⑤ Installed temporary controller to Cell B heater
⑥ 1MC 392 c's A.T 66.5 slugs.
266.6 c's S.T.
⑦ Had the 1½ ton truck bed washed. Highest reading 8 mr/hr
⑧ Started Iodine run #403.
⑨ Run Status
A-1 Coating Removal (D) ? ∴ dissolving started during Swing?
A-9 - Heels of NMA + metal batch C
A-11 - Empty
A-8 - 8WMB to be sampled
A-5 - EMPTY
A-6 - EMPTY.
⑩ Mounting ventilator fan in Isotope room.

11-10-47 ① Cleaned I^{131} evaporator.
4-12 ② Installed clean filter in iodine glassware.
Russell ③ Disassembled and began decontamination of the strontium equipment. The glass ware is in barrel in decont. room being decont.
④ Kept Rimshaw's evaporation going.
⑤ Continued iodine run 403. The 6th cut is now being taken.
⑥ Made up 50% CrO_3 and 18N. H_2SO_4 and 1/3 NaOH
⑦ Ba^{140} Run Status

A-1 Batch E dissolving
A-9 " C settling cold until 2 A.M.
A-11 " D waiting
A-6 " B waste
A-5 CrO_3PO_4
A-8 MT

⑧ Note Gissel's note to use 100 ml. 36N. H_2SO_4 to rinse dist. flask before run 404.

11-11-47 1) The Sr glassware was cleaned with cleaning
12-8 solution; however it is still not completely
Thompson decontaminated.
2) The Sr lucite case & ringstands were cleaned, not completely decontaminated.
3) All Sr equipment is in front of the decontamination room. (the heater in the decon. room reads ~4R)
4) Cleaned up decontamination room, removed wooden floorboard. HP survey on floorboard shows one spot (over a crack) still

reading 65mr/hr after exhaustive scrubbing.

5) ~~#~~ Completed I^{131} run 403, started 404. Evaporator volume 350ml, pH ~ 8

6) Neutralized batch B in A6 because the A6-A5 jet would not work.

Status of Ba^{140} run:

A1 Batch E waiting on A11
A9 Batch D settling cold until 12^40 PM
A11 Batch C settling until 8^28 AM-
A6 MT
A5 Na_3PO_4
A8 MT
IMD- 287.8 c 5T (not finished)
IME 274.0 c @ 5T 66 slugs 5.9 c/slug
8WMC 15.3 c @ 5T

7) Watched Rimshaw's beaker.

11/11/47 8-4 King

① Stored Sr glassware in cabinet at N.E. corner of cell B, 1st level.

② Decontaminated Sr carrier & stored over N. hot lab.

③ pH meter from cell 5 was decontaminated & sent to instrument shop in 105 bldg for checking. 4-12 shift should get it back.

④ Decontaminated Ba carrier and put on 3rd level for current Ba run.

ing.
L.

⑤ Continued iodine run #404. Added rest of oxalic & completed oxalic reaction about noon. Cooked off 3 cuts - no iodine over. Added 100 gms. more oxalic.

⑥ Run Status:

A-1 - Batch F dissolved & diluted & sampled
A-9 - Batch E settling hot till 6:00 P.M.
A-11 - Batch D heel settling till 7:00 P.M.
A-5 - Batch of carbo phosphate
A-6 - MT

11-11-47 ① Decontaminated the decontamination room.
4-12 ② 1 MF 266 C's S.T. 89 slugs
Russell 8 WMD 7.7 C's S.T.

③ The terrific background in the isotope shipping room has been brought down to normal again.

(a) Removed lead bricks and obtained clean ones and made brick barricade.

(b) Cleaned out the remote control sampler. This could take more cleaning. We had no more working time in there.

(c) Cleaned out HOT glassware and decont. sink. The big sign at sink reads in big black letters "This is not a hot sink". Not only was it hot. The water faucets were 250 mr-hr.

Hot water!!!?

(d) Replaced paper on tables and decont. also.

(e) Scrubbed floor with soap, water & Old Dutch.

④ Adjusted I^{131} Product solution to 250 ml. pH of 8.0 sampled and stored product soln.

⑤ Threw away the electric hot plate used in making strontium runs because of contamination. A new hot plate and the old variac has been stored in cabinet with strontium glassware.

⑥ Placed a hot can for waste paper in isotope shipping room.

⑦ Corrected Barium Run Procedure for Batch H to 200 slugs instead of 300.

⑧ Cleaned ~~as many~~ all isotope carriers ~~as possible~~.

⑨ Four cold cuts were taken on I^{131} 404. The iodine has been oxidized and is now being reduced for further distillation.

⑩ Ba^{140} Run Status

A-1 Batch G diluted.
A-9 " E decanting to A-8
A-11 " F waiting
A-8 Receiving Batch E
A-6 MT
A-5 MT (Batch CO_3PO_4 in M-1)

⑪ Obtained smears throughout the isotope shipping room.

11-12-47 1) Continued I^{131} run 404 under
12-8 supervision of IBW.
WE Thompson 2) One full carrier is on the chute, the other is on the truck.
3) IMG 235c ST, 60.7 slugs, 5.2c/slug
4) BWME 16c ST
5) Status of Ba^{140} run
A1 – coating removal sol'n (1st part)
A9 - Batch F settling cold until 9:30 AM
A11 - Batch G waiting for A9.
A8 - MT
A5 - Batch E neutralized.
A6. MT
6) Taped a leak on the drain line on the 1st level SW corner Cell A.
Note: 390# HNO_3 was put into T9 before the operator remembered that slugs would be loaded before the next dissolving.

11/12/47 ① Loaded 197 slugs into A-1.
8-4 ② Pumped waste from 807 into W-4 & Hanford slug into W-7
King
③ Riggers moved barrels of waste from platform at W-10 to W-4 for dumping in W-4.
④ Maintenance is tying in waste line from 3rd floor N.E. corner. Drain line from 3rd floor will be left broken overnight - don't wash down floor (3rd level).

(5) Made up cleaning sol'n for N. Hot Lab.
(6) Dumped iodine run # 404 & started cleaning glassware
(7) Replaced carriers (slug) ~~off~~ over hot labs.
(8) Run Status:
A-1 - Batch H dissolving
A-9 - Batch G settling cold til 8:20 PM
A-11 - Batch F settling til 4:20 PM
A-5 - Carbophosphate batch
A-6 - MT
(9) Note - W8-5B jet was turned off to allow 105 bldg to purge the canal - they have a ruptured slug in it.
(10) Painted 1 product + 1 HCl Ctr, carrier

SW mk 5.6

11/12/47 (1) Jetted 4 drums of metal waste into W-4.
4-1 (2) Used all flake caustic to make up 40% caustic
Perry (3) Scrubbed floor of N hot lab.
(4) Worked some on cleaning up Iodine equipment B.G. is 300 mr/hr. with high spots reading 500 mr/hr. W.Y.G. wants manometer cleaned and the trap next to manometer filled with glass wool.
(5) Repaired flapping belts on steam fan.
(6) Worked on drain line from 3rd floor. (poured lead around joints.)
(7) Run Status.
A-1 - Batch I diluted.
A-11 - Batch G Settling Til 4:20 A.
A-9 - Batch H Settling hot. Til 1:50 A.
A-5 - CO_3-PO_4 A-6 - Neutralized metal waste Batch "F"

(8) 1MH — 293 c/s.t. 5.9 c/slug
(9) 105 expects to be purging the canal for 2 or 3 more shifts.

11-13-47 1) Cleaned I^{131} distillation hood thoroughly.
12-8 2) Cleaned out manometer & put in clean
Thompson mercury. Put glass wool in manometer trap.
3) Cleaned filter on trap 4 with cleaning solution.
4) Put 2 H_2O rinses through I^{131} equipment to the evaporator, not through the filter & burette.
5) Made up chromic acid soln.
6) Cleaned up N hot lab benches and sink.
7) Dumped the remaining 4 ~~barrels~~ drums of waste into W4. Too much frost on drums to smear.
8) Ba^{140} run status:
A-1 Batch J dissolving
A-9 Batch I extraction in process
A-11 Batch H settling
A-8 MT
A-6 MT
A-5 MT
8WMG 13.8c @ ST
1MI 277c @ ST 78 slugs 4.6 c/slug

ustic
ment
ool.
lead
Batch "F"

122

11/13/47
8-4
King

① Sent iodine ~~potentiometer~~ to 105 instr. shop for checking — will be ready to come back on ~~4-12~~ 8-4 shift tomorrow.

② Maint logged steam lines on N. still.

③ Cleaned jet & dumped remaining portion of a drum of soln into W-4.

④ Washed iodine evaporation equipment with water.

⑤ Obtained another S.S. drum from burial ground for leaking UNH drum.

⑥ Smeared empty waste drums at W-4; all low except one — washed it.

⑦ Started scraping barrels (whiskey) on tank farm and dumping scrapings into S.S. drum. Scraped drums are being set to one side.

⑧ Moved 3 HCl-ether carriers in from garden for decontamination; two are in ~~that~~ decontamination room and one in corridor just outside. Started decontaminating hottest one.

⑨ Run Status:

A-1 Batch K dissolving
A-9 Batch I settling til 5 45 PM
A-11 Batch J
A-6 Batch H waste
A-5 Carbophosphate batch

⑩ Did not neutralize Batch H waste - unable to get A6-A5 jet to work. Instrs. of N. Blower are to wait until after 4 30 PM and jet waste to W-9, then jet carbophosphate behind it.

(11) New Integron installed at PB1 + a new monitor installed E. side All B 2nd level.

11/13/47 (1) Scrubbed North hot lab.
4-12 (2) Completed ~~[illegible]~~ slug dissolving on I^{131} setup in
PERRY C bldg., diluted, and cooled. Equipment shut down.
(3) Decontaminated 2 carriers (HCl ether & Ba) and stored.
(4) Cleaned up Cell 5 some (mt'ed 3 hot cans & glove can)
(5) Maintenance replaced gasket on valve between P-1 & P-2 at Cell 5. Check of equipment shows no leak but very rusty looking rinse water on first rinse.
(6) Scraped whiskey barrels until scraper was broken.
(7) Run status:

A-1 – Batch K diluted.
A-11 – Batch I settling 'til 12 05/A 8 WMI - 3.24 C's
A-9 – Batch J settling Cold 'til 4 22/A
A-8 – MT.
A-5 – $CO_3 \cdot PO_4$
A-6 – Batch H

Suggest that batch I be neutralized in A5 and neutralized solution jetted onto Batch H (A-6) followed by a CO_3-PO_4 batch to avoid neutralizing in W-9.

11-14-49 1) Decontaminated & stored carrier
12-8 2) Started P^{32} run 92 S melting
Thompson 3) Ba run status: SNAFU
A1 - Batch L + unknown soln
A9 - Batch K + " "
A11 - Batch J (what's left of it)
A6 - MT
A8 - MT
A5 - Sump solution jetted in from Cell A sump.

11-14-49 ① Batch L was diluted soon after 8 A.M.
8-4 ② A9 was jetted down to 60 gals into A8 (68 gals)
Russell ③ A11 was jetted into A-8
④ A9 and A8 were sampled for H_2SO_4 molarity.
⑤ A8 was jetted back to A11
⑥ Precipitation was run in Mr. Emlet's office during
7.6×10^{-11} c/m the evaporation of A8 and A9 samples in lab.
⑦ Decontaminated "Hot Spots" on first level floor.
⑧ Batch L in A1 run for H_2SO_4 molarity.
⑨ Analysis 1 ML 372 c's S.T. 78 slugs
" A-5 sump 25.1 c's S.T.
⑩ All Contents ran 1.35 Molar H_2SO_4
A9 " " 1.35 " "
To A11 was added 200 ml $Pb(NO_3)_2$ + 2 L. H_2O + 150# H_2SO_4. A regular extraction is to be made in A11 following regular run procedure except the hot settling time will be 2 hours and the cold settling time 4 hours.

Added An extraction will be made in A-9 using 200 ml. $Pb(NO_3)_2$ + 2000 ml. H_2O + 150# H_2SO_4. Follow regular procedure on this batch. See run books.

(11) Iodine vacuum pump no good. Made replacement. The pump in decont. room is to be decont. and repaired.

(12) Obtained 4 Te samples from 105 Bldg.

(13) Installed s.s. top on table west lab. Reassemble ionization chamber on table.

(14) Made double sulfur extraction. The product is in SR-1 filtering through.

(15) Ba^{140} Run status

A1 Batch L diluted and sampled
A-9 " K digesting
A-11 " J "
A-6 MT
A-8 MT
A-5 Cell A sump 25 c's S.T.

11/14/47 4-12 Perry

(1) Started Iodine run # 405 at approx. 63%. Late start due to instrument man having to repair potentiometer. Oxalic acid addition complete.

(2) Cleaned up some hot spots. Some still left (marked)

(3) Slug truck & carriers are at 105. Our little pick up has a flat. Borrowed one (with a weak battery) from maintenance.

(4) Made up 35% caustic.

(5) Run status

A-1 - 1st part of coating removal. (M) ? NOT YET
A-11 - Batch L waiting for A-9.

A-9 - Batch K - Settling cold 4:1 12 20/A.
A-8 - MT.
A-6 Batch J (Sampled)
A-5 CO_3PO_4
⑥ Made up Run books through Batch O.
⑦ Worked on P 3/2 with W.Y.G. To be passed on by him.

wyS. PB2 Run P92. now in P-1 sample in lab. C-1 run only 75 mc so there is not much hope for this P-1. If P1 is less than 200 mc drain out into a beaker & discard. If more than 200 blow up to column etc. This run had entirely too much Fe, Ni & Cr.

Sulphur equipment was heated up & sulphur drained from system. Equipment was then cooled & P1 to P5 was washed with the hose, then followed with distilled water. All vessels except P4 are clean & free from rust.

Glassware from SR1 to W-1 was cleaned.

Crud filter disk replaced with a finer one.

12-8 There are two sulphur cans at 205 bld. One is last Fridays & one was pulled this Friday. Will you take the hottest one and prepare it for melting & load in P-1 for day shift. Suggest you remove the plug at 1105 bld in their lead shield & put the nipple on there too. Day shift will make a double run.

Day Shift 11/15/47.
HR Make P93 a double run. We need about 800 inc for ship ucd out of these two cans. If your shift can't get to the column by quitting time call me & I will come out.

HR

128 ① 6WMJ = 2 c's S.T. ; 8WMK = 87 c's S.T.

11/15/47 ② Loaded 144 slugs into A-1.

12-8 King ③ Decontaminated slug carriers, o.k'd. by H.P., and stored them above hot labs.

④ Scrubbed floor & lead around cubicles in marked hot spots — all ok except one spot on N. side of cubicles; left this spot covered with wet citric acid.

⑤ Obtained this Fridays sulfur can from 105 bldg. & loaded into extraction equipment in cell 5 as per instrs.

⑥ P92 - P1 analyzed 66 mc. Sent to drain.

⑦ Run Status:

A-1 - Batch M dissolving

A-9 - Batch L settling til 10:50 AM

A-8 - MT

A-11 - heel of Batch K settling

A-6 - Batch K waste - sampled, no answer.

A-5 - MT

⑧ Iodine - completed run #405; started run #406. Composite evaporation has not been started - all cuts still in holdup flask.

11-15-47 ① Analysis of NaOH (M-11) 34.87°.

8-4 ② Completed iodine run 406. (Ferguson)

Russell ③ Started iodine run 407. Product solution is evaporating on basic side.

④ Batch K, 6WM analysis 6.64 C's @ S.T.

⑤ Batch M was jetted to A-9.
Contents in A-9 was agitated 45 min. @ 80°C.
Two samples were taken from A-9 and submitted to lab. for Ba^{140} analysis.
Extraction was then made in A-9.

Run 93 ⑥ Made double sulfur extraction. Valve P-2 to P-3 "blew" as operator was opening it to drop hot sulfur + P^{32} to P-3. This valve is now reading 3 to 4 R. and has been shielded with lead.

⑦ Ba^{140} Run Status
A-1 Batch N dissolving
A-9 " M settling hot until 6:20 P.M.
A-11 " L " until 6:35 P.M
A-8 MT
A-6 Batch K waste going to A-5
A-5 Receiving Batch K waste

⑧ Batch N, now dissolving, may be the stand by batch, so do not send Batch N to A-11 until batch M has settled in A-11 and gone to A-6.

⑨ Gissel needs an operator in Cell V. Check with him on P^{32} run status.

130 ① - Continued Iodine run # 407. ~~3rd~~ 4th cut coming off
11/15/47 now.
4-12 ② 706C has a pop-off valve on a steam line
PERRY that popped off twice tonight & filled the bldg. with steam. Maintenance regulated but it should be checked periodically. In hallway to new lab. wing.

③ Continued P^{32} run # 93. Now going through column. Dead P added. No analysis rec'd on wastes.

④ Cleaned Cell 5 somewhat. Valve between P-2 & P-3 reads > 5 R/hr. and has to be repacked.

⑤ All sulphur is not out of P-4 yet.

⑥ Run status

ⓐ ~~#~~ 9 mm (spec) analysed 1300 - 1500 c's st.

ⓑ Instructions from H.B. - Sample batch N in A-9 like batch M was sampled. Call H. Blaner when results are known. If a decision is made to push more slugs call Emlet.
Dissolve Batch O to sp.g. 1.78 if it doesn't lag too much coming up. If sp.g. is <u>very</u> slow coming up, shut off condenser & boil acid to concentration of sp.g 1.78.

ⓒ 8 WML - 165 c's 6 WML - 7.84 c's
1 MM - 300 c's 65.6 slugs 4.57 c's/slug
1 MN - 298 c's.

ⓓ A-1 Batch O dissolving
A-11 - Batch N waiting for A-9
A-8 - Batch M - completed decant at 11 55 p.
A-9 - MT: (Heel)

A-5 Carbo phosphate.
A-6 Batch L.

11/16/48 12-8 King

① Added 150 ml water wash to P^{32} column - now going thru - P 93.
② Iodine - finished run # 407; started # 408. Cock to draw-off funnel was broken when we arrived - decided to wait until finish of runs to ~~[illegible]~~ repair. Composite is approx 250-300 ml now - steam off until more product ready to evaporate.
③ Status of run:

A-1	IMO.
A-9	Batch N settling til 11:00 AM
A-11	Batch M ready to decant when A6 ready
A-8	MT
A-5	Carbo phosphate batch
A-6	MT

④ BWMM = 134 c's.
⑤ Made up two runs books P & Q - more are needed.
⑥ Instructions of H. Blauer ~~are in reg~~ are to
ⓐ have lab run Pb on 9MN samples already in lab.
ⓑ calculate how much Pb is necessary to bring amt of Pb in A-9 to 670 ml. of 20% $Pb(NO_3)_2$ i.e. (103 gms Pb).
ⓒ Add calc. amt. + regular 120 ml. to next batch in A-9.
⑦ H. Blauer also instructs to start slug loading as soon as possible (health physically). Slugs were pushed at 5 AM.

(8) Slug carriers are at 105 bldg.
(9) -6 was held empty to dump 1MO into if total curies ran low; hence A-11 was not decanted on schedule.
(10) 1MO = 269 c's S.T. Extraction is to be run on Batch O (checked with Witkowski at 6 40 AM)
(11) 9MN analyzes 1300 to 1500 c's.
(12) A-9 specific gravity manometer does not seem to be working correctly. Instr. man on this shift checked it but did not find the trouble.
(13) A-1 sp. gr. instr. also doubtful at times.

11-16-47 (1) Pb analysis on 9MN was 103.5 gms.
8-4 (2) Completed last iodine run for the week #408.
Russell (3) The I^{131} Product solution is to be concentrated to 300-350 ml. Now evaporating.
(4) The P^{32} Product solution is to be taken up in 350 ml. of dist. H_2O. Now evaporating.
(5) Sampled P-93, R-1.
(6) Discarded P-93, W-1, F-2, & R-1.
(7) 6WML 7.8 C's @ S.T.
6WMM 21.2 C's @ S.T.
8WMN 19.7 C's @ S.T.
(8) Made up coating removal solution, etc.
(9) Loaded 322 slugs.
(10) Ba^{140} Run, Status
A-1 Aluminum cans being removed from 322 slugs. (P)
A-9 Batch O settling hot until 4:45 P.M.
A-11 " N settling. 19.7 C's S.T.

A-8 MT
A-6 Batch M waste
A-5 CO_3PO_4

Note to Perry + King: Have P-2 to P-3 valve repaired soon as possible. Use high priority if necessary to get maintenance to do the job. These are Gissel's instructions.

11/16/47 ① Changed NH_3 cylinder.
4-12 ② Evaporated 7'131 to 300 ml & sampled. Analysis
PERRY 1148 mc's sf.
③ Got 12 drums caustic from the old Church on the highway. Didn't get a chance to make up any. Note: Carbonate & Phosphate are out too. Can be obtained at the Church by getting the Key from the guards.
Dissolved P
④ Removed the value bonnet between P-2 & P-3. In decontamination room. Very hot.
⑤ Took up P-93 P-3 in 400 ml water - PH 4.3. Solution had a "lovely" glow in the dark.
⑥ Run Status
A-1 MT. HNO_3 in scale tank.
A-8 - MT
A-11 - Batch O settling
A-9 - Batch P agitating hot for sample
A-6 - MT
A-5 - MT.

• Notes = Batch P went to A-9 via A1-A9A, A1-A9B, and A1-A11, A11-A9. This batch is to be

sampled like batches M & N were.

⑦ Made up 600 ml 20% $Pb(NO_3)_2$ Not sampled yet.
⑧ P-93 P3 — 1186 mc's st.
⑨ Jet A1-A9B. leaks at union at P.B.

11/17/91
12-8
Kim

① Made up 35% caustic; sample submitted to lab.
② 8WMO analyzed 26.3 c's. S.T.
③ Sampled $Pb(NO_3)_2$ sol'n.
④ IMP: 374 c's S.T., 69.1 slugs, 5.6 c's/slug.
⑤ Sampled A-9 after addition of Batch P and 1hr agitation: 9MP ① = 1676 c's, 9MP ② = 1624 c's.
⑥ Got key from the guard and got 6 bags carbonate & 3 bags phosphate from church.
⑦ Unable to decontaminate old P2-P3 bonnet to level low enough for maint to pack. Also gate of valve is badly corroded (only hot water, citric acid, and soap used in decontamination; by HNO_3 test this valve does not seem stainless). Left old bonnet in water in decontamination room.
⑧ Replaced old P2-P3 valve bonnet with a new one. New one does not seem to leak — pressure falls very slowly, but there is a small leak around P3 agitator.
⑨ Run Status: A-1 - Batch R dissolving
A-9 - Batch P settling
A-11 - Batch Q waiting on A-9
A-8 - MT
A-6 - Neutralized Batch O
A-5 - MT

(10) Cleaned up some in cell 5 - removed full hot can, got dirty gloves & rubbers out, scrubbed floor, etc.

ampled (11) A-9 sp. gr. instrument is still sluggish - please have day man (instr.) check it - and fix it.

11/17/47 (1) Caustic - 34.36 %
8-4 (2) $Pb(NO_3)_2$ - 17.5 % - butted up. 19.4 %
Blauer (3.) 8 WMP - 46.1 C'S S.T.
(4) Changed battery in Temp. recorder PB4
(5) Could get no action on A9 Sp. gr. instrument.
(6.) ~~A~~ Run Status.
A-1 Batch R Dissolved, diluted + Sampled
A5 CO_3 PO_4
A6 MT
A9 - ~~B~~ Batch Q settling hot to 505 P.M
A11 - Batch P settling till 4:45 P.M.
A8 - MT.
(7) Barrel scraper is in pick up truck all repaired + ready to be used.
(8) Vacuum pump in decont. room is down to 5 mr/hr Can you have this fixed on shift?

3. 11/17/47 (1) Scraped 12 whiskey barrels. One S.S. ~~barrel~~ drum is full
4-12 & needs lid & gasket. Lids at W4.
Perry (2) Maintenance repaired vacuum pump. Also repaired leaks at Jets - A1-A9B & A5-A5B.
(3) Gave Cell 5 good scrubbing. Some spots from 6 R/hr TO 100 mr/hr.
(4) A9 Spg. manometer seems to be OK. Now. Blew it back with the bubblers.

MT

(5) Run Status.

A-1 — Batch S diluted & sampled.
A-11 - Batch Q Settling Til 4 20/A
A-9 - Batch R - Agitating hot - Sample at - 12 05/Am.
A-8 - MT
A-5 - Carbophosphate
A-6 - MT.

11/18/47 King 12-8

(1) Maint. repacked all leaking steam valves on P^{32} equipment.

(2) Sampled A9 after addition of Batch R & hot agitation: samp (A) = 1073 c's ; (B) = 1089 c's.

(3) 1MS = 267 c's S.T., 68 slugs; 4.5 c's/slug
8WMQ = 83.8 c's S.T.

(4) Scrubbed N. Hot Lab floor - no new paper put down

(5) Run Status:

A-1 Batch T dissolving
A-9 Batch R settling til 9 50 AM
A-8 MT
A-11 Batch S waiting on A-9
A-6 MT
A-5 MT

(6) 6WMQ analyzed 21 c's S.T.

11-18-47 ① Scrapped seven barrels at tank farm.
8-4 ② Did some maintenance in Cell V P.B. Orr
Russell will pass the story on.
③ Prepared the Ba^{140} Product Carrier.
④ Emptied all Cell B tanks. ~~into B-10.~~
⑤ SWMR 20.3 c's @ S.T.
⑥ Picked up load of isotope carriers at lead shop.
⑦ Ba^{140} Run Status
A-1 Batch T diluted and sampled
A-9 " S settling cold until 8:40 PM
A-11 " R " until 4:10 PM.
A-8 MT
A-6 MT
A-5 CO_3PO_4
⑧ Made up three gaskets for S.S. drums on tank farm. Gaskets were made from tygon tubing.
⑨ Removed south still for clearing.
⑩ Placed I^{131} vacuum pump in low storage reading < 5 mr-hr.
⑪ Diluted M-11 up to 18 inches to keep NaOH in solution.
⑫ Washed down 305 stack and drained. Also drained A-16 off gas system.
⑬ Put lid on one S.S. drum.

11/18/47.
4-12
PERRY

① - Housekept - Scrubbed floor of N hot lab. Changed paper on tables. Cleaned up decontamination room, except for the value from cell 5. (This should be buried - 6R/hr) Cleaned glass ware and returned to cell 5. Put box of combination locks in EJW's office.

② Greased stopcocks on Iodine setup.
Note - Stopcock at bottom of receiver is still broken off.

③ Covered UNH drum.

④ Found high B.G. at A-9 blister was coming from A-9 sparger line. Read 7.6R/hr.

⑤ Made up book for heel dissolving.

⑥ Note to day shift - Please have instruments repaired at Cell 5 - Frisker rings continually & air monitor is on the blink.

⑦ & WMS - 344 c's St.

⑧ After Batch T jetted to A-9 turned steam sparger on for low pressure for 5 min. Radiation at entrance to cell over A-9 blister dropped to <5R/hr.

⑨ Run status:

A-1 - Heels dissolving. = U
A-9 - Batch T - Digesting 'til 12 51/A
A-11 - Batch S settling 'til 2 55/A.
A-8 - MT
A-6 - MT
A-5 - Carbo phosphate.

4/19/47
12-8
King

① Washed floor & straightened up in Cell 5; returned dirty glove can (MT) to Cell 5.
② Decontaminated Ba^{140} sample carriers in decontamination room; collected sampling tongs & clamps and decontaminated.
③ Removed broken stopcock in iodine set up. Unable to find another make section to fit; decontaminated old plug for pattern or repair.
④ Run Status:

A-1 Heels: dissolving
A-9 Batch T settling til 8 50 AM
A-8 MT
A-11 Heel of Batch S
A-5 CO_3PO_4 batch
A-6 MT

11/19/47
8-4
Russell

① Decanted A-9 down to 1" heel.
② A8 WMT analysis 88.5 C's S.T.
③ Drained A-16 off gas system.
④ Provided fire extinguisher for electrical fire Cell V.
⑤ Made double P^{32} Run # 94.
The product is in the glassware, SR-2.
On continuing run at 4 P.M.
⑥ Ba^{140} Run Status

A-1 Batch U diluted and sampled.
A-9 Fourth H_2O wash settling until 9:01 PM
A-11 Heel of batch T & S.
A-6 Batch T waste going to A-5
A-8 Water washes from Product Cake in A-9
A-5 CO_3PO_4

⑦ Have solenoid valve south still checked by electrician and repaired.
⑧ Batch T waste is to remain in A-5 to receive waste from Cell B.
⑨ Started HCl-ether camera assembly.

11-19-47 1) Replaced stopcock on I^{131} drain from
4-12 receiver.
Thompson 2) Checked revised I^{131} run sheet + noted corrections.
3) Put in large periscope.
4) Electrician repaired solenoid valve on 5. still. Check during 12-8 to make sure that the proper LL is being maintained.
5) Had 2 complaints about a bell ringing in Cell 5. HP survey showed background < 1mr/hr; so we turned the high voltage down on the frisker.
6) B-12, B-7, B-26, B-25, B-27 are all MT.
7) Ba^{140} run status:
A-1 Batch V dissolving
A-9 2nd K_2CO_3 wash settling until 1:18 AM
A-8 1st K_2CO_3 wash
A-11 Batch U
A-6 MT
A-5 Neutralized waste (including water washes).

① House kept. Washed down floor of N. Hot Lab.
Washed down floor of Cell 5.
11/20/47 ② Valve on 5. still seems to be working ok.
12-8 ③ 8WC analyzed 165 c's S.T.
King ④ Followed procedure listed in standard procedure book on 3rd level for ~~pre~~-check before transferring to Cell B
⑤ Diluted & sampled Both heels in A-1 after dissolving for 12 hours.
⑥ Run 22 is in B 12 - Cell B monitor off scale!
⑦ See inventory sheet for disposition of all tanks.

11-20-47 ① Sampled B-12, 4500 mr-hr. @ hands (Russell)
8-4 ② Added 4 liter water rinse to A-9 and sampled.
Russell ③ A-9 sample read 320 mr-hr @ 18 in.
③ Prepared HCl-ether carrier.
④ Set up a maximum vacuum control on I^{131} glassware.
⑤ Emptied all wooden barrels into s.s. drums on platform.
⑥ Removed north water still for cleaning
⑦ Greased pickup truck
⑧ Replaced 3-way drain valve from I^{131} receiver.
⑨ Continued the P^{32} run #94 through glass ware and clean up in Cell V.
⑩ I^{131} receiver contains cleaning solution. Allow this to set over night. Do not get this solution into burette.
⑪ Loaded platform with wooden barrels to

be emptied into s.s. drums.

(12) Transferred s.s. drums to W-4 to be cleaned.

(13) Decontaminated hot spots in N. hot lab.

(14) Analysis A-9 rinse 1.09 curies @ S.T.

Note: to shift cleaning s.s. drums at W-4. A scrub brush, soap and water did the job on the other set of barrels cleaned for outside shipment.

(15) Ba^{140} Run Status:

B-12 The product solution is electrolyzing at 25 amps until 6:00 P.M.

A-1 Batch V diluted and sampled.

A-9 4 liter water rinse, 1 curie @ S.T.

A-11 Batch U 224 C's @ S.T.

A-8 Cake washer 165.5 C's @ S.T.

A-6 MT

A-5 Neut. waste

(16) Cleaned up make up room.

(17) Prepared gaskets and sealed two s.s. drums.

(18) There are three s.s. drums at W-4 leaking around the gaskets to be repaired before cleaning. A white tag identifies them.

11-20-47 1) Took up P94-P3 carrier free in 50ml
4-12 of H_2O. pH ~ 3 so no NaOH added.
Thompson P94-P3 carrier free – 5.23 mc/ml - 261.5mc total
Started P94-P3 through column – steam on – no dead P added yet.

2) Spent about 1 hour trying to fill S can. Oven did not seem to heat up properly. 2000 gms of S (unmelted)

now in funnel in the oven. The oven is unplugged.

3) Scrubbed 7 drums at W-4. They have not been smeared.

4) Dumped all whiskey barrels on the platform, filling 3 ss drums. These drums have been sealed.

5) Ba^{140} run status:

2000 ml H_2O evaporating to 350 ml in B-6

A1 - Batch V, holding

A9 - 4 liter rinse

A8 - Cake washes

A~~1~~ - Batch U

A6 - MT

A5 - neutralized waste.

B1 - MT

B3 - Waste (rinses)

B6 - product evaporating to 350 ml

Put 100 ml rinse B23 - B21T - B24 - B3

another 100 ml rinse B23 - B21-T - B-19

6P - 1950 c @ 5T, 546 mg Pb Total

11/21/47
12-8
King

① Added .8 mg P^{31} to P94-P3;
150 ml water wash now going thru column to evap.
② Lab reports carrier free portion of P94-P3 contains 5 mc/ml. T.S. negligible.
③ 4 liter rinse in B-6 and sampled.
④ Cell A status same as last shift.
⑤ Run Status:
2nd Fuming Nitric filtering from B21R.
⑥ Elect. repaired rheostat on sulfur can filler.
⑦ After sulfur was melted in funnel for some time it was found that tube at bottom of funnel was still clogged with solid sulfur, hence can would not fill. Put heat lamp on sulfur can to heat — filled ok.
⑧ Filled one sulfur can; 2nd one filling.

11/21/47
8-4
PERRY

① Scrubbed drums of UNH. Found that most of the drums with tygon gaskets leak. Rubber gaskets being made up. Last of the whiskey barrels moved to the platform. Also moved SS. drum with bottom almost rusted out. (See item 8)
(5 drums leaking)
② Worked on Iodine equipment. Got te samples from 105.
③ There will be a steam shut down in the tank farm tomorrow at 8:00 A. Please have W-11 MT.
④ Ba^{140} run 22 evaporating in B-19 until 6:15 P.
⑤ HCl-ether waste has been sampled in B-17 and B-17 rinsed.
⑥ Moved 4 SS. drums UNH to W-4.
⑦ Sky shine is in place and turned on. To take

a reading instrument men say Just run the carrier under the chimney & read the micromat, E.J.W. says take one when product is dry in addition to the 16 hr. one.

⑧ Riggers put the 5 whiskey barrels on platform. There are 6 more with head off still on the ground. Contents look like water. The SS drum at the platform leaks at gasket

11-21-47 1) Filled 3 sulfur cans, * ~~delivered 6 full cans to 105.~~

4-12

Thompson 2) Sampled R-1 (P94)

3) P94-P3 Part II 469mc @ ST

4) 17WHCl 145c @ ST

5) Took skyshine at 7^30 PM — 7R

Lab calculates 1240 c @ ST

6) Steam engine turned off.

7) W-11 on manual control.

8) Plug is approx 1" down in the cone.

9) Started 1^131 run 409 - Completed Oxalic addition.

10) Made housekeeping survey.

* 6 cans are full, one can has the threads on the can stripped. All still in Cell 5

11) Gaskets (3) for SS drums are on the desk in supv. office.

146

① Completed iodine run 409.

11-22-47 ② Took sky-shine at 4 A.M. – 10.5 R. used probe and C.P. also.

12-8 ③ Loaded product carrier on Y truck.

Russell Reading top of cap 250 mr-hr
edge of cap 30 "
side of carrier 20 "
Cab of truck < 1 "
right wheel < 1 "
left " < 1 "
rear end < 1 "

Results of smears not available as yet.

④ Replaced concrete slabs in Chimney.

⑤ Used aquadag and new rings on five loaded sulfur cans in Cell V.
One sulfur can has threads stripped.
Five cans are ready to send to 105 bldg.

⑥ Made double sulfur extraction Run # 95.
Do not disturb product in glass beaker under P-5 in s.s. pan.

⑦ Smears of product carrier:
Cap 538 c/m
Top 10254 c/m
Sides 475 c/m
Flange 1009 c/m

⑧ Lotted W11 empty at end of shift.

⑨ Iodine product solution is evaporating at a pH of 8.

⑩ Do not ship product.

⑪ Do not move any solutions in Cell A or Cell B until advised by E.J.W.

and 11/22/47 ① P95-C-1 – 1670 mc's. st.
8-4 ② Run 22 shipped this A.M. with 1100 c's.
PERRY ③ Started Iodine run # 410 – Oxalic addition complete.
④ Transferred HCl-ether waste to carrier. Sitting outside east door. Highest reading 850 mr/hr.
⑤ Put rubber gaskets on 4 S.S. drums.
⑥ Maintenance connected steam line from new steam plant to tank farm.
⑦ Added 4 Liters HNO_3 to A-9. Agitated & sampled # SRI-1. ~~Spar~~ HP reading 800 mr/hr. Sparged & sampled # SRI-2 – HP reading 7.5R/hr. See EJW's instructions on continueing in A-9.
⑧ A-5 liquid level ring balance seems broken.
⑨ Worked on housekeeping – Scrubbed N hot lab. Smears showed 3 spots over Tolerence.
⑩ Tried to pass ether through glassware. No go. Ether evaporated – Added 1 liter hot water. Oil rose to the top – Sparging in B-21 R now. See EJW's instructions to proceed.
⑪ Disregard H.B.'s instructions on what to do after the run is shipped until investigation of Ba run loss is completed.
⑫ Started make up of the 40% carbonate in the weigh tank

11-22-47 1) Solution in B 17 is K_2CO_3 rinse from
4-12 B21, to be sampled as soon as lab has
Thompson. sampler ready.

2) SRI-1 92 c @ ST (A9) mechanical agitation
SRI-2 114 c @ ST (A9) air sparger
SRI-3 1305c @ ST (A9) after metathesis
SRI-4 60 c @ ST (B17 - rinse from B21)
SRI-6 68 c @ ST (B-6 rinse 10 Liters)

3) Started 1[131] run 411. - now adding oxalic pH of evaporator 10, steam off.

4) Start Ba^{140} run beginning with extraction of batch now in A-9 - HB's instructions.

11-23-47 ① Completed solution transfer from B21R → B21T →
12-8 B17 and sampled # SRI-5. Transferred
Russell B17 to B3 using B7.

② Processed P-95 thru glass ware thus far
(a) Product solution going thru column.
(b) F-2 on disc.
(c) W-1 has been sampled.

③ Completed iodine run 411. Product solution evaporating basic side reading >20 R.

④ Ba^{140} Run Status:
Run 22A, Batch A started @ 12:05 AM by jetting cake washes in A-8 into metathesized heel + H_2O in A-9. Made extraction, etc.....
A1 Batch V diluted and sampled
A11 " U 224 c's
A8 MT

A9 Batch A Run 22A settling until 10:15 AM
A5 MT
A6 ~~Neut. Waste going to W-9~~ Empty
⑤ Analysis SRI-5 (B-17) B-21T→B-21R Rinse 5.03 C's.
⑥ Assembled some equipment for P^{32} set up.

11/23/47 ① I-411-2AC - 635 me's/st.
8-4 ② 8 WMA - 15.9 c's A.T.
PERRY ③ Made up 40% K_2CO_3 sample in lab.
④ Put lead removal solution through B-12.
Sampled 3W Pb.-
⑤ SS. drums scrubbed at W-4. Ready to smear.
The drum in the pan needs a new gasket.
⑥ Three new gaskets were put on drums.
⑦ Instrument man repaired A-5 ring balance.
⑧ P-95 still going through column. Dead P not added this shift.
⑨ Run status
A-1 - Batch V diluted - ~ 50 curies.
A-9 - Batch U settling hot - Til 4 20/p
→ Note: Let this settle cold until in the morning when a decision on disposition will be made.
A-11 - Batch "A" settling Til 4 30/p.
A 5 - CO_3PO_4
A-6 - MT -
⑩ Blew out B-11 with steam.

11-23-47 1) Dumped the last of the whiskey bbls.
4-12 2) Cleaned up the wood under the whiskey
Thompson bbls & loaded it on the big truck to be taken to the burial ground. The hoops that were scattered around are in the bed of the small pickup truck
3) Spread the tarps out to dry so they can be disposed of.
4) Smeared drums at W-4 - all over tolerance.
5) Started rewashing drums. Washed 12 of them & set them off in the drive by themselves. 7 Left to be washed. No Leaks.
6) Steamed B-6 sparger line.
7) 3WPb - 46.7 c @ ST
8) P95-C1 1670mc @ ST
P95-P1 132mc @ ST
P95-W1 49.9mc @ ST

11/24/47 ① Steamed instrument lines to B-6.
12-8 ② P-95-F2 - Reprocessed on SR#1. Apparently
Perry activity for this run remained on the asbestos. New run - P95A.
③ The buzzers on monitrons in N hot lab and east of Cell B 1st floor do not work properly.
④ Status of Run - Same as last shift.
⑤ P-95A-P.1 going thru column on top of p95-P1. No dead P added yet. P95-W-1, F-2 sampled.
⑥ Washed 75 S.S. drums. Unable to ~~complete~~ get smears because of rain.

(7) K_2CO_3 — 39.9%
(8) Sulphur extractor is plugged between P3 & P-5.
(9) Received from maintenance new Sr. cabinet.
(10) P95-A — F2 825

11/24/47 (1) Replaced oil in bubblers to B6 & pipettes with H_2O

Blauer 8-4 (2) Jetted A1 — A11 — A5 neutralized to A6 to W9. All included the cell B wastes.

(3) Added 1 liter Fuming HNO_3 to B6 with B18 condenser on, heated 1/2 hr; repeated with fuming HNO_3, heated 1/2 hr jetted to B3, A5 & flushed with lots of water.

(4) Drums in tank farm smeared
(5) Changed ammonia cylinder.
(6) Installed N. still.
(7) Unloaded the 1 1/2 ton & pickup trucks at the burial ground. Threw out the tarps too.
(8) Continued on with the run.
(9) Washed from B24-51 blister brought the radiation to 40 mr/hr. through the blister.
(10) Moved HCl - Ether carrier to garden (E of 706-)
(11) Scraped 17 barrels — dumped the leaking S.S. barrel & the black iron barrel.
(12) Replaced gaskets on 2 drums.
(13) B6 — B12 — B17 all have a Pb removal wash in them. To be removed tomorrow before the cell B transpi.

Not in B6 yet

(14) 1 1/2 ton truck & pickup truck beds were washed.

wgs P95 A P1 going through column
P31 Added. Follow with water
rinse. Take up in 200 ml
H_2O after balling 1 hr.

A1 — MT
A5 — MT
A6 — MT
A9 — Water washes settling
A11 — ~~Batch~~ 8WMU settling
A8 — 1st water wash + H_2O.

11-24-47 ① Added 32 liters 25% HNO_3 + 1 liter H_2O_2
4-12 to B6
Russell ② Scrubbed seven s.s. drum at W-4 using a brush, soap and water. These drums have been smeared.
③ Made up CO_3 PO_4 and jetted to A-5. Do not jet this solution from A cell until after the run is over.
④ Made up product carrier.
⑤ Kept distilled water going thru Pressley's column on third level. Continue this until pH of water coming thru is same as water going in. Discard
⑥ Started steam engine at 205 stack.
⑦ Made up an HCl-ether carrier
⑧ Column being regenerated in Cell V. HCl going through.

(9) Product solution is evaporating to dryness.
(10) Checked the glassware in Cubicle III. Observed all transfers with scope. Filtered four liters of H_2O thru B20R at an average of 3 min. and 2 seconds per liter.
(11) Analysis of 8WW 10.9 C's
(12) A minimum of air agitation in A-9 (<1 Lb.) increases the rate of evaporation such that in order to maintain a .5 M. K_2CO_3 water must be added during the digesting period.
(13) Run Status—
A-1 MT
A-5 Neut Waste - Hold until after the run.
A-6 MT
A-11 ~~8WW~~ ~~10.9 C's~~ heel of extraction
a A-8 8WW 10.9 C's
A-9 1st Met. digesting until 11:50PM

11/25/47 (1). "A" bank of batteries charging 'til 10:00 AM.
12-8 (2) Completed rinse of Pressleys column. 3rd floor
Perry- (3) P-95A-P3 Taken up in water (200 ml) & sampled.
(4) Double extraction, P96, made C1 under P5 Not sampled.
(5) Run Status
A-1 Mt
A-11 - Heel from batch U.
A-9 - 1st water wash of methasis cake settling 'til 10:16 AM
A-8 - 8WC soln. Sample circulating.
A-5 - Neutralized waste
A-6 mt
(6) - P95A-P3 analysis 926 mc S.T.

Isotope.

P96 C1 very good over 2000 mc,
P95 P3 not so good Cl too
high & T.S Too high

There will not be an extraction finite
as we have too much to process
now. Will 4-12 & 12-8 clean
up the extractor. Flush with
water until P5 comes clean.

Done AR If possible clean some carries
finite.

J.P have G.W pick up some
1 gal Cans finite for cell 5.

11-25-47 1) Finished scraping whiskey barrels.
B-4 2) Sealed all ss drums + moved 5 of them
Thompson to W4. 2 ss drums still to be moved.
3) Started carrying off MT whiskey barrels
+ cleaning up the area.
4) Made the transfer to cell B. A9-B12.
Put 350 ml rinse through B26 into B12
B12 volume 5.5 L.
5) Repapered carrier + brought up top,
Done bolts, + gaskets. Still need a gasket for
the ~~cane~~ plug.
NOTE H.B

6) Ran steam engine 4 hrs. Flushed stack.
7) Repacked + changed oil in the vacuum pumps.
8) The 2 barrels in the pan at W-4 are washed. The solution in the bucket used for washing is 30% HNO_3. Be careful don't burn yourself. Remember the barrels are S. steel but the flanges are black iron + the rolling hoops are black iron
9. Moved the last 2 S.S. drums from W10 platform to W-4.
10 & WCW - 88.2 S.T. 92.3 A.T.
11 & WC - 62.9 S.T.

11-25-47 1 Started steam for engine. Keep it going.
4-12 2 Loaned a man to 706-C iodine process.
Russell 3 Analysis A9 Rinse 45 c's @ S.T.
4 Cleaned all s.s. drums at W-4 not bearing a green tag.
them 5 Made up and installed gasket on plug.
6 Smears have not been made on ss. drums cleaned this shift. They were still wet.
2. 7 Cleaned all isotope carriers.
12 8 Emptied B6 and B17 and rinsed with H_2O.
9 Day shift: Road into W-4 needs a road machine on it.
op, 10 P96 going through column. Water rinse has not been added.

156 (11) Ba^{140} product solution is electrolyzing at 25 amps until 1:10 A.M.

A1 MT
A9 H_2O rinse. 45 c's S.T.
A11 Hgls, extraction
A8 8WCW 88 c's S.T.
A6 Neut waste
A5 MT

11/26/47 12-8 PERRY

① Rinsed sulphur extractor thoroughly. P96 P1 going through column. Dead Phos. not added because of uncertainty of amt. to be added.

② H.P. smeared ss. drums at W-4.

③ 6-P. 1321 c's st.

④ Got 12 mt. tin cans from cafeteria for Cells.

⑤ Transferring run from A-6 to B-20R at shift change. some guys can do anything on graveyard - Amen. JGP

11-26-47 8-4 Thompson

1) All drums at W-4 okay for shipment.

2) Put 1 small can of uranium metal turnings (28#) with the drums at W-4, to be shipped.

3) Cleaned up area around barrel dumping platform. More bbls were carried away.

4) Ba^{140} run status:

Evaporating in B19
B-6 rinse 6.6 c @ ST
3WFN 54.3 c @ ST

5) Cleaned up glass PB.

6) Cleaned up decontamination room - stored old P2-P3 valve and the can it is in out in the garden; valve still

reads $5\frac{1}{2}$ R/hr — 30 mr at surface of liquid in the can.

7) Instrument men checked + adjusted skyshine instruments. Ready to go as soon as the skyshine chamber is turned on — micromax is already on.

8) Cleaned + stored 2 sets of sampling equipment, cleaned up around samplers.

11/26/47 4.12 King

① Added 200# HNO_3 to A-1 and started boiling at 5 30 PM.

② Tidied up Cell 5 - hosed down floor, etc.

③ Sampled P96-R1 — 24 mc's; sent to drain

④ Decontaminated movable ~~pipet~~ pipettes + s.s. valves in decontamination room; H.P. checked + tagged them to go to maintenance shops.

⑤ Evaporated Run #22A product until 6 30 PM. Moved under viewing cone + found to contain soln; put back in heaters + evaporated an additional $1\frac{1}{2}$ hrs.

⑥ After 2nd evaporation found product to be dry. Skyshine instr. showed only 3R - thought to be out of order; contacted instr. man at 105 bldg - man to come down at midnight.

⑦ H.P. probes showed 7R, 7.2R, 9R on skyshine.

⑧ Sampled HCl-ether waste.

⑨ Transferred HCl-ether waste to carrier + parked on back platform until Friday (riggers).

⑩ Put 40 gals. water in A-9 + boiled for 1 hr.;

transfered to A-8 & boiled 1 hr. - now cooling to send to A-11.

Put 2nd 40 gals water in A-9 & boiled for 1 hr. - cooling now for transfer to A-8.

(11) P96 A still going thru column in cell 5.

(12) Product now in carrier in cell with plug part way in - awaiting 4 20 PM skyshine.

(13) Inst. of Wittowski are to tell Hurst amount of product when Hurst calls in the morning. Also, call Wittowski if product less than 1000 c's according to skyshine.

(14) Lined bed of A.E.C. truck with blotting paper.

11/27/47 (1) HCl-ether waste analysed 34 c's.

12-8 (2) Instrument men from 105 came down & looked at the sky shine. Neither of them had ever heard, or seen such an instrument. They tightened a connection and we were unable to get a flicker from it at 4 20 Am. Probes checked at 9R. Graph shows (if probe readings right) 820 c's at 8 00 A today. Carrier at the door, ready to bolt on the truck.

PARRY

see (9) (3) Made double phosphorus extraction at Cell 5 (Lemons)

(4) Passed lead removal solution through B-12.

(5) Rinsed ~~A-8~~ A8, & A11, by boiling water - 2 shots completed in each - Waste sent to W-9.

(6) HNO_3 rinse in A-1 neutralized in A-5. 60 gal water put in A-1 & Taken to 100°. To be cooled at 8 30 A.

(7) 3 W Pb - 8.42 c's ST.

(8) Smears from Carrier

Top - 54 c/m.

Ledge - 259 counts
Side with weld. 133 counts
Plain Side - 2302 "
Bottom ledge - Jams -
Under Bottom - 36,000.

⑨ Phos. extract is in P-5. Would not run out. Valve ~~may~~ have to be heated

11-27-47 8-4 thompson

1) Cleaned carrier with hot water. Highest reading now < 13 mr/hr (on bottom) re-smeared carrier.
2) Loaded carrier on truck + surveyed truck. Truck left at 9^00 AM —
3) Took tarps + lumber from barrel-dumping platform out to burial ground.
4) Completed HB's instructions down to those for 11-27-47 + thereafter as noted A-11 cooling - ready to be jetted to A5.
5) Took up P96A-P3 in 400 ml + adj. pH to ~ 4.0 with NaOH. Sampled + stored behind bricks in shipping room.
6) P5 heater does not work, it seems. Could not get P5 drain unplugged. Product sol'n is still in P5 (cold)
7) Decontaminated carriers.
8) Moved tank washer for decontamination to 3rd level. Moved plug up, too. Moved fire hose + stand to table by cell A entrance.

9) Started decontamination of samplers B3 + B6 still especially hot. A5, A6, A1 all ok.

11/27/47 4.12 King

① Shoveled out inlet trough to settling basin - most of solid baking mtrl in trough is very light & fine and runs off of shovel before you can pick it up.

② Worked on blisters A8, B3, B6 - all still read high: A8 shows 400 mr/hr, B3 - 50 mr/hr, B6 - 2 R.

③ Shut down steam fan.

④ Hooked up cell spraying apparatus & sprayed cell with water. Jetted water to A-5, sampled, labeled A5-1, submitted to lab for gross beta.

⑤ Started "Cell A Decontamination Program". At end of shift 50 gals. water had been boiled in A-8 & ~~was~~ is cooling enough to jet to A-11.

⑥ Phos. Cell 5 -

a) Electrician found that P5 valve was not heating due to loose connection between transformers & valve at valve - tightened same.

b) Heated P5 valve to 160°C & drained small amount of sulfur - still did not unplug. Air monitor off scale.

c) After "cooling off" period & change of monitor filter by H.P. P5 was heated with steam to 125°C (with P3-P5 valve open). Drained more sulfur from P5 and closed off valve when steam

started out.

d) Air monitor again off scale. Turned off valve heater & steam to P5. At end of shift left P5 cooling to drain product and cell cooling (air radioactively).

(7) Note note in tank farm log that 105 wants to drop fan seal promply at 4 AM.

→ Note - part of product is probably in P3 since P3 to P5 was open during vale & tank heating - this done in order to make sure did not get too much pressure in P5.

11/28/47 (1) A-5-1 - Sump rinse - 132 c's.
12-8 A-5-2 - Samp rinse 54 Cl2 Sampled
PARRY A-6-1 - Water rinse A-1, 9, 8, 11 - 125 c's

(2) Completed 1st water rinse of A-1, 9, 8, 11. HNO_3 added To A-1. Sent to A-11 and To A-9. Take this from A-9 To A-8 to A-6.

(3) Made up 530# Na_2CO_3. Found it required ~200 gal water to dissolve it. Put 100 gal in A-1 & started the cycle. Other 100 gal distributed thusly: 50 gal - weigh tank, 25 gal - H_2SO_4 (T-3) tank, 25 gal - M-1. Pump will not pick up any more from M-1. This may be jetted To A-5 to A-6 when the HNO_3 in A-6 is Neutralized

(4) Worked on decontamination of blisters - A-6 still 2R. Rest came down well. Cleaned up sampling equipment.

(5) Washed B-12 & B-17 probes. Removed 1 layer tape on B-17. Highest spot now reads 25 mr/hr.

You're way ahead, Bud

⑥ After much effort (& evacuations) extract P-97 was delivered of P-5. C-1 - 1328 mc's. Carried through glass ware. P-1 now going thru column.

11-28-49 ① Moved HCl-ether carrier to garden.

8-4 ② Shipped 26 s.s. drums of UNH to Local AEC

Russell ③ Sky Shine Chamber has been sent to inst. shop for repairs.

④ Sprayed Cell A & A-4 plug jetted to A-5 sampled A-5-3

⑤ Made up batch 20% citric, A-1.

⑥ Tightened packing on vacuum pumps.

⑦ Cleaned out Cell A corridor.

⑧ Assisted Qu in decontamination of Cell V equipment.

⑨ Washed down Cell A corridor, jetted to A-5 and sampled A-5-4. C.P. reading in hallway dropped by a factor of 4, how somewhere midway.

⑩ Installed Chicago coupling on A9-A8DA.

⑪ Drained A4-205 vacuum system

⑫ Repaired flat tire on pick up truck.

⑬ Pumped HNO_3 for use in A-1

⑭ Obtained 4 Te samples for iodine runs.

⑮ Sampled HNO_3 tank rinses in A6. Sample A-6-2

⑯ Installed water hose connection in Cell A corridor.

⑰ Cleaned up all contaminated overshoes, gloves, etc.

⑱ Analysis of A-5-3, 3.07×10^6 c/ml.

⑲ Emptied W-1 + W-2 and began dropping one seal at approx 3:30 P.M.

⑳ W-11 is on automatic jetting.

㉑ Another seal is to be dropped

Status A Cell Decontamination:

A1 30% HNO_3 heating until 4:30 P.M.
A5 Full tank sump water not sampled.
A6 30% HNO_3 boiling until 4 P.M.
A8 Na_2CO_3 " " 4:15 P.M.
A9 Citric acid " " 4:30 P.M.
A11 Na_2CO_3 " " 4:00 P.M.

To neutralize A.6

(22) The next solution into A-1 should Na_2CO_3 to neutralize 500 # of 30% HNO_3.
(23) A5-4 sample 7.2×10^5 c/m/ml.

N.B.

11/28/47 4-12 King

(1) Put fire hose & stand inside corridor of cell A; hooked up firehose to new water inlet & aimed nozzle at angle toward roof inside cell.
(2) H.P. survey showed radiation of 5 R at shoulder height & 6 R at floor at step-off into cell A (4 30 PM).
(3) Maint. repaired leaking water line behind Cell B, 1st level.
(4) Made housekeeping inspection & started working on items listed. Please add any items noted to it.
(5) Moved roof Cell A spray nozzle to another plug & poured a bag of carbonate down hole before hosing.
(6) Sampled sump washes A5-5 & A5-6.
Results A5-5 — 1.72×10^5; A5-6 — 1.23×10^6.
(7) Started decontamination of phos extraction equipment in Cell 5. Washed P4 & P5 with soap & water; washed tray with dilute caustic.
(8) Removed electrical leads to P4 & P5 heaters. Removed P4 & P5 drain hood & part of 2 in line.

(9) Put P4 & P5 hood & 2 in pipe section removed in decontamination barrel in decontamination room; left same boiling in citric acid.

(10) Scrubbed floor of cell 5 with soap & water.

(11) P97 is still going to dryness in evaporator - still about 100 ml to go.

(12) Started iodine run #412; ~~heating up for~~ agitating before distillation at end of shift.

(13) Cell A Status:

A-1	Na_2CO_3 soln - cooling after boiling 1 hr.
A-11	MT
A9	30% nitric - cooling after boiling 1 hr.
A8	Na_2CO_3 soln - " " " "
A5	Citric acid " " " "
A6	MT

11-29-~~48~~ 1) Took up P97-P3 & sampled - 708 mc AT

12-8 2) Column regenerating - ready for 100 ml H_2O rinse.

Thompson 3) Scrubbed hood from P4-P5 to < 5mr

Decontaminated 2" pipe sections to < 5mr

4) Maintenance replaced hot strainer by A9 blister. The old strainer had quite a lot of oil in it. Old strainer boiling in citric acid in 1st barrel in decontamination room.

5) Wrench in sink at cell 5 reads 1.2R/hr on the end. P5 drain line reads 1.5R/hr

6) Completed 1st run 412, started 413.

7) Cell A status:

A1 Na_2CO_3 heating

A9 HNO_3 boiling until 8 AM

A11 MT

A8 Na_2CO_3 coding
A5 Water from sump - NOT sampled.
A6 Neutralized waste, ready to go to tank farm.

Note: The plug from over A6 read >4R/hr on the end. Had a cake of UNH on the end, too.

11-29-47 ① Sampled sump washs A5-8, A5-9
8-4 ② Removed plug over A9 and dropped Na_2CO_3
Russell onto the tank and floor. Flushed down with H_2O.
Analysis of this rinse A5-8, 1.33×10^6 c/m/ml.
③ Began jetting directly from A Sump to W-11.
Keep this jet going while spraying the cell and continue to jet sump into A-5 for sampling.
④ Obtained Te samples for last I^{131} run.
⑤ ~~Jet All A&D jets to A-5~~.
⑥ Added rinse to nalcite and sampled P97R1.
⑦ Analysis A5-9, 1.09×10^6 c/m/ml.
⑧ Removed plug from over A-11 and dropped caustic on tank and floor. Kept AS-W11 going all shift.
⑨ Cleaned out alpha contaminated materials in bed of pick up truck.
⑩ The first cut of iodine run 413 is to be added to the dissolver immediately following addition of next Te samples. Verbal explanitation passed on to next shift.

⑪ Cell A

A1 Na_2CO_3 boiling until 4:30 to neut acid in A8
A5 Neut waste receiving from A11
A6 3" heel - waste
A8 HNO_3 Cooling
A9 MT
A11 Na_2CO_3 cooling

11/29/71 4-12 Kim

① Completed iodine run #413; started iodine run #414.
② Because of high acidity (excess amount of caustic to neutralize) cuts 1, 2, 3 of run I-413 were added to dissolver with samples for I-414.
③ Washed down P4 & P5 again with soap & water. Capped P4 & P5 drains to cut down radiation.
④ Removed drain pan under P4 & P5 & put in decontamination room - 706D; started decontaminating pan.
⑤ Hosed floor of cell 5.
⑥ Worked on housekeeping some.
⑦ A5-10 analyzed 9.5×10^5. (sump water).
⑧ Moved spray nozzle in cell A several times during shift. Poured two bags carbonate thru 3rd floor.
⑨ Continued heating & kicking Na_2CO_3 & HNO_3 solns around Cell A.
⑩ Cell A status:

A1 Na_2CO_3 soln - cooling after boiling

A 11 HNO_3 soln - cooling after boiling
A 9 MT
A 8 HNO_3 soln - cooling after boiling
A5 Na_2CO_3 soln - cooling after boiling
A6 MT

11-30-47 1) I^{131} run # 414 was stopped after two
12-8 cuts had been taken. These cuts were
Thompson quite acidic, requiring an extra 3ml of NaOH each. The dissolver was sampled after two cuts had been taken; and when the analysis showed only 69 mc left in the dissolver, it was decided to stop at that point without making any more cuts. The soln is still in the dissolver.

2) Completed the evaporation of I 414AC to 300ml + sampled.

3) Put 1500# of HNO_3 in A1 to fill it up to 5" below capacity, boiled + sampled, A1-1 5.15×10^4 c/min/ml.

4) Jetted HNO_3 from A1-A9 until A9 overflowed; rest jetted A1-A6 boiled + sampled, A9-1. 1.03×10^6

5) Let's let A6 build up until it is nearly full, then boil before sending out to the tank farm. And the same for A5. This should clean off the sides + top fairly well, better, at least, than small volumes will.

6) Took survey at entrance to Cell. >> 10R on floor. ~ 2.5R at head level

7) Maintenance replaced strainer on A11 sparger line by A8 blister. This strainer had oil in it, too. Now in 1st drum in decon. room.
8) A5-11 3.17×10^6 c/min/ml.
9) Hosed down N. hot lab, make up room, & 3rd level concrete.
10) Cell A status:
A1 MT
A5 HNO_3
A6 waste
A9 HNO_3 coding
A11 MT
A8 Na_2CO_3 coding
11) Hosed down cell through 3rd level plugs.

11-30-47 ① Poured two bags T.S.P. thru 3rd floor near A-11
8-4 ② Decontaminated A6 blister, from 4.4 R to < 500 mr.
Russell ③ Changed position of spray nozzle in Cell A several times and kept AS-W11 jet going continuously.
④ Iodine product analysis, 837 mc's A.T. T.S. 2.6 mg/ml
⑤ Kept Na_2CO_3 and HNO_3 cycle going in Cell A.
⑥ Scrubbed platform at W-10. Cleaned and returned two metal horses to 706-0.
⑦ Made electrical connections at Main switch for power to receptacles west wall, Cell A.
Set up centrifugal pump and installed hose connection for priming. Obtained D.B. sample after pumping from Cell A sump to S.B. ~8 min. Analysis 28,196 c/m/ml. D.B. rate 11 gal/m.

Do not use this pump to send A sump to S. B. until the D. B. c/m/ml. can be kept < 5000.

⑧ Hosed down Cell A corridor again. C.P. reading 15-20 mr-hr. on floor.

⑨ Surveyed Cell A entrance. ~ 1 R. at head level at step.

⑩ Obtained third cut on I^{131} run 414. 15 ml. of NaOH (1/3 N.) was necessary to neut 70 ml. This cut reading ~ 800 mr-hr. was saved behind Pb brick under hood, I^{131}.

⑪ Filled I^{131} glass ware with cleaning solution. Suggest this set over night before cleaning out.

⑫ Cell A status:

A1 < 5% HNO_3 boiling
A5 Neut waste
A6 Heel of neut waste
A8 HNO_3 boiling - 30% } combine to neut.
A9 Na_2CO_3 boiling }
A11 MT

⑬ The hose to and from the Cell A sump pump read as much as 500 mr-hr at intervals during pumping.
The pump will empty a full scale man. reading of sump in about 3 minutes.
The end of the hose must be anchored down when pumping.

⑭ Sampled sump in A-5. Analysis 2.05×10^5, Sample No. A5-12.

170 ① Obtained 8 bags Na_2CO_3 from old church around the bend.

11/30/47 4-12 King

② Removed 8 plugs from top of cell A & distributed 3 bags carbonate thru the holes.

③ Hosed cell A thru above holes with hot water & ran A5-will jet full time.

④ Cleaned up decontamination room; cleaned adapter, tools, etc. & returned to storage.

⑤ Maint. removed remaining section of pipe from P4 & P5 hood.

⑥ Scrubbed hot spots on P4 & P5 with citric acid, then soap & water. All spots below 50 mr/hr except thermocouple wires which still read approx 250 mr/hr.

⑦ Scrubbed Cell 5 floor with soap & water.

⑧ H.P. smeared floor on S end of cell & in N. Hot lab — both slightly high. Scrubbed floor of N. Hot lab with soap & water.

⑨ Hosed down concrete floor on 3rd level.

⑩ Sampled sump water in A5; # A5-13.

⑪ Continued Na_2CO_3 & HNO_3 cycle thru Cell A tanks.

Cell A status:

A-1 - Na_2CO_3 wash - cooling
A 11 - HNO_3 soln - cooling
A 9 - Water - "
A8 - MT
A5 - MT
A6 - Jetting to W-11

⑫ Sampled A6 tank wash — A6-13.

⑫-A Left hot water spraying into cell A.

12-1-47 1) Poured in 2 bags Na_2CO_3 from 3rd level
12-8 + washed down.
Thompson 2) Poured in 1/3 drum citric acid from 3rd level + washed down. Sampled sump 1.5×10^6
3) Poured HNO_3 on floor of cell from entrance + hosed down
4) Cleaned water cooler from cell 5.
5) Decontaminated carriers.
6) Sampled sump after HNO_3 washes, A5-15
7) Survey of cell at entrance showed 775 mr/hr at head level, 450 mr/hr on floor.
8) Straightened up and swept out low storage.
9) Cleaned pipettes in N Hot lab.
10) Turned on W5-W6 jet at 4:30 AM.
Cell A status:
A-1 Na_2CO_3 cooling
All other cell A tanks MT.
11) 105 is due to send down another fan seal today.

12/1/47 ① Tried to get that ** - !!?;: ☆ pump to work.
8-4 Retarded the hosing process by 8 hrs.
Blauer ② Electricians worked on E. Vacuum pumps.
③ A5-17 1.19×10^4 sump water.
④ Y carrier came back. Cone + plug are in the barrel. Carrier is to be cleaned. now has citric soaking in it.
⑤ The pump is working. Notice that it throws so much water that the drain line to the S. Basin runs over.

172 ⑥ Thru T.S.P. + Na_2CO_3 down on the tanks

⑦ 2 Small hoses going into the cell. One over A6 the other over A9. The large hose is shut off.

TANK STATUS

A1 – 10% HNO_3 – cooling
A9 – 6¼" Citric Acid cooling
A8 – MT
A11 – 35" H_2O Boiling
A5 – 14" Na_2CO_3
A6 – MT.

Move all of this material one more tank when ready + sample in A6.

Next addition to A1 should Na_2CO_3 about 100# of 100% solution or 500# of 20%.

12/1/47 ① Put 1000 ml. distilled water into column feed tank on Phos. equipment – going thru column & R-1 to drain

4-12 King ② Hosed Cell A with fire hose & two hoses from top and pumped to settling basin until 6 45 PM.

③ When pump is pumping full stream from cell A water backs up thru other drains – esp. one at North end of Cell B.

④ Put valve in outlet side of cell pump to throttle water – do not close toomuch – high pressure.

⑤ Moved all soln in Cell A, boiled again, jetted all to A6, boiled, sampled (A6-4), jetted to W-11.

⑥ A6-4 analyzed 1.59×10^{4} cm/m/ml.

⑦ With all tanks empty, [scattered] put two bags carbonate & two bags T.S.P. over cell A thru plugs on 3rd level & thru cell door. Closed all instruments lines behind PB #1, 2, & 3 (Cell A only); put paper ~~on~~ over most of cell B air intake. Started steaming cell at 8 20 PM — all jet lines, steam sparger lines, steam jackets turned on. Still steaming at end of shift.

⑧ Very little rise in air count on start or continuing of steaming.

⑨ Flushed & swept floors where water from cell came up thru drain. Washed down concrete on 3rd level.

⑩ Decontaminated Ba carrier, HP surveyed, stored over hot labs. Cone & plug still warm (270 mr & 90 mr/hr); put back in barrel & left boiling in citric acid.

12-2-47 1) Turned off steam + hosed down floor.
12-8 Pumped to DB.
Thompson 2) Scattered Na_2CO_3 from 3rd level + steamed again.
3) Hosed down cell again — + pumped to DB.
4) HP survey at 7 30 AM showed:

800 mr/hr	3 ft. inside + 3' off floor
1800 mr/hr	top of A6
8600 mr/hr	bottom of A6
1650 mr/hr	top of A16
9100 mr/hr	north end of sump.

5) Worked on cone + plug with little success.

6) Turned instruments back on.
7) Jetted AD-W11 all shift.
8) Could not get ceiling blower to put out any heat. Day shift PLEASE CHECK.
9) Radiators on N end of bldg cooled off at about 4:00 AM for some reason and have been stone cold ever since.
10) Ain't there some way we can get a little heat in here these COLD nights? We're all catching pneumonia.
11) Decontaminated sample carriers.
12) Where do they keep the STEARNO?
13) Anybody got a match?
14) All cell A tanks MT.
Steam to cell off.
Floor has just been hosed.

I had to pretty good human bell
we'll try to get you fixed up.

12-2-47 ① Drained 105 hot tank.
8-4 ② Repaired regulator on steam supply line to
Russell heating system, in low storage.
③ Removed bank of steam coils from ventilation and heating system to repair steam leak.
④ Repaired relay to east vacuum pump.
⑤ Installed nipple with removable cap on A9-205 vacuum line at junction (Xmas-tree) for checking vacuum.
⑥ Worked on electrical circuits, heater units, P. B. 6.
⑦ Cleaned I^{131} glassware, removed and

cleaned stop cocks and installed a tygon line for the addition of dist. H_2O to receiver.

⑧ Threw 30% HNO_3 on hot spots in Cell A and followed with H_2O, NaOH, and more H_2O. Kept fire hose and spray on 3rd level going all shift. Poured NaOH on all tanks from 3rd level. All Cell A tanks are full or being filled with <5% HNO_3 except A-5 which contains a batch Na_2CO_3. Tanks are boiling. Fire hose and sump pump is going.

⑨ As a matter of record:

Survey at 8:30 Am: Cell A

Floor around A6		825	mr-hr.
Bottom of	A6	3200	"
Top "	A6.	1350	"

A6 was empty.

Sump N.W. corner	9000	mr-hr.
A16 off gas	2250	"
Head level in doorway	825	"

Survey at 3 p.m. Cell A

Head level in doorway

sump empty, A6 full	425	mr-hr.
1 ft. from A6 head level	875	"
6" from bottom A6	400	"
6" head level A6	450	"

⑩ Steamed the A16 off gas system.

⑪ Repaired steam leak at N-10.

⑫ Drained A4-205 system. Checked vacuum at Xmas tree, 1½" HG Reading at Hot Pilot Plant, 6" HG

176 (13) The 3rd floor ventilating heating coils are back. Jet shift maintenance to reinstall them.

12-2-41
4-12
King

(1) Maintenance reinstalled ventilation heating coils on 3rd floor.

(2) H.P took readings in cell at 4 PM & 9 30 PM:

	4 PM Top	Bottom	9 30 PM Top	Bottom
A6	490	375	750	490
A5	1300	2000	1100	2200
A1	1300	1100	550	800
A8	[illegible]	1300		550
A9	[illegible]	2500		1650
A16	[illegible]	1650		1650
A11	[illegible]	850		1100
Sump	[illegible]	2200	S. end 1650	N. end 11,000

Note - all readings were taken at approx 1 foot. At 4 PM all tanks were full of weak nitric; at 9 30 PM all tanks were empty (also sump empty).

(3) Put nitric on floor of cell around & behind all tanks.

(4) With all tanks full of weak nitric, turned off all instruments on PB #1 & 2, and turned on all steam jets, jackets, spargers, etc. Steamed for approx 2 hours.

(5) Continued hosing from roof & with firehose & pumping to settling basin.

(6) Started spraying cell with carbonate from M-1 but blew gasket in bottom of pump (M-9).

(7) Maint. repaired M-9.

(8) Hosed down first level floor & tried to house keep some on 1st floor — ~~doesn't look~~.
(9) Plug & cone still a little hot in decontamination barrel; changed citric acid soln & started boiling again.
(10) Drained A4-205 for 20 min. & checked vacuum at Xmas tree with valve to pot closed: showed 1 3/4" Hg.
(11) Refilled A1, A9, A8, A11 with dilute nitric & turned steam on jacket & sparger 10^30 to 11^30 pm; left water running into A5 & A6 to fill after adding 50-75# acid. All instruments turned off on A1, A8, A9, A11; instrs. still on on A5 & A6.
(12) Sample of tank wash A6-5 analyzed 1.30×10^5 ct./m/ml.

12-3-47 1) Decontaminated cone to 40mr & stored
12-8 in cabinet. Plug still soaking in citric acid.
Thompson 2) Decontaminated carriers.
3) Cleaned out sump in pit in make-up room.
4) Maintenance put new grease cup on pump M9 + filled grease gun in make-up room.
5) Poured HNO_3 on tanks + floor from 3rd level through tygon line + hosed down.
6) HP surveyed cell at 700 AM.

	Head level	floor
A6	1500 @ 6"	500 @ 6"
A5	750 "	1500 "
A1	800 "	1500 "

S. sump 3500 @ 8" center 10R @ 8" N 10R @ 8"

A8 1000 @ 6"
A9 2000 "
A11 580 "
A16 1250 "
} head level

All ~~cell~~ A tanks MT.
Cell has just been hosed.
7) The building was much more comfortable tonight — thanks a lot, fellas.

12-3-47
(8-4)
Bailey and King

1. DO NOT cut off the A16 fan without checking with ~~[illegible]~~ 706-E building boys.
2. Put weak solution of NaOH in A4. Boiled 2 hours.
3. Dumped Na_2CO_3 and Phosphate in cell through plugs from 3rd level.
4. Hosed down cell and pumped to S. Basin.
5. Maintenance is removing tar from Cell A plugs.
6. At the time of this writing steam is off building. Line bursted now being repaired.
7. North water still is leaking.

12/3/47 ① - Leak at N still seems to be a live sweating.
4-12 Needs packing.
PERRY ② Boiled HNO_3 (10%) in A-6. Transferred to A-5 to a level high enough to run over. Sprayed acid around on the floor. Hosed cell down good. Filled all tanks except A-9 & part of A-6 to get H.P. readings at last of shift.
③ Removed tar from plug for A cell.
④ Scrubbed entire balcony at Cell 5, to as high as could be reached.
⑤ Scrubbed water fountain at DC room & resmeared.
⑥ Cell A readings at 11 30/PM at 6" from each tank or pt. of reference.

Inside door 3' in 3' up.		540 mr/hr.	
A-6 -	floor -	320	
	head level -	630	
A-5	floor	1000	
	head level -	820	
A-1	head level -	655	floor 1050 mr/hr.
A-11	head level	540	6" from bottom.
A-9	head level	1650	6" " "
A-8	head level	870	6" " "
Sump -	N side	> 11,000	
	middle	~~2750~~	
	S. side	2750	
A-16	head level.	1100 mr/hr.	

12-4-47 1) Poured TSP on cell floor after hosing
12-8 down with Na_2CO_3 sol'n. Hosed TSP down
Thompson with water

2) Filled tanks A1, A8, A9, + A11 with TSP sol'n and boiled — this sol'n is still in these tanks.

3) Maintenance fabricated a scoop for use as a dust pan in sweeping out the sump.

4) Started sweeping out sump. Pail of sand in cell walkway reads 7R. Piles of sand in sump read >> 10R. Suggest that this sand be cleaned out as it is contributing quite a bit to the background of the sump.

Cell A survey 7:30 AM attached on "Don't say it - write it"

12-4-47 ① Replaced packing in sump pump.
8-4 ② Cleaned up one complete unit of glass ware
Russell C14 for use in making extra parts.
Blaney ③ Delivered both ionization chambers to 717 B instrument shop for overhauling.
④ Pulled plugs over cell A.
⑤ Used 2 hoses to spray the cell. One inside + one from the 3rd level.
⑥ Threw acid into the sump + on top of A6.
⑦ Sampled A6 - A6-6.
⑧ Rewiring P.B #6.

⑨ Scrubbed north side 1st floor with soap and water. HP has smeared.
⑩ Boiled dist. water in I^{131} glassware. Note: the traps should be filled before the next run.

12/4/47 4-12 PERRY

① - Rewashed 1st floor and smeared - Counts ranged from ~200 to 37000. Rescrubbed entire 1st floor. Not smeared again yet.
② Replaced wire gauze under Reactor for Iodine. Took samples of trap wash for W.Y.G. (On table Not lab.) Cleaned out traps. Broke lid off trap #2. No replacement to be found. Day Shift please have glass blowers fix.
③ Cleaned outside balcony at Cell 5.
④ Made up solutions for Iodine run tomorrow.
⑤ Steamed cell for 4 hours. Steam ran out its ears. Hosed cell from ceiling & washed carbonate off. ~~Hosed cell from doorway when temp came down.~~ Cell hosed from doorway also.
⑥ Foot pedal from drinking fountain in barrel decontaminating
⑦ Note to W.Y.G. - maint. cut out 3 squares of plexiglass. 2 are ½" & 1 is ⅜". They didn't have any more ½" stuff.
⑧ Chemists made up $NaHSO_3$ & NaOH for I^{131} traps.
⑨ A-5 agitator ~~at Noon~~ won't run. Motor must be shorted.
⑩ A-16 is off - 206 C used A 4-205 system tonight.
⑪ A-6-6 - 2.5×10^3 c/m/ml.
A-6-7 - 2.6×10^3 c/m/ml.

12-5-47 1) Poured Na_2CO_3 in cell + steamed with
12-8 cell ventilation off.
Thompson 2) Cleaned out sump some more.
3) Hosed down cell.
4) Tanks treated with boiling HNO_3
5) HP survey at 730 AM:
3' in + 3' up 165 mr

A6	top	495	bottom	760	
A5	"	450	"	760	
A1	"	370	"	760	
A11	bottom	360		S	1500
A8	"	560	Sump	C	2500
A9	"	760		N	2500
A16	"	445			

All tanks full except A5 + A6 + A9
Readings @ 6"
A1 – HNO_3; A8, A9, A11 – H_2O all waiting to be heated up + to have HNO_3 added.
6) Decontaminated foot pedal – ok now.
7) Plug now soaking in hot citric acid.
8) Floor not smeared, no smear paper + no HP man (105 had him tied up).

12/5/47 8-4 King
① Decontaminated iodine setup trap & sent to glassblowers for repair.
② Started decontaminating A-16 tank by running water thru it.
③ A6-8 analyzed 2.5×10^4 cts/m/ml.

(4) H.P. survey of big fan house shows:

In doorway ----- 30 mr/hr.

East side of big fan -- 650 mr/hr.

Big duct ------ 300 mr/hr.

Back of conc block barricade by A-16 intake --- 100 mr/hr.

(5) H.P. surveyed (smeared) 1st, 2nd, 3rd level floors.

(6) We scrubbed entire 1st level with soap & water. Not smeared again.

(7) Removed A9 agitator drive above cell A.

(8) Put 5% Ammonium fluosilicate & 10% HNO_3 soln in A-1 & sparged cold for 30 min. Followed this by two cold water washes and 3rd water wash now boiling in A-1. Fluorosilicate soln went thru A11, A9, A8, A5 to A-6 & was sampled as A6-9. Two cold water washes & a hot one are now following this soln.

(9) Cell A status:

A1 - 3rd water wash boiling (after fluro soln)

A11 - MT (after 2nd water wash following fluro soln).

A9 - 2nd water wash (after fluro soln).

A8 - MT. (after 1st water wash aft fluo soln).

A5 - 1st water wash after fluro soln

A6 - 1st water wash now being added.

(10) Replaced trap in iodine set-up & filled traps.

(11) Replaced broken draw-off line in iodine set-up.

(12) Continued hosing & pumping from Cell A. Changed position of nozzle several times - now behind A-1.

(13) A6-9 showed 1.87×10^3 cts/min/ml.

(14) Sent to 105 bldg. for Te slugs - came back empty handed - haven't been pulled yet.

(15) Dumped last cuts of last iodine run last week.

184 (16) Obtained skid load of lead from burial ground for shielding in A-1 - now on back platform.
(17) Barium carrier back from ✓ please decont. & store.

12/5/47 (1) Readings taken in Cell A at 5-00 pm - All readings
4-12 are maximum for 6".
Perry

		mr/hr.	Tank levels
Inside door	3' in 3' up -	200	
A-6	Top -	800	28"
	Bottom -	490	
A-5	Top	435	MT
	Bottom	700	
A-1	Top	590	48"
	Bottom	920	
A-11	Top	740	42"
	Bottom	340	
A-8	Top	535	13"
	Bottom	535	
A-9	Top	800	57"
	Bottom	1400	
A-16	side	530	
Sump	North	2200	6"
	Center	1400	
	South	800	

(2) Plug from Ba carrier in barrel boiling. Carrier in D.C. room was flushed with water & steam all shift.
(3) Scrubbed 2nd level with floor brush & mopped.
(4) Unable to get vacuum on I^{131} equipment. Found female connection at siphon line from reactor cracked under the clamp. Replaced the

siphon valve with glass T. ~~E~~

⑤ I 415 started at 6 30/pm. Oxalic addition now going on.

⑥ Aimed fire hose at bottom of A-9 for an hour. Continued rinsing of all tanks & boiling of 3rd/ rinse. At end of shift all tanks but A-6 are MT and cell in good position for a good Turkish bath.

⑦ Line mentioned by H.B. in instructions (B10-A-5) reads ~ 400 mr/hr. Not shielded.

⑧ Sampled A-6-10 — Consists of the washes behind the fluorosilicate

12-6-47 ① Completed iodine run 415 and started
12-8 run 416. ~~Oxalic addition now in progress.~~ Ready for Reduction
Russell Evaporated product I^{131} solution to 200 ml.

② A16 fan being decontaminated. Water going thru now.

③ Continued decont. of carrier, cone and plug. Cone and plug are boiling in barrel in O.C. room.

④ Emptied and steamed all tanks in Cell A for 4 hours using all jets within the cell. After cooling, continued hosing and pumping from the sump. All tanks are now empty except A-9 which is full of ~37° HNO_3 boiling.

⑤ Care must be taken to prevent I^{131} drain valve from leaking.

Also note change in siphon line from iodine dissolver. (Galyon on iodine.)

186 ① Removed cone blocks from around A-16 fan
12-6-47 intake in big fan house.
② A6-10 analyzed 1.4×10^3 c/m/ml.
8-4 ③ Cont'd decontamination of A-16 fan by running
R.M. water thru it.
④ Cont'd decont. of carrier, cone & plugs in
decont room; carrier is ok but plugs & cone
still high.
⑤ Filled all tanks, but A5 & A6 & A-1 partly, with
dilute HNO_3 & boiled.
⑥ Steamed cell with dilute nitric in tanks. Cooled
tanks & cell & jetted all soln to A6.
⑦ Refilled tanks A9, A8, A11 with water for
Witkowski & Blauer to tag lines in cell.
⑧ Finished iodine run #416; replaced drawoff
line. Did not start run #417.
⑨ Iodine evaporation going; volume approx 400 ml, pH 9.
⑩ Shift maint. started wiring in solenoid to valve in
new jet line in cell 5.
⑪ Obtained two Te slugs from 105.

12/6/47 ① Used up exposure time of 2 men tagging lines over
4-12 A-9. NOTE- Next shift use exposure Time
PERRY Tightening metal tags in Cell A. If any time left
Lay some lead. (Orally from H.B.)
② Scrubbed & mopped 3rd floor. Smeared 1st ~~[illegible]~~ floor.
③ Water still running in A-16 fan.
④ Completed filling all Tanks with water.
⑤ Started I-417. Ready for 3rd cut at shift change.
Product soln. evaporating pH 9.

(6) Took fire hose down. Our hose spread outside N side of bldg to dry. Fire dept took theirs to dry & left another in rack.

(7) Put Ba carrier in storage.

(8) Dropped skid of Lead into Cell A. Another skid fell on first floor under monorail.

12-7-47 (1) Used all available exposure time tagging lines
12-8 over A-9, in the Cell.
Russell (2) Cleaned up overshoes, papers, empty acid bottles, and emptied hot cans throughout bldg.

(3) Completed Iodine run 417.

(4) Cleaned up and hosed down N. hot lab.

(5) A16 fan being decontaminated. Water running thru.

(6) Removed Pb sheets above north hot lab. (except those necessary for shielding near fan) for use in Cell A shielding. Checked and found no radiation measurable in hallway.

(7) Smeared 3rd level. All ok. Good going Perry!

(8) Decontaminated all hot spots on first level that were above tolerance. H.P. smeared again.

(9) The smears on first and third floors are all below tolerance. The second floor has not been smeared.

except around blisters, south side Cell A. The roped off area was scrubbed with soap & water and carbonate and water. Who hides the old Dutch? Please make her available for we need her badly!

has!

(over)

⑩ Evaporated iodine product solution to 200 ml. pH was ~10. Solution is now filtering very slowly into burette. Cold water is overflowing the steam bath.
Note: The evaporator should be cleaned and a new filter disc installed before the next iodine runs. The drain valve on the receiver leaks also.

12-7-47
8-4
King

① Iodine composite finally finished filtering - submitted samples to lab.
Note - volume in holdup flask above burette showed 150 ml.
② Spent all exposure time shielding cell with lead. Sump & tank pads ~~are~~ were by far hotest spots.
③ Removed hose, bucket, shovel, etc. from cell. Put hose on hill on north side of building to drain & dry. Cleaned bucket, shovel, stand, etc. & returned to proper place.
④ Moved lead sheets from behind cell A & on top of hot labs to skid on 3rd level.
⑤ Hosed down outside of A-16 fan & pan several times - did not hose motor.
⑥ Water still running thru A-16 fan.
⑦ Housekept some - ie. picked up gloves, buckets, tools, hose, etc. lying around.
⑧ H.P. smeared 2nd level; cleaned up spots above tolerance (none were much above tolerance). Also smeared south end of 1st level - ok.
⑨ Carried roll of blotting paper from hall 706-D to 105 bldg.

12/7/47 ① Spread lead on all hot floor spots. Need only to
4-12 shield the West wall now. It reads >2000 mr/hr as a
Perry general B.G.

② Put ladder in cell.

③ Made housekeeping inspection and completed (except maintenance)

④ Rolled up fire hoses & stored.

⑤ Held safety and information meeting.

⑥ Scrubbed in front of the pile at 105 & most of the floor to the N door.

12-8-47 ① Scrubbed shoes, floors, railings, etc. at 105 building all shift.
12-8 ② Kept AD-W11 jet going.
Russell ③ Lined Cell A door way.

④ Surveyed Cell A tanks. Readings were taken at ~6", and are as follows:

A-9	top, west side	1500 mr-hr.	← {High background from west wall
	top, center	750 "	
	top, east side	510 "	
	Side	850 "	
	Bottom	850 "	
A-8	Top	400 mr-hr.	
	Side	460 "	
	Bottom	960 "	
A-6	Top	800 "	
	Side	400 "	
	Bottom	375 "	

A-5	Top	400	mr. hr.
	Side	400	"
	Bottom	775	"
A-11	Top	680	"
	Side	300	"
	Bottom	800	"
A-1	Top	630	"
	Bottom	400	"
A-4	Top		
	Bottom	960	"
	Side	400	"
A-16	Bottom	400	"
Sump	North	910	"
	Midway	1070	"
	South	1020	"

Floor 300 mr-hr background

Inside door-head level 225 mr-hr.

West Wall At A9 bottom 3250 mr-hr.

The west wall is hottest near A-9, the reading drops off as distance from A9 increases.

⑤ Disassembled C^{14} glassware and placed in cleaning solution in decont. room. Do not disturb this glassware.

⑥ All lines at top A9 are tagged except the steam sparger which has a glove across it

12-8-47 8-4 King

① Shielded big fan in fan house with conc. blocks to give maint more time on A-16 fan.

② Maint. cont'd work on B19 heaters.

③ Obtained two ionization chambers from instrument shop & sent to cell 5.

④ Disconnected A9 & moved to decontamination room.

12/8/47 4-12 Perry

① Cleaned up hot spots 3rd floor.

② Cleaned out the big T tanks & weigh tanks

③ Steamed hottest parts of A-9 all shift.

④ Calibrated a glass reactor.

⑤ Most of the radiators on E side of bldg. have plugged condensate lines evidently. Maintenance worked on condensate lines for Emlet's, Withowski's, & supv. office but didn't do much good. They refuse to heat.

⑥ Used exposure time at 105 & hauling hot stuff to burial ground.

⑦ Used shift maintenance exposure time removing nuts from A-9 cover. Punched places to correspond on lid and tank so that it can be put back together as it is now. There are 9 more nuts to take off.

192

① Decontaminated hot spots on 3rd level.

12-9-47 ② Steamed hot spots on A9 all shift.

12-8 ③ Loaned Bailey and King to 105 building all shift.

Russell ④ Opened traps and drained steam cond. out of radiators in offices, 3rd level.

⑤ Removed top of A-9. Who was the wise guy who used different sized nuts around top A9? And where did he find a wrench to fit them?

12/9/47 8-4 King

① Maint. removed A6-A5 jet.

② W-12 tank project started down by W-11 — hole dug today.

③ Maint. cont'd work on PB-6 & B19 heaters.

④ Made explosive test on W-11.

⑤ Cont'd decontamination of A-9.

⑥ Ass't'd P.B. Orr in clean-up of Cell 5.

⑦ Maint. repaired (at least worked on) condensate lines from heating system.

⑧ Elect. maint. checked A-5 agitator motor (no good).

⑨ Riggers ~~pulled~~ dismantled " " " — will be pulled tomorrow.

12

12-8

Ki

12/9/47 ① Washed T&T Tank tops and lines to below tolerence.
4-12 ② Checked A6 to A-5 jet. No leaks. Works at a
PERRY good rate.
③ Made up 3 drums of 50% NaOH TO 25% soln in A-5. Refilled A-6.
④ Worked on decontamination of under side of A-9.
⑤ Assisted 105 to clean up building.
⑥ Maintenance raised steam pressure on radiators from 12# to 18#. Pressure must be kept up or radiators stay cold.
⑦. Maintenance needed—
Done ✓ ⓐ clean condensate lines from radiators.
✓ ⓑ Unplug floor drains at SE & S.W. corners of third floor.
OK ⓒ Replace steam trap on Low pressure header PB.#1
ⓓ Replace 2 lights on East platform
⑧ Scrubbed, in cells, balcony floor, ground floor, and steps.
⑨ Maintenance removed A-9 shaft & bearings. All parts on paper just outside D.C. room.
⑩ A-9 TANK reads 50 mr/hr. Pipes ~ 100 mr/hr. Inside the hole of the cut suction lines reading is 1000 mr/hr.

12-10-47 ① Repaired leaky condensate lines from radiators.
12-8 ② At last! Unplugged 3rd level floor drains.
Russell Steam trap, low pressure line at PB1 was OK.
③ Scrubbed, washed and steamed hottest spots on A9 all shift.

194 ② Placed ionization tubes at steam coils in Cell V to dry out. Do not remove them from this location until needed unless they are placed in a dry place.
③ Please have battery in pick-up truck checked.
⑥ Gathered up all used gloves and overshoes.
⑦ H.P. sonicated Cell V.
⑧ The nuts, bolts, etc. to A9 are in decont. barrel.

12/10/47 ① A5 motor pulled out.
② A-16 water for decont. shut off.
③ Replaced pipe in office condensate drain from radiators.
④ Some hot lines + broken lines cut from A9 basket.
⑤ P.B #6 still being worked on.
⑥ T8 + T9 weigh tanks went to the shop for faled bottoms.

12/10/47 1) Cleaned up nuts + bolts in cell A
4-12 2) Cleaned up old paper + put down new
Thompson paper in cell A entrance.
3) Worked on decontamination of A5 motor maintenance took it apart some more.
4) Maintenance put trap in condensate line + replaced steam regulator valve on hot water heater.
5) Scrubbed down cell 5 again - not smeared.
6) Replaced I^{131} filter, cleaned old filter.
7) Put cleaning sol'n in I^{131} evaporator and turned steam on.
8) Decontaminated cell A sump pump

and hoses & stored.

9) Maintenance repaired hot water valve in Cell 5.

10) Water still running into A6.

12-11-47 ① Decontaminated tools and returned to Cell V.

12-8 ② Set up C^{14} glassware as complete as parts

Russell would permit.

③ Decontaminated A5 motor and parts all shift. It has been hard to get down.

④ Obtained 46 smears throughout Cell V. 16 smears above 200 c/m.

⑤ Removed cleaning solution and rinsed I^{131} evaporator toward end of shift.

12/11/47 ① Removed A9-B1 DD jet - decontaminated & stored.

8-4 This line is to be inlet to new pipette.

King ② Elect. started putting lights in Cell A.

③ Maint. poured concrete pad under new A-16 fan.

④ Instru. man checked Cell A monitor with hot source. IT is O.K.

⑤ Maint continued work on W-12 tank. In doing so they cut W11 to W9 line; line was shielded with lead & the end plugged with a rubber stopper to prevent drippings into hole for W-12 tank.

⑥ Instr. man replaced ~~a~~ air monitor in S. supv. office.

⑦ Maint. cont'd work on PB-6 & B19 heaters.

(8) Scrubbed hot spots at cell 5 - i.e. those spots which showed high on 12-8 smears.
(9) Rinsed iodine glassware with several water rinses & followed with one very weak caustic rinse.
(10) Burned windings from A-5 motor armature. Cont'd decont. of A-5 motor housing - now approx 100 mr/hr.
(11) Checked lines in A-9 guts for leaks by putting under pressure & soaping - ok.
(12) Pick-up truck, we find late in the day, is due to be greased - will 8-4 shift do this tomorrow.
(13)

12-11-47 1) Decontaminated A-5 motor parts to the
4-12 lowest possible level.
Thompson 2) Decontaminated A9 parts + stored E of cell A
3) Cleaned up decontamination room.
4) Scrubbed floor under A9 scaffold and in front of decontamination room.
5) Hung the 2 old Cl #2 jets from A9 on the E wall in low storage.
6) Checked I^{131} equipment and made up solutions.
7) Held safety meeting.

12-12-47 ① Decontaminated hot spots (>700 mr-hr) on 3rd level.
12-8 Highest reading there now is ~ 10 mr-hr.
H.R. ② Cleaned up hot lab. "our end."
③ Removed cleaning solution from iodine glassware and rinsed with very dilute NaOH followed with H_2O rinses, and more rinses.

Because too much maintenance work going on, we want to smear all floors + wash hot spots before we polish up. This will be done following maintenance.!!

④ Why have the janitors quit cleaning and polishing our floors?

⑤ The two new jets for installation by shift maintenance were locked up by the day crew. The day shift also always locks up practically all the tools so that the night shifts have nothing to do. T.S.

12/12/47 ① Replaced C/#2 jets on A9-B26A &
8-4 A9-B1DC with new jets.
Perry ② Dumped jug of dirty 18N H_2SO_4 & made up clean solution.
③ Checked Iodine equipment & started I-418.
④ Put cone & carrier in Cell B. Cone in place & heater in place. Checked heater #2. Unit of 1st five burned out. Also big air leak at manifold. Thermostat kicked out at 172°. Don't check #2 any more until Monday. Continue check of #1 as in instructions & verbally to Thompson.
⑤ Completed connection of A.16 new fan.
⑥ Continued assembly of A-9 agitator etc.
⑦ Scrubbed Cell 5 to below tolerence.
⑧ Note - Pick up towels for weekend at stores before 4 30/pm today.

12-12-47 1) Completed I^{131} run 418. ~~Just barely~~
4-12 ~~started~~ run 419 ready to start.
Thompson 2) Made + completed items on housekeeping survey.
3) Reinstalled + started up 2nd level air monitor.
4) Checked # 1 heater. It went up to 165° + kicked off without any heater switches being turned on or the variac being moved off zero. Just the main switch was on. The blank is now on the #2 heater air line.
5) Received metal waste sol'n in W4 from 205. Sol'n was basic. (neutralized by 205).

12/13/47 ① Removed skid of lead from 3rd level & stored behind cell A.
12-8 Kinney
② Hosed down floor of N. Hot Lab.
③ Changed sol'n on cone (still >100mm) in decant. barrel.
④ Started iodine run #419 - distillation going on at shift change.
⑤ Steam off iodine evaporator at 200 ml. at shift change.

12/13/47 ① ~~Start~~ Completed I 419 & started I 420.
8-4
PERRY

12-13-47 1) Completed run 420. Composite evaporating
4-12 pH ~ 8.0, volume ~ 400ml.
Thompson 2) Tagged + stored cone.
3) Had demonstration by fire dep't. on the use of fire extinguishers.

12-14-47 ① Evaporated iodine composite to 300 ml., pH 9.
12-8 Submitted samples to lab.
King

12-14-47
8-4 (1) Hosed down N. hot LAB. And did a few
Perry's shift other housekeeping jobs.

12-14-47 1) Held sessions on chemistry of P^{32} + I^{131}
4-12 2) I 420-AC - 579 mc @ AT
Thompson 5.0, 4.8 mg/ml TS
5.81×10^{-5} mc/ml Te @ AT

200 ① Checked tools in D building for radiation - all
12-15-47 less than 2 mr/hr.
12-8 ② Melted up two 5 cans that were pushed
12/12/47; 2nd can is due to finish at
8 30 AM.
③ Made pre-run equipment check & flushed phos.
equipment with water according to procedure.
④ Note - On attempting to heat up P1 with
P1 heater - heater #1 there was no rise in temp.
Switched over to heater #2 - P1 heated up ok.
Heater #1 should be checked when this run
is out.
⑤ Air monitor in cell 5 is out of order - instr.
is in 105 instr. shop. Instr. man says it will
be fixed & back in cell 5 by 9 00 AM.

12/15/47 ① Worked entire shift in Cell 5 on extraction that
8-4 must have been (made on) empty cans.
Perry ② Installed new stationary pipette. Connections not made.
③ Worked on assembly of A-9 agitator etc.
④ Dropping seals at shift change -

OTHER LOG, # 12