4059

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NOTEBOOK NO. CL-1555

ISSUED TO: E. J. Witkowski

ISSUED BY: Arietta Wyrick

DATE: 12/4/46

"This document consists of 200 pages, No. 1 of 1 copies, Series A"
Correct documentation as of 7/28/60

water in scrubber: p 2.
RIP run 15: p 79.
p 39: re: other log books.

RUN 15; See pages 48 - 79
RUN 15A; See pages 183 - 199 (NOT COMPLETED HERE)

PLUS VERY END OF RUN 14.

~~SECRET~~

~~RESTRICTED DATA~~

~~"This [illegible] restricted data as defined in [illegible] 1954. Its transmission or the disclosure [illegible] in any manner to an unauthorized person is prohibited."~~

BNT 290

CL-1555

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

David R Hamm 8/16/96
Technical Information Officer Date
ORNL Site

12/11/46 EJW 1. Continue dissolving heels in A-1 until 8:00 AM tomorrow morning unless Sp Gr runs to 1.78. Just make sure scrubber is on at all times

2. Give the building a thorough cleaning and put all things where they belong. Senator Knowland will be our visitor tomorrow.

3. There is one hot spot on the outside of blister on hole BN-J1. Try to clean this off. Do not clean out the inside unless the radiation is coming through the lead.

12-11-46 JJR WJS Cleaned BN-J1 blister to where it reads ~ 22 R inside. One hot spot marked with chalk, outside the blister, reads ~ 7 R.

Dissolving heel in A-1 (used 300 # HNO_3)

Please replace full bottles with the labeled empties in the N hot lab resin column set up.

12/11/46 2
4-12
JEC. & JNB.

① "House-kept" building—.

② A-1 Gravity on up swing.

③ Note enclosed instructions from Schallert regarding work in S-Hot Lab.

④ Continue Skraba's Columns in N-Hot Lab.

12/12/46
12-8
JRF.

① Heels in A-1 still cooking. Sp. Gr. 1.26 at 7^20 A. H_2O thru scrubber.

② Continued Schallert's & Skraba's work.

③ The Tygon drawoff line on the I condensate collector dribbled on the floor again. Max reading of 275 mr/hr. Reduced to 35 mr/hr except in one spot where paint is off. Smears still show activity. This spill was accompanied by increased air activity — 1400 c/m in immediate vicinity. The air monitor also indicated an abrupt increase at about 4^00 AM. This area should be checked further.

Continued.

④ BN-J1 blister exterior activity reduced from ~7R/hr to < 2R/hr.

⑤ After 7 AM PEP discovered that the steam engine belt was off the pulley. Did not call Maintenance.

12-12-46 A5 contains neutralized metal waste
8-4 heels from A1. Discard to W9.
STR
WJS

A procedure for extracting P^{32} from sulfur in glassware is attached to the shift log book. Please do not lose this copy, since copies are scarce. We brought a sulfur can down from 105 building. It is now being melted out into glass in the electric oven in north hot lab. Leave until 8 A.M. In the morning we will start the extraction and will need some help to push the process along on shifts.

12/12/46 IT DIDN'T TAKE LONG, BUT WE DID IT.
4-12 ① Revised Inventory & Equipment Check Sheets.
Lee ② Scrubbed floor in front of BK-J1
J.W.B. Blister. Two spots smear stick — Both spots are under absorbent paper
#4 — 912 cts/min
#6 — 318 cts/min

12/12/46 1. Try cleaning floor around
EJW BN-J1 blister. Lit activity on
blister decay — no hope.

12/13/46
12-8 THE LAST TOUR OF A GOOD SHIFT
JRF

① ITEM NO. 1 ABOVE SMEARS < TOLERANCE

8-4
CJK, AMR ① OUTSIDE OF BN-J1 BLISTER DOWN TO ~250 MR
WHP AT HOTTEST SPOT.
② REMOVED TYGON TUBING INSIDE.

12-13-46 Four extractions were made on 1/4
8-4 portions of sulfur from sulfur can (approx. 500 grams
SJR of sulfur were used in each extraction). These
extractions were filtered, boiled, cooled and sampled.
The samples are Run P14; C1, C2, C3 and C4 respectively
for each extract. Iron, about 50 mg, was added to each
extract. Bottles containing the product solution were
labeled C1, C2, C3 and C4 respectively. Carry each
run through in order. Do not start C2 until C1 is
carried through the Final Product Solution stage. C1 and
C2 are to be carried through as described in the
Run sheet. Sufficient iron has already been added to
extracts C1 and C2. Carry these two runs through first
in order mentioned. To C3 and C4 dead phosphate will
be added as a carrier in the form of H_3PO_4, the
amount depending on the total mc of P^{32} present.
I will contact one of the shifts for further instructions

after obtaining lab results on C3 and C4. We would like to have four product solutions each collected in a clean Erlenmeyer flask (one liter) in Vault #4 by 8 A.M. Monday. Contact me at 5-7792, if any difficulties arise. Shraba, will you please start the first neutralization and filtration on C1 on the 12-8 shift. Upper part of the Stang reactor is being replaced by the 4-12 shift so that the filtrations will not take as long as usual. Store the first product solution (on C1) in Vault #4, ~~any other convenient vault [illegible]~~. ~~Note number of vault solution [illegible] product solution is stored.~~ C2 can be started as soon as C1 is finished. Hold up on C3 and C4 until further instructions are forthcoming. To C3 & C4 are to be added (by Whitney) 1/2 mg dead phosphorus as H_3PO_4 per mc of P^{32} present.

All shifts please follow the above instructions following copy of P^{32} extraction procedure that is in this log. Please do not lose this copy.

Ira B. Whitney

12/13/46 ① Replaced upper part of Stang
4-12 reactor in Cell 3.
J.E.C.

② The four extracts, C1, 2, 3, & 4 are now in hand S-Hot Lab. When neutralizing C-1 carry out neutralization in 4 O.L. Erlenmeyer that is assembled with electric agitator on bench in Cell 3.

Step ~~#~~ 15 of P^{32} procedure has been completed. Begin with step 16.

(3) Maintenance is attempting to find a ladder long enough to replace burned out light in cell. —.

12-14-46
HJS

Neutralized + ppt. $Fe(OH)_3$ on C-1, filtered + reprecipitated $Fe(OH)_3$. Filtration now in progress on the 200 ml hot H_2O wash. Sample P14-W1 taken.

Probably step #6 of precipitation of product precipitate. Column will be completed before the 8-4 shift comes on. Start with step #7, P14-W1A sampling step.

Rubber Gloves + foot suites at cell #3 entrance

Continue replacing full bottles with the labeled empties in N hot lab resin column set up.

12/14/46
8-4
AMR
WHP

Power cut off from 9^{00} - 10^{30} for major repair work.

Finished up P14 - C1 run in cell 3 samples taken of waste + product P14-P1 being analyzed by lab.

Rinshaw said to combine waste under step 21 (Extraction of P^{32} from the sulfur with fuming nitric) and step 7 (Precipitation of Product Precipitate) for Batch C_2 of run 14 call this sample W2.

Neutralized Batch C_2 with NH_4OH and put it in the Stang reactor in cell 3 to filter filtering over shift change. Next shift start with step 20. (Wash the product precipitate with 200 cc boiling distilled water.)

Shrada's columns running in N hot lab.

How about somebody keeping the vaults used for radioactive materials cleaned out if we're going to try to store additional things there!

No sign of IBW this shift to fix up C_3 and C_4 so that they could be run after C_2 of C_3 the works.

C_3 + C_4 ready to neutralize. There is 100 mg. of Fe^{+3} total and ≈ 0.16 mg of P^{31}/mc P^{32} in these solution the ppte may look and act different. Please check and leave a note.

I.B.W.

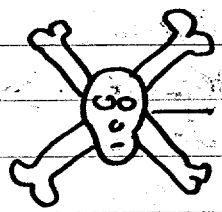
12/14/46 4-12 **Status of P^{32} - Cell 3**

J.C.C. & J.C.B. ① C-2 in progress.

② C3 & C4 neutralized.

Run sheet is on Table in Cell 3 along with all solutions, plainly tagged. Under each solution you will find sheet of paper identifying it, and what step in process it is related to.

Detailed instructions, with the exception of drawing a picture, were left, but if in doubt call Collier at 5-9142.



Beware — Clean equipment is segregated and labeled, everything else is "hot." We learned the hard way. "Rub-dub-a-

12/15/46 Status of P^{32} — Cell 3
12-8
JNB
&
Dissd

① C-2 completed and finished product (sample P-2) turned in to lab. for analysis.

② C3 in progress — first filtration should be completed ~ 8:00 AM. Filtrate receiver labeled W-3 on floor, and after cake is washed with 200 ml boiling H_2O and collected in W-3 receiver, sample (5 ml) and label Run 14, W-3 and measure volume. Hold this waste until W-3A is collected and sampled and then combine the two and hold composite. The volume of the "A" ~~sample~~ solutions is ~ 200-300 ml.

③ C4 neutralized and incidentally required only 30 minutes time. (Rikshaw please note — contents still in beaker after neutralization)

Cell 3 was cleaned pretty thoroughly on this shift. All dirty glassware assembled and placed under table. Table tops cleaned and new paper spread. HP man removed all contaminated gloves, rubbers etc from cell.

dwb

Had considerable trouble with plugged outlet of lower chamber. Crystals formed and could not melt them with lamp, blow back or suck out, so finally cut tygon and with pr pinch clamps drained filtrate. Removed cock and put on long piece of tygon with clamp. Put a 15# air pressure test on lower chamber - O.K. Continued filtration.

Removed and cleaned absorber trap in vacuum line - filtration rate stepped up considerably.

Stayed over this shift to help Jesse & B. Phillips

Note: Collect final product solutions P-3 & P-4 in not larger than 1000 ml erlenmeyers to facilitate sampling by chemists.

12/15
8-4 Status of P^{32} - cell 3
JMB ① C-3 completed
② C-4 filtering - started 1:15 PM

Distilled water supply replenished and necessary ~~beaker~~ flasks and sample bottles for C-4 on table.

Blister BN-J1 worked over - reading 150 mR/hr @ 3". Hot spot in corner of steel support for door on outside.

12/15/16
9-12 — P^{32} ——
JCC

Status:

Precipitation of Production
[illegible]

[illegible]

[illegible]

12-16-46.
WJS + WG

Completed run P14-P4. While pouring final product solution from graduate to flask we spilled about 13 ml. Area scrubbed with HCl; knocked down activity to about 50 mr at one small spot. Total volume of solution was 182 ml, which was sampled.

Did not take P14 W4A sample since the filtrate had a slight Fe(OH) ppt. However went ahead with final product solution. The flask containing the small amount of flow is located W side of cell #3 on table with two heaters (hot plate). 1 l. volumeyer labeled P14-W4A.

Rinsings

1. Filtration tonight was very slow even while filtering final product soln. Suggest you move vacuum pump closer to the Stang reactor thus eliminating the long capacity of your pressure tubing.

2. Repair drain valve at S. Tang reactor; the present pinch clamp too awkward to handle hot typed line.

3. Removed old can at foot of stairway; full of hot material (waste)

4. Have top rung of small ladder replaced. We had to remove it because of the hot spill.

Please keep a close watch on the N hot lab Resin column elution. Change full bottles (do not let them overflow)

Will the 8-4 shift have instrument man check the counting probe in hot labs. ante room.

12-16-46
8-4
SJR

P1 & P2 were combined and are running through a resin column in N. hot lab. Same for P3 and P4. After product solutions run through the columns follow with 150 c.c dist. water wash for each column and combine with product effluent from each column. Sample combined product solutions and washes. Label Run P14, code P1 and P2, and ~~sample~~ Run P14, code P3 & P4 respectively for each column. Have activity, Fe, Ni, Cr, SO_4, ~~NVM~~, and ~~T.S.~~ run calculated in mg per mc. P^{32} present for each sample. Boil down each flask to approx. 1/2 of the original volume and have activity, Cl, and normality NVM & T.S. run on the samples. Label samples Run P14, code P1A and P2A, and Run P14, code P3A and P4A respectively. We are boiling for a reduction in volume for shipping.

Start regeneration of both columns, ~~with~~ using 500 c.c 6N HCl (1:1) for each column. Follow with 150

c.c. dist. water wash us previously. ~~Sam~~ Combine washing with acid solutions. Sample and label, run P14, R1&R2 and Run P14, R3 and P4. Have Fe and activity run on these regenerating runs. Measure all volumes ~~carefully~~ carefully whenever a sample is required. Rinse out graduate with a very small amount (5 c.c approx) in each case.

Vol $P_1 + P_2$ = 440 ml now
Vol $P_3 + P_4$ = 403 ml now
for sample volume labeled P- use
$P_1 + P_2$ — 535 ml
$P_3 + P_4$ = 550 ml

Measure vol after volume reduction rinse graduate with 5 cc distilled H_2O and add this volume to give sampling volume.

JBW

12/16
4-12
JMB

P^{32} sample No. (P1 & P2) taken and solution now on steam bath in analyst lab. for boiling down. Hasn't done much yet. Sample No. (P3 + P4) to be taken at midnight and their volume reduced in ½. Latter solution in 1 l. [illegible] ~~[illegible]~~ on hot [illegible] at entrance to N+S hot lab.

[illegible] place in oven hot
[illegible] with oven [illegible] after
[illegible] hot plate [illegible]
[illegible] Probably 50-100 ml
[illegible]. [illegible]
but not reducing volume
very fast.

12-17-46
12-8
WJS

Sampled P14 P3+P4 + solution still evaporating to ½ volume.

P1 + P2 just down to ½ vol. Did not sample (Not labeled & believe is P3+P4)

Regenerated resin column in W hot lab behind barricade. not sampled. Went through regenerating process on resin column on bench in front of barricade apparently the column had been regenerated or I picked the wrong column.

Please leave more specific instructions + location of apparatus. The above effluents from resin regeneration were not sampled. The last resin column regenerated has H_2O wash going thru it now.

12/17/46 1. Each supervisor please contact your operators to find out whether they do or do not want to work on Christmas. Leave a note on my desk before Thursday Dec. 19th.

2. All men who have material in shift supervisor's office file cabinet please go through your material. Discard everything of no value and put in order the material you want to keep. The men who are scheduled to leave 706-D on Jan 1st can file their material in empty desk drawers until you move out.

Secret material issued to you and which you have no use for should be sent back to central files for disposal.

3. There is a hot floor in front of the glass panel board. Please massage to below tolerance level.

12-17-46 Combined product solution P1 and P2 is now
8-4 running through a resin column in north hot lab. Follow
SJR with 150 c.c wash water. Take sample for lab. Label sample Run P14, P1B and P2B. Note volume. Have Fe and activity run. Regenerate column using 500 c.c 6NHCl (1:1). Follow with 150 c.c rinse water. Take sample and label, Run P14, R1A and R1B, noting volume. Have Fe and activity run.

12/17/46
4-12 ① T-169 in progress.
JEC.

Experienced great difficulty in early part of run. Traps were plugged making it impossible to pull any vac. Traps were unplugged, and min. vac. obtained until oxalic addition at which time a terrific pressure was built up in reactor. After oxalic reaction had subsided we were still unable to pull vac. We then tied into Building vac with Marvelous results. 1st Distillation now in progress.

② Finished Schallert's column work.

③ Re: Rimshaws P14 run above: 150cc. Wash has been put through.

sample not taken.

(+) Cleaned hot spots on 2nd & 3rd levels down below tolerance.

12-18-46 Completed I^{131} run 69

12-8 Started + completed I^{131} run 70

WJS+WYG neither were worth the effort. Highest radiation reading on sample was ~ 40 mr.

P^{32}

P1B+P2B sampled + analyzed ~ 289 mis

R1A + R1B sampled + analyzed

Resin column regenerated + freed of excess acid by subsequent H_2O wash.

12-18-46

8-4

STR

Combined product solution P3 + P4 is running through a resin column in north hot lab. Follow with 150 c.c. distilled water rinse. Take sample for lab. Label sample, Run P14, P3B + P4B. Note volume. Have Fe and activity run. If total Fe is less than 10 mg, start evaporating down product effluent in a clean one liter Erlenmeyer flask in hood in south hot lab to a final volume of approx. 100 ml.

Start regenerating resin column, using 500 ml 6W HCl (1:1). Follow with 150 ml distilled water rinse. Sample combined HCl and water rinse solutions. Label Run P14, R3B and R4B, noting volume. Have Fe and activity run.

12-18-46 ① I-71 completed + allowed to remain in
H-B flask for I. Whitney's discerning eye per his request.
4-12 Only got 55 ml on last distillation + stopped because of excessive foaming + temp. rise. Results by the cutie pie were not encouraging. S H
② 150 c.c. distilled water rinse now going through resin column in N hot lab. This is a very slow process but I didn't change stopcock position.

12-19-46 Combined product solutions P3 & P4
12-8 evaporating in S-Hot lab. Solutions in clean
wg 1 liter erlenmeyer & 2 liter erlenmeyer both heating to speed evaporation.
Total Fe .374 mg.
=
Rerun P14 (R3B & R4B combined)
behind barricade in N-Hot lab.
Samples taken.

{ Newton called + will not be in this morning 12/19/46 }

Plant gas supply froze this morning ~ 4:00 AM. Do not attempt lighting a burner until maintenance OK's the use of gas. At present the gas lines are under a negative pressure. Laboratory is aware of the situation.
Check resin column in N hot lab occasionally + change any full bottles with empties. (W. J. Skrable)

12/19/46 ① Run P14 – P3B + P4B in S. Hot lab under hood.
4-12 Lab has sample sheet + will take samples as they need them.
Blauer Volume is approx. 100 ml.
② Decontaminated 8 Radioisotope carriers
③ Delivered 7 carriers to H. Stringfield at 105 bldg.

12-20-46
12-8 P14 P3B + P4B sampled + analyzed. 106 mis 1 l Erlenmeyer located in S hot lab hood.
HJS + WYG

12/20/46
8-4 I^{131} Experiments by Newton, Ogle, Schafer, JRF

12/20/46 ① Transferred a number of bath towels to locker #70
4-12 (unlocked) to prevent pilfering by outsiders. These few towels must last over the weekend so guard them well.

12-21-46 } BLANK
12-8

12/21/46 I^{131} as usual.
8-4 Nothing else of note.
JRF.

12/21/46 Operations normal.
4-12
H.B

12/22/46
8-4 I-72 run to be finished by 4-12. Had
JRD vacuum trouble due to plugging of sintered
disc in trap # 4. The soln now in
Trap # 4 is cleaning soln. See I log
for details.
Other operations normal.

12/22/46 ① Successfully concluded I-72 run following
4-12 instructions left by JRF. Run book is still in
Blauer N. Hall Lab.

12/23/46 I^{131} work as usual
8-4 ① Operations normal.
JRD

12/23/46 ① Operations Normal
4-12
Blauer Merry Christmas to you all.
BBlauer

12/24/46 ① Operations Normal.
8-4 ② Vac. pump for I^{131} removed from Cell A.
JRD Being repaired.
③ Merry Xmas from us-all to you-all

12/24/46 Merry Xmas

22

12-25/46 O Peratins Normal
4-12.

12/26/46 O. N. N. D.
8-4
JRJ

12/26/46 Nothing to report.
4-12
wyG.

12/27/46 ① I advise run #73 in progress. Finish this
8-4 run following instructions closely. There are 6
H Blauer runs in total scheduled for the next few days. The
run sheets are provided but the notations + added
instructions of run 73 + 74 are not in these
procedures. Follow run 74 exactly as
a model N. B. There are 2 sample of Te
in lead carrier under vault. There are 3
more samples of Te at 105 building to
be obtained by 706 D as needed. Call JRJ
at 5-2011 at any reasonable time if
you have trouble.

12/27/46 Steam to be cut off from
4-12 12-4 12/28/46.
wyG. I Run #74 completed page
4; You start step 4 page 5

— addition of 50 gm of oxalic.
Our first 35 ml of product Run #73 was very cold; secured 2750 mr/hr. 800 mr/hr for 150 ml of product.
Farmakes. States that if run 74 comes off cold on 1st 35 ml; and hot on 2nd 35 ml to make third product 35 ml also. Then make a fourth product of about 115 ml. or what you can get.
See 8-4 shift log report on Te for other runs. Run sheet for 75, 76, 77 & 78 are in Hot lab.

12-28-46
12-8 Iodine run #75 in progress. All of
J&K the oxalic acid has been added.

12-29-46 ① Runs 75 + 76 were successful. In fact
8-4 greatly so.
Blauer ② Run 77 ready to start.
③ Two Te samples in lead carrier under vault.
④ Cleaned samples from the vault by I.B.W.'s direction.

12-29-46 Another P^{32} run has been started.
SJR. Follow instructions on attached written procedure. There have been some variations introduced. So use the latest procedure. All four extracts have been

combined so that this run will not take as long as the ~~other~~ last run. Use extreme care also because all our product will be in one precipitate. After dissolving up final product, note that new procedure calls for Fe removal on a resin exchange column. Fe has been added to the combined acidic extracts. The solution has been sampled for product analysis also. Proceed with step 16 on the procedure after solution cools down enough from boiling. Carry the run right through to the final evaporation of the product solution.

12/28/46
4-12
wyb

One more I to go. Sample is in usual place — Run 78 you start - you finish
P14 run P-75 in progress decanting off liquid. All info. in #3 Cell. Just started step 19 page V (yellow procedure sheets)

12/29/46
12-8

Cell # 3 Door is Locked The Key is in Key case.

JCK.

I series have been completed. Filtration is still going on in Cell #3. Continue as directed above (4-12 shift)

12-28-46 To all shifts

Iodine runs were grand. ~500 mc recovered at analysis time. This is the best we have ever done. I certainly appreciate the corporation which you have given in the past weeks when results were not as good: this weekend gives to me a great deal of satisfaction and to you a great deal of credit.

Ted B. Whitney

12/28/46 8-4 H. Blauer

① Filtration still proceeding in cell 3. 200 ml of water is in earlenmeyer flask on heater. Heater is not on.

② Phosphorous run sheets are here in the book.

12/29/46 8-12 my G.

1. Phosphorous still in progress.
2. All info on note in cell #3. Keys are in lock; procedure sheet in cell. After filtrate is drawn off you are ready for lab sample of Run 15W1 Walk Ed Witkowski at 6 o'clock, by calling 5-7351.

12/30/46 12-8 JCK

P_{32} ppt was dissolved in HCl and diluted to 1500 ml. The filter disc in Cell 3 still has some crud on it. See notes in Cell #3 for more information. The product is in the N. Hot Lab in the upper lead barricade.

The key is in the door of Cell #3

12/30/46 H.B. 8-4

① Waste filtrate of P15 run is still in Cell #3 on floor near equipment. Both W-1 + P-1 samples were taken this shift.

② Run sheets are now in Rimshaw's mail box

③ Volume of P1 Run 15 was diluted to 2920 c.c. to reduce PH to ~.08

④ P1 still going through resin column in N. Hot lab behind barricade. P1 is in 4 liter erlenmeyer

⑤ To S.J.R. — P15 W1 was 186 M.C.S total

12/30/46 wy G. 4-12

Run P15 behind barricade in N. Hot lab; 150 ml of water through column now. Proceed with step 5 page VII. Sample ¢ — Wait for Product analysis before starting evaporation — indications are Fe is high and will have to be run through column again. However, regenerate the column, while waiting for the Lab's analysis.

12/31/46 12-8 JCK

P15 has gone thru the column. The column has been regenerated. Both the product and waste sol'ns have been sampled for analyses.

Happy New Year!

12/31/46 (1) Phosphorous P 15 going through resin
8-4 column again. When it is finished it will
H. Blauer not be necessary to sample again. Of course
you wash column with distilled water & combine
with product filtrate. On regeneration of column
combine this regeneration fluid with the
initial R1 & resample run for Fe & activity.
Proceed with concentration of product
effluent Page VIII Step (1).
Happy New Year for A shift
to all.

Equipment Check.

B-1 heating & cooling is slow
B-3 heating & " OK
B-6 " " OK
B-10 " " OK

(2) Omit. P. Schallert is taking over.

Equipment check

A-1, A-5, A-6 jacket heating
and cooling — OK

Crud filter OK 1000 cc
of water in 3½ minutes.

Notice

1. All supervisors please hand in monthly time report, put them on my desk.
2. Know now on please fill out and hand in to me all minor injury reports
3. Run #15 has been postponed. It will now start on Jan 15th

1/1/47 8-4 Blaum — ① Operations normal

1-2-47 12-8 JCK — The lead barricade in N. Hot Lab is really a mess. The background jams the counter. Every thing is in such a sorry state that this shift will leave it in the "as found" state for some one who may know the complete picture. The hot plate was disconnected

1-2-47 (8-4)

1. Took two Carboys of 60% HNO_3 to Semi-Works.

1-2-47
4-12
SJR

We did some housekeeping in north and south hot labs. The plane is hot all over.

To 12-8: Call EJW at 6^m A.M.

1-3-47
12-8
JBK

Scrubbed inside of hood and bank of valves in S. Hot Lab. Decontaminated floor + shelves in N. Hot lab. Put down new paper on table tops in N, & S Labs and table in entrance.

The floor in the S. Hot Lab in general has a high smear count - suggest an overall scrubbing.

1-3-47
8-12
MJF

Finished cleaning up hot lab & washed N hot lab floor.

=

See Ira Witten for info on I^{131} there are Te samples to pick up & more to be made.

1-3-47

A grand job has been done by all in regard to housekeeping. Lots thank-yous.

JBW.

1-3-47 DC King will not be in tonight. He had
4-12 a tooth pulled.
SJR

Iodine run (Run 79) turned out well with readings of 3500 mr/hr for 2A, 3250 mr/hr for 2B and 1400 mr/hr for 2C. There are three more Te samples to run in a lead container under the vault.

Note list of safety precautions to be used on iodine runs. This list is in north hot lab with run books. In particular, each man is to be issued a pair of thin rubber gloves which he will wash and keep in his locker if not too badly contaminated. Supply of rubber gloves is in Ira's file cabinet.

12-8 Iodine run 80 completed.
RP

I-79 2A - 57.4
I-79-2B - 53.9

1/4/47
8-4 Run 82 I^{131} is ready to be
wyg run. Lab has been cleaned up after run 81.

1-4-47 Run 82 was completed with readings of
4-12 2500 mr/hr for 2A, 1500 mr/hr for 2B and 1000 mr/hr
SJR for 2C.

1-5-47 ① Cleaned some hot spots near valves by low barricade in N Hot
12-8 lab.
H.B ② Cleaned ~~[illegible]~~ to dump Te into dissolver
③ Operations Normal

1/5/47 Nothing to Report 1.
8-4
wyg

12-8 shift ✓
Call Ed. Witkowski at 6.00 A.M. at home

1-5-47 Nothing to report except for scrubbing floor in hot lab.
4-12
SSR & WP

1-6-47 ① Swabbed N, S, + annex hot lab floors once more
12-8
Blauer ② 20 / ice chairs with "hot" seat placed in decontamination room + tagged. What do you want to do with the Ed.? We tried to clean it + couldn't.

1-6-47 Pipe fitters are installing a steam coil in Tank M-11. To melt the ice they have hooked up steam line to coil from PB #1. Check this line during the night to see that the line hasn't broken and steam is being delivered to coil. Call maint. if you can't make any necessary repairs.
8-4
wyg

See E.W. for house keeping work.
Made house keeping survey; cleaned off hot spots on stools, tables & chairs.

1-6-46 12-8 Shift Will call Ed Witkowski at 6 AM at home

1-6-47 4-12 HP 1. Cleaned up all items on housekeeping report except one which was referred to Sam Reynolds
2. I.B.W. and 12-8 - the solution "P15 Final P" was diluted 2:1 to 0.09 N HCl and is being run through IR-1 column in N. hot lab. Please maintain flow rate of ca. 13 drops/minute and follow with 100 ml H_2O wash. Then have lab check for precipitation at pH 7

1-7-47 12-8 Blanco ① P15 still going through column in N Hot lab.

1-7-47 7-4. wj G. 1. Set up sulphur furnace for P in hood in S-HOT Lab. Started melting sulphur at 3:45
2. Exchanged old can cutter & carrier for new one. cutter in N Hot lab - box stored on top of hot lab.

1. See Ira W for info. on review of Run P-15.
2. Keep eye on sulphur furnace on Run P-15.

12-8 shift please call Ed again at 6 00 AM.

1-7-47 1. NHYOH PRODUCED NO PPT. ON "P-15 FINAL P".
4-12 NO FURTHER WORK WAS DONE ON IT.
HP

1-8-47 Not having any luck with sulphur furnace.
H.B. Temp. only at 112° + adjustment is as far as it can go. Shutting off hood fan raised furnace temp somewhat.

1-8-47 Started P 16 extraction with
8-4 fuming HNO_3, now proceeding in S hot lab
HJS + HJG. hood. Rimshaw will leave instructions for continuation of run.

Steam coil has been installed in H11. Key valve slightly cracked so that enough heat can be maintained in tank to prevent the 50% caustic from freezing. The lines will eventually be lagged.

1/8/47 ① General cleanup in N Hot Lab.
4-12

JRJ. ② Finished POS's P^{32} filtration
Flask & funnel placed behind low
barricade & warning sign installed.
100 R/hr 3" above filter cake.
Starting flask was not rinsed, Paul.

③ "THE CASE OF THE BROKEN FLASK"

About 4 45 PM the 12 liter P^{32} flask broke during decanting. A few hundred ml were recovered. The remainder was lost. The recovered portion was filtered and the filtrate is now in a 4 liter Erlenmeyer behind the low barricade S Hot ~~Lab~~.

Reading in the hood were 20 R/hr at 6". Air activity in lab was normal. All glassware & equipment (except Pb bricks) were removed from hood and most of the crud on hood floor was scraped up. Expendable material went to hot cans. The rest was taken to the "decon" room. Now the drain in rm. 15 we left a stainless vessel holding a Pyrex battery jar, a ring stand & clamps, and a "hot" can containing a beaker, filter funnel, and a hot plate.

1/8/47 Continued
4-12
JR

By this time our manpower supply was exhausted. The hood & floor are still in bad condition. Use your judgement about salvaging any of the items in the decon room.

④ 1 BW has a P^{32} volume reduction going at the left side of the low bankside in N hot lab. A mark (red) on the Erlenmeyer indicates initial volume. When soln evaporates to 1/2 volume or ~200 ml check for a precipitate. If none is present have the lab do a complete P^{32} analysis. If a PPt is found turn off hot plate & let it stand without analysis.

1-9-47
12-8
H.B

① 1 BW's P_{32} ~~was~~ is still sitting on the hot plate. The hot plate is off. The lab has sampled it & is running a complete analysis. No ppt present.

⑤ Nothing in Decon room touched. We got the hood down from 11 R to a working figure. Signs are posted in S. hot lab. for hot pots at hood & on floor directly below the hood window. All our exposure time was used up.

~~③~~ Two hot cans outside on platform full of material

 from hood, cleaning materials etc.

1-9-47
WJ & HJG.

Decontaminated S-hot lab hood, floor, and W hot lab sink.

Decontaminated tools + lead bricks in decon room.

There are a few articles to be decontaminated in decon-room, namely, S.S. bucket + glass bell jar, pail, + a bucket full of glass ware.

Suggest pumps in make up room be tested for leaks + pumping ability. M-3 was checked + found to bind + leak around packing gland. Maintenance was contacted + they suggested that the 4-12 crew take over the repairs. Follow up on this.

Do not make up 4% NaOH solution in M-10 until next run is ready to start since 4% NaOH crystallizes at ~ 28° F. + M-10 has no facility for heating.

1-9-47
SJK

The filter disc in the Steng reactor in Cell #3 was taken down and cleaned out. It is now ready for filtration. There is a 3 liter flask with Run 16 in it ready for precipitation of Fe and filtration. We would like to run an oxidation with boiling HNO_3 to oxidize any sulfur present to sulfate. So after Step 20 in the procedure dissolve up the Fe precipitate in 30 ml of 70% boiling HNO_3. Do not add any

NH_4Cl. After agitating five minutes to complete oxidation of sulfur to sulfate, neutralize the HNO_3 acid solution with ammonia and filter again. Then continue with the procedure at Solution and Reprecipitation of $Fe(OH)_3$. Dissolve up product precipitate and wash out the reactor as indicated in the Procedure, but stop at this point without diluting up the product solution. Because of Al in the product precipitate we are going to run the product through the resin column yet. Store product solution in vault. Sample combined wastes only. Do not sample final product solution.

1/9/47 Please follow up on work I've lined up with J.R.T.

4-12.

JRT. (1) Continue P^{32} work in Cell 3

12-8 Shift — We are now in step 19, page 4 of the P^{32} run procedure. There remain ~200 ml yet to be filtered. The soln is in the flask by the hot plate on lab table, W side of cell.

(2) IBW I^{131} Finished master copy of run sheets. Ready to be typed for Saturday's runs.

(3). Had large cabinet on 3rd flr surveyed & decontaminated ready to move downstairs. MT'd small cabinet.

38

1/9/47 Continued

4-12

JRJ. (4) Mr. Blaver: (12-8)

Please:

Move small cabinet in rm. next to E.J.W.'s to 3rd floor in corner by ACV's office. Move the large cabinet into the small room. Put office supplies into large cabinet.

Cover shelves of small one with paper + put cones, plugs, sample carriers, etc inside. The glassware may be put into cabinet in supervisors' office if necessary.

The 2 filing cabinets in the secretary's office are to be moved into the small room next to E J W also.

If time hangs heavy E J W suggested you start making up solutions for the run but not the 4% caustic.

1/10/47 (1) Moved Cabinets files but couldn't get the
12-8 large cabinet in the office. It is sitting in the hall.
H.B I suggest getting a carpenter to take the base board off the cabinet + then I believe it will go through.
(2) Cleaned up hot articles + spots in the hot labs I.B.W. - There is a flask reading 200 mr/hr on hot plate behind low barricade I believe it is the one you used to concentrate the Pyesterday. It is empty + if not needed should be washed.

(3) Made up 40% K_2CO_3 Sample is in lab.
(4) Checked pumps in make up room All are O.K.
(5) P^{32} Run 16 in Cell 3 is now going through step 20. Next step is to follow Rinehart's special instructions i.e. Solution in 70% HNO_3

1-10-47 8-4 HP

1. CUT OFF OVERHEAD HEATER FAN AND STEAM TO COIL. TO STOP LEAK. MAINT. HAS ORDER TO REPAIR.
2. STARTED PRE-RUN EQU.P. CHECK IN CELL A.
   JETS OK EXCEPT AS FOLLOWS:
   A11 → A1 PLUGGED
   A5 → A8 "
   A11 → A6D PARTIALLY PLUGGED AT BOARD.
   SAMPLERS OK EXCEPT FOR A6 WHICH IS BADLY BENT AND THE ADJUSTMENT PLATE IS GONE.
   A16 OFF GAS SYSTEM OK AND DRAINED.
3. K_2CO_3 SOL'N BUTTED TO 40.9%.

Supervisor – Please note that there are to log books now. This one and # CL-1347. This one will continue in use as a shift log whereas CL-1347 will be used by Logan, Ed and myself for instructions.

Ira

JRF

1/10/47
4-12 & RJ.

① All shifts – See IBW's note on p 39 of the other log book.

② E. J. W. M-11 Sp. Gr 1.39 – 36%
By titration — 37.4%

③ Started Run I-83 using new procedure. Runs 84 & 85 to be made.

④ Completed EJW's special furniture moving assignment.

⑤ More housekeeping in N hot lab. Make solns for I & for decon crocks.

⑥ Status of I-83

2A – 1600 mr/hr
2B – 4700 mr/hr
NOTE → 2C – Now being distilled. Make this a 35 ml cut.

Unless 2C was <500 mr/hr Take a 150 ml cut, 2D.

NOTE 12-8 & 8-4 Suggestion for Runs 84 & 85. If 2A shows only moderate activity (as in #83) and

1/10/47 Continued
4-12
JRJ 2B shows considerable Try another 35 ml cut before collecting the 150 ml one. This may give us an extra shippable product (i.e. >0.3 mc/ml, S.T.).

1-11-47 Status of I-84
12-8 2A — 75 mr/hr
2-B — 4700 mr/hr
2-C — 1000 mr/hr
2-D — 225 mr/hr
GEP - J.B.W -
HP

1-11-47 1. FIRST TWO CUTS ON I 85 - 2A + B WERE
8-4 46 AND 42 MR/HR. AFTER ADDING ADDITIONAL
HP OXALIC 2A WAS 8500 MR/HR AND 2B WAS 1200 MR/HR.

1/11/47
4-12 1- Finished up I-85 Last cut 150 ml was 1200 mr/hr.

2- Rimshaw's Filtration in South Hot Lab was completed, "Caution" Filter Disc. Now Placed in Suction Flask in South Hot Lab Hood Reads >100 R @ 6" Above It Without Being Shielded With Beaker Whitch is Now Over It.

1-12-47 See 4-12 report on P^{32}. Other operations
12-8 normal.
wy 5 The following charts now present

A1	PB-1	A9	PB-2
A6	PB1	A8	PB-2
A5	PB1	A11	PB-2

The following are in the dest. at PB 4B.
B-26; B-12, B-6; B-10; B-17; B-1 and B-3
B-3 was redrawn from calibration chart filed in file I-13 — Hope it is the right one!!!

1-12-47
8-4 Put RP16 through resin column,
SJR+ sample and hold.
H.P. Made a composite, I-85-C, of I-83-2B, I-84-2B and I-85-2A for lab to analyze

1/12/47
4-12 (1). Worked on P16 Final normality
JRJ before putting thru column ~ 0.09 Acid.
Sample for Fe & activity - P2
(2) 12-8 Shift.
Continue running soln. thru column in N hot lab at ~ 1 drop every 6 seconds when finished have analyzed for Fe & activity. Sample code P3

1/13/47 12-8 wyS. 1. Last of Run P-16 has been added to column in N-Hot lab. When finished have Fe & activity run.

2. Filled up the following vessels.

T-6 50% NaOH.

T-5 60% HNO_3

M-4 60% HNO_3 - 13 in only.

3. Need more HNO_3 and manometer on T-6 needs fixing.

1-13-47 8-4 HP STR

1. UNPLUGGED A11 → A1, A5 → A8 AND A11 → A6D
2. REPLACED BLOWN STEAM GASKET IN LOW STORAGE.
3. MAINT. STILL LAGGING ST. LINE TO M11 COIL.
4. ORDERED HNO_3 AND Na_2CO_3
5. THE AMMONIA CYLINDER IN POSITION IS M.T.
6. AT 8:00 PM SWITCH BATTERY CHARGER TO OTHER BANK AND RUN 8 HR. THEN CHECK B12 WITH DILUTE HNO_3 AT 15 AND 25 AMPS.

1-13-47 WJS JRJ wyG 12-8 1/14/47

7. All Shifts:

1. Sparge + empty A1, A5, A6 to W11 — still jetting at shift change
2. Empty all cell A + cell B tanks to A5 to W11
3. Make a list of all jets tested.
4. Replace NH_3 cylinder + check manometer for operability.
5. Make up 4% NaOH in M10 on 4-12 shift Tuesday Jan 14.

wyG 1-14-47 12-8

Tested, wyG 1/14/47
A5-W11
A6-W11
A6-A5
A9-A8DA
B3-B10
B10-A5

6. Continue filling tanks in make up room & T-tanks on third floor.

8-4 HP 7. Make up carbo-phosphate batch in M1 4-12 Tuesday.

1-14-47 12-8 wyG. 8. Check jetting rate A9-A8 DB

9. Keep M11 warm to prevent freezing

A6-W11 A6-A5 OK wyG 12-8 1/14/46 10. Check slug carrier for operability

11. Have any plugged jets cleaned by maintenance.

12. Make inventory checks & equipment shift checks starting 8-4 Tuesday

Initial the above items upon completion.

JRT 13. P^{32} run 4-12 Monday

14. I^{131} Recovery run 4-12 Monday

12-8 ⇒ 15. Take isotope boxes to Springfield's office in 105.

1/13/47
4-12
JRF.

(1) Kaskie - M3 pump was checked last Wed immediately after it was repaired.

(2) Had troubles with I-R-10 and will not finish. 12-8, please finish according to verbal instructions at shift change.

(3) Status of P16 run (N lab barricade) Continue to run product soln. thru column at rate of 1 drop every 5 seconds. Refill the column cylinder with the rest of P16 product soln from the 2 liter Erlenmeyer labeled P14 XW5.

P16, P3 Fe 44.4 mg total

The yellow soln P16-R1 is from regenerating the column. It has been sampled.

S.J.R. will be here to take over before the product soln. is thru the column

(4) J. Ogle was absent & with the I & P having priority very little else was done this shift.

(5) Switched battery charger at 9^{00} PM instead of 8^{00}.

1/13/47 46 Continued -
4-12

JRZ (6) A6-W11 jet doesn't work. OK wyG. 1/14/47 12-8
A6-A5 jet is slow

Emptied A1, A8, A9, A11

OK → A1 zeroes at 2 in.

A9-A8 DA
DB
C
} Work OK but did not have time to check rate of DA as requested. wyG 1-14-47 12-8

(7) M11 - Cracked steam coil & sparging slightly. Suggest checking this.

(8) Cleaned up Vault # 1 & 2

1/14/47 (1) Completed I-R-10: 2C = 375 mR/hr.
12-8 25 gms Oxylic added & 2D = 175 mR/hr
wyG. 1-R-10-3 read 17 mr/hr.

(2) All A & B cell Tanks are Empty.

(3) Installed new NH_3 cylinder.

(4) Maint. opened jet A6-W11 and checked A6-A5. Both working OK.

(5) Checked discharge rate of A9-A8 DA. Results plotted (see graph.)

1/14/47 12-8

⑥ Gathered data for calibration Chart for B-3.
⑦ Stoped charging batteries at 5:30 P.M. Tested B12 with 1.270 HNO_3 air found both sets of batteries OK i.e. can maintain 15 & 25 amp flow without use of generator.
⑧ P^{32} still running through column.

OK Have instrument man repair A1 ring balance which zeroes at 2"; also repair manometer on T-6

1-14-47 12-8

1-14-47
8-4

P^{32} Run:

H.P & S.J.R

Finish rinsing out of resin column which has been regenerated with 6N HCl. Sample effluent. Measure volume. Label R2, Run P16.

Product precipitate is being filtered in earth hot lab. Finish up this filtration. Sample filtrate. Measure volume. Label W1A, Run P16.

Dissolve product precipitate in exactly 20 ml 6N HCl (1:1). Do not use any more than 30 ml 6N HCl or too much dilution water will be required 400 ml to run through the column. Rinse out sintered dish well with distilled water. Dilute to 1000 ml. Have lab run normality and adjust to between .08 and .10 normal by diluting. Run solution with correct normality through resin column, sampling first. Measure volume. Have Fe & P^{32} run. Label sample, P1A, Run P16.

Slug carriers checked – O.K.
A-4 Ring Balance zero'd.
J-6 Manometer repaired and checked O.K.

1/14/47
4-12 JRJ.

① Valve in M1-45 line replaced by Maintenance

② Make usual preparations for run
a) Carries to 105
b) 4% Caustic in M10 80"
c) MT'd Xmas tree, pit pot, etc. etc.

③ STATUS OF RUN 15

1. Coating removal soln:
HNO3 in A1 & part of NaOH in A1
Remainder of NaOH in scale tank (T9)
2. Truck with 2 loaded carriers at 706-D loading platform.
3. Start loading according to schedule – i.e. 12:00

④ APOLOGIES TO S.J.R.

Sorry, old man, we just couldn't continue beyond the point discussed by phone. The waste was sampled & analyzed. Only the original 20 ml

1/14/47 Continued
4-12

-ched JR2 of 6 N HCl went thru the crud. No more was added. About 400 ml of rinse H_2O went thru the disc. Most of the orange ppt. was dissolved off the disc but activity was still ~100 R/hr at 2 in. above funnel. If I omitted any facts give me a buzz tomorrow.

(5) IBW has some info in the other log for all supervisors

1-15-47 [12-8]
HP & HJG

Run 15 - batch 4 dissolving in A1 loaded total of 248 slugs.

JBW How about the iodine factory - are we going to collect it?

(T9)
06-D

1-15-47 P32 Run - Adjust rate through the resin column in north hot lab to one drop every five seconds. When product has all been put through the column, follow with a 200 ml distilled water rinse. Sample the product solution with the rinse. Measure volume. Label P2A, Run P16. Have Fe and activity run.

8-4
Hb. P & STR

Save combined product and rinse effluent from the column.

Start regeneration of resin column after product goes through with 500 ml 6N HCl (1:1). Follow with 200 ml distilled water. Measure volume. Sample. Label R1A, Run P16. Have Fe & act. run.

50 Ba Run:

A9 - Batch A - Settling in A9 shot until 5:15 P.M.

A1 - Batch B dissolving. Gasket on plunge on line to W11 was blown. We held up this dissolving to repair the gasket.

Note that on batches A, B, C, D and E a 10 ml sample will be taken out of the dissolver for Peterson. Turn in sample to Reynolds.

Repaired Micromax PB2 #7

4-12 Blaner

① Results on 1MA are
448.6 curies at analysis time
343 curies at last Separation time calculated as of 1200 1/20/47
5 & 4 slugs dissolved.
7.68 curies/slug
Results on 1MB are
406.5 curies at analysis time
317 curies at last Separation time calculated as of 1200 1/20/47
56.8 slugs dissolved
7.2 curies/slug

② Truck + both Carriers are at 105 - bldg. One carrier was sent up without locking bar across the top. Try to locate bar if possible to prevent any accidents. We couldn't find it in this bldg.

③ Batch C dissolving in A1.
Batch B digesting at 80-90C in A9 after 4½ SO4 addition
Batch A settling in A11

④ Will the 12-8 have the A-agitator grease

gun refilled we couldn't grease agitator bearings & discovered gun empty too late to do anything about it.

(5) A-4 Agitator sounds as though it is hitting in tank. Amperage fluctuates slightly and a regular bump sounds through the speaker.
C. J. W. says to cut agitation time short on the Pd (SOC) ppt. so as not to injure the tank.

(6) Valve on T & leaks slightly - can you have it fixed?

(5) Phosphorous still going through column at 1 drop per every 5 seconds in N Hot lab.

7-16-47 f. Emptied bottles at I factory & collected I from batch C dissolvers.
12-8 Reading - 800 - 900 mr/hr. volume roughly 3-4 liters. Contents in bottle closest to A cell wall.

Run Status

2. A-1 Coating Removal and loading solution complete. 7 45/AM
A9 Leach settling at 8 40/AM batch B
All Dissolver soln. batch C
3. 10 ml IM sample taken.
4. A9 Agitator grease gun refilled
5. T & outlet valve replaced.
6. Slug carriers surveyed & stored
7. About 100 ml of P^{32} solution still to go through column.
prod.

9. Where the H are all the face shields that are supposed to be around the building? Some one making a collection of them!!!

Note Sissel —
Calibration Chart for
B-3 has been found!
So Darry!

1-16-47 RUN STATUS:
8-4 A11 - BATCH D, DISSOLVED
HP A9 - BATCH C, COLD SETTLING UNTIL 6 55 PM
A11 - BATCH B, SETTLED UNTIL 3
IMC 372 C ANAL. TIME 56.5 SLUGS
294 C SHIP TIME 6.6 C/SLUG

1-16-47 (1) Jet A-11 - A-5 DB [illegible]
4-12 Jet A-5 A There were 12-3 [illegible] 8 WHB which
Blower [illegible] A11 [illegible]

→ Kaskie please return the
→ 3 hole punch to Room 28 in 706 A
before they bring the [illegible]
[illegible]

(2) 1MD
459 curies at analysis Time
374 curies at shipping Time
59? 59 [illegible]
7.78 curies plug

3 A-11-A5DB jet unplugged prior to jetting 8WMC to A11

(4) 8WMC - 25.3 at anal T
20.8 at Shipp T.

(5) ~~Will the 8 + shift get some tags to tag empty carboys~~? Found some!!

(6) Batch E - diluted in A1
Batch D - Settling in A9
Batch C - Settling in A11
Carbophosphate in A5

(7) Phosphorous Run 16 in S. lot lab hood filtering through sintered glass disk. Rinshaw's special procedure is attached. The ppt wouldn't drop lower than 100 R at 5" so I tried filtering the whole acid filtrate through the crud that was left hoping to remove more of the activity. Rinshaw says to forget the activity in the precipitate and proceed per directions. Whitney will be in early in the morning + wants to ship this so follow it closely.

Ira - I washed ~~that~~ precipitate with 7 shots of HCl 5 ml per shot + couldn't lower the activity appreciably. Didn't want to add more acid because PH is about 1 now.

1-17-47 Finished P^{32} run neutralized soln.
12-8 in S hot lab hood.
WJS + WYG

Run Status
A-9 batch E digesting 8 05 AM
A-11 settling batch D 11 55 AM
A1 batch F dissolving

Amplification system kicked off at 7 00 AM on A9 agitator. Have 8-4 shift instrument crew take care of it.

1-17-47 Batch F in A-1 diluted
8-4 Batch E being transferred from A9 to 8
JKJF

1-17-47 ① 8WME - 74.1 C's at Anal. Tune
4-12 - 64.0 C's at Shipping Tune
Brusley - ② Couldn't dump caustic. One man out sick.
Blaner Iodine running + Barium running
Recheck on 8WME - 24.2 C's
③ F in A11 till 11:45 P.M
E in A9 till 2:15 P.M
G in A1
④ Two more samples Te under vault

1-18-47 Run 15 Status:
12-8 E in A5 - ready to go to A6
HP55R F in A11 - Settling until 10 00 AM
G in A9 - Settling hot until 8 00 AM

Iodine I

We finished up Run 86. Previous shift had taken off six dead cuts of 35 ml each and discarded them to the drain. We took off and discarded a seventh 35 ml cut. A total of 50 grams more of oxalic acid was used. The eighth 35 ml cut hit paydirt at 4250 mr/hr. We were able to take off two more 35 ml cuts which gave readings of 2750 mr/hr and 700 mr/hr.

Run 87 is going along just as Run 86 described above. We have taken off and discarded five dead cuts of 35 ml each. Suggest cooling down, adding 25 grams more of oxalic acid, and then taking off 35 ml cuts until you get a hot one.

8

1-18-97

8-4

JCR & JF

Due to high loss in 8WMF a recovery procedure was incorporated in the run — Decant Batch G from A9 to A8. Sparge Batch F in A11 & jet to A9. Jet ½ Batch G in A8 to A11. Sparge in A11 & jet to A9. Settle in A9 for 5 hrs. See inserts in Run Sheets, Batch G.

Recovery Settling in A9 until 7 30
Decant this " to a 2" heel
8WMG = 7½c's. Settling in A-11 (¾ Batch)
8WMC Settling in A-11 until 7 10
Heel dissolving in A-1
Batch F in A5 ready for A-6

1-18-47
56

4-12 ① I-88 - We took off 5 cuts 2A - 35 ml - 2000 mr/hr
Blauer - 2B - 35 ml - 2100 mr/hr, 2C - 35 ml 1500 mr/hr,
Pressley 2D - 150 ml - 1250 mr/hr 2E - 65 ml - 775 mr/hr.
The reason we took so many was that after 2D cut of 150 ml the #3 sample read 45 mr/hr. So - we took another cut which went below 1000 mr/hr. Then we took another #3 sample. It too read 45 mr/hr but the solution in the dissolver was so low + so thick we decided to discard it rather than recover any more

(2) After completion of I-89 clean up apparatus in usual manner. Run 90 will be started on the 8-4 shift.
1-19-47. - J. R. Farmakes

What about feel in A1?

3, 8WMG-1 33. at analysis
30.4 shipping

4 6WMG - 3.04 analysis
2.8 shipping
Jet A11-A5DB plugged up so we sent the above waste via A11-A6D and sampled

5,

1-19-47
12-8
55R-HP

Automatic jet on W-11 was stuck open. We cut steam off to jet at 7:30 A.M. Consequently liquid level on W11 will be rising and you will have to watch it closely. Use manual steam control to W11 jet until the automatic jet control can be fixed. Since W11 fills up rapidly, you will have to check liquid level in W11 about once per hour. Suggest cutting down on sumbers to a minimum in order to W11 liquid level low.

AJ

8 WW analyzed 9.0 C's. It was jetted to A5 which contains neutralized waste.

Four liters of 70% HNO_3 added to A8 for neutralization of metathesis waste. Second metathesis ready for H_2CO_3 addition.

Iodine apparatus clean and ready for next run.

1-19-47
4:00 PM

Replace periscope in Cell B viewing the product Carrier in vicinity of B-19. One in place does not work.

Cell B vessels were test quantitatively for sol'n transfer. Everything okay.

AJ

Orchids to Bailey & his secretary, Blaser for their work on I^{131}. Seriously, the run was well done and we are especially happy about the complete data recorded.

JRH

1-19-47 ① 1 MH 207.5 C'S A.T.
4-12 199.8 C'S S.T.
.276 slugs 7.5 C'S / slug

② Dissolved the metathesis cake in 500 cc 70% HNO_3 and sent to B-12 via crud filter. The volume in B-12 was 3750. The second shot (350 cc) when it got to B-26 was about 2 liters.

We split this second portion in two parts and sent one part to B-12 and added 350 ml of 70% HNO_3.

This last part is in B-26. Do not throw out.

Suggest that B-12 be cleaned out immediately after moving the run into B-6. A second electrolysis composed of a rinse of A-9 with about 1 liter in B-26 may be run.

③ Witkowski called & verified the cleaning of B12 after this electrolysis

1-20-47 RUN STATUS:
12-8 B-6 EVAPORATING TO DRYNESS (UNTIL CA. 8 45 A)
SOH & B-3 FIRST SHOT OF PB. - being transferred.
HP B-12 SECOND SHOT OF HNO_3-H_2O_2 UNTIL AM.

8 WCW 327 C @ A.T.
8 WC 371 C @ A.T.
Continue cleaning out PbO_2 out of B12.
Cleaned up Decontamination Room.

Sulfur Can is being melted out in North hot lab.

1-20-47
8-4

JCK 12-8 shift please call transportation telling them to pick up Pressly & Kaskie. Dispatch the car approximately 1 hr before the vol in B-6 reaches 350 ml. Electrolysis is on at 15 amps until 4:25.

JRJ 4-12 - "RECOVERY"
① Jet A5 → A6 ✓
② 1 Batch carbo-phosphate from M1 → A5 ✓
③ Decant A11 → A5 (Had to use A-11 - A6D as 11-A5B was plugged)
④ Jet A6 → A5 ✓
⑤ Dispose of this waste soln ✓
(over)

1/20/47
8-4

Continued

(6) Jet heel A11 → A9 ✓
(7) Jet A1 → A11 → A9 ✓
(8) Jet A8 → A9 ✓
(9) Add 670 ml $Pb(NO_3)_2$ to A9
(10) Add 50 # H_2O to A8 & jet to A9. ✓

(11) Proceed from here with normal extraction, 25.5 # H_2SO_4, etc. Consider as 1 batch. Follow thru to BWMR sample

(12) Keep records started by Newton on linen paper. Getting rid of wastes can be recorded on regular new sheets.

BA RUN

3 hr electrolysis (15 Amp.) will be finished at 4²⁰ PM

The run was messed up and this is a re-electrolysis. BG manometer trouble & jet trouble (A9 - B26B) resulted in too large a volume to be handled.

1/20/47
4-12 ① Cleaned up 7th Hot Lab.
Blaser Ina me put some of your bottles into the drawers of the hot lab desk.
② Jet A11-A5D6 is plugged. We don't know where it didn't get it fixed.
③ 6P is in Bab
④ A6 has a G-1 waste ready to go to W-9
A9 3 hr settling but on extraction. Batch H till 2 A.M.
B6 - Evaporating - Started at 11 15 P.M.
⑤ Continue batch in A9 through settling + decanting. Follow a run book & write your steps on the lined paper already use
⑥ Did NOT START CLEANING OUT B12

1-21-47
12-8 17P sample was taken at 7 30 A.M.
Start HP Volume was 200 ml.

1/21/47
8-4
JRT "TROUBLE SHEET"

6P - 1635
17P - 850 C/s
17P2 - Awaiting analysis - 736 C/s
Spec. Analysis showed high Pb content (~200 mg.)
Another analysis is being made.

8WMR - 272 C/s.
3WHCl - 215
3WFN - 18
DG Rinse - 48

4-12 - Verbal instructions from E.J.W.

1-21-47 62

To 12-8

4-12 ① 12-8 load 300 slugs from 105 bldg.
Pressley - ② Take coats off. DON'T DISSOLVE
Blank METAL UNTIL 8 AM on 1/22/47

③ A-9 has a waste heel — Hold for the run.

④ Clean out B-12 if you have time. 2nd shot is in B-12 ready to come out.

⑤ two slug carriers and a truck is up at 105 building. Carriers are loaded

⑥ We steamed B-21R thru the solution addition lines and collected 150 ml of condensate. This we pushed to B-17 followed with a 200 ml water rinse of B-21T. The volume in B-17 is 360 ml. It was to be sampled but the chemist didn't have a sample bucket. Check: found a sampler and sampled it. called it 17P - Rinse of B-21R

⑦ A6 - Rework waste has been sampled called 6WM-R

⑧ Run sheets made out for batch I, J & K. I has no coating removal sheets in it.

(9) The big sump is now in B-6, to be held there until further information is given.

(10) B-3 & B-10 wastes settled to A-5 and these two tanks rinsed with water.

(11) Jet B-10 - A9 checked and is okay.

(12) The tygon tubing in cubicles have not been given sufficient rinsing.

1-22-47
12-8
SJR+H.P

17P - Rinse of B21R — 150 C's.
6WM-R in A6 — 29C's

300 slugs were loaded into A1 and coats removed. Ready for dissolving with acid and weighed out (390#).
While dipping slugs to A1 ~~During loading~~ a slug hung up in Carrier A three in a row. We finished loading the rest of the slugs, using Carrier B only. Carrier A should be cleaned and reamed out before next slug loading.

B7 apparently plugged up when sucking solution out of B12, but blew free when pressure was applied. Lead particles may have caused the trouble. We added another shot of HNO_3 & H_2O_2 to B12, and are sucking this up with B7 pipette at shift change. If B7 pipette will not pull this solution out

of B12, suggest adding more HNO_3 & H_2O_2 to B12 and repeating shots for awhile. Lead may have been sucked up by B8 and transferred to B6. B6 ought to be rinsed with acid, sampled and analyzed for lead. There may even be undissolved lead particles in B8.

1-22-47 [8-4] Was 15I started? yes

Vessels in Cell B thru which the product passed have been washed. All rinses are combined in B-6. This 7 liter vol is sampled. 500 ml of conc HNO_3 has been add. Evaporate to dryness & Take up with 3-100 portions of H_2O. Add thru 6PSP. Hold to add to B-12 when

3WP62 5.5 C's A.T.

1-22-47
4-12
WJS

Run Status

A-1 batch J dissolving J

A-9 batch I settling until 2^00 AM I

B-6 prod, rinses + 500 ml 70% HNO_3 make a vol. of 5.75 liters - 895 Cs A.T. - leave until day shift for processing.

M-11 35% caustic tank apparently has a hole in steam coil. While determining the cause of plug up in steam line strainer was drained + union broken both spewed out caustic. Line still plugged, probably

freezer / coil will have to be replaced. This means that caustic solns. will have to be made up from flake caustic when M-11 freezes.

The 400# drums of flake caustic is make up room assay at 76% as Na_2O or by converting to NaOH → 98% as NaOH 4.1# Caustic in 100# water solns. makes 4% NaOH use accordingly.

Stan opened 5 damaged bottles of fuming HNO_3 for you in lead tray 3rd level!

1-23-47 1MI - 371 C's.
12-8 1MJ - 378 C's.
5TR+H.P. 8WMI - 9.5 C's.

A9 - Settling Batch J cold until 9[58] A.M.
A1 - Batch K dissolving

P^{32} extraction of sulfur was made with fuming nitric in hood on 3rd floor. Acidic extract is filtering (slow) at shift change (Step 8 in Procedure). When neutralizing with NH_3, go to PH of 7, using PH papers near the endpoint. Check with Ba as before proceeding, keeping close watch on Ba run of course. Precipitating the $Fe(OH)_3$ with NH_4OH at a PH of 7 has been found to reduce waste losses materially, the $Fe(OH)_3$ carrying P^{32} almost completely when brought down in a neutral solution.

1/23/47
(8-9) RUN # 15 — 8 kl MI 9.6 C's

1/23/47
8-4
JRJ.

1MK - 396.8 Cp A.T.
7.3 c / slug
54.4 slugs.

Batch L Increased HNO_3, H_2O, & H_2SO_4 by 75/65 & dissolve 10 more slugs.

8WMJ - 204 Cs (S.T.)

Status.

A1 - Batch L dissolving.
Trying to dissolve 75 slugs instead of 65 so 75/65 increase in HNO_3, H_2O, & H_2SO_4. Water (196#) in scale tank.

A9 Batch K settling until 8 35 P.

A11 Batch J settling until 5 25 P.

A8 MT

A5 - MT

A6 - Ready for W9'ing.

B6 - Run 15 SAUE

1/23/47 Continue
8-4
JRF

Last 2 batches — Do not use short cuts for agitation + settling. In other words, use std. procedure.

See IBW & SJR's instructions for P^{32} run on 3rd floor (hood). We filtered all soln thru and added 50 ml H_2O thru disc. Stopped at step 8.

South loading platform has equipment used at TEC for NaOH loading. Bring in, clean up, & store in low storage area.

1-23-47
4-12
WJL

Run Status

A-1 heel dissolving ~ 30 slugs.
Keep her going until day shift, used 195# 60% HNO_3
A 9 batch L settling hot until 2 00 AM
A 11 batch K settling until 3 15 AM
A 6 batch J ready to jet to W-9
Late result 8WMK 525 cs AT
6WMJ 11 cs (ST)

A9 took the large vol. of metal soln L; total vol. in A9 106 gals.
P^{32} run 17
Took C1 sample; no analysis yet.

Added 80 mgs Fe to soln + have so far added about 600 ml of conc. NH_4OH; no sign of neutralization as yet.

Stang reactor cleaned out + ball joints greased. Apparatus ship shape ready for filtration.

Stan if you have time tonight evaporate B-6 prod sol + rinses to dryness, after dryness is attained continue heating for ½ hr, no longer, cool + add about 500 ml of distilled H_2O via B6 splash plate - hold. Do not forget to equalize manometers + apply air pressure to B-11 + B-9 during evaporation. Also shut off high pressure steam at panel boards 4B + 5.

1-24-47
12-8
SJR

High waste metal solution (525 C's) was decanted from A11 to A6 and sampled. Lab showed a loss of only 9.74 C's. The other 500 or so curies in A11 are to be reprocessed as follows: After batch L is decanted from A9 to A8 (starts at 7⁰⁰ A.M), jet held in A11 after sparging to A9. Then use about one-quarter of the metal waste in A8 after sampling to rinse out A11 to A9. More details will be forthcoming from EJW. Have lab push analysis on 8WML. We will have A9 decanted to A8 on this shift, and A8 sampler circulating. You can take off 8WML sample,

feet heel in A11 to A9 after sparging, and use part of metal waste in A8 to rinse out A11.

Run Status:

A1 - Dissolving heels
A5 - Batch Co_3-PO_4
A6 - Metal waste solution (Batch K) decanted from A11 - 9.74 C's analyses - O.K. to neutralize.
A11 - 4 inch heel to be jetted to A9 and tank rinsed with metal waste from A8.
A8 - Batch L decanted from A9. (started 7th A.M.)
A9 - 10" product heel - Hold to rework with heel in A11.

B6 product solution was not evaporated down.

* First $Fe(OH)_3$ precipitation on P^{32} run is about half through filtering through the Stacy centrifuge in Cell #3. Follow procedure as outlined except that after Step #20, dissolve the $Fe(OH)_3$ cake in 30 ml of boiling 70% HNO_3 and reprecipitate with NH_4OH in order to oxidize any sulfur present to sulfate. Also after this first filtration please take a sample for lab analysis, and keep this first waste which has a high volume (about 5-6 liters) separate from the other waste filtrates which may be combined. The first precipitation was made at a pH of 7, and we are interested in finding out how low the waste losses will be. Call first waste sample W1, Run P17 and second combined waste sample W2, Run P17. See Whitney about Final Evaporation when you get to that point.

Wash + dilute 200 ml (Hot H_2O)

8-70 Day
1-24-49 BLAUER + PRESSLEY

① Sparged + jetted heel of A11 - A9
② Jetted A8 to A11 (Batch L)
③ Sparged + jetted all but 6" of A11 (Batch L) to A9
④ A9 - settling till 7:05 P.M.
⑤ A11 - heel of Batch L (Hold)
⑥ Phosphorous 32 Run 17 still filtering in Cell 3. See Rimshaw's note of 12-8 (1-24-47)
⑦ B-6 was evaporated to dryness + then taken up in 2 liters water
⑧ 8ML - 151.C's at S.T.
⑨ 1ML - 65.7 slugs dissolved.

NOTE ⑩ M10 Caustic is down to 8" at 3:40 P.M. A4 flow is running at 100.

1-24-47
4-12
WJ + WJG

Run Status

A1 dissolved heels 1M Heels 225 C's

A9 water wash 1st settling 12:10 AM

A8 H_2SO_4 cake wash

A11 batch L, settling hold

8WML, 372 C's resampled settling in A11

While settling H_2SO_4 cake wash in A9 noticed that vol. had risen in A9 when 125# steam was turned on

for getting 8WML to A11. Checked all lines + discovered that A8-A9 jet line was trickling steam into A-9 + building up condensate. Broke union on discharge end of valve to prevent steam from going to A9. Since A9 settling was disturbed decided to settle for another hour before decantation

P32 laboriously filtering in cell #3. still have about 2 liters to filter

1/25/47
2-8
JRT

8 WML-2	388.5	A.T.
(2nd sample)	367.9	S.T.
B6 Rinse	497	AT
	472	S.T.

8WW 3 c's

— STATUS —

A1 - Heel from extra slugs.
A9 - 2½ hour settling until 8 39 AM
A11 - Batch 4 still settling, hold.
A6 & A8 empty.
A5 - 1 Batch carbo-phosphate + 8WW.

(over)

72

1/25/47
12-8

JRJ. ① Continue with P^{32} in cell 3 Still filtering. Remaining soln. to be filtered is on hot plate at "low" heat. See SJR's instructions on p. 69.

② Re- 17P sample. JBW wants an oversize 17P sample so that 10 λ can be shipped. Will the shift that is on please follow his special instructions on the attached memo?

8-4 PRESSLEY BAUER ① P_{32} still filtering — wash ppt. with solution (10 cc NH_4OH - 90 cc H_2O) to wash out NH_4NO_3 crystals ② B-L Boiling down the rinse that was in it.

③ Metallhes wash decant at 4 P.M.

④ B-8 & B-17 cleaned out with HNO_3 + H_2O_2 & empty.

1-25-47
4-12
H_2O_2 + HNO_3

Run Status

Electrolyzing in B-12, 25 amps until 6 30 AM

Rinsed out glassware a few times with distilled H_2O, combined with prod. soln. in B-12

B-17 + B-8 have been treated with H_2O_2 + HNO_3 twice followed by H_2O rinse as per instructions, E.J.W. to remove any Pb that still may have been there.

Rinsed out glassware again using a total of 3 liters of distilled H_2O. The accumulated rinses are in B-6 awaiting Ba + Pb analysis — Pb analysis.

3.0 gms — Follow procedure given below for E.J.W.

Need a roll of micromat paper at PB #6

P^{32} still filtering in cell #3. see page 69* for procedure after the filtration is complete.

MT B-3 to B-11 to A5

Jet B6 – B1 + hold. (3000 l H_2O rinse)

Hold 20 liters of 25% HNO_3 followed by 1000 ml of 30% H_2O_2 onto B-6 sparge

for ½ hr + jet to B-3. Sample B-3 + have analysis run for Pb; jet to waste
AS. B6Pb-2
Repeat the above procedure. sample in B-6 + jet to B3 thru to waste.
Have all this done before 6 30/AM.
Rinse B6 H_2O after each. B6-Pb-3

1/26/47
12-8
JRF.

(1) Product soln. in B12. Continue to electrolyze until E.S.W. instructs otherwise.

(2) P^{32} Cell 3. The filtering has practically stopped. Solids are "freezing out" below sintered disc. No attempt made to remedy this since this shift was short 2 men & busy with Ba problems.

(3) 15 B6 X 56 C's. This soln. was jetted to B1 + held there.

(4) LEAD CLEAN UP

B6 Pb 1 Rinse thru glassware → B6 → B1 1728 mg Pb

B6 Pb 2 20 liters 25% HNO_3 / 1000 ml 30% H_2O_2 } B6 sparged ½ hr → B3 sampled 3570 mg

1/26/47 CONTINUED
12-8

RJ B6 Pb 3 $HNO_3 + H_2O_2$ to B6. Sparged ½ hr & sampled. 850 mg Pb

B17 Pb 1 2 liters 25% HNO_3 } B17 sparged ½ hr. 165 mg
100 ml 30% H_2O_2 }

B8-B17 Pb 1 Soln above sparged in B8 & sampled from B17 99 mg

Distilled H_2O from 3rd floor tap NO LEAD

(5) B6 was rinsed with H_2O and given a 3rd HNO_3 + H_2O_2 treatment. This will be left sparging thru shift change. Sample from B6 for another Pb analysis. Code B6 Pb 4.

Flash → This sample was just taken. So, jet B6 → B3 and sparge in B3 ½ hour before sending to B10. Rinse B6 thoroughly before using again. B17 & B8 have had 2 2500 ml rinses.

(6) E.J.W. is coming in shortly after 8:00 AM Don't call him home.

(7) See note from I.B.W. concerning 17P sample.

8 - 4

Prevey
Glauer

① B6 - B-11 and B-8 cleaned with 25% HNO_3 + H_2O_2 until samples showed no lead.

② P^{32} still filtering - Steam hose on reactor to prevent crystallization of $(NH_4)_2SO_4$ blow disk.

1-26-47
4-12
WJ + WJG

Finished electrolysis + took BP sample - 8 gms of Pb - evaporated B-6 down to 1400 ml took another sample - Pb 19 gms + 1667 cc Ba. Evaporated B6 down to dryness. Cleaned out B-12 with 2 5.5 l liter shots of HNO_3 + H_2O_2 + jetted to B-3. took sample to be analyzed for Pb + Ba.

EJN: his instructions in supervisors log for reelectrolysis.

P^{32} still filtering probably will finish at 3 AM

1/21/47
12-8
JRJ

① See pages 16–18 in other log book. Most of these instructions were carried out.

B6-Pb-A	96 C's (A.T.)	3.99 gm Pb
B6-Pb-B		4.10 gm Pb
B12-Pb A		263 mg Pb

② WAR relieved E.J.W. during the 12-8 + he will take over: However, if E.J.W's requests are to be followed then this is what remains to be done.

1. MT B6 & rinse well.
2. MT B8 to B6 & sample. (B8 Pb A) in B6
3. MT B6 & rinse.
4. Start step ⑦ under → B6 ← in other log. That is — give B6 the $HNO_3 + H_2O_2$ treatment, sponge 30 min. + sample. (B6-Pb-C).

2 & 3: Rinse B8 well + MT to B6

③ Pressly & Kaskie — Prepare glassware.

④ P^{32} should be thru filtering. IBW, we had no chance to work in cell 3 at all.

1-27-47

B-12 electrolyzing

Pressley + Blauer change to 25 amps at 4:20 PM (lost an hour)

A solution 50 cc of 3.8 M HNO_3 was placed in B-26 and vacuum applied on B-27. As soon as you think that B-12 will hold this vol (50 cc plus a very small amount in B-26 and B-27), transfer to B-12 the jacket water on B-12 is off and the off gas wide open to cause as much evaporation in B-12 to make room for other rinses thru the crud filter disc

Turned on per E.J.D. A-12 - A-16 line open

① Rinse 21 G Glassware from 3rd level through 23 to 21 R, sparged went to 21 T sparged + then to B3.

② Repeated #1 + went B19 instead of B3.

③ B17 - B8 - B6 read ~~to~~ zero for lead analysis.

1-27-47
4-12
WJS + WGS.

Transferring product soln. to B-6

Rinsed glassware B21T + B20T with H_2O. Rinsed B21T again + took H_2O sample in B17 — 39 mg. Pb. Gave B21T + B17 one wash with a l of HNO_3 + H_2O_2 followed by 1500 ml H_2O rinse. B21 glassware should be in good condition.
P^{32} going through columns.

1/28/47
12-8
JCK & JRF

6P — 792 mg Pb
764 C's

RUN 15
BORN JAN. 15, 1947
DIED JAN. 28, 1947
TROUBLE MAKER

① Run 15 yield is too low to ship. The product now in B6 will be turned over to 706-C.

② 8-4 shift. E.J.W. requests that you order enough HNO_3 for cell B decontamination which is to start as soon as possible. Ed was here until 2:30 AM and may not be in at 8:00 A but he'll call in to give further instructions.

B12 REPAIR

1/28/47
12-8
JRJ.

(3) P^{32} N. hot lab. Finish running thru columns & continue volume reductions per verbal instructions from JRJ. Contact JBW from there.

(4) Awaiting Pb analysis of PbO_2 waste now in B3.

(5) Continue recycling of acid H_2O_2 soln thru crud filter → 27 → 12 —via B7→ 26 - Etc.

(6) High air count during B6 vol red. & B27 → B12 transfer

1-28-47 (8-4 Shift)

1. 3W Pb 186.4 C/s
(2) Phosphorous in Cell 3 is a reprecipitate from run waste. 6 Liter Corbon hot plate has the ppt'd + the solution is filtering very rapidly. Also in N. Hot lab is phosphorous concentrating on hot plate. This is the original precipitation of the run. See L.R.W for details. Proceed in Cell 3 according to regular run procedure.
(3) Product in B6 being evaporated to dryness when dry take up in 2 liters of water + sample.

④ We recycled 25% HNO_3 + 30% H_2O_2 through B26 + filter + B27 all day. Wash is now in B3
⑤ Re: note 2. Use 6N HCl to dissolve $Fe(OH)_3$ ppt. Not 30 ml of HNO_3. Reppts + then redissolve in minimum amt of 6N HCl + follow procedure from there on.
⑥ Send A-1 to A-5 + neutralize it. Hold it there to receive all first rinses all B tanks
⑦ Put 706 C cone + plug in product carrier.

Decontamination for 4-12 + 12-8 shifts
1. Rinse out A-9.
2. After A9 is well rinsed, add all sol'ns to A9 jet to B-26.
3. Rinse B1, + B26 - B27 - B12,
Note: Use 1 part of HNO_3 to 2 parts H_2O for rinsing sol'ns. Hold all sol'ns in A5, A6 + B3. Dont send any material to the Tank Farm
4. Evaporate the recycled sol'ns of B26 - 27 - 12 - 26 in B6

1-28-47
4-12
WJ + WJD.

B-19 Evaporating prod. soln. until 1 15 A.M.
B-6 Evaporating 2 acid washes from A9 - B26 - B25 - B27 - B12. Dryness should be attained ~ 12 - 12 15 A.M. Cool to 30-40°C + add 200 ml H_2O to B-26 S.P. + sparge with B9 + B11 pipettes for ~ 10 mins. Add to

B19 evaporator at 1^{15} AM (cool B19 before adding soln. from B-6), use B11 pipette for addition – blow through funnel rack to B19 funnel into core

START 4:00 A

Evaporate the above for 4 hrs after core heater reaches 145°C

STOP 8:00 AM

Continue with decontamination program described in Kaskids note, omitting step #4

$P^{32}_{\alpha\alpha}$

① North Hot lab: a Reduction of volumes to be continued of final volume desired – 200 ml.

b Columns regenerated with HCl & H_2O wash. Ready for liquid coming from cell #3.

② Cell #3.

Continue to filter and carry on step 20 etc on pag 4 P^{32} procedure.

4:00

③ Steam both Lab. when two flasks go to dryness turn off steam & let sit for I.W.

1/29/47
12-8
JRJ

① B19 evaporating until 7^{45} AM.
Air on at shift change.

② P^{32} N Lab.
Still evaporating in big flask at low barricade. "Preheat" flask is MT, (not rinsed)
Column regeneration effluent still in place under columns.
Analyt. Lab. hood 1 flask evap. to dryness on steam bath, the other very close to dryness at shift change.

Cell 3

Stopped in step 4 p. 4. Have added 15 + 5 + 5 ml NH_4OH. Didn't look just right. Some ppt may be tied up in foam. Check with IBW.

③ M1 has ~3/4 batch of carbo phosphate. Jetted 1/4 batch to A5 when jet slowed down + finally stopped. Intended to use 1/2 batch to neutralize the weak acid now in B6 since a full batch would overflow B5. Will give details verbally.

④ Running low on phosphate - 1½ bags.

1-29-47 See sheet attached to page in
JRK "Instructions for Shift Supervisors" log book
for decontamination program.
Statis for decontamination

Neutralized all metal waste in A-1 - A-11 and all Cell B wastes that were high in Cories and sent to W-9 - Total volume about 843 gal.

Started item 2 and 4 on decontamination sheet. item 3 partly started. Check sheet and inventory sheet for further information. Continue on 3 & 5 as per instructions. 1/30 12 JR

Don't send any rinse sol'ns to tank farm on the 4-12 & 12-8 shifts. All transfers will be made on the day shift.

1-29-47 Product P^{32} solution is going through
4-12 resin column in north hot lab. When solution
SJR is all through, follow with 200 ml dist. water rinse, sample, measure volume. Call sample P2A, Run P17 and have lab run Fe and P^{32} activity. P2A should have about 320 mc. ~5

Two large wastes in Cell # 2 contain about 400 mc. Do not reprocess until we can replace filter disk in the Stang reactor in Cell # 3.

Add about 200 ml water to Stirg reactor from time to time. Filtration is very slow because dish is stopped. We went ahead and processed the first acid rinse of the dish (P/A - about 320 mc).

Trass solution was evaporated down, taken up in 5 c.c 1/3 W HCl and diluted to 100 ml. Chemist on 12-8 shift has been lined up to run Fe & P32 on this "product" solution. A sample sheet has been submitted to the lab.

Continue with acid rinses of Cell B tanks. Store in Cell A tanks, but do not jet to W11 until decontamination gw5 is complete.

1/30/47
12-8
JRJ.

① B6 - 5th cycle finishes at 9:00 AM

② B12 - Sparging with B7 until 9:00 AM

③ B1 - Sparging until 12:00 noon.

④ Item 5. Still filtering B21R → B21T at 7:30 AM. When finished continue as follows B21T → B17 → B21T → B3 which will then complete cycle 4. Filters very slowly.

~500 ml in 21R at 8:00 AM

⑤ 2000 ml in B27 ready for next (5th) cycle.

⑥ Cell 3 - H_2O still filtering very slowly. Did not have to add water at all on 12-8 shift.

(over)

1/29/47 Continued
12-8

JRJ (7) P^{32} North Hot Lab.

At shift change ~ 200 ml H_2O rinse is going thru the columns into the product soln. See SJR's notes on p. 84 regarding next step.

Watch flow rate carefully. It is hard to control.

1-30-47
8-4 Decontamination Data

Entrance to direct passage to Cell B 1.5 r
Doorway to Cell B 8 r
At contact with S.S. Plug to Cell IE 5 r
All measurements at shoulder level
Scale on Cell B monitor = .4 division

Refer to Decont. Sheet — Program for today

8-4 Blaser
(1) Steam hose going into Cubicle Cell #4
(2) 3 liters 1-1 HNO_3 in B27
(3) 1-1 HNO_3 in B12 - waiting for a pipette so it can be emptied. When empty send B27 to B12 + then to B26-B27
(4) B6, B1, [redacted] have 1 liter of conc. HNO_3 + are steaming through B1, 9, B2 till 4.40 P.M. 1st cycle
(5) B7 + B8 pipettes are shut off by valve at base of the pipettes.
(6) Valves to instruments on PB4A are shut off. Check each instrument before using any pipette.

(7) B21 T + B21 R have a 1-1 HNO_3 wash filtering
(8) Distilled water was run to B23 + B19 for 6 hrs.

8-4
HJ

P^{32}

Glass blower made up a new Stang reactor using a fine sintered glass disc. Replaced the old one in cell #3 with the new; ready to check for operability.

Old reactor is in S hot lab hood
(HNO_3 + HCl) chlorinating to remove activity + gunk; greater portion of the activity has already been removed but take due safety measures while handling.

Placed S can in oven at 1 PM cannot get temperature above 105°C. You will have to use more drastic methods for melting the S (450 mr/hr removed from pile)

3 new 6 l Florence Flask on 3rd floor lab bench near hood to be used for P^{32} extraction.

1-30-47
4-12
SJR

Shraba - We melted out the sulfur and sampled it. We also opened five bottles of fuming nitric. Please go ahead and attempt the extraction under the hood in 3rd floor. Hood fan takes care of the NO_2 fumes very well so that you will not need to use any NH_3. I will call you in the morning about further details. I can push the filtration on the 4-12 shift if you are successful with the extraction (i.e. no broken flasks). Use two 6 liter flasks only.

About 15 liters of wastes in Cell # 3 were scavenged with 80 mg of Fe. About 6 more liters to go. Carefully decant supernatant from the six liter Florence flask into two liter Erlenmeyer and filter this. Then wash iron ppt out of the six liter flask into the Stang reactor. Run a sulfur oxidation step by dissolving $Fe(OH)_3$ ppt in the Stang reactor in 50 ml boiling 70% HNO_3 (gently agitation under the dish), adding 200 ml hot distilled water and precipitating with NH_4OH. Keep this and subsequent wastes separate from the first large wastes. Then proceed according to regular sheet. There are 300-400 mc P^{32} in the $Fe(OH)_3$ precipitate. Call first large wastes filtering now WIC and WID. Call next three small combined wastes WIE. Filtration proceeds smoothly as long as the supernatant is properly decanted from the $Fe(OH)_3$ precipitate and then filtered separately.

WIC?

139 mc

IRa - I presume that you took care of the product solution that was boiling down in the north hot lab?

Small s.s. fan ~~tested~~ bricked out on the 4-12 today. We had Maintenance investigate since it sounded bad. Maintenance foreman claims that the bearing fell out into the housing and is hitting on the fan blades. Small s.s. fan is off now. It reads 20 R. This will have to be decontaminated.

Caustic made up in MK 1600# P_{21} and 800# flake).

Continue Cell B decontamination.

1/31/47
12-8
JRF

① See SJR's note about small fan.
② Air count goes "sky-high" when jetting.
③ Monitor was 8 mr/hr at 2:00 AM
" rose to 12½ later when transferring crud filtrate.
④ B7, B11, Piper Air flow manometers are gummed up with water. Covered verbally with JCK.
⑤ Filtering B21R → B20T & B20R → B20T about finished at 8:00.
⑥ P^{32} should be thru filtering about 8-8:15 AM. (Step 19, p. 4) Check with IBW & see SJR's notes pp 87-88 for change in procedure.

1-31-47 P^{32}

2 resin columns are being regenerated with 500 ml 6N HCl (N hot lab)
642 ml of final soln P17 in N hot lab has to be diluted to 963 ml this makes it .09N + then run thru resin columns.
P18 extract boiling 3 ml floor hood.

Decontamination for weekend

1. Fill all vessels in Cell B with fluosilicate sol'n and allow to stand over week end. Silicate sol'n is 5% Fluo and 10% HNO_3. Don't Heat!

2. Continue fire hosing Cell B. Move stream from spot to spot. Watch Sumps in Cell A & B for over flow.

3. S.V.R. start water flow thru the centrifan.

4. Keep settling down to a minimum.

5. Continue B26–B27 flushing

1-31-47
4-12
SSR

Water is running through the inlet side of the small s.s. steel fan and is draining out onto the pan. Leave running for decontamination purposes.

There is a rather large hole corroded away at the point where the 4" s.s. line from the s.s. fan connects into the stack. Drippings from the hole read 150 mr. We hosed down the roof of the fan house and left the water running. This hole should be repaired. Cut off the water on day shift tomorrow and check the roof.

We hosed down Cell B several times and pumped

the water out of the Cell. This water is very hot, reading about 800 mr/hr at the discharge end of the hose. The pump is even better. H.P. got a reading of 14 mr/hr at the diversion box. Water leaking out of Cell B from the north side of the cubicles read about 1700 mr/hr. Monitors on east side of Cell B close to the pump and on the west side on the second floor kicked off. Reading at Cell D doorway is 7 R. We are squeegeing up the hot water in front of the cubicles. In hosing down Cell B it is suggested that water be jetted to WII for the next 24 hours at least. This will be slower but surer and safer. Have tank farm man keep a closer watch on level in W5. Also day shift check activity in Settling Basin.

There will be three Te samples ready for you at 105 on 12-8. They did not shut down at 7 00 P.M. on the 4-12 shift as scheduled because of some experimental work going on. Run sheets for Iodine are on the desk in Iron Office.

Phosphorous:

There is a product solution going through the resin columns in the north hot lab. Follow with a rinse of 200 ml of dist. water, sample and label Run P17, P4.

In Cell #3 filtration of product precipitate of Run P18 is going on. See general remarks on p. 88. Carefully decant supernatant from 6 liter Florence flask into the two liter Erlenmeyer containing a little solution and filter this supernatant before adding the $Fe(OH)_3$ ppt. to the Stang reactor. When the 6 liter Erlenmeyer used to catch the filtered waste is full. Sample and call Run P18, W1A. Collect the remainder of this first large waste, sample and call Run P18, W1B. Run a

sulfur oxidation and keep the waste from this filtration and subsequent filtrations separate from the first large waste. Sample and call Run P18, W1C. There are about 1200 mc in this run. Push this filtration going on now in Cell #3, for if the solution gets too cold ammonium salts will crystallize out stopping the filtration completely.

The drain in front of the embrales read 7R. A little acid got it down to 200 mr/hr.

2/1/47
12-8

① Filtration of peak Jpt. of Run P18 in Cell 3 is STICC in progress. Showed Te through around 8^30 AM.

② Te samples in N-Hot Lab ready for 1st Run. Unable to start

iodine as he wasn't
taken from pile
file 6 15 A.

(3) Note Stan: Sampled
front bottle in N—
Hot Lot P17-P4
and given to Lab.
What was back
bottle? Was it to
be sampled?
Should they have
been combined?

(4) Water steel on
A16 fan.
(5) No Vac. in Cell
A. All shift. Jetted
duct all shift.
(6) N & NW 1st
floor hotter than
"firecracker"
Spent entire shift
attempting to
clean up bldg.

Area from Stairway
to Cell 6 door
Down Considerably
— but floor still ~
30 R near floor
of N side of Cubicle
Scrub! Scrub!

Scrub!

2-1-47
8-4
wmg.

1. See E.J.W.'s comments in shift instructions.

2. Floor scrubbed with 10% HNO_3 and again with NaOH. Also let NaOH stand on floor. This is to be washed up by 4-12 shift.

3. I^{131} to be run on 4-12 & another on 12-8.

4. P^{32} in cell #3. See notes in cell #3 for continuing the procedure.

The two resin columns in the N-Hot lab have been rejuvinated and rinsed with H_2O. They are ready to go for Run P18.

2-1-47
4-12
SSR

Cell B tanks filled with flour solutions. Leave until Monday. Do not heat!

Attached is a list of smear counts that H.P. took on the floor. All smear counts are below tolerance except one near the floor drain in front of the cubicles. The corner on the north side of cubicles reads 10 R at 4". Smear counts near this corner are below tolerance. Continue hosing the cell, directing the hose after

to the floor or the ceiling at first. Jet the water to W11 directly or through A5 and A6. Before hosing the cell have jets C21 to B22 and C20-B22 on (jets on now). Watch the spot reading 10R on north side of cubicles, and if liquid starts leaking out of the cell, stop hosing and check for activity.

Completed iodine run 93. Run 94 is to be started.

Run P18 is going through the resin column in north hot lab at rate of one drop per five seconds. Finish adding product solution from Erlenmeyer flask through the resin column. Follow with 200 ml rinse. Combine in 4.0 liter flask used now to catch the effluent from the resin column. Sample and label Run P18 P2A. Have Fe and activity run. After sampling start evaporating this solution to about 200 ml and hold. This product solution contains 940 mc and reads pretty hot.

Ira — Product solution scavenged from Cell # 3 wastes on being evaporated to dryness left a ppt apparently of silica. This was filtered off and the filtrate neutralized using the Beckmann PH meter. A sample was submitted for a complete analysis to the lab. Product is stored in Vault # 4. It is labeled P17, P4A.

2-2-47 ① Large fan bearings were running hot. Discovered
12-8 that no water flow was going through bearings. Turned up water
Blauer & they are O.K now. Watch flow.—
② I run no. 94 was finished
③ Passed B26 → B27 once. Couldn't move it further

because B12 has fluo. solution to sit until monday.

④ All water from hosing sent to W11 via BS → W11 + AS → W11. AD – AS, C21 – B22, C20 – B22 were on all shift. Had trouble maintaining Cell A vacuum. Hosed only 30 minutes the entire shift because of no Cell A vacuum

⑤ High air count 3rd level. Above tolerance. H.P. recommends masks. We staged off the 3rd level

⑥ C20 → B22 jet + C21 → B22 jet off because they were suspected of causing high air count. Didn't need them while not hosing cell. Be sure to turn them on again when hosing is resumed.

⑦ P18 P2A taken. Run is now evaporating to 200 ml on hot plate in N. hot lab.

⑧ Air counts still going up + there is a smoky haze in the building for which we cannot account. Maybe the next shift can figure it out. Do you suppose it is the sparging vessels throwing activity into Cell B up the stack + being blown back into the building by the ME wind???

⑨ Tried to reduce count + reading around drain + dolly mover with acid + caustic. It came down somewhat but not enough

2-2-47 8-4 wyS.

1/ 8^{30} xx all spargers off & windows on 3rd floor open due to high air count.

Read 8.9×10^{-10} μ/cc 2nd Floor 7^{30} - 8^{00} xx ok
27.0×10^{-10} μ/cc 3rd Floor 8^{00} 8^{30} xx
17.0×10^{-10} μ/cc - 1st Floor 9^{00} 9^{30}
5.1×10^{-10} μ/cc. 3rd Floor. 9^{15} 9^{45} ok.
1.2×10^{-10} μ/cc 1st Floor 10^{00} 10^{31} ok

2/ Cell B & A vacuum .6" H_2O by 2^{45} pm
A Duct still not dry been jetting all day.

3/ Air Sparge to B1, B3, B6, B10 and B8 pipett & B7 pipett air on at 3^{00}
Air monitor on 3rd floor now read about .08 before spargers were turned on.

4/ Put 35% caustic on hot spots on floors and let stand for next shift to hose off.

5/ Hot spot in N corner of cubicles down to 5R from 33R. This came down by washing with 70% HNO_3 & neutralizing with caustic.

6/ P^{32} still evaporating in N Hot Lab. — take down to 200 ml.

2-2-47 4-12 SDR

We hosed down Cell B all shift. West wall of Cell B leaks like a sieve. Water leaking out of the plugs was checked and found no activity. Leak around the cubicle was hot. We dammed up the small water stream with rags and continued hosing Cell B, directing the hose toward the ceiling and away from the west wall of Cell B. Air count

was found to be high at 9^00 P.M. It is possible that the dust is flooding out and cutting the vacuum of both cells. So, it is suggested that hoeing in cell be stopped when air count is high and that the dust be jetted empty.

Iodine was combined. Samples I-92-2A, I-93-2A and I-94-2A were combined in one batch and I-92-2B, I-93-2B and I-94-2B in another. Sample sheets were made out.

P^{32} - Ira - Run P18 was evaporated down. Small ppt of silica was filtered off after taking up the residue in dilute HCl. Solution was diluted and neutralized to a PH of 8 on the Beckmans. Final product was sampled and submitted to the lab for complete analysis. Product was stored in Vault #4. It is labeled P18, P3.

1-3-47
12-8
Blaser

① What happened to all the face masks. We used all the reserve left in the cabinet + there are still none in the Decontamination Room, glass panel board + H-Building.

② Precipitron tests of

1st level at water fountain A.M. 7.31×10^{-10} mm/c.c OK
2nd level at U.P. Office 1^25 A.M 1.25×10^{-11} mm/c.c OK
Cell A door 1^33 A.M 1.89×10^{-10} mm/c.c OK
3rd level 1^55 A.M 1.35×10^{-12} mm/c.c OK

③ Started hosing all Bat 1A.M + sent water to Diversion box by using pumps. Div Box reading was 8 mr/hr + water from pumps ~ 20 mr/hr. Div Box reading dropped to 4 mr/hr after 1hr hosing. This reading is

just a little above normal.

④ Stopped hosing at 3:45 A.M. No cell A vacuum
High air counts

4.17×10^{-10} u/c.c HP office 3:19 A.M

1.98×10^{-9} u/c.c Cell A – 3:17 A.M (Infront of door (over tolerance))

9.48×10^{-10} u/c.c – 3rd level – 3:15 A.M

⑤ All 3 levels were above tolerance. Air masks were necessary so we ~~are~~ left the building at 6:30 A.M.

⑥ Precipitation readings at 7:00 A.M

1st level 3.1×10^{-10}

2nd level 3.3×10^{-10}

3rd level 5.3×10^{-10}

⑦ Note S. J. R's note re: leaks on west walls through plugs. Spread Kempack around to absorb the water

⑧ All spargers off because of high air count.

⑨ AD → AS jet on AS → W11 jet on

Decontamination

1. Status at shift change
   a- Vessels, B 11, B 9, B 17, B 6, B 1, B-12 B 3, & B 10 are full with Fluo Sol'n.
   b- B 17 is being sparged by B 7.
   B 12 is being sparged by B 8
   B 6 is being sparged by air.
   B 10 " " " " "
   B 3 " " " " "
   B 1 " " " " "
   c. Fire hose is going directed at ceiling

Note 1. Personal exposure should be use up by directing fire hose at specific vessels.

Note 2. Equalize all instruments in Cell 8

4-12 Shift & 12-8

1. Allows vessels to continue sparging until 7 PM. Empty all vessels and rinse well.
2. If the wind direction is favorable i.e, wind blowing air from the stack away from the bldg - N.E., start steaming the cell by turning on all jackets & jets in B 8
3. Continue steaming for 5 hrs. Shut steam off. Fire hose the whole cell for not more than 10 minutes
4. If air & wind direction is favorable start another cycle of steaming.

Note 3. Don't send any sol'ns to tank farm Jet to Cell A vessels.

5. If Steaming is impossible treat vessels—

P^{32}

12-3-47 2269 ml. of .08 N HCl P^{32} solution going through resin column in N hot lab. This soln contains a combination of P17 + part of P18 plus some sintered glass washings. Start evaporating the effluent as soon as a fairly large volume is collected + key advising the effluent from resin column.

A S can is being melted in oven in N hot lab hood. The S is dropping into a special receiver (Cl can) which is to be sealed + packed for shipment. If melting does not proceed rapidly enough apply gas torch. This can should be ready for shipment tomorrow morn.

Fluo soln's.
A6 has 70# NaOH (200# soln)
All soln's jetted to A6 have been of 10% HNO_3 strength.
Steam off gas system while steaming Cell B

12-3-47 Measurements of various bolts on small
4-12 s.s. fan were taken. Flange on inlet side of fan is 10/16
SJR. or 11/16 inches bolt size with hexagonal nuts. Flange on discharge side of s.s. fan has 1/2 inch bolt size with hex nuts. Bolts in the frame (lower part) are 1/2 inch size with hex nuts. Attached is a copy of the s.s. fan and bolt sizes taken. Wells Stanley is interested in this information.

Cell B vessels were emptied and rinsed, & steam turned into the vessels at 8th P.M. Steam is still on at shift change. Air count seems normal.

Sulfur was melted out into Al container which is almost full. Al container is stored in north hot lab near empty sulfur cans. Lid has to be screwed on yet. Excess sulfur, a small amount only, was put in a glass beaker in the oven.

P^{32} run = Still filtering through the resin column in the north hot lab.

2-4-47 12-8 Blauer

① Steamed #16 off gas system + Cell B until 1 A.M., hood down 10 minutes + then restarted until 6:30 A.M. + rewashed

② 2:40 P.M. Air tests – 1.04×10^{-9} c/c.c. 1st level
6.9×10^{-9} c/c.c. 3rd level.

→ Tried to steam without big fan on + count went up. Turned fan on immediately + it went down again.

③ We need charts for Ring Balance instruments on P.B.-4. Will day shift please obtain from instrument dept.

④ Will day shift please have light bulbs replaced in building? Night electrician says there is a day man assigned to relamp this building – there are lights out up on ceiling over the monorail

⑤ Cell B vessels now contain fluo. solution i.e. B1, B3, B6, B10, B12, B17

⑥ No Vacuum in Cell A so there are no sparges on

⑦ P_{32} Runs 17 + 18 evaporating on hot plate

in N. not lab while rest of the solution is going through resin column.

(8) There are 3 carriers by the people at the land count room which are still too high although they have been decontaminated once. The sheets with N. I counts are attached. Further washing is necessary.

(9) AD-A5 jet in. A5 → W1 jet on

Don't Jet Any Sol'ns to Tank Farm 241

Please not that #1 jets operate best at 60-70# pressure. These jets are on panel board #3. Exception jet Sump B to A5.

1. Stop steaming cell B at 4 pm.
2. Start Large Fan
3. Fire hose Cell B.
4. Throw at least 2 bags Na_2CO_3 all over Cell B & its vessels
5. Turn Large Fan off
6. Turn on all steam jets, spargers and jackets in Cell B
7. Leave on for 4 hrs.

8. Keep all windows open as found at shift change
9. Wear gas mask on 3rd floor. 1st + 2nd floor levels are okay.
10. Jet sol'ns from A sump to A5 to A8, - A11 From A11 fill A1, + A9.

Instruments - Micromacs for monitrons - have been shut off - too cold for good instrumentation

11. Take jet A11-A1 apart. Probably plugged. Do this as soon as you turn Large Fan on.
12. Leave steam on fan in Decontam. Room.
13. Jets AD-AS + A5-A8 are on at 4-12 shift change

P32

8-4 Final combined solutions of runs P17 + P18 is evaporating in N hot lab. Proceed with the evaporation until about 200 - 300 ml of soln. remains then transfer into a smaller flask (500 ml) + evaporate to dryness take up in 200 ml distilled H_2O - hold until dayshift. Keep close watch to prevent bumping of the boiling soln.

Removed filtration apparatus from cell #3 - it is being reassembled

on the third floor of 706 D. Please remove the remaining glassware in cell # 3 and transfer to 766 D. Oldy.

Dispose of any hot solutions from cell 3 to hot lab drains in 766 D.

Don't Jet to Tank Farm!

2-4-47 4-12 SJR. Cell B is steaming down with carbonate in cells on walls and floors. Hose down for a short time and jet to Cell A tanks. Do not jet to W11. The amount of losing that you can do is limited since Cell A tanks are almost full now. Air count was fairly high (4000), even though wind direction was favorable. Offgas system in Cell B is being steamed down also.

P32 Run 17 and Run 18 — was evaporated to dryness and taken up in water and weak HCl and then neutralized on the Beckman to a PH of 8.0. A sample was submitted to the lab. Product was stored in Vault # 4. It is labeled P17-P18, P3.

Jet A11-A1 was plugged at the screen. It is O.K. now.

2-5-47 12.8 H Blank (1) In All Cell A tanks are full. So no losing was done this [illegible] Re S.J. R's [illegible] P107, Kaskie's [illegible] #10 p106 + #3 p102.

(2) Hot [illegible] Cell

It is posted by signs at 2 panel boards.
It is 2 [illegible] first head level.
(3) Cleaned up N. hot lab.
(4) [illegible] off A 16 off gas system [illegible]
[illegible] catch pot.
Drain valves on catch pot are open.
(5) Had to turn on the large fan at 7:00 A.M.
Air count too high.

8-4 Work for 4-12 shift
1. Spray citric acid in Cell B
2. Turn Large Fan off & open windows on 3rd Floor
3. Turn on steam for 2 hrs & retire to a warm spot
4. Fire hose cell B directing spray at the ceiling
6. While pumping to settling basin check W-6 manhole
7. Spray carbonate on fan & continue steaming in decontamination room
not [illegible] 8. Repeat above steps except substitute Na_2CO_3 in step 1

Work for 12-8 — Same as Step 8

Pick up all papers around cell B & lay down new.

Watch for leaks & jet out cubicle periodically

2/5/47
4-12
JRT

① Didn't quite finish 8th step outlined by JCK.

② At shift change cell B is ready for a H_2O hosing to finish all work scheduled for 4-12. Big fan is ON. B26 manometer were equalized & shut off for storming.

③ The tank farm situation is still snafu. E.J.W. requests the following:

Since there is no counting girl at 205 on shift our lab will check water activity from Diversion box & S.B. I think the D.B. sample from 11^oo PM remains to be counted. Then check both at 3^oo AM and at 7^oo AM if time allows. Also, try to get one D.B. sample containing water from cell hosing, i.e., taken about 10 min. after hosing starts.

7^oo P	S.B.	606 c/m/ml
11^oo P	S.B.	706 c/m/ml.
11^oo P	D.B.	1939 c/m/ml.

⇒ See Tank Farm log about W5 - W6 overflow.

2-6-47
12-8
H Blauer

① WG-manhole at 1:45 A.M. during hosing read about 8 mr/hr.

② Repeated steaming, carbonation, hosing for two cycles.

③ 2:45 A.M. samples from S.B — 670 C/m/ml
D.B — 2398 C/m/ml.

④ 2×10^{-10} u/cm² and level at 1 A.M. air count.

⑤ 3 A.M. Samples S.B — 823 C/ml/m
D.B — 2145 C/m/ml
Ret Pond 17
WG Manhole 126,160

⑥ 5 A.M. samples S.B — 797 C/ml/m

⑦ Steam off Cell B at 8:20 A.M.

Note ⑧ Cell A sump reads 17". I think somebody better find a place for the water before it flows out into the 706-D floor. (Yeah I know there are 3 steps down from the door to the floor.)

⑨ Changed paper around Cell B + cubicles

⑩ D.B. 10 minutes after hosing started was 1944 C/m/ml

2-6-47
8-4
HJ

P^{32}

P^{32} run 17 is in process of neutralization with NH_4OH + consequent ppt of $Fe(OH)_3$. The set up is located in 3rd floor hood. Continue neutralization until ppt forms + add about a 100 ml NH_4OH excess. (Agitate the soln continuously while adding the

NH_4OH dropwise through separatory funnel, cool periodically & resume addition of NH_4OH, agitator on at all times) Flask has mechanical agitator or addition flask attached.

Upon completion of the neutralization follow the mimeographed outline for filtration. However after settling the $Fe(OH)_3$ decant off the supernatant & run it through the Stang reactor before adding the $Fe(OH)_3$ slurry.

Stang reactor located in N hot lab behind low barricade. Take care while using air pressure on system since the connections are only tygon & may blow off if too much pressure is applied from bldg (lab) pressure line.

Decontamination

1. Empty all vessels in Cell A, Cell B, sumps and ducts to W-11 which in turn will go to E & W ponds.

Note Watch the wall level.

2. Spray Cell B with citric acid
3. Steam cell for 2 hrs

Note: Steam B-26 with A9-B26 jet.

4. Wash Cell B with Fire hose. A man has 8 minutes working time at step into Cell B
5. Spray Cell B with citric acid

Note Don't turn steam to B-12 jacket But Do on all jets to vessel

---

2/6/47 4-12 JRF

① J.R.K. & H.P. couldn't take the ppt reading at the ponds. Xtension cord wouldn't reach a receptacle & it began to rain ~6 PM.

② Your shipping equipment was decontaminated and OK'd by H.P.

③ Status at Shift Change.

Cell B ready for hosing. Cell Fan is ON Air count went up to > 83,000 c/m during steaming.

2/6/47 Continued
4-12

JRD This procedure is strictly for the birds" as far as safety is concerned.

P32 Status

Read WJS's instruction pp 110-111. Decant contents of the 2 flasks and proceed as usual. We hope the decant apparatus meets with your approval.

Tank "Farmitis"

1. Watch levels of E & W ponds. Must allow for possible rains.
2. 7⁰⁰ PM pond sample. Red 64,000 c/m/ml.
3. Check the Diversion Box & see that no water gets into settling basin at least twice during 12-8 because of AV's improvised gate.
4. Analyze at least 1 pond sample for each sampling (1 W pond, 1 E pond)
5. Watch W11 level & discharge.
6. See Tank Farm log.

WATCH AIR COUNT

① NO CITRIC ACID: HAD TO USE Na_2CO_3 in CELL B.
② Air counts on 1st + 2nd Levels were O.K. by 1 A.M.
③. Personally I'll be glad to breathe good clean uncontaminated air for the next four days. Lucky me!
④ Completed 2 cycles in Cell B using carbonate for spraying
⑤ Re: Farmakes' note top of page 113 "Check"
⑥ Skraba — We could use a trap on the vacuum line in front of the pump for phosphorous set-up. There is a lot of water + filtrate going through the line to the pump.
⑦ One light bulb burned out in Cell B
⑧ Skraba — The Phosphorous product solution is in a 2 liter erlenmyer flask on the steel pan under the draw off line from the receiver of the stang reactor (some sentence eh kid?!). The 150 ml of H_2O following the acid regeneration of the column is now going through the column.
W_1 + P_1 samples are in the lab. Note There is some crud on the filter, which might be $Fe(OH)_3$ — at any rate we didn't try to dissolve it. You might try to get it out if you wish.
⑨ This cycle in Cell B ends at 9:00 A.M. The cell will then be ready for hosing.
Au Revoir — A very pleasant long weekend is here!

Decontamination

4-12 See sheets given to J.R.F. for steaming moveable funnel rack.

Note → Bring all shift & weekend samples from Tank farm to 706-D Anal Lab except Day shift on Mon. thru Fri.

12-8 Spray citric acid in Cell B Steam for 2 hrs. Windows & Big Door open & Fan Down. Wear Jackets.

Fire hose cell & Spray $NaCO_3$ & Steam for 2 more hrs.

8-4. Repeat Steaming of moveable funnels according to sheets from 4-12 of today.

Start spraying Cubicles with dilute HNO_3 placing reservoir on 3rd floor.

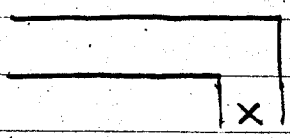
Survey parts to S.S. fan in Decontamination room as soon as possible (mine)

Each shift may take a pair of the fans if it has some unused exposure time. As each piece is surveyed lay it on some kraft paper outside of the decont room

2/7/47
4-12
JRJ.

① "A WORD TO THE WISE"

Don't go into Cell B without a mask if there is any steam at all floating around. I ran an count in the inner doorway with



big fans on still read 93,000 c/m while steaming B23.

② 12-8 Make I^{131} Run 95

③ Keep M11 warm. See IBW's note in other log.

④ Cell A sump has about 15½". This can be left as is until the level threatens to overflow the step in doorway. This is in the neighborhood of 18" or a little more, I'm told. At that point

2/7/47 Continued
4-12

JRS jet to A5 which should have previously been jetted to A1 by whatever path possible (A11→A13) Lee (4-12) may not have time to do it

⑤ WJS — P^{32} soln on hot plate in N lab low barricade is evaporated down. JBW said to transfer to a small Erlenmeyer, rinse large flask, & from then on you know what to do.

⑥ STAN RIMSHAW.

JBW wants you to fill 3 S cans with S from City Chemical & one can for Butler from LaPine S.

⑦ OMW I-R-11 run doesn't look so hot (11:30 PM) Lee was delayed by vacuum troubles and had to clean #1 & 2 traps.
I-R-11-2A reads ~ 900 mr/hr.
I-R-11-2B " 1500
Please finish run: Take 3.5 ml cuts 2C, 2D, etc until one reads 400 mr/hr or less. Be sure to take a residue sample, I-R-11-3 (rest).

118

Continued

2/7/47
4-12
JRF.

(8) We completed the Decon. cycles prescribed by JCK. - steps 1 thru 4. At shift change steam lines were cut off. Some of Cell B vessels will have condensate in them. See inventory.

2-8-47
12-8
HJS

Completed I recovery run, not very good

2C 800 mm/hr
2D 450

Started I run # 95 got through the oxidation & reduction but when it came to distilling the gas line or tank was frozen & all we could get was vacuum.

Tried using prestolite gas but bunsen or mecker burner would not take it. Torch which came with the outfit threw off too hot & pointed a flame for our purpose. Could not locate any butane propane or methane gas on the plant → Finally located methane tank - one that goes to the

alpha counter in 706 C counting room. Please replace when you finish distillation test G. Parker blows a gasket.

P32 evaporating slowly to dryness behind N hot lab low barricade. Keep a close eye on this evaporation it has a tendency to bump if too much heat is applied to the flask. I lost about 5-10 ml of soln due to bumping, barricade is hot.

Aerated cell B + steamed all mixer no manpower to hose floor.

Jetted A5 to A6 - when level gets above 16" in cell A jet to A5

2-8-47
8-4
SJR

Completed Iodine Run # 95.

Keep your eye on pond sample results. We started W6 jet and pumping of water out of cell B at 12:00 P.M. The settling basin sample at 3:00 P.M. showed 604 c/m/ml. A sample taken at W6 manhole ran 91,000 c/m/ml at 1:00 P.M. The settling basin count may go up quite a bit on later samples. Chemists in 706 D are now running water samples. Call Vallado if you think count in settling basin is too high (over 1500 is maximum).

Run W6 jet at 60# as long as possible.

There is a hole in Cell B sump that allows water to leak in the duct. As a result of our hosing the Cell A duct shows a reading of 20". Jet to W11 only if absolutely necessary (no vacuum in cells or very high air count).

120

While steaming the cell, Steam down the pyro system in Cell B if you can find a hose to hook up to A16. Also fill all Cell B tanks with 110 nitrite and allow to purge with steam on the jackets. Hose down B19 area as intensively as possible when hosing down the cell after steaming. If you are not tied up too badly the cell should be hosed down for two hours after steaming. Use the stand when hosing. Pump water out with the pump.

2/8/47
4-12
8RJ

① Hosed cell B 1/2 hour and A sump level rose 1" to 21 inches. This level is now 3" below the top of the bottom step. Cell A vacuum is very definitely non-existant.

② ACU called. See his instructions in T.F. log. 6 of the 7 remaining drums of Genetron to be dumped are in the shed. As soon as one is dumped put the extra one inside to warm up.

③ Cleaned up N hot lab. Returned methane tank to its place.

④ Cell B readings

B1 —	1 R/hr	B6 —	1.5 R/hr
B26	6	B12	3
B19 —	30		

2/8/47 Continued.
4-12 JRT (5) Steamed funnels & B17 according to JCK's instructions.

(6) 1 Citric acid treatment in Cell B followed by a slight hosing.

(7) "Housekept" the bldg in general and the cell B entrance in particular.

(8) Scrubbed 3 hot spots. 2 OK'd by H.P. The 3rd, in the monitor room, did not respond to treatment.

(9) <u>Status at Shift Change</u>

Steaming cells I & III, started about 11 oc PM. Careful with steam hoses & papers. They're contaminated pretty fully from Cell B.

Steaming off-gas lines to Cell B vessels. A6, A8, A9, A11 off-gas values are closed, also valve from cell B A16 manifold to A16 scrubber. (located 1st floor, E side of cell A). A temperature check on cell B tanks might indicate whether or not steam is going thru the lines.

(over)

2/8/47 Continued
4-12

JRS As you know the Tank Farm, cell A duct + sumps, and vacuums in both cells are "SNAFU". This makes difficult any normal decon. operations. So, use your own judgement regarding hosing and steaming; Hosing may overflow Cell A steps + general cell B steaming raises air activity.

Suggestions:

a. Continue cell I & III steaming for a couple hrs.
b. Steam funnels (B23), B17
c Localized steaming of B19 area;
d. Perhaps some very cautious general cell steaming.
e. Anything else you may dream up.

(10) Watch A cell H_2O level & tank farm closely.

2/9/47 ① Temp Readings on B cell vessels while
12-8 steaming A16 System.
wy S.

B1 98° B3 80°
B6 58°
B10 98°

② Continued to clean various parts of s.s fan.
Three part (marked) less than 20 mr/hr.
Large part with flange on it steel reads 2R.
Hotest part of main body seems to be the valves
- reading about 2R. We washed parts
with caustic & 60% HNO_3. - this seems to
do the trick, the places around the
rivets seem to be the hardest to clean up.

③ 105 Building is flushing out
the canal. Lab count showed ok
to pumps but it prevent us from
obtaining W-6 samples until the
flow was cut off.

④ Continued steaming cell I & III.
all shift...

⑤ No cell vacuum on cell A. 22" H_2O
in cell A. with no where to go!

⑥ Cell B vacuum. OK.

(7) 8-4 shift see page 122 for Suggestion on decon by J.R.F.

2-9-47
8-4
SJR.

A9 is full of 10% HNO_3 solution to be used in Cell B tanks (B1, B6, B3 and B10). Fill B1, B6, B3, B10 twice a shift with this 10% HNO_3 and boil. Fill once as soon as you come on, and once about two hours before you leave. Turn steam on the jackets. Store these acid solutions from Cell B tanks and all rinses in A5 and A6. Keep track of how much 60% HNO_3 is added to A9 so that acid solutions that wind up in A5 and A6 can be properly neutralized.

Leave samplers on B1, B6 and B3 going. After boiling with 10% HNO_3 we took two special samples on B3 and B6. From these two tanks we picked up about 3/4 of a Curie of gross activity. B6 ran 2.3×10^6 c/m/ml. This is about 2300 times tolerance allowed in the settling basin. It should be reduced further by a factor of about a 100. So keep boiling 10% HNO_3 in these four main tanks even when steaming. Add rinses from other Cell B vessels (B12, B26, glassware etc) to B1, B3, B6 and B10 so that activity can be carried out of the Cell. Store in A5 and A6 as indicated above.

We added 300# 60% HNO_3 to A9.

Keep track of pond sample analyses and levels on W5 and W6. We stepped W6 jet up to 80# since W6 manhole and settling basin counts had dropped some.

Level in W6 is 10' and W5 is full (overflowing to W6).

Continue steaming down the Wyss system. Everything is hooked up for this.

Try a two-hour steam carbonate treatment on the cell. If air cnt rises too high, cut off steam and bleed down the cell, using the automatic stand and pumping the water out of the cell. The amount of bleeding that you will be able to do will be determined by grid sample analyses and levels in W5 and W6. Concentrate on the B19 area when bleeding. Keep dust and Cell A sump empty as long as the tank farm system can take it.

Continue boiling 10% HNO_3 in B1, B6, B3 and B10. Change solutions a minimum of twice per shift and rinse out tanks thoroughly with water after each boiling.

Three sulfur cans were filled for Whitney. Are now on third floor. They have to be capped yet.

Could not fill sulfur can for J. Butler. Can is marked and is on the third floor. Fill it if you are able to do so. Sulfur must be hot and fluid when you are pouring it into the can.

126

2/9/47

4-12 ① Stepped up W9 jet to 90 psi (ACV's suggestion). 3rd S.B. sample is being reanalyzed.

② Water analyses were messed up giving a distorted picture of Tank Farm Situation. See record sheet.

12-8 → ACV asked to keep W6 jet at 60 psi + keep hosing in cell at a minimum on 4-12 & 12-8. Also, sample W6 manhole both times on 12-8

③ 8:30 PM Survey — 11:30 PM

Mon. Tunnel	6.2 R/hr		
B10	600 mr/hr		
B26	6.4 R	→	3.2 R/hr
B27	3.6 R		
B1	800 mr/hr		
B12	2.4 R		
B3	10.8 R	→	7.6 R/hr
B6	2.4 R		
B19 @1'	3.4 R		

Bkgd. 4' in, 3' up. 390 mr/hr.

④ Steam cubicles I & III about 4 hrs.

2/9/47
4-12
JRD.

⑤ Gave 10% HNO_3 treatments of B1, B3, B6, B10 as suggested by Pumphrey.
A9 has 52" of 10% HNO_3 ready for the 12-8 shift to use. We added 100# of 60% HNO_3
100# 60% HNO_3
We also steamed the off-gas lines to Cell B tanks.
We heated 25% acid in B26 for about 2 hours. If you wish you can do the same and try spraying B26 by putting slight pressure on B27.

⑥ Status at Shift Change

B1, B3, B6, B10, B26 empty & rinsed, ready for next cycle.
A9 has 10% acid ready for use.

⑦ SJR's procedure looks pretty good. Probably a good idea for 12-8 to continue it.
Left A D & A S as is because of "Tank Farmitis".

2/10/47 wyS.

① Butlers V can is on chem bench on 3rd level - marked for him.

② Filled B-1 : B-3 ; B6 : B10 with 10% HNO_3. Heated & jetted to A5

③ B26 had one wash of 25% HNO_3 which was transferred to B-27, B12 & B8 puppet, etc.

④ A total of 100# of 60% HNO_3 was added to A9

⑤ All vessels were again filled with 10% HNO_3 at Q5 45

⑥ Main portion of SS fan & cover (are reading pretty hot >2R

~~[illegible]~~

Suggest maint. dissemble

fan further so we can have better luck on our decontamination.

(7) M11 heating coil must be on the fritz again. Tank is still warm but discharge from coil is cold. We need a drain on this line before it enters the tank. Due to the nature of its construction it receives all the condensate from the building on the 125# line.

(8) Air count ok.

Decontamination

1. Concentrate on Cubicles
   a. pass dil. HNO_3, citric, and Na_2CO_3 thru B21 R+T, valves to all vessels (be sure no acid is in vessel when using Na_2CO_3), B20 R+T, and valves.
   b. Spray Cubicle II with dil HNO_3 up citric & Na_2CO_3
   c. Don't overflow the cubicles - jet to B22 to B3 to B10 to A5
√2. Steam funnels Top + Bottom 21 and 19 Bottom.
3. Fill vessels in Cell B with 30% HNO_3 Heat, sparge + rinse. Try to repeat this

at least once per shift i.e. 2 cycles

2-10-47 P32

Regeneration washes from run P18 - washes of glassware from run P17 & P17 were composited & analyzed (178.6 mc's) The 3 liter flask containing the above is located behind the low barricade in N hot lab. (acid solution containing Fe) Make the $Fe(OH)_3$ strike by adding conc. NH_4OH until ppt. forms & add about 100 ml. excess. Pass through the Stang reactor & wash the ppt. with 2 - 200 ml hot H_2O. Take up in 20 ml. of 6 N HCl & dilute the soln. to about 1000 ml (use the H_2O washes that were used to clean out Stang reactor) Submit sample to lab & have it analyzed for activity & normality.

2-10-47 4-12 SJK

P32 - finished filtering above ppt. of $Fe(OH)_3$. Drain off rest of filtrate and sample. Call sample W1A, P17-P18. Take up in 20 ml of 6 N HCl (1:1) as indicated above, and dilute to 1000 ml. Take sample for lab. Call P1B, P17-P18. Adjust normality to 0.1N and run through resin column at a rate of one drop every five seconds.

Eight hundred pounds of solid WaOH were dissolved in M1 and jetted to A5. Use this solution to neutralize acid from B Cell tanks. Three hundred pounds of 60% HNO_3 were added to A9 to make up solution for Cell B tank rinse. B1, B3 and B6 are on boil now.

Nitric was circulated thru B26 → B27 to B12. B12 has the HNO_3 which can now be emptied to B3 or B6.

Steamed down the B19 & B21 funnels.

Sprayed and steamed the cubicles with jets C20-B22 and C21-B22 on.

W6 jet was turned off since settling basin readings were running close to a 1000 c/m/ml. Diversion Box readings hence are low. Leave W6 jet off until settling basin counts come down.

We concentrated on some housekeeping in the building in preparation for Atomic Energy Commission delegate's visit tomorrow. Continue with this.

2-11-47

12-8 wyG.

1. One cycle of 30% HNO_3 through B-1; B3 · B6 & B10 completed. Started another at 0515. B12 has 30% HNO_3 Also.

2. General housekeeping third Level.

3. 105 building is draining canal (100 c/m.) to S.B.

4. Sprayed Cell #2 with HNO_3 and washed with water. Reading at door droped from 650 mr/hr to 480 mr/hr.

5/ 403# 60% HNO_3 added to A9

6 P^{32} Angalis P1B 17&18 175.3 m mc's. Has been adjusted to .09 N and is going through column.

7/ Flange on the "out" side of valve from M4 to pump M-5 is leaking.

8/ Valve for draining T.7 to A5 (1st Level on E side of B cell) is in sad shape.

Decontamination

1. Concentrate on Cubicle III

a. Hook up a steam line to the sol'n addition line to B20R

b. Steam the whole cubicle

c. Pass as much water thru the B20T to B19? as possible

2. Cut out the following tygon lines from B21

See item 4. a. Valve to B3 — inside cubicle & cell B

b. Valve to B19 " " " " "

c. Reator to funnel rack
3 -- Tygon lines from B 20
a. valve to B 3 both ends
b. valve to B 17 " "
c. Reactor to funnel rack
d. valve to B 19 Leave until the reading at cubicle is ~5r
4. Rinse all vessels in cell B. with H_2O. & Tygon lines before cutting
5. Remove plug in Cubicle III
too high yet [illegible] Maybe the gasket is on the plug is giving us the high reading.
6. Cut all Tygon lines from B21T to valves

2-11-47 P 32
HJS Stan + Bill continue the processing of P 32 waste run. Solution evaporating in large flask behind low N hot lab barricade. transfer to a 250 erlenmeyer + continue the evaporation, cautiously using the low mark on the heater + 2 radiant lamps. Continue until dryness is attained + heat for 10 mins longer. remove from heater + hold.

mB21

134

2-11-47

4-12

5 hr

P^{32}

P^{32} solution was evaporated to dryness, taken up in weak HCl and neutralized to a PH of 8.2 with NaOH whereupon a ppt of $Fe(OH)_3$ formed. We allowed the ppt to settle and took a sample of the supernatant to have activity of. Supernatant showed a total of only 35 mc. Most of the activity must be in the $Fe(OH)_3$ ppt. Product, ppt and all, is stored in Vault #4 (labeled P17-P18, P3A).

I^{131} - Completed Run 96. One more sample left for Run 97.

Decontamination:

1.) Turned on W6 jet at 40# psi. since settling basin samples are running around 550 c/m/ml.

2.) Tanks B1, B3 and B6 are in trouble with 10% HNO_3 solution.

3.) Could not open door to Cubicle III since we got a reading greater than 10 R at two feet through the e.s. plug. We ran steam and water alternately through a hose through the periscope hole into Cubicle III, getting to B22 → B10 → A5. We also attempted to rinse out transfer vessel to B3. Cubicle III is now steaming with C50 - B22, B22 - B10, and B10 - A5 jets being on.

4.) We had no exposure time left to cut Typon tubing which reads about 10 R.

2-12-47
12-8
wyg.

① I^{131} run 97 Completed.

② Steamed B 20 R through the solution addition line all shift. Still steaming.

③ Steamed, sprayed with dilute HNO_3 and washed with H_2O Cell III. The transfer vessel is laying on its side.

④ Tried washing B 20 T with H_2O. Passed about 10 liters through but finally discovered it wasn't going to B·3 or B19 as there is a leak at the ground glass joint & it was going into the cubical.

⑤ Cell III 5 R through the S.S plug near the edge of the plug. At the hand grips the reading was greater than 20 R. Two washes (one coboy of dilute HNO_3 each) failed to bring this down.

⑥ Cubical III is now steaming with C 20 - B 22, B 22 - 10 & B10 - A5 jets on.

P^{32} + Pr^{143} (P17 + 18)

2-12-47
HJL

Continue filtration of the $Fe(OH)_3$ slurry wash with 2-3 shots of H_2O to remove excess salts. To the dry $Fe(OH)_3$ cake on top of the sintered glass disc add 20 ml of 6 N HCl (10 HCl + 10 H_2O) Let stand for 10 mins + then apply suction to filter flask to filter of prod. soln into the clean filter flask. Wash disc with about 500 ml of H_2O. Transfer all ~~solns~~ washes + product to a 2 l flask + dilute to 1000 ml. Sample for activity + normality. Adjust normality to

by adding H_2O → 0.7 N HCl. Then pass through resin column #2. Resin column #2 is being regenerated follow with a 150-200 ml H_2O wash before adding product solution.

Replace full bottles with empties in N hot lab Pr^{143} set up.

Decontamination

1. Steam all cubicles
2. ✓ Cut and remove tygon lines from valves to B19, to funnel rack, to B3, to B17 (total 7 lines)
3. Steam B12 area from 4 PM to 6 AM + Fire hose for 1 hr. Clean up passage for maintanance.

4. If any shift has any man power for exposure use it up on loosening nuts to the bank of valves — back set. Use chemists time, too!

Note:

2-12-47 ① Cut Tygon lines from C21 + C20 to B19,
4-12 C21 to B17, C21 + C20 to B2, C21 + C20 to Funnel
Blauer ② Steam hose on B12 at 4:30 P.M.
③ Note new shift check blanks are in the usual place — use them
④ Tony: — Sampled your waste called W1 — Runs P12 + 18 + 19. Result was 17 + mc. total sol through out the waste. N of product solution was 1.3533. Diluted it to .7 + put through #2 column. Regeneration fluid was not sampled. It is labeled + is behind barrier
⑤ Put steam hose in Cells number II, III, and IV of the cubicles.
⑥ Cleaned up housekeeping report almost completely. Will the 12-8 please finish
⑦ Repaired steam trap on M.1 coil line.

⑧ Removed the back set of valves in the cubicles they are now in the Decontamination Room in a drum of HNO_3 and H_2O. with air sparger on.
⑨ If anybody knows why that crap is stored in the N.W. corner of N. Lab. could they please clear it up. H-P. reports 30 mr/hr at chest height coming from that junk.

10 Tony S — 264 M.c.'s of P in P, 7, 18, 19
before going through column

2-13-47
8-12
my G.

① Completed housekeeping except (part of B1 Blister) sec ④
② Steamed Cubicals I & III
③ Steamed B12 all shift and washed with H_2O from 0600 to 0700 with fire hose & pump.

④ There is a reading of 23R over the cubicals located between the valve handles B12 - B27 A & B. We clamped off both drying tubes to retain the liquid in them when the lines are cut. Both are pretty hot. The one serving B21 reads about 1.5 R and the one serving B20 reads 7 to 8 R. Think the high reading (23R) is coming from line (drier to B21)

⑤ P^{32} still running through the column. All the solution has been added to the column.

⑥ Following jets on
C-20 - B22; C21 — B22, B22 - B10

2-13-47 Decontamination

HB wyg 1. Scrub !

HB wyg 2. Scrub ! all of 1st floor & the 2 stairs leading to 2nd floor

3. General Cleanup

HB ✓ 4. Remove all tygon & tape off of the bank of valves.

partial wyg 5. Remove hot pieces of pipe on Glass panel Board.

HB wyg 6. Spray, Steam, etc to bring Cubicles down to a good working level.

wyg 7. Further decon. B12 (in decon. room) Remove the paint from the magnets

HB ✓ 8. Have H.P. man survey rubbers, & gloves used by maint. men.

2-13-47 p32

P-4

P-20 3rd floor hood ready for neutralization. Apparatus is set up & 1st shot NH4OH is in separating funnel.

Follow the modified sheets on p32 & stop process just before adding solution to resin column.

4-12 & 12-8 See special instructions for preparing I^{131} equipment for 8 runs beginning 8:00 AM Friday. This is important & has high priority. This is very important. JBW.

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4-12 ① Tony S — Run 20 Sample C1 = 828.8 mc
2/13/47 + Fe was .014 mg/ml
Blauer ② H.P. man surveyed rubbers + gloves used by maint. men. Hot stuff was discarded.
③ Washed floor + set of stairs to supervisors office once
④ Completed J. R. F.'s special Iodine instructions.
⑤ J. R. F. Every thing is ready to go. I hope. My fingers are crossed. All solutions made up, traps cleaned + checked, stop cocks greased. My only question would be on the seal from the reaction flask to distillation column & one stopcock on rinse line to receiver.
⑥ Note - 2 screw clamps on of/gas line of Iodine set up come from distillation cooling water + vacuum line.
⑦ 12-8 Note Iodine instructions.
⑧ Removed Tyzon + tape from 2 banks of valves. They are back in barrel in decont. room reading 40 + 45 mr/hr respectively.
⑨ Steamed cubicle
⑩ Did NOT replace hot pipe on glass Panel Board.
⑪ Dumped 11 barrels of Caustic at tank farm
⑫ cubicle jet on up on the third floor.
⑬ The paint is still on the magnets they are reading over 400 mr/hr. Our exposure time

ran out 12-8 can remove paint from magnets. These are in yellow can in decont. room.

(14) P20 run of phosphorous going through stang reactor in N. not lab. Follow J. Skrabas notes on attached d run sheet. (Step 19 going on now.

(15) Have H.P. take smears on floor + stairs we washed. Our H.P. man was too too busy. I am pooped. Hope we satisfied everybody.

(16) AD + AS jet on

2/14/47 12-8 wy S.

(1) 1st Level floor is OK as well as E & W steps. See Spot Check on 2nd & 3rd Level smear counts. We did not have time to clean these up. What supervisor has only one leg? He got every other step hot & the supervisors office!!

(2) Wake up H.P. They tag off an area as 120 mR/hr. We find one spot near B-1 sampler (on the floor) reading greater than 33 R. You can see this spot near the SW corner of B1 sampler pan and between legs of sign. We did not clean this up

142
12-6 Contd.

(3) Cleaned up B12 & removed paint from magnets. The map readings are marked on each piece.

(4) The I^{131} apparatus has been cleaned up and checked OK with 4" of vacuum. We found no leaks.

(5) Removed one set of hot pipes on glass near PB. For the lack of something better to do we have hot water running through them in the decon. room.

(6) Steamed out IV & III.

7 P^{32} behind Barricade in (marked P-20) N-Hot lab. The normality has been adjusted and now reads .06634. P-1 Fe .078 mg/ml.

Activity P1 - 517.1 mc's.
W1 - 486.3 mc's.

Program for weekend

1. Put 8 ft of tygon tubing on all connections to the 2. Transfer vessels with the exception of the sol'n addition lines (2), press.-vac line, and the center tit to the reactor.
2. Put tygon 6 ft on part of valves according to sketch i.e. on tit nearest the handle
3. Don't wire or tape any connections
4. Shoe covers on table are to be used by maintenance in the cell. Use one after cover for a hat. No hats available
5. Have maintenance work on B12 first - when it is done work on R16 Jan

over

144 p 32

2-14-47

Program For Weekend

P 20 Evaporating in 2 l Erlenmeyer until vol. reaches ~ 150-200 ml transfer to 250 ml beaker + proceed until dryness is attained. take up in 50 ml of H_2O to hold for Rimshaw.

P-19+20 waste are being reprocessed filtration through Stang reactor now in progress. Continue as per S. J. Rimshaw's modified P procedure clipped to log book. Regenerate column #1 before using. Omit 2 ond $Fe(OH)_3$ ppt. in Stang reactor.

Filtration + wash finished on P 19,20 waste. Since volume of effluent was great 2 flasks were used. Sample each after swirling + measuring volume, call them P 19,20 $W1_A$ + $W1_B$. Rinse out bottom of Stang reactor by sucking H_2O into it via drain line then proceed with $Fe(OH)_3$ soln. in 20 ml 6 N HCl.

Column # being regenerated using 500 ml 6 N HCl follow it with 150 ml H_2O.

Continue I^{131} runs. 98 thru 105.

2/14/47

All Ships -

2 wood trays have been ordered for I lab. R. Newton knows when they are to go. Notify him when they are delivered.

2/14/47 4-1 x Blaser

① P19 + P20 were sampled + are on floor near drain line of Slang reactor W/A came from Flask 1, W/B from Cask 2. Regeneration of Column 1 was sampled + labeled R1, P19+20, Column 1. Run for iron + activity. Sampled P19 + P20 marked P1 for product + Normality. Note that vacuum pump reads 600 mm/Hg at oil box + also that oil is coming out of box. Lack of trap in vacuum line is causing loss of product to pump + deliever.

P20 boiled down to dryness + taken up in 50 ml H2O. It is now setting between hot plate + ring stand behind low barricade. It is marked. P20 Held for Ramshaw Note.

W1A = 45.8 mc ~~total~~

W1B = 49.4 mc ~~total~~

I made an error in the P19 + P20 product reduction + had to use 40 ml HCl 1:1. As a result the amount to go through column is about 4 liters instead of the usual 2 liters.

② Put Tygon on 2 transfer vessels. Vessels are back in glassware cabinet

③ Put Tygon on both banks of valves. They are in hood #4 cubicle

146 (4) P, 9+20 P, raw 572 mc. R, raw 66 mc. 4-12 I did not throw it out. It is behind low barrier. Blown + marked accordingly. R, raw .065 mg/ml of iron

(5) Moved methanol Cylinder back to 706-C position

(6) Maintenance worked on B12 + had 3 minutes per man. There is still one Capscrew to put in, 1 to tighten + two braces to put on.

(7) Had a high air count for a while tonight

(8) After maintenance finishes B12 have instrument dept. check it for a short. I believe they have the dopcon it.

(9) Washed up floor by Glass Panel Board. It is coming down

9-15-47
12-8
SSR

Maintenance in Cell B:

Magnet must be assembled first before seal of B12 is braced in place. Otherwise magnet will not go in place if braces are put up first. Buckets for three flanges near the top of the tanks are to be cut. This Maintenance shift is lining up the oncoming Maintenance shift on work to be done on B12.

I^{131} – Run 100 was completed. Jon will have to get more Ta samples from 105, since we used up the last sample in the lead carrier.

P32 – Run P20 was filtered and neutralized to a PH of 9.0. The resulting solution was very clear with no evidence of a ppt. A sample was submitted to the lab for complete analysis. The product was stored in Vault #4.

It is labeled Run P20, P3.

Run P19 - P20 : This solution is still going through the column. Finish adding the rest of the solution to go through the column. We started to concentrate what has already come through the column by evaporating on a hot plate in the south lab (use medium heat, no beads and no agitation). Concentrate effluent from the column to a volume of about one liter. Sample and call P19-P20, P2A. Also, take a one ml sample, titrate with N/3 caustic using methyl red as an indicator, and report whether or not any ppt formed (Gentle heat will help coagulate any fine ppt formed). Then continue with evaporation to a volume of about 100 ml and hold. Near the end of the evaporation transfer the solution from the present two liter flask to a 500 ml flask.

Waste P^{32} samples - Hold until further notice.

2/15/47
8-4
JRJ

P^{32} (P19-P20)

Continue running soln thru column. Take effluent to S lab hood for volume reduction at medium heat. Rinse flask with 200 ml H_2O & run thru column. Follow thru with SJR's instructions above

IBW says 2 Florence flasks on N hot lab floor can be emptied. (Marker 1 & 2)

2/15/47
8-4
JRT.

Continued

I 131

Run 101 finished. Continue making one run/shift then Run 105.

Note special "wrinkle" during distillation. RLN tried this today & it worked fine. See rear sheet.

B12

Maintenance spent its time in cell. Failed to report how much was accomplished, but I know they worked on the flanges. The lower magnet steel has to be put up. See p. 146. Maintenance was asked to inform the next crew of the exact status of work & date.

Low Storage Area Steam Leak.

Had Maintenance inspect the lines. To repair, the entire steam supply to bldg. will have to be cut off. A.J.W. said to go ahead but Munger (Maint. Foreman) checked back & found that the repair was stalled and is awaiting some special machined parts. So, leave as is unless it gets worse.

B12 Electrical Checkup.

On 4-12 have the 105 Instr. man check the continuity of the circuit in electrolytic cell, that is, check the cell for a short. The Instr. man should

2/15/47 Continued
8-4
JRF. know how it's done. Use special meter on shift super's desk. Connect one tip (Pt) to any ground. etc.

Bldg. Mess.
Reduced 2 hot spots under B1 blister. Removed paper on floor of latrine & change room. HP says floor OK. No more paper put down.
Very contaminated floor still remains in area of dolly mover.
HP says rest of 1st floor is OK.

2/15/47 ① B12 checked by instrument men. It shorted out
4-12 at first but then I noticed it to be full of fluid & it
Blauer was causing the short. I drained it & B12 tests OK. now.
② Threw out Phosphorous wastes in Flasks 1 + 2 per I.B.W.
③ Washed floor by B1 blister. It is now reading about 40 mr/hr. Still coming down.
④ Iodine Run I 102 finished
⑤ There is one more Ic sample downstairs. The rest are up at 105.
⑥ Watch Ira's special Phosphorous in S hot lab. when Filtered let ppt. in glass filter crucible & leave vacuum on flask.
⑦ P 19 & 30 still concentrating in N. hot lab.

(8) Maintenance had to undo work of 8-4 because there were no gaskets placed in flanges on lines to jacket of B12. So — we got a gasket in the lowest flange on the south side of B12. Maintenance foreman has two more gaskets of black neoprene. Have them loosen the top flange on S. side & insert a gasket & also for the line on the North side. Our flange was not made up tight. It is only finger tight.

(9) There is some 18 N H_2SO_4 air agitating in N hot lab. This is for the Iodine

7-16-47
12-8
SJR

I 131 — Run 103 completed. You will have to get more Te samples from 105 before starting the next run.

P^{32} — Whitney's filtration in south hot lab completed. Leave as is.

Run P19-P20 on concentration to one liter gave no ppt on neutralization of 1 ml of solution with N/2 NaOH. This solution is evaporating to dryness in north hot lab. Transfer to a 500 ml Erlenmeyer when you get to about 200 ml, rinsing out two liter Erlenmeyer well with weak HCl. Take down to dryness, add 50 ml dist. H_2O to the residue and hold.

Column in north hot lab is being regenerated with 6 N HCl. Take sample and call P19-P20, R1. Have P^{32} run.

B1 Blister — Scrubbed floor and had H.P. make survey. Smear count on floor showed results as follows at various points:

1.) 58 2.) 50 3.) 264 4.) 154 5.) 64 and 6.) 166.

Smears are all below tolerance, but background reading is still about 40 mr/hr.

Maintenance on B12 - All gaskets and bolts were put in three flanges. The flanges need tightening. Have Maintenance use end wrenches, if you can find any. Have instrument man check for a short. Then contact Kashie about making a dummy electrolysis. Bottom half of magnet and braces are to go back in yet. Ask Kashie if he wants to start dummy electrolysis before or after B12 is completely assembled, or before and after also.

Power off until 1:00 PM

2/16/47 8-4 JRJ.

P^{32}

Column regenerated and sample. Product soln. P19-20 evaporating in low barricade, N Hot Lab. Follow thru with S.J.R's instructions on p. 150.

I^{131}

4 hour delay due to power interruption. Continue run 104 and start 105 - the last in the series of 8. The vacuum pump (in Cell A corridor) is not giving out with "suck". Forced to use house vacuum. This is bad and condition should be remedied before another series of runs. Looked at pump. It appears to be OK. No work by Mainten. Due to rush work elsewhere.

NOTE 4-12 → On run 105, please "seed" the flask soln. with the 2 product solns. indicated on run sheet.

P. 152
2/16/47
8-4
JRD

Continued

Instrument Maw (B12 Short test)

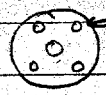
Maw at 105 begged off due to extreme urgency of work elsewhere. Promised to have a 4-12 man come here to do it early in shift without our asking.

Cleanup

Scrubbed by dolly removers (no check by H.P.)
→ Cleaned valve handles for P6 cubicles. OK
Glassware holders down to 12 mr/hr.
Put above hot lab.

B12 Maintenance Work

3 men & Munger spent full time in cave. Tightened all flange bolts except one on north side flange which means all bolts on that flange should be checked. Munger will explain setup to 4-12 foreman.

Looking for north side.  Not completely tightened. Check all 4.

Misc

Ran a precipitron test on first floor (where men were working) during power shutdown for curiosity's & safety's sake. OK.

(Adios 706-D Maw)

JRD

2/16/47 ① D. Moore phoned in - Won't be here. Illness in family & has
4-12 to stay home.

Blauer ② R1 P19-P20 — 74 M.C. It is sitting under drain
line of column #1

③ Relamped 706-D building

④ Added 100-2C, 102-2C, 102-2D, 103-2C to Iodine
Run 105 To scrub it up.

⑤ Maintenance again had to weld flange on N. inlet
sealing it before taking it up. Used up all this time.
Maintenance foreman suggests 12-8 have top magnet
tied in place so that day shift can replace bottom magnet

⑥ Instrument dept says they had instructions to
check B-12 once & that C. Maxwell's group would
do the rest of testing. So call C. Maxwell tomorrow
morning.

⑦ Tried to wash hot spot from steel plate above
cubicles. The water poured out of wall by the Dolly
mover & I had to discontinue my efforts.

2-17-47
12-8
SJR

I^{131} - Finished up last iodine run - Run 105.

P^{32} - Run P19-20 had too much Fe reactive in
it. This Fe residue was dissolved up in
10 c.c 6N HCl, diluted with water and filtered to
get a clear solution. The filtrate was diluted to
500 ml and put through the resin column again.
The 500 ml distilled water rinse has been added
to separatory funnel. When this is all through the
column, start evaporating to dryness. Transfer to
a 500 ml Erlenmeyer near the end of the evaporation,
take up in 50 ml dist. water and hold.

B12 Maintenance. – Maintenance did not have enough manpower to attempt to put top magnet in place. It was decided to leave this job for the day crew when enough manpower would be available.

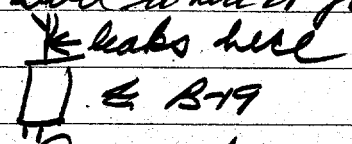
Floor near Dolly – We sopped up the water seepage near the dolly mover with Kraft paper, and laid fresh Kraft paper down to absorb any subsequent water seepage.

2/17/47
8-4

Phosphorus evaporating down according to Rimshaw's instructions

1. Have shift maint. bring flanges up on the fan in the fan house.
2. Test B-19 lines (s.s. 2 lines) with a head of water from 3rd floor. Plug B-19 outlets & watch the weld for leaks.
3. Test Valves – 2 Banks – for leaks Head from 3rd floor. Observe the valves open & close.
4. Have H.P. separate rubbers & glove contam. & not contaminated.
5. Get electricians to replace broken lights in Cell B – test fuse for circuit.
6. Wire & tape tygon on banks of valves

2/17/47 ① Checked new B19 lines. The inside line i.e
4-12 the one closest to the wall leaks at the first weld
Blauer above where it comes through wall from cubicle.
The outside line leaks under pressure at
the weld where it joins other line at B-19 i.e.



② Overshoes were checked + hot ones discarded.
③ Maint removed radiator coil from building
heating air system on 3rd level.
④ Both banks of valves were tested opened
closed all O.K. They were wired + taped
⑤ Electrician replaced bulbs in Cell B. However
there are still 2 out. He used all his
exposure time. So will 12-8 try to finish the
job. These lights use the mogul type bulbs.
⑥ Scrubbed contaminated floor near the dolly
mover. The counts are o.k. except an area
marked in yellow. The highest smear there is
1432 c/m marked down from over 6000 c/m
⑦ Maintenance replaced all studs but two
in flange between valve + A-16 pump. The nuts
on the studs that are in are partially tight. Will
the 12-8 have the others replaced, the flange tightened, the
flange on the other side tightened if possible + the
flange on top if possible. This is a big order —
⑧ Rimshaw I Phosphorous P19-P20 behind
hot plate back of low barricade in N. hot lab

156

2-18-47 P^{32} – Run P19-20 neutralized to a PH of 9.0 on Beckmann. Sample was submitted for analysis. Product is stored in Vault # 3. It is labeled Run P19-20, P3.

12-8

SJR.

Cell B – Both lights were replaced in Cell B.

A16 fan – Maintenance tightened up flanges on inlet side of fan. Bolts need final tightening to get equal tension.

2-18-47

8-4 **Decontaminate Cubicles I & III**

1. Lower hoods & remove all tygon
2. Wash & steam & Na_2CO_3
3. Survey Cell B for old tygon & remove. Do not remove 2 black tygon lines on
4. Start a dummy electrolysis
   4L – 3.5 M HNO_3 + 670 ml of 20% $Pb(NO_3)_2$
5. Have maint. fix up Gloss Panel Board
6. Send all used rubbers & gloves to Laundry – just stock.
   → Fittings for 1 section are above the hot Labs – Brass valve in decon Room – Need new gauges
7. Leave the two Black lines as is to B-24

2-18-47 (1) Cleaned all Tygon from lines in Cell B except the
4-12 2 black lines. The Tygon is lying on Cell B
Blauer floor because we lacked time to remove.
(2) Removed all Tygon from Cubicle Cell 3.
(3) 12-8 Please remove Tygon from hood in cubicle cell 1 + spray both cells.
(4) Picked up old gloves + rubbers around Cell B.
(5) Dummy electrolysis started in B-12 at 4 pm. Had no voltage but did have amperage. Called instrument man + used his time but no help. Shut off at 7 PM solution still in B-12
(6) 12-8 Clean up Old paper around Cell B doorway + put down clean stuff for 8-4 shift. Thanks
(7) The vacuum line to the glass panel board
B.24 is greater than 100 mr/hr. Suggest that 8-4 replace vacuum line through to P.B. # 2. This whole length is hot-values + all.
(8) One set of glass panel board values are being washed in the make up room. The other set ~~has new gauges and is ready for [illegible]~~ ~~[illegible] the vacuum line [illegible]~~ is up near the glass panel boards. Maint. couldn't find the gauges. Instrument dep't has them + you have to get them on day shift
(9) Scrubbed floor by dolly mover. Hottest spot #1 is now about 650 c/m.
(10) Note new hot spots discovered by Cell 3 on lead floor out to drain. Found it too late to scrub

2-19-47
12-8
SM

Hot Spill in Front of Feed Cubicle - Scrubbed floor with Dutch Cleanser a number of times. There are a few spots left on the floor that appear slightly above Tolerance these are marked

Decont. of cubicles - Both cubicles were washed thoroughly with water from a hose. Reading in Cell I is about 3 R at contact with Hood. In Cell III reading is about 500 mr.

Tygon - Tygon in cell B was picked up as requested. Hood in Cell F was lowered and tygon cut off. Tygon, wire and tape have to be removed from hood in Cell I yet.

B12 Short - Removed lead solution from B12 to B3 in checking for the short. Maxwell checked B12 inside the cell and definately states that there is a short inside the cell, but he did not have any time left to find the short. Suggest that this short be found, fixed and checked before starting a damming electrolysis. The short can be checked by throwing on Resistance switch # 7 on 3rd floor with B12 empty and current on. If ammeter reads much greater than 50 amps or you blow a fuse, the short is not fixed. A better way of checking first is to throw in Resistance switch # 1 with B12 empty and current on. If ammeter reads about 22 amps and voltage zero to 0.5 you are only getting voltage drop through the resistor on the third floor and you still have

a short. With solution in the tank and current on, you should have 10 amps ± 2.3 volts. I hope that this is not too confusing, but we had to run around a couple hours and flow a line to the tungsten to learn this much, at I thought that the information might be helpful in checking for a short when the instrument dept. thinks that they have the short fixed.

2-19-47

8-4 1. DECONTAMINATE Cubicle I!

2. Run a tygon line from B 17 thru a conduit into the Cubicle II & connect to the 5th valve from left on back bank.

3. Connect the 3 tygon lines to B-24 from Cubicle II

4. Reassemble piping on glass panel board.

5. Electrolysis in B 12 until 9:15- Sample & Analyses for Pb

6. Wire & tape all tygon Connections Cell B, cubicles II & III

7. Clean up 1st Floor & Cell B

8. Reconnect vacuum line on 3rd floor - line to Glass Panel Board.

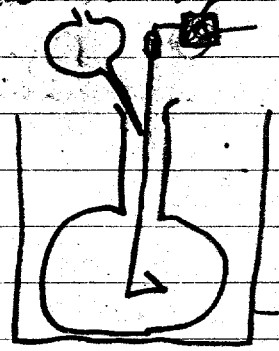
9. Remove Pb from B 12 to start another electrolysis on 8-4 shift.

10. Record data periodically on Electrolysis

160

p 32

2-19-47 P-21 melted—in 3rd floor
8-4 hood ready for extraction. Stan will you extract the above & proceed with the same. Use the mechanical agitator & separatory funnel for neutralization you will find it much safer & easier than neutralizing by hand.



Equipment underneath hood.

glass jar

2-19-47 (1) Reassembled piping on glass P.B.
4-12 (2) Installed hydrogen line from B-11
my S. through conduit to 5 valve from left on back Bank.
(3) Reconnected vacuum line on 3rd Level.
(4) Electrolysis in B-12 completed (see yellow sheet for observations.)
(5) Took two samples of B-6 1st is a water mixed & the second is product from B-12. Any also not available at Shift change.
(6) Cell Steamed & washed twice with citric Acid. This brought resistance down by a factor of 2 but still

reading 7 or 8 R/hr.

(7) Third 4 l rinse is now in B-12. Due Out at 12:20. One more to follow.

2-20-47
12-8
SJR

P^{32} – Extraction was made on Run P21. Acid extract was filtered, Fe added (80 mg) and a sample taken (P21, C1). Solution has been boiled and is now cooling. It is now ready for the next step, neutralization with NH_4OH.

1561 mc

Cubicle I – Continued decontamination by spraying repeatedly with 60% HNO_3 and hosing down. Reading one inch inside the door is 550 mr/hr, one foot in and one foot up the reading is 2R. Hood is reading 20R. Suggest that hood be lowered and sprayed on the bottom side with 60% HNO_3 for further decontamination.

B12 Electrolysis – B6 product analysis showed a total of 3.0 grams of Pb. So we started another electrolysis at 6^{20} A.M. Kick up to 25 amps at 9^{30} A.M. Voltage and current readings are normal. The chemists are making up fresh standard solution to recheck Pb analysis on B6 product sample.

B12 flange – Inlet water flange on B12 leaks. Water is on B12 jacket now for electrolysis. With low pressure the flange does not leak, but with higher pressures the water spurts out of the flange.

P 22

2-20-47 Continue addition of P1 soln.
8-4 through #2 resin column. follow with
ok [illegible] 100 ml H_2O. Hold do not evaporate
Take sample label P2 run for
activity & Fe.

Day shift maintenance took apart S. still
in crane's nest for maintenance. Have shift
maintenance put back together and
in operation again. ~~When S. still~~
~~[illegible]~~ Some pipes on still
overflow and sight glass holes still
need cleaning. Operations today cleaned
what was cleaned of still body, maintenance
cleaned off coil.
When S. still is put together and
operating have them take the North
one apart and clean the scale deposits
off it.

ok [illegible]

B22 to B10 jet won't work. Probably
due to debris in B22. If any hot time
available please try to get into operation.

ok [illegible] 1. Sample B6 Analyse for Pb Label as
2 P6 6

ok [illegible] 2. Tighten B12 Water flange

ok [illegible] 3. Clean up B12 + start another Dummy
lead run - Clean up after completion
& start the 4th run

partial wys. 4 ~~Start~~ n. Connect tygon lines in Cell B ~~from~~ Cubicle II to B 24 (3 lines)

5. Connect tygon lines in Cubicle II
   a. Draw off line from Cub III to valve
   b. Run a tygon (Black) from B24-J1 valve in Cub II to J1 line (S. Steel) in Cell B
   c. Wire & Tape all of these lines
6. Continue Decontamination of Cubicle I
7. Start equipment check in Cell A. Dont leave A16 fans running long
8. After Cell A check start Cell B's

2076647
4-12 wys. ① Changed B12 tygon from 5 valve from left to 4 valve from left on rear bank.

② Connected 2 line to B24 (Did not tape or wire) from Cubical II.

③ Lamped B6

④ Washed B12.

⑤ Started another electrolysis in B12 @ 15 Amps.

⑥ Cleaned up water still and maint has just completed reassembly and it is presumibally working OK now.

(7) Decontaminated isotope loaders but HP hasn't given a final OK as yet. They are both in Hand counting room.

(8) Pb analysis not completed as lab ran out of standard sol. May have it by 0900 tomorrow.

(9) Tightd B12 water jacket flanges but still leak. Need new gaskets.

(10) Completed P21. And took sample P-2, Held for W.J.S. P2 is behind barricade in N-Hot lab so marked. It has a beaker over the top of the 2L flask. Rinsed column with 500 ml 1 HCl (1:1) still going through column at shift change.

(11) Did not start A-cell check due to no vacuum and A16 fan is still not connected up.!

2-21-47 P^{32} - Run P21, P2 showed no iron and 853 mc.
12-8 Started evap. in south hot lab after receiving
SJR Fe analysis
Followed HCl regeneration of resin column with
200 ml dist. water rinse. Dist. water is still
going through the resin column.

Dist. water stills: South still is operating fine. Removal of
scale deposit really improved operation of the
still. North still is scheduled to be taken
apart by Maintenance on the day shift.

B12 Electrolysis - Finished at 7:30 A.M. B8 pipette is in
B12 sucking up the product solution. B6
was rinsed with distilled water and is
ready for product solution from B12.

Cubicle I - Continued decontamination of hood in cubicle
I. Reading on contact is 3R. Reading at the
door is 150 mr.

Cell A check - Completed Cell A check except for items connected
with operation of s.s. fan.
2 Pb6 run 85.1 mg Pb. Looks good.

B12 Maintenance - Maintenance wants to leave B12 flange
tightening to Zell Delay's group because of
uncertainty as to whether or not a gasket is
needed.

P^{32}

2-21-47
8-4

Processing P 21 waste. Washed $Fe(OH)_3$ ppt. is on disc ready for 20 ml 6 N HCl addition. Rinse bottom of Stang reactor before adding acid.

Dilute the acid filtrate to 1000 ml + have lab run sample for activity + normality P1 P21 wash. Adjust normality to 0.1N instead of .07 + run through column #2 which has been regenerated. Add 200 ml H_2O wash through column + combine filtrates. hold. Take sample P2 run for activity + Fe.

If. Pb angalic is less than 120 mg total do not start another electrolysis

Clean up crap in bottom of Cubical I

2-21-47 ① Replaced bulks in viewing tunnel B19 Area.
4-12 ② Repaired flanges M4 & M5 & tightened
wy S. up packing nuts on M5.
③ Had holes drilled & taped for 1/4" pipes on inlet & outlet side of A16 Fan.
④ Repaired warning lights on A16 fan & large fan on switch board on main floor. [Electrician is not quite finished but will continue job of 4-12 tomorrow]
⑤ Working on valves T7 & A5 at shift change. Maint will send man over to complete job on 12-8 (2-22-47)

⑥ Completed I-106. - Three more to go!!
Te sample are under vault in W. Hot lab.

⑦ P-21-W Has been adjusted to 1N and is going through column. Solution to be added to funnel is near base of column. Have experienced trouble on slow rate of solution through column. 1 drop ever 10-15 sec is max.

⑧ Blanked off steam to B12 jacket

⑨ Partially filled S can on 3rd Level this can is on balance & sulphur is

in oven. The can is taped properly for 2 kg with funnel in the can. Sulphur in beaker is in excess of 2 kgs. The other 4 cans are on floor near hood -3 level and mR/hr are marked on them. Fairly Hot -300 mR/hr or down.

(10) Finished 3rd Floor Housekeeping as per Housekeeping injection.

2-22-47
12-8
A.M.R.

Short shifted by one operator this shift

Finished filling can of sulphur left by previous shift and filled 2 more also. 2 left to go. More sulphur melting in 3rd floor hood.

Finished a complete run of iodine this shift. 108 + 109 left to go.

Went into cell B and gave maintenance measurements of lower movable funnels so that they can fabricate new screens for these funnels.

Automatic control valves on south still not working too left. Maintenance spent greater part of shift trying to put still in proper operating condition. Believe same of it is left for day shift.

Maintenance did not get to finish job on T.7 near PB1 (B-6 blister) started by previous shift.

Put the steam hose on the hood in cubicle I to try to bring the radiation level within the cubic to some reasonable value.

B12 dummy run completed and sampled in B6. No chemist on duty this shift. B12 also not cleaned due to a shortage of H_2O_2

Did a limited amount of housekeeping.

2-22-47 ① Cleaned up the housekeeping left to be done.

8-4

H.B ② Maintenance installed 4" long 1/4" nipples with valves + reducers to 1/8" on R16 lines. All stainless steel.

③ Completed filling the fourth S can. Filled the 5th can also.

④ Completed Iodine run # 108.

⑤ B-7 Pipette unplugged by use of wire

⑥ All Sulphur cans are on the bench on 3rd level

(7) Pb analysis on dummy electrolysis # 4 ran 6.5 gms. So we started another one.

N.B. ⇒ Be sure to clean out B6 well before taking the next sample of B12 electrolysis Make readings every half hour for voltage. Started 1:45 P.M.

(8) If you put crud filter in cell IV use Apiezon lubricant which should be in glass cabinet. DON'T USE ANY OTHER GREASE

per E.J.W.

(9) Run another electrolysis just after this one again checking voltage + amperage + recording every hour. Use 850 C.C. HNO_3 - 670 $Pb(NO_3)_2$ + 3150 H_2O.

per E.J.W.

(10) South still O.K. now. The solenoid valve which was sticking was taken out + cleaned.

(11) Removed old crud filter from cell IV. Exposure time is very limited. New filter + Apiezon are on CELL 2 door.

(12) Phosphorus still going through column in N. hot lab Complete per E.J.S.'s instructions page 166.

(13) Valves from T-7 tank are in maint. shop being repacked + requalified. They will be ready for T-12 reinstallation

(14) The attached screen was cut by 8-4 shift maintenance to go into lead funnels. However there is no metalsmith on duty so they couldn't put a band around it like the others are. If you want to use it like this go ahead. The screen used as a model is lying in cell B doorway on a lead sheet. It comes from the middle lead funnel. Will you please replace it?

2/22/47 ① Completed work on T7 - A5 valves
4-12 ② Completed B6 jacket flange bolt tightening
wy G. ③ Replaced & tightened bolts to B9 & B11
④ Completed last of I^{131} run.
⑤ Replaced crud filter as per E.J.W. instructions. Did not check it for leaks.
⑥ Washed B6 and B8 in preparation for electrolysis transfer & sampling.
⑦ P still going through column.
⑧ Replaced & installed S.S. screen in lower funnel rack.

FOR Next Shift

① B12 Electrolysis ready to be pipetted to B6 & sampled, make up new sol - per item ⑨ page 170 after washing out B12 Record all observations of Amp & volt meter reading on transfer etc

② complete Phos as per instructions on page 166 if it gets finished running through column in your shift.

③ See E.J.W. instructions on page 31 Supervisors log for cell work, check & initial what you accomplish.

④ See B cell Equipment check for further work. Maybe maint. can fix some of the plugged

172 jets & steam leaks that have been found on cell A & B checks.

2-23-47
12-8
A.M.R. Item 9, page 170.
Is it 670 gms $Pb(NO_3)_2$ or 670 cc 20% $Pb(NO_3)_2$ solution (?) for B12 dummy runs. We used 670 cc 20% soln and added only 4 liters of this to B12.

this shift short one operator.

All manpower exposed doing various hot jobs around the place:

1. Tested the Cecil filter, the joints don't leak but there seems to be some slight hold-up on the filter probably because it isn't truly perpendicular.
2. Connected up the black tygon line from the valve to J1. Wired and taped at both ends.
3. Had maintenance tighten bolts on valve in line from B21-A16.
4. Wired and taped some joints in Cell #
5. Ran 2 lines from glass PB to B21 hood. Not wired or taped.

Moved dummy run 5 to B6 from B12 and sampled. B12 cleaned out and a new dummy run started (#6)

Nights around these parts cold as hell so had maintenance blank off the

heating system air intake. System now operating by recirculating air from within the building

Tried to get maintenence to dismantle the North water still and clean the scale but was informed that 3 Delay was lined up to do this job next week.

200 c.c. of ~~phosph~~ water added to phosphorous Still running through.

2-23-47 ① P.b on dectrolysis ran 527 mg. Run #5

8-4 ② Lines from cell 2 have been connected to

Blauer glass Panel Board. THE PRESSURE VACUUM LINE DOES NOT HAVE A DRYING TUBE IN IT.

See J.L.K on this Amk → Could not locate any of our glassware needs in the stockroom. So — Wellbill have to get drying tubes fixed up for us tomorrow.

③ Also need some glass parts to replace broken parts on Glass Panel Board.

④ Used all our exposure time trying to clean out cell 1. ~~[illegible]~~

⑤ Decontaminated cell I to readings of 470 mr/h inside, 1.7R bottom of hood + 800 top of hood. These came down.

⑥ Wired + taped all remaining connections to valves in Cell 2

Still hot

(7) Washed + surveyed floor around Cubicles.
(8) Phosphorous wash still going thru column. I.B.W. says leave as is.
(9) Removing lead from B12. Second shot comes out at 4:00 P.M.
(10) Lead electrolysis #6 ran 598 mg.

2-23-47 (1) Completed P^{32} and sampled.
4-12 (2) Checked B cell manometers & recorded
wy 3. defective ones on back of cell check sheet.
(3) Checked all solution addition lines for leaks - all ok.
(4) Washed B12 and made up $Pb(NO_3)_2$ solution in T-1. Lab has sample for anyalsis.
(5) Checked sample carrier. All have been deconaminated previously.
(6) B-1 Probe hang up near bottom of tank
B-3 Probe can't enter tank due to pipes. Why not block it off?

(7) Inserted carrier into cell & went through process as far as evaporating cone to dryness with heater No 1. Heater No 1 came up to temp in 1 hr 25 min.

Instruction to 12-8.

① Continue item No 12 "B cell Equip Check)
Check heater #2 if you can get maint to change blank in line.

② Start another electrolysis use 670 ml $Pb(NO_3)_2$; 850 ml HNO_3 (70%) & 3150 ml H_2O. $Pb(NO_3)_2$ is in T-1 agitate before drawing off. Also mix all ingredients before adding to B12.

③ See B cell Equip check for add work or EJW's remarks in sup. log.

2-24-97
12-8
AMR

All manpower exposed making connections to B21 hood in Cell I. Lines are tagged with a label for identification. Connections on hood have been wired and taped. Lines from glass PB to B21T have been run and dangling in cell I awaiting installation of B21T. Lines from glass PB to cell III seem to have too much slack in them.

New dummy run started in B12 according to item 2 above.

Had maintenance blank off heater #1 and tried to test #2 but even with switches on PB6 thrown so that heater #2 should

have been on the line, heater #1 got hot indicating that the switches on PB6 were connected to heater #1 regardless of the way they were thrown. Day Shift please look into this.

Lead was placed on the top of B21T stand to make it more stable. Also tygon from B21T to ball joint was shortened.

Tried to find some CS_2 to clean spilled S off of cans but had no success in finding it in store room. Tried alcohol inside but didn't do much good.

Had maintenence clean out jet lines A1-A9B and A1-W11. Okay now.

Analysis of $Pb(NO_3)_2$ in T, 30.2 %

2-24-47

8-4 1. Finish Wiring + Taping all tygon connections in Cubicle II & Gloss Panel Board.

OK 2. Replace the Gloss Ts with Ys on the sol'n addition lines to B20T + R. Be sure the Right Line Goes to the Right Place! (May have to make Ys out of the Ts. Try to do a smooth job)

OK 3. Trace all lines by a flow of liquid Leave a record ascertaining all connections

4. Rinse B6 + B8 - Shows traces of Pb

5. Electrolysis started at 3 $\frac{00}{PM}$ Sample thru Probe hole every hour beginning at 5 $\frac{00}{PM}$

6. Scrub floor in front of cell B entrance back to the corner of the cell. Flush the area around the lead apron in front of the enbictes.

7. Clean out Cell B

8. Try to empty Cell A duct this must be empty to vacuum to the cells

→ 9. Starting at 4PM today start making a complete shift check. Make sure the cell ducts are M.T.'ed each shift. Check that lines in A-16 system to 205 stacks are properly lined up

10. Dump solutions in preparation for the run.

11. Have Maint. drill hole in top of M-11 to introduce rod to determine Liquid Level. Get an iron rod for measuring.

2-24-47 1. Rinsed B6 & B8

4-12 2. Sampled B12 every hour.

wyS.

5⁰⁰	3600 mg./Liter	9⁰⁰	1000?	mg/L
6⁰⁰	2050 mg/Liter	10⁰⁰	150	mg/L
7⁰⁰	1000 mg/L	11⁰⁰	130	mg/L.
8⁰⁰	500 mg/L			

3. Maint. changed blank back to #2 Air Heater & fixed leak over entrance to bld.

4. Ran a shift check and drained christmas tree & pit & pot after considerable steaming.

5. Found A-2 manometer bubbler plugged. Couldn't get instrument man.

6. Installed lines to Glass P.B. Believe to be complete!

7. Replaced T's with Y's on solution. Add lines to 20R & T.

8. There is an excess of black line (V-P line) to 20T & 21T. Should it be this way or will it be cut out when dryers are added!

9. Made limited check on lines from Class PB to 20, 21 R&T. See paper for findings.

=

From Kaskie to 12-8.

① Oagle bring eggs.

② Supervisor turn in desired vacation dates of your personnel to Kaskie's box. This is due at 0800 in the morning.

2-25-47
12-8
AML

Sampled B12 thru probe hole, 102 mg/l of Pb then moved soln from B12 to B6 and sampled again (6 Pb-8) 92 mg/l.

Checking over the A-2 bubbler it was discovered that the line was no longer a bubbler line since someone had sawed the line off where it went into the cell and made some other kind of connection there. ???!!?!?!?

Day shift have instrument men clean A16 rotameter on 3rd floor PB 21. Shift instr. personnel on duty for strictly emergencies as far as 706-D is concerned. (Quote, unquote)

Checked jet A6-W11 - working OK. So moved all stuff in cell A into A6. When Tony V says OK to send to W11 get rid of the stuff. 1 batch carbo-phosphate made up and

added to A5.

Maintenance installed measuring rod in M11; also made us up another calibrated rod for M1.

Maint continued work on p. pot - being installed on A16 fan. Kees (pipefitter) said he'd finish the job Tues on 4-12 when Gissel is on shift.
B7 leaves a heel of about 15cc in B12. Stuff looking like emery dust (probably lead) plugged up end of glass pipette used to draw out heel from B12 for measurement. Probably another clean out is in order for B12.

Vac on cell A only about ~~1~~ .3" of an inch. Jetted out duct, vac in cell B normal.

A16 fan not running. Probably day shift labels should designate what line to use up to 205, also check to see that blank orifice plate blanks off flg to 706D stacks. Start fan up.

Making up soln (4% NaOH) for M10
Having maintenance run a temporary steam line using M10 sparger line

to steam sparge M10 to prevent ~~[illegible]~~ freezing. 4% freezes in this weather.

M11 rodded empty. If any caustic was in it, evaporation probably deposited all NaOH on tank walls.

Housecleaned around the place

Note:
Maint. didn't get stm line to M10 this shift. Will follow thru on day shift. Stm connection S. wall make up room. Nipple on air sparger line to M10 also in make up room above & to the north of M1. Rubber hose lying on floor. 4% NaOH freezes at about 25°F, so bleed a little steam into M10 continuously if M10 to be fluid when needed. AMR. Parts laying on barrel in makeup room

8-4 2/25-47 Blauer

① Maintenance hooked up temporary steam sparge to M10 air sparger line. Air sparger is on all day. Put steam on a little tonight. Not too much because of condensation.

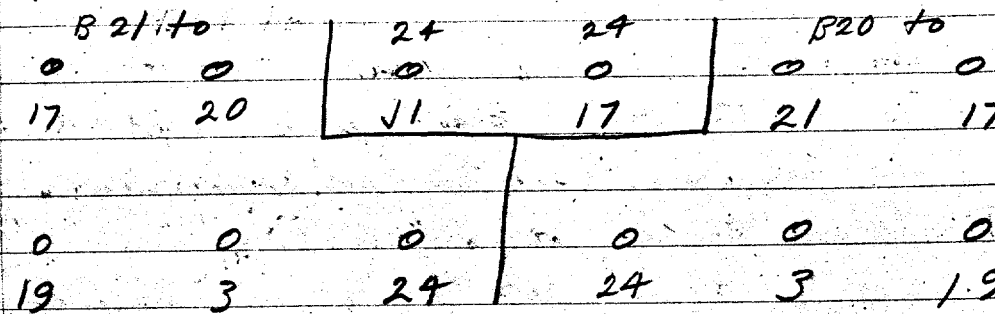
② M11 rods 2'10".

③ A2 Bubbler is cut off at wall & is to stay that way to take care of new Iodine set up.

8-4 1. Emergency order is in on the repair of the Hastelloy Valves for Cubicle II. Give Maint all assistance required. Install valves with great care being given to the location of tygon connections according to diagram

see note (9) 4-12

B21 to		24	24	B20 to	
0	0	0	0	0	0
17	20	J1	17	21	17
0	0	0	0	0	0
19	3	24	24	3	19



2. Leave a diagram showing the location & destination of each pipe coming into Cubicle II from Cell B.

ok only

3. Clean out Cell B.

ok only

4. Test all s.s. lines in Cell B.

Not complete

5. Paint Cubicle II entrance per item 1.

6. Sample of M11 Caustic in Lab. 17.5%
7. Sample of Caustic in T6 in Lab. 32.4%
8. Sample of $Pb(NO_3)_2$ in Lab.
9. A16 fan is on
10. Scrub lead floor on 3rd level next to hood. High smear count.

2-25-47 ① Filled A-1 in preparation for coating removal. A-1 vacuum 9"

ng 3. 4-12 ② M-11 Caustic only reads 17.5%. Posted temporary instructions to make up same in line with this analysis.

③ NH_3 tank checks OK.

④ Completed sampler on A-16 off gas line. To test gas use 100 ml of H_2O in 6 oz bottle (on Supv. desk) & a few drops of phenolphthalein. Open both valves after bottle is pushed up on stopper (on W side of A-16 San barricade). No color add more NH_3.

⑤ Cleaned out cell B. Top of tanks, floor etc.

⑥ Check dog carriers and delivered both to pile building. One loaded carrier is ready to dump at shift change.

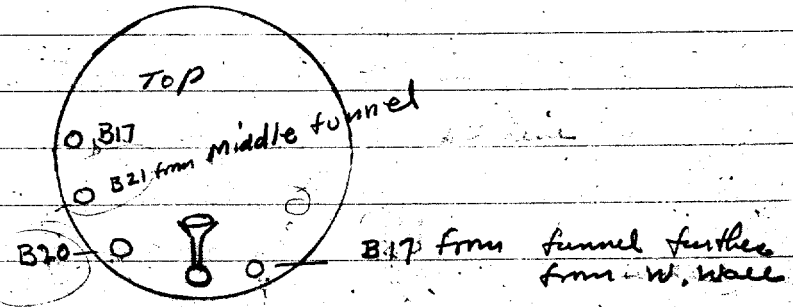
⑦ Charts on PB-1 OK.

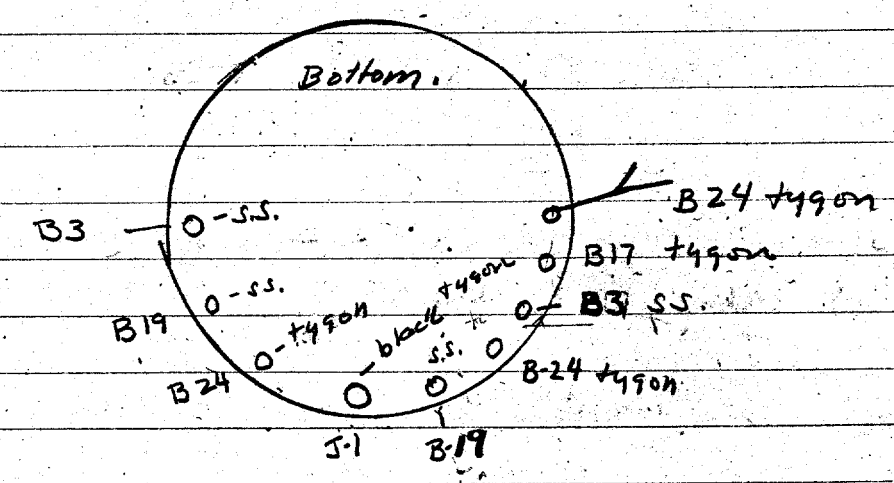
⑧ Traced and tagged all lines from Cubicle II to cell B.

⑨ Maint. tried to repack a hot alley valve but couldn't locate any packing for them.

⑩ Scrub lead floor at 3rd floor hood – no HP reading this shift. On results.

Diagram of Cubicle II to Cell B line.





(12) Pumped from M11 to T6 via M3 and line tested OK.

(13) Called Instrument Man twice And he never came down!! What the Hell!

2-26-47
12-8 Slugs (294) added & run proceeding satisfactorily.
AMR

A16 rotameter torn apart, found that way by this shift - presumably done by day shift instr. men, should be put together again ASAP. Day shift please follow.

8-4 (1) 1MA sample in LAB.
Presley 1MB dissolving
Run 15 Batch 11 SETTLING in M Till 8.40 P.M.

(2) B22 - B20 JET PLUGGED Stirrer
Can you get it fixed

(3) A-16 Okay.

The B20 - B23 S.S. line was blocked up to give good slope — EJW
New valve ~~[illegible]~~ labels on Cell II painted.

4-12 1.

SAMPLE	1MA	1MB	8WMA
C's AT	407	415	12.1
C's ST	309	318	9.35
SLUGS	65.3	71.5	
C's/SLUG	6.23	5.80	

JEC
WHP

2. 105 PUSHED 300 SLUGS AT 800 PM
TRUCK # 120 IS ON HAND
ONE CARRIER IS IN DECONT RM AND THE OTHER IS ON TOP OF HOT LAB.
3. JET B22 → B10 (CL # 2) WAS NOT PLUGGED ON ANY SIDE SO IT NEEDS TO BE REPLACED.

4. CHANGED NH_3 CYLINDER 700 PM.

5. HOUSEKEPT SOME ON N SIDE AND PLATFORM.

6. STATUS OF RUN AT MIDNIGHT:
BATCH A - SETTLING IN A11 UNTIL 330 AM
" B - " HOT " A9 " 155 AM
" C - DILUTED AND COOLING

2-27-47
12-8
JCK
GAM

The fan for Cell Ventilation was squealing, 1 belt (too large) and the bearing (next to the guard on the motor needed lubrication) were the causes for the noise.
Evidently one bearing has been missed in check for some time. Suggestion: have a belt in readiness to replace the one that is too large.

Run status
1. Batch B is in A-8 circulating thru Sampler
2. Batch C is in A-9 ready for Pb(NO3)2 rate

3. A5 has 1 batch of carbonate
4. Coating removal sol'n in A1

There is approx 200# of 17.5% NaOH in M11, To bring this sol'n up to approx. 35% add 400# NaOH and 400# of water to it.

1 MC 274 C's at Sh. Time & 60 slugs

Have H.P. check slug carriers before storing

A11-A5 DB jet not operating properly.
8-4 ① Bells replaced on Cell Jar
PRESSACY ② 1 WMB - 381 C'S at S.T.
③ Analysis of M11 Caustic = 30.4%
④ Sample of 1 WMD in Lab at 3:45 P.M.
⑤ Sample of 6 WMB in Lab.
Run Status
~~Batch D diluted & sampled in A1~~
Batch B in A6 waiting sample results ~10 c's
Batch C in A9 settling till 5:12 P.M.
Sent to A-11

6. Valves in Cell II of cubicle all tested and okay.

2/27/47 JEC
W.H.P.
[9-12]

① It looks as if a "Good-Housekeeping" award is in order. Please note that sparkle, that shine, that glitter to the decontamination room, and the 1st level exclusive of areas of activity (working).

② Had Maint. dispose of gasoline ~~to~~ cans - & gasoline.

③ Run Status:

Batch B - Neutralized & W-9'd
Batch C - Settling in A11 till 1:37 AM.
Batch D - Settling Cold in A9 till 3:25 A.
Batch E - Diluted & Sampled in A-1.

④ Lab Analyses:

		1MD	1ME	6WMB	8WMC
C's @ A.T.	-	490	479	12.5	63.7
C's @ S.T.	-	396	390	9.9	51.9
SLUGS	-	75.3	69.3		
C's/SLUG	-	6.5	6.9		

2-28-47 [12-8] JCT

1. Reconnect sol'n add. line from 23 to B20R for it passes over 2 tygon lines which does not allow a good gravity flow. This line Must go under.

2. Please re number the values - B20 to B3 + B19 are wrong / Inter change them. Refer to page 182
3. Valve (as painted) D0 to B3 was stuck in open position indicating to the touch that it was closed. This caused the sol'n to go from B20T to B19 instead of B17.
4. Hastelloy line B20 - B17 - section removed & taken to Maint. Shops It will be repair & ready for instal. this morning - work to be done by day shift.
5. ~~Couldn't find leak in line B2T-B3 Found leak in B2T-B3 but not at indicated spot.~~ Leak is at tack weld designated by tag in Cell B.
6. Tighten clamp on valve, Recycle & Draw off to B21.
7. B17 & B12 needs good rinsing Prob. shouldn't rinse B17 until after a number of passes of acid has gone thru the Hastelloy line to be installed.
8. Didn't test B1 line - afraid of contamination from Hastelloy
9. Suggestion: would it be possible to drill a few more holes in the sol'n addition outlet in the head above the reactor - to give side a better washing?

2-28-47 6WMC – 13.1 c's – Ship Time
12-8 8WMD – 120 c's – " "
(cont)

JLK 10. A9 SpG manometer blown. Day shift takes care of it.
11. Check Gear Box to A9 agitator. It looks like it has thrown it all out.
12 An Observation: On 2 occasions when the bldg fan was turned on there momentarily was a high air count
Status of Run
A9 settling hot until 8:30
A11 " until 11:30
A1 is diluted & ~~ready for~~ sampled

11 15A-F

13 There is a leak in the pit in the make up room. It might be the valve M10-M3

14 I hope this is all!

2-25-47 IMF 435.3 C_D AT
8-4 363.5 C_L ST
62.8 slugs

Run 15A
A1 Desalting batch A
A6 batch D ready for W9
A11 batch E settling until 7 40 PM
A9 batch F start settling hot
at 3 50 PM.

Pr 143
Keep a frequent check on equipment in ante room of N + S hot leaks & replace full bottles with empties.

1, B-20 T to B-19 valve turns as it is opened & closed.
2, Leaks in B-24 to J-1 on the weld as it goes into the blister
3, Leak on B-20T to B-3 leaks after being welded.
4, B-22 to B-10 jet is repaired and okay.
5, New line B-20 T to B-19 is being pickled with 6N HCl See the setup by the cubicle

add the 6N. HCl directly to B-17 not thru the soln addition funnel.

6. No quantitative transfer B-17 etc has been made.

7. Valves in cell II lined up & tightened by the pipe fitters with one exception see note 1.

8. All lines and valves in cubicle retested

2-28-47 4-12 J.E.C. W.H.P.

1. Welded leaks in B24 → J-1 and B20T → B3 lines.

2. We are still running 6N. HCl through hasteloy line for pickling.

3. Status at end of shift.
E - Jetting A6 → A5 for neutralization.
F - Ready to decant A9 → A8
G - In A11 awaiting A9.

4. I Run #111 being distilled.

5. Decontaminated 3 carriers but shift HP man couldn't check them.

6. Analyses:	1MG	8WME	6WME	Total
C's at A.T.	371	387	20.8	2945
C's at S.T.	318	326	17.9	2368
Slugs	57			
C's/slug	6.5			

3-1-47 ① 8WMF - 96.6 C's at S.T.
12-8 ② Finished I run 111. Took total of 11 cuts.
Blauer Suggest that 8-4 use as many of these weak cuts as possible to soup up their run. There are 2 more to be run.
③ A6 - Batch F sampled at 7:15 [illegible]
④ A9 - Batch G settling cold till 10:20 AM
A11 - Batch H waiting for A9 (Sparger on)
④ Watch the ammonia. It is getting low.
⑤ Note that the Sp.g. of tank M11 indicates by manometer about 64 which is 50% NaOH. The level in in the tank is too low to sample. We made it up for 35%

3-1-47 4-8 [8-4] NJS + NJG.

Run 15A

A1 dissolving heel I being extracted in Rupp's apparatus.
A9 Settling cold 8:45 pM batch H
A11 batch G settling 4:55 pM
A6 batch F ready for W9

6WMF 20.4 C's
8WMG 155.0 C's

(over)

I 112
2A 30 mr/hr
2B 3200
2C 500
2D 230
2E 150 (added 25 gms oxalic before distilling 2E) take 1 or 2 more cuts - if cutie pie shows less than 250 mr/hr discontinue run & start the next one 113

Pr 143

Replace full bottles with the labeled empties in hot lab ante room Pr set up.

Attached you will find a sheet containing nos. of contaminated shipping containers. Decontaminate & have H.P. O.K. them for next packing.

3-1-47 1. Shut off Rupp's I_2 @ 5.00 PM.
4-12
WHP 2. Status of run 15A:
G - In A6 ready to be neutralized.
H - Settling in A11 until 3.22 AM
I - Settling cold in A9 until 1.15 AM.

3. One slug of HNO_3-H_2O_2 in B6 yielded 525 mg Pb. - Repeat.

4. Settle Batch I cold as possible in B-9.

5. Go ahead with Cake washes but hold up for results on FWMT if high.

3-2-47

12-8 Second rinse in B-6 of 25% HNO_3 + H_2O_2 showed high in Pb. another rinse going in.

B-17 & B-8 removed and sampled from the outlet of the pipette showed low .035 mg total of lead.

Lines tested in cubicle O.K.

B-19 viewing dummy lined up. The carrier is out of the cell.

B-19 heater #1 tested the variac was shorting against the box & blew a couple of fuses. Now repaired. The air to heater valve vibrates and should be replaced or repaired

B-26 to B-27 to B-12 emptied. B-26 now has 500 cc of distilled water in it and B-12 has a heel of .9".

15A - Extraction cake wash. Decant at 8:12 AM

15A-I In A-11 settling till 12:25 p.m.

A-8 washed out.

A-5 contains a neutralized metal waste.

B-6 has the third nitric + H_2O_2 rinse. Sparge awhile and sample.

3-2-47 8-4 ① Jim Ferguson will not be in Hospital with tonsilitus!

197

32-47
8-4
WJ WYG

A9 Digesting metathesis (#1) 4 13/PM
A8 sampled 8WW
A11 4" heel of batch I

1. Made quantitative transfer from B11 - B23 - B21R - B21T - B17 using 1l of H_2O + took sample for Pb analysis (showed 25 mg) probably came from B11 pipette.

2. Made quantitative transfer through B23 - B20R B20T - B17. OK.

3. 25% HNO_3 H_2O_2 soln. in B-6 + B1. sample B-1 about 4 30/PM + analyze for Pb. Call Ed when result are in.
B-6 has 4th HNO_3 H_2O_2 rinse in [illegible]

4. Composited I samples + neutralized to pH 7.2 - 7.3. - vault

5. Please keep an eye on the Pr^{143} set up in ante room of hot labs. It will only take 1 min. to replace a full bottle with an empty. Bottles are already properly labeled.

VERNON ROYAL LINE
1143 X

6. Clean up cell B + close door when ready.

— No Log Book 12-8
3/3/47

1) 5th B1 Sample for Pb = 353 mg
6th B6 " " " = 143 mg.

2) We replaced solutions in B1 & B6 because the Pb did not change measurably

3) Replaced Crud filter. It was so crapped up that water wouldn't pass through it. Washed the replacement 4 times with 6.5 L. H2O from 26 → filter to 27 to 2. Replaced this filter. There are no more filters in the cabinet

3) 8 W C 215 C's bt S.T.

4) Cleaned B7 Pipette one more.

5) 7th B6 Sample = 34 mg.

6) 6th B1 Sample = 34 mg.

7) B6 has 1700 c.c. 25% HNO3 + H2O2 went to B11 charged, back to B6 Sample in lab for Pb.

8) B1 has same old HNO3 + H2O2 solution

---

8 W C 215
8 W C W 254 A.T. 248 S.T.

198
3/2/47
4-12
JSC
&
WHT

(1) 1st B1 Sample — 756 mg Pb.
2nd " " — 613 " "
3rd " " — 378 " "
4th " " —

(2) B-6 —
4th — 326 mg Pb.
5th — 210 " "
6th —

(3) 8 WW — 27.7 C's AT.
26.2 " S.T.

(4) Decontaminated Isotope carriers.

(5) Status of Run 15-A —
Settling 2nd CO_3 Metathesis
Till 12:50 A.M.

(6) Status of B6 & B1 Cleanout:
Continue HNO_3 & H_2O_2 treatments.
We are now heating the solutions between 50-60°C, and after each treatment & sample merely add more H_2O_2 to make up for O_2 lost during heating. There are samples of B6 & B1 now [redacted] ting, ready to be taken to lab.

199 Order

1. Kimpak from Bittle 706-A, 6/88 2-58
2. Chemicals, Nat Brown ~~Flynn~~ 6341

F.J.S. 5-67/3

3. ~~Caps, gloves, etc. General Stores~~

(7) Witkowski would like to have the following done after B-6 is low in Pb:

(a) add 4.0 L of 3.5 N HNO_3 to B6
(b) Evaporate to Dryness -
(c) add 2.0 L. H_2O
(d) Boil down to 350 ml.
(e) Transfer (quantitatively) to B11 - B23 - B21R - B21T - B19 - analyze for Pb.

(8) Vehicle doors can be replaced after electrolysis -

(9) Witkowski will be out of cell B transfer -. Don't cell him, he has an alarm. -