4056

[redacted]

p.44: 300# 60% HNO_3 to cook out heel.
p122: "Fingers crossed"
p142: 510# 60% HNO_3

[redacted]

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NOTEBOOK NO.: CL-1098

ISSUED TO: W. A. Rodger - CJS

ISSUED BY: Velma Ruff

DATE: 10-31-45

[redacted]

"This document consists of 203 pages.
No. 1 of 1 copies, Series A"

RUN 6; see pages 49-96
RUN 7; see pages 121-146
RUN 8; see pages 151-180

Stack gas coming in window (p52)
See p65: inefficient scrubbing
124: HNO_3 fumes thru drains + lab. Bldg evacuated.
126: May have to shut down A1 during disobeying to drain A1-205 line

[redacted]

[redacted]

Bn T-217

CL-1098

[redacted]

CLASSIFICATION CANCELLED
DATE SEP 23 1971
For the Atomic Energy Commission

ROBERT L. JACKSON RLJ for the
Chief, Declassification Branch

CLASSIFICATION CANCELLED
Ted Davis 7-8-96
ADD signature Date
Single rereview of CCRP-declassified documents was authorized by DOE Office of Declassification memo of August 22 1994

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

David R Hamrin 7/8/96
Technical Information Officer Date
ORNL Site

[redacted]

11-6-45
2-12

[illegible] work O.K. B7 funnel
SOR interferes with operation of B8, but a procedure can be worked out.

There is a small leak on B3 jacket at the screw fitting on the east bottom side of the vessel.

We used 200 c.c. 6% $Pt(NO_3)_2$ and 200 c.c. 6% HNO_3 and made volume up to three liters in B-12. With this solution we could not detect any magnetic agitation in B-12. Check on this.

We knew back samples A1, A5, A6, A8 and A9, and adjusted the volumes delivered by these samples. We got them all working properly, and then stopped circulating so that they would not plug up again for awhile.

11/6/45
DEC

① Most of shift spent training Pierce, Richardson, & Jernigan in operations.

② Pls. have A-11 instruments checked — unable to get any vac. in vessel, & bubblers appear to be plugged. out — Line was crossed up, fixed now

③ Many thermocouples still on fritz: Have these supposedly been installed and ready for operation?

④ Still no vacuum on A-8 (Mem.: fritz ?)

4-12 Nov 7, 1945 Newton, Henderson, Ogle, + Rowe

1) A1 equip tested + recorded - see data sheet on clip board. Complete

2) Temp of 119°C indicated for tank A5. Probably a thermocouple calibration error. Complete A-5 (cooling water still going thru jacket at shift change)

3) A.6 complete.

4) Hot spot found on step near cell B door (west side) 230 mr, smear 22,000 c/m. washed with HNO_3, down to 60 mr, wash again, down to 25 mr. Suggest checking + taking another smear when spot dries up.

5) Spot found about 2 ft from radiator in main passageway on north side of cell B. 50 mr, smear 286 c/m. washed down to 28 mr.

6) Condensate line (union) just below plug K2 on west side of cell A. leaks.

7) 300 mr at surface on south side of cell A under blister A1 below plug K3

8) Bldg lights on fritz on west side of Bldg, Electrician got most of them when had to leave.

9) House phone on East side of Cell B 2nd floor dead,

AWB

To: E.J.W.

[redacted]

[redacted] Testing

Please inform me why the vacuum and pressure manometers in Cell A are functioning so erratically. Some of the irregularities noted are as follows:

1.) Only able to pull maximum of 2.0" in A11 with all other A16 off-gas valves shut off.

2.) Vacuum on A-9 tends to increase during operations even though all other valves are shut off. Once the vacuum in A-9 has reached a max., and the off gas valve is shut off the vessel holds the same maximum vacuum as was possible to obtain with valve to A-16 wide-open.

3.) The vacuum at top and bottom of A16 scrubber seems to be operating normally ([illegible]) which further tends to confuse me in regards vacuum in other A vessels.

4.) During previous runs we were able to pull at least 10-15" of [illegible] appears to be something around 4.0".

Why?????????????????????? I am slowly going nuts trying to solve the [illegible]

[illegible] A9-A8DA for maximum jetting temperatures i[illegible] lines were plugged both at the panel boar[illegible] steam header and on second level in strain[illegible] for these two jets it was discovered t[illegible] and new strainers were inserted for bo[illegible] I am of the opinion that many of the jets that we have found to be [illegible] in the strainers. The two strainers examined [illegible] with small pieces of the iron oxide being lodged past the strainers [illegible] vessels in A. Maybe this accounts for some of the high iron concentrations in past runs in Cell B.

Results of testing may be found on Clip board, but there were ~~found~~ several "Fritizies" found other than the plugged jet lines. They are as follows:

1.) Leak in A-11 Sp.Gr. manometer.
2.) #2 L.L. for A9 is blown.
3.) A-11 thermocouple disconnected.
4.) Leak in A9 Sp.Gr. manometer.
5.) Vacuum manometers for A9 and A8 need to be cleaned badly.
6.) A8 l.l. manometer needs to be cleaned also.
7.) The Hg. in A-11 liquid level manometer adhers very b[illegible] to line making it necessary to bang away at the inst[illegible] to get an accurate reading.

Are we to use the calibration chart of A8 for A11???????????

4-12 Nov. 8, 1945. Hendrickson, Ogle, Pom

1) Jet A-6 - W11 has bad flange leak. (Flange closest to steam inlet line). Job for maintenance

2) Prefilter changed valve, unions, nipples on A-9 vacuum manometer as requested by instrument man at 4PM.

3) Started washing down cell B concrete walls with 20% HCl as instructed. Completed south wall, south part of ceiling east + west walls ½ way up. Observed a blister formation at several locations + a terrific stench necessitating use of absorbent gas masks obtained from fire dept. Tel conversation with UPB, changed instructions so that all new concrete + plug in ceiling (barren of paint) were acid treated and rest of cell was to be gone over with stiff wire brushes. Status at shift end: Blisters noted due to HCl removal and rest of cell receiving going over with wire brushes with special emphasis on rusted ironwork + paint blisters - about 50-75% complete -

Quite large volumes of water and nitric collected in cell B sump due to acid work. Added Na_2CO_3 to sump + pelted to A6. Pelted from A6 - A5, then from A5 - W11.

Suggest pumping large volumes of water in cell B sump and getting thru equipment mentioned to W11 to insure no possibility of st. st attack by HCl.

Tel conversation with EJD. 8:15 PM
Requested as secondary to cell B job:
1. that A1 be retested as per data sheets on clip board.
2. that jets from A8, A9, A11 be retested + calibrated.
3. that instruments on A8, A9, A11 not be tested.

Status end of shift: 0% achievement.

AWRom

P.S. Steam going in coil in cell B intake air Duct to dry out cell.

See WAR note with respect to MT-M1

AWR

11/9/45
JEC
12-8-

① Re-Tested A-1 (SEE Clip-board)

② Calibrated A-11 (" " ")

③ Att'n E.J.W. —
Weld in discharge side of A-1-A-9A still leaks. Section of weld marked with red pencil.

④ M.T.'d M-1 per UPB — unable to find value for maintenance to repair.

See you'ne guys next week

4-12 Nov 9, 1945, Hendrickson, Ogle, Ross

1. Tested cell A jets + vessel A-1 as per insts from E&W also on this shift.
2. Adjusted funnel associated with B-8 as per verbal instructions from WPB
3. Drew up calib curves for A11 + M1 as per E&W.

AWRoss

12-8 ?

4/ov/p Program. Starting 11/10/45

1. Remove the lead in Cell B around B19 area, decontaminate so that background is still 25 mr/hr or less. Any inaccessible hot spots reshield with lead, as little as possible and also so that it will not interfere with any B19 testing.
2. Complete a calibration for B10.
3. Survey the 3rd floor area completely (hot dust, lab equip, etc) and decontaminate.
4. Do not remove any of the paper in Cell B. - More painting soon.
5. Clean out & straighten up the lab benches in Shift Room - 3rd floor. WPB

4-12 Newton, Hendrickson, Bailey, Ogle, Poor

1) Removed lead from B-19 area and worked on decontaminating St. st. equip + walls. Some hot spots read high enough so that a 30 minute working was maximum working time allowed in area. Some additional decontamination may be possible but we ran out of time. General cell B.G ~ 30 mr. Lead decontam + store on east platform outside bldg.

2) Calibrated vessel B-10. Calibration chart on W.P.B's desk.

B-10 sp. gr manometer read 3.90 ?!?

B-10 cell press - vac gauge (SP.) needs cleaning + refilling.

125 # steam header has leaky packing gland.

Bubblers on PB 5 should be identified and labelled.

3) Hosed down third floor + tried cleaning up the hot dust. Found a hot valve on the vacuum line on third floor lab bench. Cannot be decontaminated - should be removed.

Am Poor

B-9, B11 could be made to operate properly.

12-8 Nov. 11, 1945 — Pressly, Farmakes, Fairchild, Phillips

Drained A-16 off gas system manometer still not registering correctly.

Checked B-10 and B-3 bubblers on PB-5. They should be labeled as instruments below bubbler.

8-4 dift
11-11-45
SJR

A6-IV11 jet leaks bad at flange next to steam pot.

A1-A9A jet leaked at first weld on discharge side in Cell A as marked previously.

Cell B sump jets jet slowly, and are half plugged already.

A11-A8 jet registers full steam pressure at P.B., but no steam reaches jet in Cell A.

4-12 Nov. 11, 1945, Newton, Hendrickson, Bailey, Ogle, Cim

1) Forgot to mention on 11/10, when water vessel reached the lid, it spurted out in streams. Lid is already bowed from excessive tightening of bolts

2) B-3 air sparger bubbler empty — supposed to be that way as per M. Z.

3) B-3 air sparger mercury manometer on PB 5 needs oil

4) Checked sampler blisters B1, B3, B6, OK as per data sheets on clip board.

5) Got a hot floor (1400 C/m) on East side of cell B near blisters B 3, B6, Washed with soap & H_2O OK now

6) Light burned out in cell B. Above + to the south of B12.

7) Couldn't find a vacuum pump or regulator for emptying vessels for calibration
See storage area above locker & shower rooms.

8) See data sheets on clip board and separate page also item from maintenance necessary in cell B.

AWR

12-8 Nov. 12, 45 - Pressly, Farmakes, McClellan, Fairchild, Phillips, King

1. Leak in 125 psi steam header at weld in line to A8-A11 jet. (PB2)
2. Leak in AS-A5 jet at steam inlet flange.
3. Leak in AS-A5 jet valve at PB3.
4. Leaks in unions in AD-A5 at PB3

NITE WORK

Did (1) [illegible] and [illegible] [illegible]

See data sheets not complete (2) Finish [illegible] cell A [illegible] per [illegible] hand [illegible]

see data sheets not complete (3) Test cell B as per [illegible] hand [illegible]

wouldn't see - had an eye exam will do [illegible] (4) [illegible]

4-

12-8

✓ OK

4-12 NEWTON BAILEY OGLE HENDERICKSON. Rom

See data sheets + attached "comment sheet" for status of equipment.

AWP

12-8 NOV. 13, 45 PRESSLY, FARMAKES, FAIRCHILD, PHILLIPS, KING.

The steam engine at 205 stack is off. They are using the stand by electric fan. This accounts for the low vacuum in A1 + A5.

No checking on cell B equipment. Work done on cell A as per data sheets.

B-17 calibrated

How are the thermo couples in cell B tanks? Have they been worked on since 11-11 4-12?

11/13/45 Equipment Testing for tonight

done 1. Blow down all PB steam headers for 1/2 hour each, notify power house.

2. Break unions on steam side to the all cell B jets. Blow down each for 15 minutes. Do no more than 3 or 4 at one time to try to prevent wall paint from peeling off. This job must be completed before starting cell B jet testing. Keep cell ventilation on.

3. Retest all cell B jackets and condensers according to instructions.

4. Start testing B1, B3, B6, B10 instruments and all cell B jets.

5. Since we were unable to get and weld leaks fixed Mr Wharton has okeed the use of welder on 4-12 and 12-8 shifts to fix up any leak we may locate inside cells. Have the welder fix the ones that are already tagged and check each one. Leave record of each leak fixed.

6. Clean up both cell A and cell B sumps and floors completely. Take out lead on cell A floor. (not lead on top of tanks.

done 7. Drain A16 off-gas line soon after 4 PM, A16

Presley

[illegible] and said [illegible] he was [illegible] he would not be in tonight [illegible]

vacuum appears to be very unsteady and it may be due to water in system.

8. Testing of pipettes is to be started after as soon as the other jobs are completed.

4-12 Nov. 13, 1945. Bailey, Newton, Hendrickson, Rom

1.) All steam headers blown down.

2.) All Jets in cell B blown down as requested.

3.) B1, B3, B6, B18 Jackets tested for leaks OK
(A12 not tested tonite, B-12 has pipe thread leak-tagged)

4) A16 drained as requested.

5) Traced thru off gas system to 200 area with M. Levenson. Suggest having jet checked up near 200 stack for possible reason for poor vacuum on cell A vessels. Also noticed a valve on same stainless steel line near east side of 205 Bldg. (above large air duct).

6) Welded:

A8 - A9 (steam inlet to jet)
A11 - A5DB (between jet & wall)
A9 - B1 (near B-1 vessel)
line from Golden horseshoe to B26, ~~also~~ ~~to~~ both near horseshoe and near top of B26.

Tagged some repair work not of a welding nature.

7) Flanges on B1 (3-4 inches above top of vessel) leak, ~~B12~~ when tank is overflowed to sump. B12 lid also leaks (however B12 purportedly will never be that full in operation.

A M Rom

B1-
B1-B
B1 Sp
B1-
C-20-
B1-
C21-
B1-
B1 J
A12

11-14-45 12-8

Cell A floor and sump cleaned and also B sump. The lead shots around A5 and A-1 left. To remove them would increase activity in those areas.

A12 (B1 condenser) checked — OK

Started to check flow rates of jets when it was discovered that there were numerous leaks. Therefore a systematic check for leaks was made in Cell B as follows:

PB4A

B1-B26	Leaks in bottom weld of steam port.
B1-B12A	Leaks at jet outlet of union connection. Header to valve slightly plugged.
B1 Sparger	Leaks at intrance to B1
B1-B6	Steam loss too great at B1 Pot. ~~B6 weld leaks~~ Leak at union in line to B1 pot. Repaired 11/14/45 (12-8)
C-20-B22	Not tested
B1-B3	Leaks at unions, stem & outlet of jet
C21-B22	Not tested
B1-B10	OK
B1 Jacket	OK
A12 Jacket	OK

Continued

11/14/45 12-8 Continued -

B22-B10 OK

B12 Jacket Leak where pipe enters bottom of tank.

B18 Jacket Water valve at PB leaks? Check again.

B3 Jacket Leak just below valve at PB (new union)

B6-B1 OK

B6-B3 DA Leak on 2nd floor (PB to Plug) tagged. OK in cell

B6-B3 DB OK

B6 Sparger Leaks at fitting entering tank.

B6 Jacket Leaks at bottom of tank, inlet line.

PB 5

B10 Sparger Leaks at union fittings at tank inlet.

B10-B3 Leak in union just below PB valve. Leaks in bottom cap of steam pot.

B10-A9 Leaks at bottom of cap in steam pot. Bottom of pot where it has been machined out.

B10 Jacket OK

B3-B12 Steam pot cap. Valve at PB leaks. Leak on 2nd floor at union.

B3-B10A Leaks at union new pot inlet. Also check bottom cap.

B3-B10B Leaks at union new pot inlet. Also check bottom cap. Slow pressure rise. ~40 psi max.

B10-A5A Slow pressure rise. Probably slightly plugged. Max ~ 82 psi. Leaks at union outlet into pot also check steam pot cap. Cap pipe going thru G1 plug.

B3-

B3-B

B10-

B3 Sp

11/14/45 12-8 Continued

B3-B1 Leaks at steam union inlet side of port
Also check cap bottom of port.
B3-B6A Slow pressure rise (sl. plugged). Same leaks as B3-B1
B10-A5B Same leaks as B3-B1
1B3 Sparger OK

Tighten all flanges on B1 & B3

B cell sump manometer doesn't work.

REPAIR WORK COMPLETED

A9-B1A Unplugged steam header
A1-A9 OK
~~A9-B12~~ hot OK
A11-A1 OK

TO BE FINISHED

These comments copied from someone else.

A11 Jacket steam line plugged (check)
A9-B12 Leak around lid at B12

JRJ

20

Only pipefitter available was shift one who had spent time in 100 before reporting here!

Equipment Testing and Repairing

Mr Wharton has agreed to furnish a pipefitter on 4-12 and 12-8 shifts to help us repair equipment. The welder who is working in our building will also help repair leaks in his spare time. Try to make all repairs as soon as each piece of equipment has been completely tested. Continue retesting and repairing until equipment is in good shape.

✓ 1. Check for leaks the discharge lines of the following jets: A1-W11, A1-A9A, A5-W11 A5-A6, A6-W11, A8-A11, A11-A5DB, A11-A9, A11-A5A, A9-A8DB

The cell A dummy run is scheduled to start tomorrow and it is extremely important that these most frequently used jets are in good shape.

✓ 2. Check all duct and sump jets. Run sufficient quantity of water to duct to give the jet a good test.

✓ 3. Check all cell B condensers and jackets according to instructions, fill out sheet completely as each item is oked.

4. Check all cell B jets and fill out instruction sheet as each one is oked.

✓ 5. Check B1, B3, B6 and B10 instruments

14/8 Repeat 6. Check stationary pipettes B2, B9 and B11

needs work on drain valve

OK - 12-8 JRJ

F/12
11/12/45
JEL

① Attn. 12-8 —

Contact pipe fitter and have following jobs done. Pipe fitter on 4-12 had used up time in 105 Bldg, and wouldn't tackle Cell Maint. work.

Roy McK ⓐ. Slight leak at strainer in A-11 — A5A jet line at A-2 plug. ✓

Roy McK ⓑ. Two unions on jet A11-A9 at AW-A2 plug, and union directly behind jet.

ⓒ B3-B12 — Valve at Panel board, & leak on 2nd floor at union.

ⓓ B3-B1 — Leaks at steam union inlet side of pot. Also check bottom of pot cap.

ⓔ. B3-B6A — Line at P.B. slightly plugged - same leaks as B3-B-1.

ⓕ. B10-A5B — Same leaks as B3-B1.

Roy McK ⓖ Check welds on B6 sparger (slight leak at fitting entering tank.

ⓗ. B18 jacket - Line splashed with white paint at bottom inlet.

Roy McK ⓘ. Gasket around A5-A5 jet leaking.

ⓙ. A5-A5 steam valve at PB leaks.

Roy McK ⓚ. Gasketed flange around A5-A6 jet leaking.

(2) Maintenance began checking steam strainers AE & AB (2nd floor). Following were completed: 12-8

(a) B3 - B-12 — ok
(b) B3 - B10A — ok
(c) B3 - B10B — ok
(d) B3 - B1 — ok
(e) B10 - B3 — ok
(f) B10 - A5B — ok
(g) B10 - A5A — ok
(h) B10 - A9 — no strainer inside.

OK

(3) Try to persuade B2, 9, & 11 pipeteck to work — we had no luck! Able to pull sufficient vacuum — but no transfer —

(4) See clipboard for "must-do's" & "Have dones"!
Also see EJW's notes on Page 20 —

12-8 Nov. 15, 1945 Fairchild, McClellan, Phillips, King, Farmakes

(1) Pipe fitters were available part time. Worked on leaks listed on page 21. Those marked were repaired and checked.

(2) Pipette Checking

B-9 - 500 cc transferred in 20 seconds at 100 in. vacuum
Collected 495 cc.

B11 500 cc in 26 sec at 100 in. Vac.
Collected 490+ cc

B2 Drain valve either needs an extension or pipe in plug
BW-B2 needs cutting.

(3) Power Failure - From 2:15 AM to 4:15 AM.
All work stopped for 2 hours.

(4) A8-A5B valve at PB1 leaks. Tagged.

(5) A few spot checks of leaks listed on pp 17-19 were made and found OK. All tags marking leaks were removed, therefore it was assumed that all leaks listed are now OK. It would be appreciated if repairs of

12-8 Continued

leaks & subsequent testing were indicated in the log so that other shifts would know what has been done & what remains to be done without having to repeat a lot of work. Could you have the leaks in question checked off by the men who did the work?

(6) No further jet & sparger testing (Cell B) was done because instrument testing has not been completed. Until all manometers are known to be OK flow rate figures would be meaningless.

(7) We had already tested B9 & B11 pipettes before we spotted your prescribed tests for this work. Let us know if you want a repeat job done.

(8) There was no gasket in suction side of jet A5-A5. This was replaced. The entire Cell A seems OK inside Cell. All leaks in Cell A as listed on page 21 have been checked & repaired.

11/15/45
8-4 All leads to jackets, condensers and jets have been fixed and okeed. All PB-4A and PB-5 instruments are also ok.

Equipment testing for tonight

1. Test all cell B jets according to procedure attached to clipboard, fill in all information.
2. Test B1, B3, B6 and B10 instruments according to procedures
3. Complete testing B2 pipette, B9 and B11 are ok. (Stationary pipettes must be vented at PB4B in order to get good drainage.
4. Caustic has been added to M-11 and it must be diluted down with water to 35% (Sp. Gr = 1.38). M-11 Sp. Gr. factor is 6.05. Sparge the tank well before and after each addition of water.
5. Complete washing bare uranium sludge and add to A1. The total weight of U in dissolver at present plus the U at 3rd floor sink will be 405 lb.

Start dissolving according to run book but do not jet to A9 after metal solution dilution — hold in A1 until 8 AM. Do not sample solution

P.S. Clean cell & floor, entrance and sump of all small pieces of junk (to

prevent jet plugging) before adding water to sump.
6. Start taking shift inventory and making equipment checks — faithfully.

11/15/45
4:12
JEC

① B1, B6, B3, & B10 instruments checked (see clip board) & everything operate oked with exception of B-6 L.L. Man. —

12-
11/16

② Cell B flooded as B-10 jacket discharge line falls short of drain — remedy.

③ Dissolver loaded and dummy run #1 ~~completed~~ dissolving in A-1 to be Diluted and ~~resting~~ held in A-1 awaiting addition of Ba tracer solution on day shift.

④ No welder available — have welder on 12/8 weld vac.-pressure line on B2 — this line has been cut in two places — underneath P.B. 4B, and below PB 4B on 2nd level. B2 is to be re-tested once the line is tacked.
B1 now has 1000 cc. added ready to transfer to B-2 when above is completed.

11/15 - B2 press. vac. line welded - ready to test.

(5) Grave yard — you lucky hoy — we left them No. 1, p. 25 for you's.

(6) See type written note in Run book regarding dissolving.

JK

12-8 McCLELLAN, FAIRCHILD, PHILLIPS, KING, FARMAKES
11/16/4

(1) B2 pipet test — See instruction sheet. Appears to be OK. However one run was ruined by overflow from B12 - B1. The mike could be a little louder.

(2) Jet testing for leaks & flow rates. All but 3 tested. Complete comments on instruction sheets. All leaks in cell were tagged. 2 were repaired by welder.

(3) Replace B6 - B3 DB jet which is cracked.

(4) 2 valve rods protruding into work area above cubicle were a bad safety hazard besides being in the way. They ran thru BW-E3 plug to B26. They were cut at the welds inside the cell + were placed on the floor behind PB 3.

12-8 11/16/45 Continued -

(5) Need a new sampler level bulb in PB-4B

(6) B17 calibration charts show 2840 ml as overflow volume. I ran the calibration and my figures showed 2740 ml to be max. capacity. Was that a typographical error or did someone else actually check the overflow pt? 2740 ml came up to the bottom edge of the funnel in the top of tank. See original data sheet given to Bigler.

(7) Fairchild suggested cutting away more of raised flooring just west of B8. Cannot lower enough to reach bottom of B12

(8) Can't get B7 probe into Tank. Touches side of hole. ???

(9) Probe Testing. See sheet.
B1 - Bottom light works. Top does not.
B3 - Using B3 tank in jet tests.
B6 - Lights in reverse order.
B12 - " " " "
B17 — No tank

11/16/45 Equipment Testing for Tonight.
8-4 ① Test B19 according to instructions on clipboard.
② Complete installation of BS-A6A jet and test.
③ Weld jet B6-B3DB back in, retest.

Coils Removed

~~④ Let A-1 Jacket & A-2 Jacket remain on for 2 hrs. Then check coils 1, 2, 3, 4 individually for 3 hrs each and see if they leak into A-1.~~

✓ ⑤ Recheck B6 manometer record data on clipboard sheet.

✓ ⑥ Retest B10 jacket for leaks.

Floor Decontamination — See H.P. survey for complete data, In general, areas around B6 probe, roped off (Cleaned not checked) area around glass panel board and instrument shop are hot. The rest of the 3rd floor and N second floor have been cleaned but not rechecked.

⑦ Look boys, lets be nice about this, how about shift inventory and equipment check sheets.

✓ ⑧ Clean up building exp. boxes on south of cell A

11/16/45 Dunlap, Jernigan, Richardson, Ogle, Collier
4/12
Sec

① A-2 Coils placed in Rm. 9, tested for leaks by blowing air through coils while submerged in H_2O —
Results: Coils 2, 3 & 4 all have leaks —.

② B-6 L.L. Manometer okeh.

③ B-10 jacket okeh.

④ Decontamination of Bldg. —

ⓐ Glass panel board — 47 cts/min
ⓑ Area around B-6 probe — 67 " "
ⓒ Instrument shop still contaminated — not touched. See H.P. Survey —

⑤ B-19 apparatus seems to operate ok — little sluggish in places — First dummy run in progress — to temperature at 8 P.M. —
Conc. examined at 11 P.M. — about 10 cc. unevaporated — Majority of crystals in tapered part of cone but evidence of sputtering was noticed.
12-8 Continue to evaporate to dryness — examine and begin 2nd Dummy Run [illegible]

11/17
8

⑥ Have welder on 12-8 weld in jet BS-A6A & B6-B3DB.

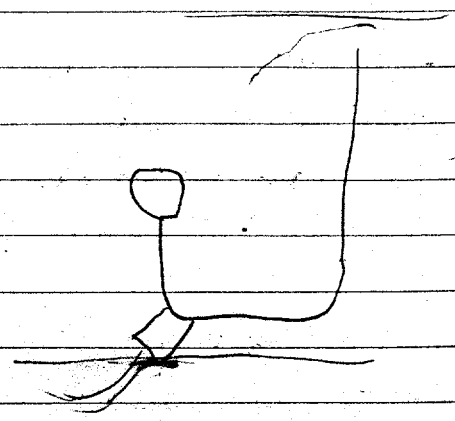
Hallinson, Ferguson, Phillips

B6-B3DB. jet was welded and tested and is ok - Dummie Run - no1 look - good it was dry and all down. in Button of cone ok BS-A6A has strainer in B Sump and was welded in A cell and is ok -

Equipment Testing For the Week-end.

11/17/45 8-4 1. Continue testing B19 according to new procedure attached to clipboard. Using the old method caused spattering on side of cone and we are trying to eliminate this condition. Repeat this procedure until a good evaporation rate curve can be determined.

2. Calibrate all probes which have been checked ok by instrument man by 4PM according to procedure attached to clipboard.



November 17, 1945

8-4 Newton, Bailey, Hendrickson, Pierce, Ross

H2O off.

① Cooling water is running thru jackets of A-1 and A2 to test for leaks. None evident at shift change but water left on.

② Checked jet from B3 - B12 jetting over a measured volume of 4 liters of water into an essentially empty B12. Splattering was normal after this amt of liquid transferred (i.e, not enough to be concerned about) an additional 2 liters of liquid were added to B3 and jetted into B12 which already contained 4+ liters of liquid, this filled B12 to overflowing and the action of the jet in this case did splatter liquid around quite a bit.

③ Started running evaporation test as requested on B19 equipment. Some mechanical difficulties were observed:

A. The two arms which hook into the evap cone are about $\frac{1}{4}$ - $\frac{1}{2}$" too low and collide with the big heavy product carrier.

Weld must be raised

B. Cone heater thermocouple well binds on top of product carrier when in lowered position.

We had no trouble here!

C. Cone heater assembly did not move far enough out of the way to permit free

lowering of evaporation cone

This is natural

D. Movement of the equipment seemed sluggish & not free but as if something were binding it.

(4) Probes on B1, B3, B6, B12, B17 were checked for alignment & lights on panel were also checked. O.K. Probes not calibrated however.

(5) Housecleaning done on 2nd & 3rd floor and around & in cell B. all rubbers & gloves checked for contamination.

AMR

11/17/85 LEC 1/12

(1) Tested B-19 — See Clipboard

(2) Tested Probes — " "

(3) Tested Jets — " "

AMR

11-18-
12-8
STR

not goo
AM

11-18-45
12-8
STR

B3 & B6 probes do not hang free. B6 probe in particular is held up in its guide slot so that the weight of the pulley does not pull straight down on the guide wire. Neither probe hits hole in plug properly.

Fixed a steam leak on A9 - B12 at P.B., valve on NH_3 flow manometer and some vent valves that turned hard.

On B19 we evaporated 250 c.c down straight with cone heater air at 148°C. Most of the solid deposited in the cone with only a little on the sides of the wall. It looked good with no excessive splattering. (Suggest that the next shift try adding 25 c.c shots of distilled water through the solution addition line in an attempt to wash the solid from the walls into the cone.) What you really need is a special line with a spray installed in the B19 head heater to do the job, but it would be interesting to see how much good you can do with the solution line that is already present. B19 should be evaporated down by now.

not much good
A.R.

8-4 Nov. 18, 1945 Newton, Hendrickson, Bailey, Pierce, Rom

① Continued taking data on B19 equipment, Run in progress now, info on data sheets.

② Made a shift check this AM as per attached sheet on clipboard.

AWR

P.S. When moving (rotating) B19 cone heater, plug (concrete) in roof of cell B has tendency to turn also. Action of this assembly still sluggish!

11/18/45 12 JEE.

① Tested B-19 —.

② During operation of B-19 there suddenly appeared a very vibrous noise from air line to cone heater. Maintenance checked gate valve on air regulator — appeared ok (should be a globe valve). Adjustment of regulator slightly, solved situation.

③ Bigler where is tantalum cone?

11-19-45 Found following maintenance items in Cell B:

12-8 Did 1.) Tighten top of B26.

SJR O.K. now 2.) B1-B12 A - peehole plugged.

welded OK. 3.) B1-B3 - steam leak at inlet side of jet.

Tank has to be overflowing - left as is 4.) Leak at Xmas tree flange on B3 (from B6 et al). This leak is noticeable when B1-B3 jet or B10-B3 jet is on.

O.K per E.J.W. 5.) B12 jacket - small leak at screw fitting on bottom of jacket.

Same as item 4 as far as we could tell 6.) BE-CW plug has two lines going to nozzle on B3 which leaks when B6-B3 DA jet is on.

OK 7.) B3-B6 A - leak at discharge side of jet.

couldn't find 8.) B3-B12 - leak at discharge side of jet.

Control valve at P.B-6 for heater air is very loose at air flow of 25, and readily flies open allowing too much air to pass through and causing excess vibration at the valve. Cutting air pressure back to 20 brings about satisfactory operation, for valve is tight at this air flow. This valve ought to be tightened or replaced.

8-4 November 19, 1948, Hendrickson, Newton, Bailey, Pierce, Rowe. 11/1 8-

① Did maintenence work as indicated on page 38.

② Also found a leak + had welded closed a leak in a line from golden horseshoe to B6.

③ Had valve repaired on PB4B - (valve to pipette B7)

④ Made shift check. small fan turned off and left off (alarm also off) as per instructions from E. J. W.

⑤ Started working on calibration of probes.

Note to Rimshaw: We couldn't find anything called BE-CW as you mentioned in item 6. AWR

The janitors have registered a complaint with respect to putting all sorts of trash in a can specifically labelled "broken glass"

AWR

11/19/45 Equipment Testing For Tonight.

8-4 1. B7 and B8 pipettes are ok to use now, do not rub off wet paint marking. Check these according to procedure attached to clipboard. Measure heels left in B12 and B17 by actually sucking out the water with rubber bulb or vacuum pump (Probes not calibrated).

2. Our present probe calibrations are all bad so please calibrate and draw new charts for B17, B6, B3 and B12. Use the following procedure.

(a) Empty vessel completely with vacuum pump.

(b) Set zero on probe dial when probe touches vessel bottom — keep the probe cable tangent to the drum when zero reading is set.

(c) Add small portions of H_2O at the beginning directly to the vessel inside the cell and continue calibration to overflow.

You may find B12 cable too short for this new method of zeroing probe so try to switch B1 cable to B12.

3. B17 cover is not yet fixed to work perfectly but a bit of gentle playing with

it will do the trick.

4. Clean out cell B sump. Hose down cell A entrance and jet out water.

5. Please — keep your weight off cell B jet lines. The pipefitters and welders have been patching up the same leaks for a week.

6. Small fan is off, keep it off while we don't need it.

11/19/85 4-12 JEC

(Cable from B-1 put on B-11)

① Calibrated B-6, B-3, & B-12. (SEE Clipboard)

② B-1 probe removed for repairs.

③ Cell A cleaned up —

④ Tested pipettes B-7 & B-8 (SEE Clipboard)

⑤ 12-8 Pls. Calibrate B-17 — in same manner as B3, B6 & B-12

⑥

11-20 8-4

11/20 4 JE

11-20-45 B7 & B8 leave 400 & 440 c.c heels
12-8 respectively in B17. B8 does not come down far
SJR enough through the floor to suck up any more solution
from B17. Horizontal part of B7 hits funnel rack. To get
B7 funnel to dip down further in B17 a part of
the vertical section of sheet metal on the funnel rack
will have to be sawed through and bent back. These
large heels can readily be reduced, if so desired.

B17 probe was calibrated after zeroing:

Volume	Probe Reading	Volume	Probe Reading
100	1.1	1000	4.3
200	1.8	1200	4.7
300	2.1	1400	5.25
400	2.5	1600	5.8
500	2.8	1800	6.3
600	3.1	2000	6.8
700	3.45	2200	7.3
800	3.7	2400	7.8
900	4.0	2600	8.3
		2800	9.9 overflow

Graphed

11-20-45 1- 204# of slugs without Coats in A-1
8-4 see procedure sheets.

11/20/45 ① "Graphed" B-12 & B-17 -
4-12 ② Installed Specific & over-all Viewers.
JEE ③ Started Dummy Run 7B in A-1 -
12-8 - Continue Dissolving Dummy Run in A-1
to Sp.G. of 1.78 - Sample in A-1, jet to A-9
and hold. Add another charge of HNO_3 (~10 #'s)
to A-1 and dissolve remaining slugs. It isn't

Know how much "U" remains in A-1
but we want to be sure to dissolve
all remaining slug. Carry dissolver
to constant Sp. Gr., dilute up
and hold in A-1.

Do not operate B7 or B8, maintenance
work not completed.

11-21-45
12-8
STR

HNO_3 is cooking in A1 to dissolve
remaining metallic heels. Specific Gravity has not
started to rise. Metal solution is held in A-9 as requested.
Cell B was cleaned up.

11-21-45
8-4
AWR

① metal waste getting from A5 - A6

② Dummy run D7 digesting until 4 PM

③ Check sampler A5. (use water for checking as per previously)

④ 2 liters of H_2O put in B26 sucked to B27. Blow to B12 and measure volume. Also desired to check cond filter by pass valve from B26 to B27.

⑤ Valve A4-pump mislabelled. Should be A4 - W11 (on top of A cell).

Jobs for Tonight

1. At least some cell B vessels appear to have dirt on the bottom, they must be all cleaned out thoroughly before using jets. I suggest adding water to each one, sparging thoroughly and siphoning out the water with sparger on several times. B17 should be cleaned out by swabbing with cheese cloth and then rinsing. Also clean up all the furnace.
2. Run B7 and B8 equipment check according to typed procedure. You may

find that both pipettes will work slowly since they slightly touch the bottoms of B17 and B12 so try keeping the pipette about 1/2" from the bottom until almost all solution is in the pipette.

Disregard the bottom stops for B12 and B17. Drop the pipette into vessel until you notice that the wire is starting to get slack.

3. See if M11-M10 line is still frozen, if it is try thawing it out with steam hose.

11-21 A-9 Settling until 12:35 AM.

4-1✓ A1 - Has 300# 60% HNO_3 cooking out the heel. Let cook until 8 AM. The sp.g. man. on A9 is out at back of board due to leak in line. The L.L. bubbler is high so as to hold pressure.

We calibrated B17 + B12.

There was no technical men on this shift so we didn't know just how to make up the 25% H_2SO_4

Ray M

11-22-45
12-8
SJR

Line from M11 to M10 was thawed out and 80" of 4% NaOH made up in M10.

Contact mike on B7 does not work. B7 sucks liquid out of B17 OK and discharges OK, but the vacuum or pressure does not "break" and you cannot hear anything on the mike. B7 takes about four or five times longer than B8 to suck in or discharge solution. The pipette lines seem to be so narrow that vacuum or pressure does not "break". These lines may be partially plugged on B7. No measurable heel is left in B17 with either B7 or B8. B8 pipette works O.K.

Flushed tanks B1, B3, B6 & B10 with two acid washes, and two water washes. Didn't clean tanks.

First metathesis is ready to start on D7B in A9 at 8^{00} A.M.

Neutralized metal waste is in A5.

What is in A-6?

p. 46 Nov. 22, 1945, Newton, Bailey, Henderickson, Price, Ross.

Dummy run continued as per cell A process manual and special sheet by W.P.B.

Material which had been jetted from A 8 to A11 at 10 10 Am this morning will be done settling at 8 10 this p.m. See special sheet written up by W.P.B.

Metathesis being carried out in vessel A 9 at shift end. See run sheet.

Shift check + shift inventory taken.

Miscellaneous equipment testing + housekeeping done.

AWB

Dummy Run - 1. Leave dummy run thru Metathesis Cake Wash in A 9.

2. We want to test the decantation from A 11 to A 5 with A11-A5DB. After the decantation and neutralization in A 5 get a 10 cc sample. Then slurry out the heel in A 11 and transfer it to A 8 after A 8 is clean. Then sample this soln. in A 8 after good agitation.

Misc. - Fill the head tanks and make up tanks including M 10 + M-11.
- Let Cell B - cubicles sit as they are.
- Get all sampling equip. cabinets in order.

WPB.

10-22 Mt'd 5 Drums Frozen Caustic.
4-12 Filled T5 and M4 with Nitric.
Made up Batch 65% H_2SO_4 - Please have this checked before using. (Nitric Added)
Mt'd A1 and Neutralized acid. added 100# New acid to A1 and its cooking now.
Made up batch Sodash. There is not enough bags left to make up another.
Sampling equiptment checked (Ok)
The manometer on T6 has been screwey so we didn't fill it.
A.9. Settling until 12:20 - (2nd H_2O wash)
Please note W.P.B. orders as to A11.
We could not do this because A8 had washes in it.

Roy M

11-23-45

8-12 Bigler and Rodgers will be in about 5:00 AM

Run 6A - loading #7 in process of being loaded at shift change.

A-1 contains $NaNO_3$ solution and slurry. T-9 has 35% NaOH 75# not enough as per step 13 page 2, run 6A.

A-8 & A9 rinsed.

Slurry run in B-12 sampled time (9 PM - 11 PM). It is in process of being discarded i.e. sucking up in B-7.

Neutralized solution in A-5 getting to W-11

PAGE 48 MISSING

11-23-45
12-8
SJR

Operators and others note! It is unnecessary to make up 65% sulfuric anymore, since from now on it is planned to use straight 90% sulfuric acid in the extraction step. Neither is it necessary to add nitric acid to sulfuric acid when the latter is dumped in the future, because there are no corrosion difficulties with straight 90% sulfuric acid on stainless steel tanks.

The caustic in drums is frozen solid. We steamed three drums for three hours, and the drums are still frozen half-solid. By steaming line at M11 we were able to pump caustic from M11 to T6 on third floor. There are 500 lbs of 40% caustic in T9 for the coating removal tonight.

The 65% H_2SO_4 in T-4 was discarded.

Washed metathesized cake in A-9 has been held up for day shift.

A8 contains a water slurry of any $PbSO_4$ cake that settled out in A11.

A1 is cooking out metal heels with 100 lbs of HNO_3 added by previous shift.

November 24, 1948

11-8 Newton, Pierce, Hendrickson, Bailey, Ram

① check contents of T4. Noticed at shift end that 4-12 shift recorded H_2SO_4 as 63%. We added 5" of 90% H_2SO_4. (2 shifts ago recorded

② B12 has first shot of 25% HNO_3 + 200 cc H_2O_2 for lead disposal. Did not complete this.

③ Run in progress, added 291 slugs. Process run up to page 5 on run manual

④ Suggest using 20% NaOH for winter storage. See page 45. Solvay Blue Book.

AMR

11/24/45
8-4
M.L.

Run Status:

6A — settling Hot till 5 20/P

6B — dissolving

Slugs are to be loaded as soon as 6B dissolving is finished. As soon as the metal solution is cooled and sampled, start dropping slugs. Remove 6B solution to A9 as soon as needed. Then remove coats and dissolve batch 6C

The pulley block on the main Hoist (one to front door) doesn't seem to be turning properly - use with care.

A2 coils are under suspicion. A2 Jacket and coil 4 appear O.K. - have been using 3# on coil 1 and 4# on coil 2 - if increased watch liq lev of A1. - suggest turning all coils and A2 Jacket to line pressure after 6B is removed from dissolver - and leave thus during rest of slug loading to see if an increase in A1 liq level is found.

HNO_3 - H_2O_2 mixture for lead removal now in B12 - to be removed around 5 o/p.

4-12

8 loads slugs. No 9 is in process.

B-12 lead removal is in B-3. B-7 not in rest well.

6B extraction in process A-9.

M-11 contains 27%. NaOH (better check before - using as M-11 Manometer liquid level not working properly

12-8 Nov. 25, 1945 Bailey, Pierce, Newton, Hendrickson, Rom

6A - waste metal jetting into A6. (<4% loss)

6B - Settling in A-9 until end of shift.

6C - coats off and dissolving in progress.

B12 rinsed on this shift with water and B7 in rest well

Trap on 25# steam line on south end of PB 2 on the fritz. Steam blows thru and blasts up the vent line on the roof - sounds like a B29. Valve shut off. Check this valve if steam req'd on PB 2.

A16 water, page 8 Batch B says reading of 30 on manometer req'd. Batch A says 135. Which???

No lock available for locking out A-9 agitator

Got a precipitor reading on north end of 3rd floor of 1000 c/m at 3:00 am. Checked south end, rechecked north end - normal. Only explanation apparent was exhaust gas from stack coming in thru open windows.

Steam valve on A-1 sparger leaking &

mopping up floor on east side of PB1.

checked coils 1 & 2 on A2 while loading slugs. nothing unusual noticed in a period of ca 2 hrs.

Nothing done on making up 27% NaOH for PB11. Absolute lower value calculated as far as coating removal is concerned was approx 24 %. This didn't allow any H_2O for rinsing solution lines so 27% is plausible if rinse of soln addition lines cut to about 10# H_2O

Cleaned up & hosed down 3rd floor. Northwest corner of floor drain hot – 60 mr/hr.

AWR

Cochier called up at approx 7 AM to say he wouldn't be in today because of illness.

7:40 AM

H.P. reports another rdg up on north end of 3rd floor – 4000 c/m.

11/25/45
8-4
M.L.

1. A11 instruments not doing so sharp.

2. Discovered the hard way that when sparging M1 + M11 the samplers don't work - not enough air pressure

3. A9 agitator acting up, running hot + drawing too much current.

Run Status

6A - in A6 ready for W9'ing

6C - settle cold till 8^54/P

6D - dissolved + sampled - ready to go

6B - in A11 settling until 8^00/P. then decant to A5. Heel to be returned to A9 if there is room in A9 - otherwise save in A11, and resettle with next batch

11/25/45 Pressley, McClellan, Fairchild, King, Farmakes
4-12

1. Made up 40 in. more of 4% NaOH in M10. 40% caustic in drums contained considerable solid NaOH. Put back into soln with XS H_2O & steam. This method was used: Ran H_2O into M11 & steam sparged it. Jetted NaOH from drums to M11. Jetted the somewhat diluted NaOH from M11 to M10. Added H_2O to M10 to dilute to 4%. This method seems to overcome "freezing" troubles in the lines & tanks. Total 4% in M10 now 80 in. or about 21,500 lbs.

2. Jetted metal waste from run 6A from A6 to W9.

3. Steam used to dissolve caustic in 2 drums — Not completed. Required steam hose to unplug A5 sampler. Suggest dissolving the caustic soon since it requires considerable time.

4. Knob on 1st level SE corner door is a finger smashing hazard. Suggest that it be repaired.

11/25/45 – 4-12 Continued.

5. Why not add a pipe to enable getting directly to M10 from M1 or a drum and by passing M11? This could be done without too much trouble & it would save time & trouble in making up 4% crushe.

6. A11 Manometer is leaking

RUN STATUS

1. 6D Settling hot until 2 45 AM
2. A8 ~~has waste from 6C~~ IS EMPTY.
3. A11 has 6B decant heel & 6C WASTE.
4. Dissolving 6E started at 10 30 PM.

7. T6 Manometer is out of order.
8. A5 sampler unplugged at end of shift. Did not take sample.

FLASH! 11 50 PM A9 agitator went Haywire

JRJ

November 26, 1945 Bailey, Newton, Hendrickson, Pierce, Ram.

12-8 A-6 44 + SP-G are slow coming up
6-26 First Reading Taken on Batch B-MW
33" 20 min. Later After Jet cut off 36.5"

Called in an emergency order on the A9 agitator to have the electrical and mechanical drive system checked as best as possible without turning the agitator. Electrician checked the starting system and found a couple of "heaters" which possibly were causing trouble. Slightly higher rated (larger cap. but still safe for a 3/4 H.P. motor according to electrician) heaters were installed. Bearing on top of cell A also lubricated.

Present status:

Maintenence dept to be on hand when A9 agitator needed at around 9 AM to see if any good was done — also there will be a better opportunity to check the agitator while it is in operation.

Suggested that Hartman's O.K. be obtained on new heaters installed in starting box.

Run status:

6A - Metal waste 'done gone'
6B - " " in A6 → Heel from W11 apparently not jetted back to A9 according to run sheet. Possible this AM to jet W11 heel to A9 if so desired.
6C - in A5
6D - decanting from A-9 to A8 ~~jetting~~
6E in A1 "waiting on" A9"

(over)

Supplies needed:
phosphate
nitric
Soda ash
sulfuric

Ring balance on A6 needs maintenance

Suggested method for preparing 27% caustic, when M1 not in constant use:
jet 50% caustic from drum to M11
jet calculated amt of H_2O measured up in M1 to M11 slowly, observing tank M11 for excessive heating.

Amk

Also seems to be some question about instruments on M11 in make up room.

Items listed as [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
About A11: [illegible] sp gr. and [illegible] are [illegible] together [illegible] [illegible] [illegible] [illegible]

Keep [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

-20°C 0°F

Use air sparger instead of agitator on A9.

WAR

11/26/45
8-4
M.L.

Run status
6D - settling in A11 untill 8 00/P
6E - Cold settling until 7 55/P
6F - sampled - ready to go to A9

slugs will be loaded on day shift tomorrow
A9 agitator on last leg - to be saved for second methathesis + cake solution.

Hot spot behind PB1 from hot steam strainer, strainer removed etc but small hot spot on floor remains to be cleaned.

Cake of a dummy run in B6 - do not disturb.

Program - 1. Std NaOH soln is going to be 20% so change M11 + T to these conc. Coating Removal has been changed to take care of this. ~~See T.A.~~

done → 2. - Finish painting magnets.
3. - Improve Bldg housekeeping - see dist. on black board.

4 - H.P. does not need their product at this time so — make a 65 shg batch (6G) out of the heels in A1, add it to A9, add the A11 heel to A9, extract, and run the metathesis after that. There will be no more scheduled shg additions.

4-12

6F settling hot until ~~165~~ 1:55 AM

A-8 MT

6E settling in A-11 until 3:55 AM.

6G - dissolving in A-1.

Make Na_2CO_3 - Na_3PO_4 soln. in M1 after shift inventory at 11 00 PM.

6D - Jetting to A-6

M-11 contains 20% NaOH ?
Sample taken to lab. It may need butting.

19.3%

12-8 November 27, 1945 Mickener, Newton, Hendrickson, Bailey, Pierce, Rom

not neutralized.

6E in A5, sampled after 6 hrs. settling in A11. (900 c).

6F in A9 ~~Decanted (or~~ tried) with both jets, which seem to be plugged at suction line

6G in A1, Diluted, Sampled.

A9-A8 DB run 38 min. +
A9-A8 DA " 23 "
Shut off and air sparged.
Sparger also plugged!

6E waste in A5 — 14.C

11/27/45 Run Status —
8-4 6E — in A6 ready for W'9 ing
M J 6F — in A11 settling until ~~19~~ — decant to A5 + sample (A5 to be clean + empty)
6G — in A9 settling until 10 50/P

A4-205 off gas line draining — check before using A1 or A5

over.

above specified limits call me WAR (ST)

Program – 1. Clean A5 once more.

2. At 10 50/P Decant the following two solutions A9–A8DB + A11–A5DB and sample A5 + A8. If A5 is below 100 c's neutralize + jet to waste and if A8 is below 50 c's. Move wastes to A6, add phosphocarbonate to A5 and jet back to A5 for neut.

3. If the above works out – slurry A11 back to A9, add 100# 25% H_2SO_4 to A11 (in portions) + flush this back to A9. Settle A9 an hour for every 8 inches on the Hg Manometer.

4. After settling decant to A8, consider this the first wash, continue with run sheets.

5 Remove benches + ladders near cubicles and leave platforms.

Send heel to A9 Then

Add 50# 25% H_2SO_4 to A11, sparge 5 minutes, ~~[illegible]~~ A11, ~~[illegible]~~ jet to A9. Repeat with another 50# 25% H_2SO_4. Use this as first wash. Settle 1 hour for each 8" of liquid in Tank but not less than 2 hours. Decant to A8 and continue as per run sheets with 4 washes.

Sample the washes as per run sheets and if less than 50 curies Toss.

Carry on with Metathesis as per Sum sheets.

IF WASTES in A5 and A8 are higher than specified limits Call me and we'll concoct a different procedure.

4-12 Rinse all Hastelloy with 5% HCl until no further color shows or until shift is over. Rinse system with water

4-12
Rinsed all Hastelloy with 8 washes 1 liter of 5% HCl
B-24 and B-17 washed back and forth with 2700 cc 5% HCl

NaOH in B-3 in excess to neutralize HCl.

6F neutralized in A-5

6G decanted to A-8

Equipment rinsed with H_2O.
Valve B20-B24 leaks.
Also check B21 drawoff valve.

11-28-45
12-8

Decantation "attempt" from A9 - A8, started at 11 P.M. was continued until about 1 AM. Both jets were plugged. Attempts to clear lines were made by:

1. Raising temp of A9 to 30-40 range
2. Pouring water down steam jet line
3. Air pressure in steam line.

All failed.

A9-A8C was almost plugged. A9-A8DB had been unplugged after heating tank + adding water. A9-A8DA still plugged. A9 sparger was plugged also. When this broke loose, activity was forced up steam lines to PB-2, to tune of 3100 mr. on 2nd floor & 2000 mr. on PB 2 trough. These have been reduced by acid in trough + steam purging. Valve on PB-2 removed.

Air activity varied from 5000 cts to 13 counts. We wore masks practically all shift. DC Here I come.

6 A, B, C, D, E, F + 50# 25% H_2SO_4 in A9; hold for 6 G. 6 G in A11, settling started 7:00 A.M. Rinse out A5 before decanting.

12-8 Theory

When activity backs up to floor of P.B. troughs, on subsequent jetting at that point, steam from bleeder pipe vaporizes activity, giving hi ppton reading.

12-8 Nov. 28, 1945

Further theory on air contamination.

Spot checking the high readings obtained by H.P. against sum sheets it seemed that air contamination occurred when jetting from vessel to vessel or whenever sparging was going on in a vessel in cell A. If jetting or sparging were vaporizing active material in the freeboard space in the vessel then this would be drawn up the off gas line. Inefficient scrubbing would then send this up the stack and then possibly back into the building. Also sparging may be enough to blow out the vent line into the cell and then directly out the stack and into the air.

Fig I

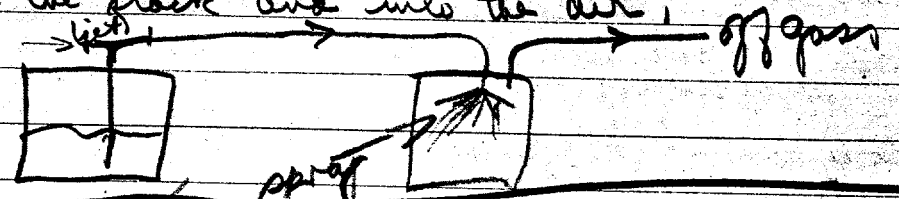
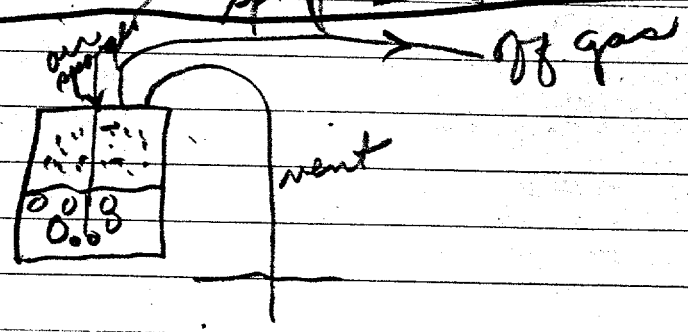


Fig II



Might be well to take a spot check near panel board whenever jetting also to check stack air at that time. (also to keep a close watch on cell vacuum dgs at this time)

Also to check stack air whenever sparging taking place in any vessel

A-16 water rotameter should probably be

running at top capacity while these activities going on i.e. maximum flow obtainable before flooding of scrubbing columns takes place.

11/28/45
8-4
M L

at 8 00/A the men were in A1, A8, A9, A11, and B1 !!

reading at door to cell B was 8R – according to the chart it happened at 3A

Run status

Everything in A9 – we hope, first wash settling water

Everything in cell B can be discarded when A5 is available

assult masks to be worn on 3rd floor

1945

ALL PERSONNEL

DEPARTMENT

W. A. Rodger

DEPARTMENT

Recent operation in this building has been so sloppy as to be close criminal. I assure you we are not processing breakfast food and unless eration tightens up someone may be seriously hurt.

In the past week the following specific criticisms can be brought:

1) HNO_3 was run into A9 instead of A1 spoiling a dummy run.

2) Water was run into A11 instead of A5 perhaps spoiling a run.

3) Activity in Cell B (which is open and being worked in) increased at 3:00 A.M. on 11/28. It was noted by someone as the points are circled but no alarm was given either at shift change or in log book.

4) One of our most experienced operators walked into Cell B without a survey instrument (as required by danger sign at door) and spent several minutes in a 8 r zone. For all he knew it might have been 800,000 r. This was several hours after shift change and the activity in Cell B still had not been noted.

5) Housekeeping is not acceptable and there are no maintenance men in building to blame it on.

6) Sample sheets are not being properly filled out.

7) Run sheets are not being properly filled out.

We are having a great deal of trouble on this run. No one blames you legitimate mechanical failures but it is unnecessary to make more troubl ourselves by sloppy operation. When we are having trouble, more, not le ilance is required. I see no excuse for this wave of laxity.

All personnel please sign below.

W. A. Rodger
W. P. Bigly
M Leverson
Macharolson
ACY

Dunlap
JEL
E. Mitkowski
D. E. Phillips
L. Halliman

SJR
J. B. Walker
H. Bailey
V. Hudnickson
R. N.
E. P.

Smikan
Michene
K. R. Jernigan
Ray McLuran

11/28/45 4-12 EJW

① A8 and A11 were mixed with 100 lb .5M HNO_3 and sampled, results were as follows:— A8 since 19.9 curies, A8 + A11 combined 35.3 curies; washes were thrown out.

② Metal waste which was in A5 was neutralized and is now in A6, A6-W 9 will not work so we may have to wait until the hul waste is added to A6 from A1.

③ Maintenance items needing attention:
a) A8 LL manometer needs zeroing.
b) There are no hooks for cell 8 charging blocks — hang about them.
c) The flexible tube for getting caustic to M11 is broken.
d) A11 LL manometer needs zeroing.

④ A9 L.L. manometer line leaks very badly, this caused us to mix the 1st extraction wash decantation by 5 inches (8" instead of 3") We tried to locate the leak and found that it is obviously between the valve on 2nd floor and inside the cell. Bubblers must therefore be turned up to normal speed during decantation if anywhere near the correct level is to be recorded on manometer.

⑤ New NH_3 cylinder was installed.

(7) Cell B vessels were all emptied and rinsed water and sparged with HNO_3. The readings came down from >100 R to about 8 R at B10 which seems to be the hottest vessel in cell. A couple more HNO_3 rinses would probably permit several minutes in the cell. U & R. waste several minutes time in cell by 8 A.M.

(8) 1st floor cleaned up and excess materials and furniture put in storage. 2nd floor partially cleaned up, 3rd floor and platforms not touched.

(9) A9 mechanical agitator set up for manual agitation, note handle on pulley. This is to be used for all agitation in A9 from now on in (if it works)

(10) Run status at 12 M.

A1 — dissolving heels to be neutralized and discarded to U & R when complete.

A6 — neutralized metal waste.

A9 — 2nd extraction wash to decant at 12:10 AM (long settling time due to large volume).

(11) 1st extraction wash was 3 curies, dumped. P.S. Chemist made a mistake in decimal point, it was 34 curies.

→ (12) Wear gas masks on 3rd floor, air contamination is almost normal according

to last few precipitron readings but H.P man suggests a few more good ones before we take off masks. Four valves were found open on Cell B funnel rack, and since some off-gas vents on Cell B vessels were closed, there is a possibility that air contamination on 3rd floor was coming from Cell B funnel rack, but the proof is not definite.

13.) A6 manometer works erratically probably because of a slight temporary plug in the line. Turn up air bubblers to help operation of liq. level & Sp. Gr.

11-29-45. 12-8. Had 105 mtr. man check all A9 manometer connections with wrench and soap. Due to abnormal rate of bubbling required to ascertain amt. in tank 1, 8WW-2 may be high.

Put a concrete slab in chimney with chokers obtained from maint.

The fact that Cell B was contaminated last nite was an unavoidable result of carrying out telephoned orders. We should have noticed the integron reading. However, at that time, and for the remainder of shift we were 100% engaged in reducing activity on 2nd floor H.P.B. 2 as reported.

The Model T crank on A9 agitator motor is not particularly a success, except possibly for those who don't have to turn it 2 hours with mashes on. Would suggest that TVA power or Mississippi Delta muscle be employed.
→ WPB, let's make arrangements before the next metathesis rolls around.

Since 8WW-2 contained ppt., we re-sampled for a double check. (8WW-2A)

Mashes worn on 3rd floor all shift.

at 12 30 A.M.:

B1 – 19 R.
B10 – 11.2 R.
B26 – 920 mr.
B27 – ~~1320~~ 320 mr.
B3 – 1080 mr.
B6 – 720 mr.

B1 and B10 were given 4-45 min. acid boils; now
B1 — 1000 mr
B10 — 900 mr.

8WW-2 } in A8. { 1440. C. in Lab. } 140 mr.
8WW-2A } 20 mr.

Run 4 in A9 1st Metathesis settling til 9 00 A.M.

A-1 Dissolving tank. M-10 getting low.

72/
11/29/[illegible]
8-4

Run Status —

(1) Run 6 (1st water wash) settling in A-9 until 4:25 P.M.

(2) 8WC in A-8 awaiting. Analyses of analysis is high it is to be re-worked with water washes now in A-11

(3) A-1 has HNO_3 cooking slug heels -

Hereafter Please put all requests for maintenance instruments, and supplies etc in REPORT BOOK (to be kept on WPB's desk) rather than in the Log Book

W.A.R.

Please try to lose no more time than necessary on the rest of the run. I would like to go to the [illegible]

W.A.R.

(A) New cable put on B-1 probe — to be zeroed with MT tank. & calibrated.

11/29/45 (1) All contain extraction washes plus
4-12 metathesis waste and metathesis
EJW washes — hold until further notice.

(2) B7 pipette has been used for transfer of very dirty metathesis cake solution. Make sure that transfer of product from B12 to B6 is made with B8

(3) Run 6 is electrolyzing at 15 amps until 1:00 AM, at 25 amps until 8:00 AM.

(4) B1 probe was calibrated but not drawn up.

(5) A6 contains carbophosphate to be used for neutralizing heel waste in A1. We find however that jet A1-A6 is plugged (probably between PB and cell wall).

Please take a sample of about 10 liters of 0.5N HNO_3 from in A9. Hold in A9 until decisions are made.

(3-8)

11-30-45 A couple pts. on cell A integron
12-8 have been erratic. Pls. have inst. checked.

B6 washed out, ready for transfer from B12.

B1 re-calibrated in lower range, since 1st calibration gave poor curve. Tank was evap. to dryness to start.

B12 at 25 amps til 8:00 A.M.

A9 rinsed with .5 N HNO_3, moved to A8 for sampling (A9 is plugged). (3.C)

Jet A1 - A6 refused to run even after crud was removed from steam line. Have added 100# H_2O & started boiling & the Gr. has jumped way up. Looks like we have cone. UNH in A1, freezing out at lower temps.

We tested B6 sampler & found it O.K. If Pb is to be run on 6P, vol. required is about .55 cc. If not, a drop is enough. We got .7 cc by removing tube fast at 80# pressure

and got .3 cc by removing tube slowly.

A1 - on boil yet.
A11 - washes + wastes - hold.
A8 - A9 .5 N HNO_3 rinse (3 C).
A9 - MT.
B12 - The Run.
B6 - Washed Out.

11-30-45
8-4

A-1 jetted to A-6 after addition of H_2O and heating

B-6 contains bulk of run accounted for. Vol 350 cc

A-11 sampled after jetting to A-9 thence to A-8. It was combined with 100 # water rinses already in A-8.

1st PbO_2 soln in B3

Program for Tonight

① Try to find missing 2000 curies.
Suggestions
A9 - B1
A9 - B12
A9 - B1DD
A9 - B1DC
carbonate rinse of A9, A8, A11
A1
A5
A6

Red -- Try the B26 - B27 40% K_2CO_3 even though it doesn't appear plausible

② Also on 12-8 set up a batch of precipitations all over 3rd floor and do some jetting and spraying and see if we can find where the activity is coming from.

VR.

PS. Rinse Thru A9

11/30/45 ① Jet lines A9-B1A, A9-B1DD, A9-B1DC
4-12 and A9-B12 were each rinsed with
EJW 1 liter 40% HNO_3 and sampled. All
rinses are now combined in B3

② A hot carbonate rinse was put
through A9, A8 and A11 in the order
listed. Samples were taken after
rinse went through A8 and A11. No
sample taken out of A9 since sample
is plugged. The material is now
in A8 awaiting analysis (appears to
be hot).

After getting through all 3 vessels,
about ½ of the carbonate seemed
to disappear — Either we have
a bad leak in jet lines A9-A8DA,
A9-A8C, A11-A8 or A11-A9, or A11 still
contains over 50 lb of carbonate
rinse. We think it is a leak
in A9-A8C or A9-A8DA.

③ The neutralized heel solution in A6
was sampled — 182 c's
W5 has 2.65 c's
3WPb combined wastes — 5.2 c's
All jet lines from A9 to cell 3 look very low,
counting not complete.

④ 3rd floor cleaned up

PS. Rinse thru A9 and A8 - 65 c's

12/1/45
12-8
m J.

A9 + A8 + A11 K_2CO_3 Washes - 88C

W9 sampled - 120Mr on about 20cc.!!
-360°C - suggest tank be sparged + resampled since we did a half assed job - not knowing much about it

Carbonate Washes boiled in A11, jetted to A8 via A9 on top of washes + metathesis liquor + sampled

Cell A + Cell B sumps jetted to A6 and sampled -

B26-B27 washed with 40% K_2CO_3, which was transferred to B3 via B12 + B7 - cell 4 washed out and added to the K_2CO_3 mixture + sampled.

A5 - ~190C (Heels neutralized + 3 WPb + Jet rinses)
A6 - BS + AS sump liquid [1C]
A9 - K_2CO_3 Washes + Water Washes + metathes waste
B3 - B26 + B27 + cell 4 wash. [10.6C]

Sparged etc with precipitrons running to see what happened

Side Note of interest: cell 4 leaks via the door, area roped off - chipping will probably be in order.

A8 Now has 700 C's in it - obtained apparently by Hot K_2CO_3 from A11

Program for processing 700 C's (per WAR)

1. Settle in A9 one hr per 8 in plus 1 hr for good measure settling until 3 50/P [started at 7 20/A]
2. add 100# 40% K_2CO_3 to A8, heat to 70° + sparge Done at 70° for 1/2 Hr, cool + jet to A11.
3. coved not jet. to A8 Heat above solution in A11 to 70°, sparge at 70° for two Hours. - take to A8, sample, return to A11
4. When solution from step 1 above is decanted to A8, sample + await analysis

8-4 12-1-45

Batch as in step two above left in A-11

Batch step 1 above left until 4:00 PM for decanting the recovery run sheets have been made out.

M-2 contains 50% NaOH

Area around cell 4 is slightly warm. Stay away from the open door.

(over)

PROGRAM

① Recovery Run -- sheets made out. Decant from A9 - A8 and wait for analysis in A8 before going from A11 → A9 with second batch.

② Load 200 + slugs to dissolve and start 6H as soon as possible. When 6H is dissolved hold in A1 until A9 is cleared of recovery run.

③ On recovery run after the two "metathesis" treatments we will give it two regular metathesis washes. Then dissolve and send to cell B. This should come up days tomorrow. I would like to be present.

④ Endeavor to clean out Cell IV a little more. Use a hose but do not break glass. Remove contaminated disk and hung if you can get at it without going in > 6 r beam. Put box from cell IV in Rm 9 and clean.

⑤ Take off all copper air condensers on jets and plug holes with rubber stoppers.

HEREAFTER LEAVE VENTS CLOSED RATHER THAN OPEN. AFTER JETTING LEAVE OPEN 3 MIN THEN CLOSE.

RUN (500 c) IS IN B6 DO NOT TOSS

⑥ But MT all other vessels except A9 A8 A11.

⑦ As per WAR. — Use A9 with agitator but have one man watching ammeter

and keeping check for grinding noise at all times.

12/1/45 4-12 Ejw

① A6 emptied to W11, we think it was water. A5 was jetted to A6, we think it is neutralized heels.

② Recovery Run Part I The metathesis decantation made at 4PM carried over a great deal of precipitate to A8. It was jetted back to A9 and acidified by adding acid through A8 to A9.

There was then too much solution in A9 to carry out an extraction so a portion of this solution was jetted to A11 through A8. The excess solution is in A11 at shift change and is to be reworked in future extractions. An extraction was made on the balance of solution left in A9 and is settling at shift change.

Part II

The carbonate solution found in A11 at 4 PM was jetted through A5 to A8 and sampled (8WR3) — 102 C's. Thrown out.

③ Crud filter disc removed and buried. Cell IV box and disc clamps cleaned and left in decontamination room.

④ All jet bleeders at PB-1 and PB-2 plugged up. PB-4A, 4B and 5 need to be done.

Jet line from drums to M11 filled and thawed out, 6 drums of caustic jetted in — not diluted please check

⑤ Run status at 12 M.

a) A1 — slugs being loaded, complete loading all slugs that have been pushed at 105 bldg. $NaNO_3$ in. (8 carriers and only two days left at 105.

b). Recovery run in A9, extraction settling started 6:18 AM. Do not jet batch 6H into A9 until you get the results of extraction waste of recovery run.

Use 50 lb of rework from A11 in each of the batches 6H, 6I and 6J and use 250 lb H_2SO_4

12/2/45
12-8
JEC

(1) Caustic in M-11 Diluted to 20% -.

(2) Remaining air condensers removed from PB's 4A, & 5.

(3) 1st floor cleaned of all hot spots. Area immediately around Cubicle still "warm".

(4) Finished loading dissolver (3 slugs). The last slug might be lodged in chute - did not hear it hit crash-plate.

(5) During coating removal it was found that A-1 - W11 Jet was plugged tighter than hell at header. Okeh now.

(6) It is now necessary to place product carrier on chute lid to obtain vacuum > 2.0". -

11 (7) Where is A-1 sparger & why?

(8) A-1 sparger valves are in Rm. 9 and Maint. is to come @ 8 oc A. to install - Press. go ahead

and add dilution H_2O, but do not sample A-1 (6 H) until agitators are installed.

Run Details —

① A-1 — 6 H Dissolving
This charge is to be held in A-1 until waste analysis of SWMR is received from lab. (call West when you get analysis)

② A-9 — heel of Recovery run sitting awaiting lab analysis of decanted waste.

③ A-8 Decanted Waste
* If SWMR < 50 C — discard and proceed with Extraction & 6 H — Note Changes in procedure.

12-2 8-4

6 H settling in A-9

6 I diluted in A-1

A-11 contains rework material to be added to 6 I + 6 J 50 # to each. Add before H_2SO_4 addition.

Carbonate phosphate 1 batch in A-5

12/2/45 4-12 E & W

① East platform cleaned up as well as could be done with so many empty drums, bottles and maintenance junk.

3rd floor cleaned up, desks, excess furniture, empty bottles etc removed.

② Until new figures are posted, use 2300 lb H_2O, 600 lb soda ash and 500 lbs phosphate in making up carbophosphate solution (see new M1 Calibration chart)

③ All rework from A11 used up in batch 6 I.

④ Run Status

A1 — batch 6 J dissolving, do not get this batch to A9 until results on 8 WMI are obtained. If 8 WMI is less than 50 c's proceed with extraction

of batch 6J. If 8WMI is over 50c's contact WAR before going any further.

A9 — batch 6I settling until 5:55AM.

A11 — batch 6H — 8WMH (99c's) settling. (Sample appeared to have no precipitate) Disposal of this waste will depend on decision made on 8WMI

12/3/95
12/8
gec

Run Status —

6J

A-1 — Metal Solution (6J) awaiting analysis, 8WMI before being transferred to A-9

A-9 — ~~8W~~ — 6I

A5-A6-W9 A-8 — 8WMI — being held pending analysis —

A-11 — See above —.

(2) Have electrician check N-Lab fan — "fritzy" —.

8-4 12-3

A-9 6J - settling 6:35 PM

The platform which is inside is decontaminated. The wooden platform outside is still hot and is not to be used except in an emergency.

A-1 heels of sludge are dissolving 400 # 60% HNO_3 added.

This was made into batch 6K

B-6 500 c's

A-11 contains heel from 8WMH about 99 c's before decantation.

A-5 contains solution decanted from A-11 It is not neutralized. Awaiting analysis before neutralizing & dumping.

12/3/45 ① Run Status
4-12
EJW

A1 — dissolving heels.

A9 — Batch 6K settling until 5:00 AM. Please turn on cooling water at 12:00M.

A11 — Metal waste from batch 6J (67 c's) settling until 12:45AM. Although the loss isn't very high, it may be worth while decanting it and saving the heel to be reworked with 8WMK, if that decantation goes soon.

oked by WPB over phone

B6 — 500 c's

② T2 contains a new batch of 40% K_2CO_3. It was tested low and adjusted once. Please retest strength again before using.

12/4/45
12-8
J.E.C.

Run Status:

A-1 — Dissolving heels
A-9 — 6K — Ready for washes —
A-8 — 8WMK (Lab. analysis @ 7:00 shows waste of L.L. Curies — Rah! Rah!
A-11 — Decanted heel of 8WMK — Due to leak in Manam etc it was necessary to open bubblers to read LC so our 65 c's probably went to A-5. Immaterial now with low 8WMK.

② 20% K_2CO_3 in T-2 not checked!

8-4 12/4/45 ① Ed Dunlap — get finge punched in the A.M.

② Durion drain pipe, 1st level SE corner being repaired. Equipment shut off is tagged. Do not put corrosive or hot liquids into 3rd floor trough.

— RUN STATUS —

A9 Decanted. Awaiting lab analysis

A6 18" neutralized metal waste awaiting addition of cake wash soln prior to disposal.

A1 60% HNO_3 dissolving heels.

B6 Run 6. Still 500 C's (we hope!)

Check concentration of K_2CO_3 Soln in T-2. Rebutted at 3:20. Agitator left running.

[signature]

Done 1. After checking K_2CO_3 in T-2 to attain 40% turn off agitation to prevent evaporation.

M.

Whodunnit 2. Carelessness caused the broken Dusiron. lets watch drum handling.

Done 3. Empty the 2+ liters in B12 to waste.

4 Leave the Vac. on B-27 and do not touch Cell IV — per M.L.

5. Hold up Soln of Met. Cake until Wed 8 00 A.

12/4/45 4-12 EJW ① Contaminated floor around A1, A5 and A6 samplers cleaned up

② Run Status

A9 — 2nd metathesis settling until 1:25 AM.

A8 — 1st metathesis waste + nitric

B6 — 500 c's, save.

③ All vessels except A9, A8 and B6 emptied. This included 6H heel in A11

④ See note to W.P.B. about operation of S.S fan. I disconnected this at the end of the shift and had no time to completely correct the condition.

12/5/85
12-8
JEC

① Run Status:
— Run 6 in A-9
Awaiting Metaxhenis
Coke Solution. —

② Small fan being drained at shift Change with following values Closed or opened:

① Separator drain (at fan hous)
② Housing drain (4 values " ")
③ Cyclone separator.
④ A-16 off gas header (AE-1st fan)
⑤ A-16 Drain atop cell A.

③ Upon contacting lab at 7th learned that SWCW labs had – very fine suspension with some solid settled out. During settling it was necessary to keep L.L. bubbler open to acct. for leak in system.

· Check for Analytical Results before proceeding with cake soln.

12-5-45

Run 6 electrolyzing in B-12

39.5 % carbonate in T-2.

A-8, A9, A-11 untouched pending analysis of 6 P.

Program:

Electrolysis thru at 8^{30} P, transfer to B6 with B8, agitate thoroughly, and sample. Continue with evap. to dryness, taking it up with 2000 ml H_2O + red. vol down to 350 ml. WAR + ML will be in by midnight to run the glassware.

Drain A16 + off gas system good before 8^{30} P, tonight.

All's well, so far.

12-5-45 Had some trouble getting B6
4-12 sampler to work. First 6P showed about 1g. Pb. Second 6P about 460 mg. Pb.

After transferring from B12 → B6, B12 Probe showed ~ 550 cc remaining altho P.A. system, ammeter, + B8 being at bottom of B12 indicated B12 was MT. To make sure 1L H_2O was added to B12, moved to B3 + sampled as B12 rinse. Pending outcome of this sample Pb cleanout of B12 has been held up.

B6 evaporating to dryness at 11 45 P.M.

8-7 Run 6 evaporating B-19

B-6 contains 2 l water wash sampled. See lab for analysis.

Running nitric waste in B-3 ~~[illegible]~~ See Walt.

HCL-Ether waste is in B20T.

96

12-6-45 Final Evap, Run 6, completing
4-12 at 12⁰⁰ M. See UPB.

Carrier + cone for H.P. evaporation on slug chute.

A cell tanks emptied and rinsed. A-1 on acid boil for heels. Cell A - decontamination - full steam ahead.

12-7-45
12-8
SEC.

① Run 6 finished evaporating - and placed in S doorway. Highest reading @ Cutie Pie ~70 m on top.

RUN 6 SHIPPED 12/7/45?

② C's Ba evaporated (to dryness) and placed on skid on 1st floor level near make-up rm. Specifications called for evaporating to a 50 cc heel and 3 hrs. was assumed as a max. evaporating time — so sorry!

③ A-1 still nitric-izing heels.

④ Overall viewer for B-19 area burned out. —

Eldir:

1. Tell George Parker (706-C) that his Ba* is in the cone and if he can get it out today will try to give him his Strontium Sat. (that will be our HCl-Ether).
2. Start a decontamination program for Cell A, principally A 9.
3. Do nothing with Cells I, II, III, + IV but dump ~~both~~ Empty both Cell A + Cell B Vessels. The HCl-Ether is in B 20T in Cell III - Leave it there.

Do not empty B3 according to NAR

4. Decontaminate the blisters, 3 of floor equip. etc. that may require it.
5. Walt may be in, but will call.
6. Call Sgt. Hurst (6111 or 6112) and tell him he can have the Y shipment whenever he want to pick it up.

WPB.

12/7/45 Please observe the following rules during decontamination of Cell A vessels.

1. Make sure vacuum is on vessel when jetting into it. This is very important during the period when the vessels are still very hot.
2. Make sure the scrubber is on and there is NH_3 going into it while acids are being boiled.
3. Once each shift add about 250 lb caustic to sump to neutralize any acid that may come from running over tanks. Keep sump level down to normal. The caustic may be added from scale tank through sleeve in 3rd floor; better suggestions are welcome.

Add another line thru one of the unused plugs down on the first floor into the cell A. Put a funnel + a valve outside the cell.

4. Do not get any fluo solution mixed up with HNO_3 that is to be boiled. Run 4 HNO_3 treatments to one fluo treatments. Run according to cycles attached to clipboard.
5. Do not jet into cell B vessels from A9 for the present.
6. Do not decontaminate off-gas lines until vessels are in better shape and vacuum can be shut off.
7. Record every treatment given each tank in log until better system is set up.

L.R.M.

NaR requests that you get carrier which contains old HP run cleaned up inside and out. He suggests rinsing the cone in hot lab and sucking out rinse with aspirator to hot sink.

8. Do not use fluo solution in A9 or A1, just to keep these tanks in good condition.

12-7-45
4-12

Na_2CO_3 available on 205 platform

H.P. crap in Rm. 9 was ~ 28 R when we started at it. Has been given frequent HNO_3 treatment, overflowing to drain. A remote funnel has been installed to lessen radiation hazard. Floor of Rm 9 has been acidized too, but no doubt has some contamination. Also, a spot on floor just outside Rm. 9 has been warmed up.

All cell A tanks full of ~ 30% HNO_3 & on boil. There is a shortage of Na_2CO_3.

Had electricians repair (?) fan alarm horn, but they don't know just what they did that fixed it. Keep an eye on it.

A sump manometers lockered - suspect

its the A sump short tube plugged up
tho on the panel board this is
labelled A sump density. So suspect
error in labelling.

12/8/45
12-8
JRJ.

1. A6-A6 recirculating jet plugged at steam heater.
2. A6 jacket pop off not holding.
3. A5 Steam sparger leaks at JPB.
4. A sump manometer hanging so sump was emptied and about 1/3 barrel of 40% caustic was put into it. A plug in 3rd floor was pulled and the caustic poured thru it. This was followed by addition of water. CP readings over open hole were <5 mr/hr. Plug hoist + drum were left in place to facilitate further additions as needed.
5. A cell, 2nd level scope motor does not reverse itself.

STATUS OF DECONTAMINATION

A-1	EMPTY	Had 4 HNO_3 treatments.
A-9	HNO_3	Cooling, preparing to get to A8
A-8	HNO_3	Cooling, " " " A11
A-11	HNO_3	Cooling, " " " A5

Continued

A5 - Has sufficient caustic to neutralize acid in A6 when A6 is cool enough.
A6 - Cooling (very slowly due to pop off valve trouble). When cooled jet A5-A6 and then to W-11 according to instructions on clip board.

When A5 & A6 are emptied proceed with HNO_3 treatment as instructed i.e. A11-A5, A8-A11, A9-A8, etc.

HP Carrier, Cone, & Plug.

Continued HNO_3 treatment plus H_2O wash, citric acid, a short HCl treatment, carbo-phosphate, & scrubbing with brush. At end of shift both cone & plug are being treated with HNO_3 put in at about 7:30 AM. HP survey made at about 7:20 AM. Readings on paper towel may be used as comparison with later ones to note if technique is helping.

JRJ

Check A9 Sp. Gr.
Why were B6 air sparger & B12 H_2O sparger on?

Week End Program

✓ ① Carry on with decontamination of cell A as per instructions on clip boards

✓ ② Final Evaporation of HCl ether (in B17) in 200 cc portions for 70°C. Evaporation to be done in B19 obviously.

done ③ MT B6, B3, and B10 to A5. Rinse all tanks well with dilute HNO_3 and then water.

done ④ Add 20 l 10% HNO_3 to B1. Sparge 10 min and sample. Discard at once to A5 via B10.

started ⑤ Remove PbO_2 plate from B12 by regular procedure. Keep record of slits provided (now on desk at PB6). Take sample 3WPb-3. Discard wash to cell A at once.

SR ⑥ Add 10 liters water to B22, jet B22 to B3. Add a second 10 liters water to B22 and jet to B3. Sample the combined wash in B3. Call B22 rinse.

Discard at once to cell A.

(7) Continue cleaning the HOT carrier in Rm 9 by remote control.

(8) Have HP give the building a good check up and clean up all hot spots. Clean up sampling equipment, tongs, etc and get ready for use again.

(9) Dress up the joint housekeeping wise. Several places are in very poor shape.

(10) Be sure to label all samples well as they will not be analyzed till Monday and no resamples can be taken.

WAR

12-8-45
8-4
SJR

HCl-Ether solution is being evaporated in B-19 in eight 200 c.c shots. See instruction sheet attached to this log book from Bigler. The HCl-ether solution is in B-17 which is probed before and after solution is sucked into B8 pipette. The difference in volume should not be over 200 c.c. There is a graduated scale on the lower part of B8 tower on the third floor that is marked off in one-half inches. Each half inch on this scale corresponds to 200 c.c sucked out of B17 by B8.

Batch #2 was sucked out of B17 into B8 at a reading of 4.5 on this scale. When you suck Batch #3 out of B17 into B8 at about 5:00 p.m. lower B8 into B17 and stop on the graduated scale at a reading of 4.0. You should get 200 c.c of solution, but probe B17 before and after the transfer to check. When discharging from B8 into funnel at upper swing position, use small scopes at north and west sides of cell B block on second floor. The west scope will show the solution discharging into the upper funnel which you will want to watch closely for overflow since the funnel is chipped on the side (We saw a drip straight here on large scope on Batch #1). The north scope will show discharge of solution into the movable funnel rack. Use only 5# discharge pressure on B-8, and proceed slowly before increasing the pressure on B8 to discharge solution into upper funnel. Data sheet for batch volume additions to B8 are with Bigler's instructions in this book. Data sheets for hourly readings for evaporation of each batch are on table in front of P.B.6.

Batch #3 will be ready to start at 5:00 p.m.

Overall viewer on first floor that was on the blink was swapped with south overall viewer on the second floor so that we could see the operation of B-19 equipment.

Flux solution is in A11. All other Cell A vessels are empty. Do not heat flux above 60°C. Follow with acid washes as per instruction sheets.

No rinsing of Cell B vessels was done. Carrier in Room 9 is hot as hell.

12-8-45
4-12 The H.P. cone was still better than M.D.P.'s B.K. in heat (over 100 R.) so we buried it. 8-4 Mon. Pls. see that H.P. gets a bull dozer out to cover it up. None available to-nite.

The H.P. carrier is 88 R. Treatment with acid, Fluo, etc. containing.

Put Fluo treatments thru A8 and A11. There are in A6 ready to be neut. in A5.
A1 – MT. has had one 30% boil this shift.
A9 – contains 2nd 30% HNO_3. To be boiled.
A8 – " 30% HNO_3. To be boiled.

We put 2 shots of B17 rinse into B19. Used only 3 hr. heating periods since some of the solu. seemed to disappear each time. (B19 valve closed during transfer.) Batch No. 4 to be heated til 1:00 A.M., then inspected. For Batch No. 5 drop B8 to mark 3 to get required amt. soln.

B12 – Pb cleanout started. Move to B3 at 12:00

12-9-45

First shot lead cleanout B-12 taken to B-3. Second cleanout added to B-3. B-3 sampler plugged, so fitted B-3 to B-1. Sampled and sent to A-5. A-3 was heated to unplug sampler so vol was reduced.

Carrier in decontamination room was given a 70% HNO_3 treatment.

The HNO_3 - fluosilicate in A6 was neutralized.

Another cycle of HNO_3 was started.

A-1 contains 450 pounds of nitric + water. It is heating.

A-5 has enough caustic to neutralize acid which is in A-8.

We put the fifth and sixth shot from B-17 to B-19. Evaporating till 9:00 AM.

12-9-45 Cells I + III were each rinsed with ten
8-4 liters H_2O to B22 to B10 to B3. B1 was rinsed with five
STR liters of water. B3 sampler was unplugged with line provided with a Chicago coupling for this purpose. These rinses were then sampled and called B22 rinse.

Plugged up HNO_3 head tank was cleared by disconnecting HNO_3 line at the valve, attaching an air hose, and blowing the line back into the tank.

Sample Analyses:

B1 Rinse - .3 C
3WPW - 16.5 C's.
B22 rinse - 8.0 C's.

A5 contains neutralized HNO_3 solution, and is ready to get to W11.

HCl-ether evaporation is finished with cone in place.

Water is running through hot carrier in decontamination room.

All B cell tanks are empty.

12-29-45 A-1 has 30% HNO_3 boiling.
4-12 A-11 " " " "
A8, 9, 5, 6. — MT.

A Sump is M.T. We dumped 300# HNO_3 thru ceiling, jetted out, neutralized.

B19 job left moist, as per W.R. Hold. Books N.G.

We rinsed:
A. 1500cc 10% HNO_3 thru soln addn funnel to B11, 500cc from B6 → B11, dropped to B21 R → B21 T → B3 sampled in B3. Plenty hot. Added 10 L H_2O to dilute.

B. 2000cc 10% HNO_3 thru B9 → B23 → B21 R → B21 T → B3. To be sampled in B3 as "B21 rinse No. 2" & held for anal. Filtration has slowed up & will be in progress at 12 00. Continue filtering & transferring to B3 until B21 R & B20 T are reasonably MT, then sample B3.

12-10-45
12-8

B-21 rinse #2 carried thru to B-3. See page 108. Where is the first rinse that was diluted with 10 liters H_2O? Possibly in B-10?

NaOH added to A-sump.

A-6 cooling prior to getting to W-11.

A-11 cooling before getting according to cycle.

HP readings in cell A at beginning of shift read 120 mr/hr, 1 R/hr & 2 R/hr. See HP book for exact spots.

12-10-45
8-4
SJR

Combined B9 and B11 rinses were sampled in B3. On duplicate samples lab found over 700 C's in this rinse. Hold this 24.5 liter rinse in B3.

Hot carrier in room 9 is down to 50 mr.

HCl-ether residue delivered to 706-C at shut

Cell A was opened up. The reading is 1000 mr at Cell entrance. A fire-hose is rigged up. Jets to A5 and A6 are slow. The water pump that we used during the last decontamination in Cell A is in the shed east of 706 D. A6 jet seems to be completely plugged. The water pump ought to be set up. Reading at Cell A doorway is 500 mr now. Cell A is full of water with A Sump - A5 jet going.

12-10-45
4-12

All hands used up hosing in entrance to cell A. At 9^00 P.M. entrance was 290 mr. Steamed A16 for 5 hrs., reducing it from 1700 mr. to 1340 mr. Now giving A16 several carboys HNO_3, with all off-gas valves closed, but A9. Will leave Reid in at 12^00 M.

Have set-up gas pump ~~system~~ put in use. Also have had made 2 H_2O sprayers which are discharging into cell. These are meant to be additional to hosing at cell entrance. Incidentally, who is the jerk that

continually throws away all decontaminating equipment as soon as one decontaminating job is done?

It is costly as well as wearisome to have to make up a new set of gadgets everytime we clean a cell. Let's wise up and save ourselves all ~~little~~ trouble. Housekeeping is housekeeping, but throwing away decontam. equipment is like throwing away A-1. - check! DOUBLE-CHECK!!

12-11-45

Cell A hosed down with fire hose to the extent of man power

Water sprayers on all shift.

A-16 off gas line in cell A was left full of nitric until 4 AM. It was then drained, steamed for 2 hours and drained for one hour. Ready to turn on at 8:00 AM

Continued

HP check after hosing down:
2' under A16 2R/hr
Pt no. 2 — 265 mr/hr
Random smear taken on Cell floor. 310 c/m.

12-11-45 700 C's in B3 was transferred to B1
8-4 so that B3 and B6 could be filled with 60% HNO_3 and
SJR samples on these tanks could be started in an attempt to decontaminate B3 & B6 blisters which are circulating at shift change.

A16 was filled again with 60% HNO_3, allowed to stand 4 hours and then drained. A16 is now being stirred at north end of Pt-2.

Cell A readings:

Doorway - 137 mr	Middle Sump - 3850 mr
B Cell - A6 jet - 1750 mr	A5 Sampler - 1700 mr
Bottom A16 - 650 mr	A5 Sparger - 1000 mr
A16 Drain valve - 650 mr	Bottom A8 - 3500 mr
W. Sump at 1 foot - 4400 mr	Top A1 - 1000 mr
Top A6 - 500 mr	Middle A1 - 2000 mr
A8-A5 jet - 75R	
A5-A8 jet - 75R	

A8 and A5 look like the hottest tanks. We are boiling acid in these tanks for a full hour. We got gas for the water pumped continued with hosing down of Cell A.

B26 has 15 inches that probably backed in while boiling 60% HNO_3 in A9.

A11 has 30% HNO_3. A9 has 60% HNO_3. A6 contains enough $NaCO_3$ solution to neutralize

60% HNO_3 in A9. We could not move the HNO_3 in A9 because at 3 30 P.M a maintenance man was working on hot A9-A8 jets (C & DB) at second level and A9-A8DA won't jet.

12-11-45
4-12

A8 - Flux 5%, 10% HNO_3 to be heated @ 60° until 1 00 A.M., dumped.
A9 - 30% HNO_3 ready for neutralization
A-1 - MT
A-11 - MT
A5 - 60% HNO_3 to be boiled til 1 30 A.M.
A6 - Na_2CO_3 for neut. of HNO_3.

We tried to use B9 again but still no vacuum on PB & B. Trouble seems to be on board. 8-4 have mite fix.

A-9 agitator is striking pipes in nozzles B & D (we think). These are L.L., sparger, sampler. Do not turn on agitator as it will only tear up worse.

Have hauled lead & stacked near cell A for use in shielding the sump in case maint. goes in tomorrow.

Cell A sump has a cavity at north end.

B3, B6, untouched this shift.

Pipes, etc in cell A still have contamination in spite of hosing.

Since the sahibs will want to look-see at A-9 in A.M. the cell floor should be left dry.

The 4 jets atop cell A (cell B) should be shielded if maint. is to work there. (> 4250 mr.). These are to be steam purged when A9 is MT, per WPB.

A-6 —	900 mr.
Sump, north —	5.2 R.
" under A9 —	10.2 R.
A9, bottom	900 mr
" middle	"
" top	4050 mr
A8, bottom	900 mr.
", middle	800 "
", top	2750 mr.
A-16	1.0 R.
A5, top	1.6 R.

12-12-45

The HNO_3 in A-5 was neutralized in A-6.

B-26 was full according to manometer so we emptied it B-26 - B-27, B-12, B-7 to B-3. The crud filter disc was too slow so we by passed to B-27. This line also was plugged. By pressure from B-27 thru to B-26, it was cleared. The total volume in B-12, 1.5 liters plus 5 liters did not agree with B-26 level manometer which showed 16".

B-3 and B-6 samplers allowed to circulate the whole shift.

A-9 to B-26 and A9 - B-12 jets steamed for about 2 hours A9 - B1 jets not steamed because B-1 was filled with product solution

The flus-silicate was carried thru to A-6

The second acid wash after flowsilicate started in A-1

A-9 – 30% HNO_3 cooling
A-11 – 30% HNO_3 boiling
A-6 – carbonate sufficient for acid in A-11.
A-5 should be washed out with H_2O.

– A new key was added to the master ring. It is for 706-A Store Room.

12-12-45
8-4
55R

The carbonate in A6 was hot! The reading at cell A doorway was >5R, and the reading next to the tank was >20R. We jetted to W11 immediately, and the readings went way down. The carbonate seems to have done so much good that A8, A11, and A9 are to be given carbonate treatments.

Concentrate on decontamination of A9 because most of the maintenance will be done on this tank, and a new run started right now. You had better not lose any time, or we will be working on Christmas.

We have been making up 25% Na_2CO_3 solution in M1 (750 lbs water and 250 lbs Na_2CO_3 to give 1000 lbs of 25% Na_2CO_3 solution). If you do not keep the 25% Na_2CO_3 warm, it will

crystallize out in lines and tanks, giving you plenty of trouble, particularly at temperatures lower than 30° C. We are keeping it at 40°C, or greater when pumping to prevent crystallization.

There is only one small jet from A5 to A8 and this jet is plugged. To get the 25% Na_2CO_3 in A8, A9 and A11 we made up the 25% carbonate real short in M1, and pumped it to the spare T3 tank on third floor, using spare pump M9. We had to fix the pump and unplug the line, but we finally got it to working O.K. We got A11 and A8 filled, but we could not fill A9 because maintenance is breaking hot flanges on A9. As soon as A9 is cleared, you can fill A9, and then fill A8, A11 and A9. When cooling the 25% carbonate down, do not cool below 40°C prior to getting to A5, and out of the cell.

There may be some hot spots for you to clean up after Maintenance gets through with A9.

12/12/45
4-12
M.J.

Spent all morning on the top of A9

→ If day shift will get the 8' tongs repaired, will put in new cond filter tomorrow nite – at present tongs are in Rm 9 – slightly bent out of shape

A8, A9, A11 given Na_2CO_3 cooke all shift – discarded via A5 → A6 → W11

Liquid found in Cell I liner + liquid in B17 + liquid in B24 all now in B3 - to be sampled. + circulating at shift change

→ Cell A (especially A9) to be clean, empty +
→ completly surveyed at 8A - per WAR

12-13

A-9 given HCl treatment on top. Tank A9 was filled with 10% NaOH and the floor was covered with carbonate under A-9 before each HCl treatment. Between acid treatments the fire hose sprayed on the top of A-9 to the capacity of the pump.

A-8 & A11 filled with 25% carbonate, and boiled most of the shift.

B-3 was sampled, awaiting analysis

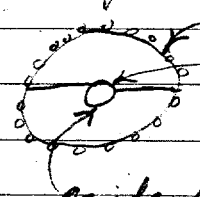
A-cell tanks MT.

H.P. Survey made 7:30 AM

cell A 7:30A. 12-13

N sump		1650
Mid		900
By A-9 - sump		700
A-5	Bottom	1550
"	Middle	700
"	top	1000
A-6	S.W. Top	200
"	S.W. Mid	400
"	" Bottom	2650
A-8	N Bottom	1000
	N. Middle	500
	N. top	900
A-9	4 S.W. flanges	500
"	top of ladder	225
"	4 N. Jets	300
"	Agitator base	300
"	E. side top	300
"	S side top	400
"	E. side middle	500
"	E side bottom	600
A-16	S.E Bottom	2000
	valve at A-16	2550

12-13-45 The 8 foot tongs have been
8-4 shift repaired, and put in the low storage Area.
SJR The bottom of A9 was dropped down this morning. The bearing where the shaft enters the tank is shot, giving plenty of play when the agitator is on. A number of lines going to the bottom of the tank were badly bent out of line. The liquid level line had large leaks in it about 10-12 inches from the bottom of the tank. This bottom section of the liquid level line is being cut out and replaced. The other lines were straightened out as well as possible. A guide hole is to be welded around the shaft to prevent agitator blades from hitting the lines. This is a temporary repair only for the next run. The tank will then be assembled, and we will start next run as soon as possible, either tonight or tomorrow.



ring that guides lines in A9 to bottom of tank to be welded around agitator shaft in two pieces.

guide hole installed to prevent agitator shaft from whipping around and tearing up lines.

This arrangement ought to work O.K because you could prevent A9 agitator shaft from whipping around with mere finger pressure.

Handles have been welded on the new cover to the slurry chute. This is a stumbling hazard.

Nipple to sample 50% NaOH has been turned into the east side of M-11. Line from steam jet on M1 to M11 has been torn out, and not put in yet.

Agitator on T2 was fixed. It had a bad plug. Chemicals for 20% $Pb(NO_3)_2$ and 40% H_2CO_3 have been brought in.

One of those weird things has just happened. Two corks were put in the liquid level and sp. gr. lines in A9. Then A9 was pulled into place and battened down, but it was discovered that the corks had not been removed. Maintenance men had used up their time. So, A9 will be lowered in the morning to remove the corks. Clean up around A Cell so that they can start operating as soon as A9 is fixed up.

12/13/45
4-12
M L.

Removed cond filter and burned some, installed new one. Vacuum now on B27 at app. 8-10 in. to set ball joints - leave thus at least over nite.

Coating removal solution in A1 - ready for slugs.

Odds + ends removed from cell A - to prepare for closing

B21 - B17 transfer line tested - apparently no leak - at this time.

A16 - 7060 off gas system + A4 - 205 systems both shut off + draining.

Door to cell I opened - 4R 2" from seal box..

12-14-45

Checked rubber gloves & rubbers and placed in rack.

General cleanup of building prior to starting run.

12-14-45
8-4

A-1 re-reassembled and slug loading started. 3 loads dumped at 3:40 P.M.

Same sol'n in A-1 & M-1 as we found. Believe M-1 was made last nite?

RUN 7

All Personnel will please operate At All times with fingers crossed.

Schedule (we hope) is posted in Senior Supervisors office. Lets try to hold to it. Every delay makes Christmas that much sooner.

Please Keep COMPLETE

Records -- Remember A6.!!!

Tubes in upper left Drawer of desk

TAKE large size samples of All 8WIM samples (instead of two as noted in Run Sheets) as we are asking for Pb to be run. Special tubes provided.

On 1MB please take 4 special samples for WH Baldwin. Special tubes provided.

A9 Agitator is just patched. Watch CAREFULLY during All use. Do not use during A1 — A9 transfers.

12/14/45
4-12 Finished loading slugs, pulled coats & 1st metal solution now in progress.

12-15-45 We had trouble. Bldg got so hot
12-8 that it had to be evacuated. At 2^{35} A.M H.P.
STR got an air sample reading 10 mr on the third floor and told us to wear masks on third floor. Just prior to that we had both noticed a high integron reading in north lab. H.P. said that it would investigate. Hot nitric fumes backed up the drains into north and south labs, and contaminated bldg to such an extent that it had to be evacuated. Air activity was so high that all the hand probes were jamming. We reentered bldg and opened all doors and windows and made sure that all fans were going. This brought down air activity because hand probes began to act more like normal. Yet there is quite a bit of activity around. Do not handle any valves without gloves. We shut all the doors and windows to heat the bldg up again, but should the air activity be too high, it is suggested that all doors and windows be opened for about an hour. You get a terrific breeze through the bldg.

A1 vacuum has been acting screwy. We have been operating between two inches of vacuum and neutral pressure. The slug carrier is sitting on the chute cover. Yet no vacuum. At Walt's suggestion we cut the steam jet on four inch s.s. line at 205 stack, and then drained the Xmas tree for about 15 minutes. Walt thought that in this cold weather more stuff was condensing in the line, and holding up the vacuum. If this is repeated in the afternoon when it is warmer, you may get better results.

There is 10" water in A11 to seal off A11 - A1 jet in order to help vacuum in A1.

H.P. is taking air samples around the bldg to try find a spot where we can operate without gas masks.

7A is settling cold in A9 until 11 40 A.M

7B is being nursed along in A1 at less than minimum vacuum. Hold in A1 at 80°C until you can get more vacuum. It is almost finished dissolving; so, do not cool below 80°C. We have the steam valve to A1 jacket cracked.

A6 has sump water.

A5 has a little CO_3-PO_4 jetted from M1.

I am writing this with a gas mask. There is some activity everywhere. Wear gas masks when in doubt.

→ When draining the Xmas tree and the line from there to the 205 stack, proceed as follows.

1. Turn off all the valves except the one to 205.
2. Turn off the valve to 205 after 5 min.
3. Open the funnel (vent) and drain line.
4. After 5 min. open side spigot to visually check that draining is complete.
5. Repeat step 1 thru 4.
6. Open the valve to 706-D + to 205 turning all the rest off.

For draining the line from 706-D to the

Xmas tree close all the valves except the funnel (vent) on top and the valve between 706 D + the Xmas tree.

8-4 During dissolving it may be necessary to shut down A-1, drain 295 off gas line. In cold weather, there is much more condensate.

During cooling period of extractions, do not let A-9 get below 35°C. Batch A was frozen, jets were plugged.

Use of A9 agitator to be limited as per run sheets. Do not

More 40% K_2CO_3 made up. Sample in lab.

Batch A is settling in A11 at 35°. Decant this to A5 in time to free A5 (+A11) for passage of Batch B. Sample A5 + hold until O.K-ed by analysis.

Batch B is extracting in A9. A9-A8DB is unplugged as of 3 00 P.M.

Batch C - when ready to go to A9 -

part should be sent to A9 via A11 in order to ~~wash~~ & carry out ppt. of Batch A, back to A9.

Slug loading in progress. 14 carriers to be dumped on this trick. 6 loads dumped at 4:00. 105 hoist is on the fritz.

Air contamination has been backing up in hot sinks. There have been stoppered & sealed with H_2O.

Cell Fan bearing oil pump not working properly, dumping oil on floor. Keep oil on bearing, keep fan running, to hell with oil on floor.

We took one of Baldwins samples, per WAR., stored in South lab. More to be taken on later dissolvings. Tubes on desk at A-1 Blister.

M.L. - We were going to drain A-4 system again but didn't get to it. Will need draining before start up.

Looks like A-1 has a leak. L.L. Fan gone up a disturbing dust.

12/14/45
4-12
M.L.

Loaded 8 buckets of slugs - total of 14.

Kept full line pressure on both jacket and coils of A2 all during slug loading - 4 Hrs - no appreciable rise in l. l.

Drained off gas system to 205 just before coating removal and had 10 in of "suck." - at end of coating removal only 3 in was available - and system was again drained before starting metal solution > 12 in obtainable at start - may need draining before dissolving is over - see page 125 for draining procedure - if necessary to drain during metal solution, cool A1 down to stop reaction - not enough to freeze solution - 80°-85° is a guess.

→ Marks on 3rd/ level ←

Run status

7A - in A6 - ready to neutralize - when vacuum becomes available for A5

7B settling until 12 35/A

7C - dissolving

part of 7C to be routed to A9 via A11 to pick up part. of 7A which was resettled - don't take all over this route as dilution is high.

Sp. G. dropped clear down on batch C — back to normal perhaps ? ? ? ?

12-16-45

12-8
55R

After 7B was through extracting, the 100 pounds of solution in A11 was sparged and jetted to A9. Then 100 pounds of batch 7C was jetted to A11, sparged and jetted to A9 to rinse out A11. Since jet A1-A11 was so slow, we gave A11 only one rinse in order to get on with extraction of 7C.

After we finished dissolving 7C, we drained Xmas tree thoroughly both ways, from 706D & from 205D, but we could get no vacuum on A1. Then we ran a steam hose from PB3 to Xmas junction, and thawed out the solution which seems to have partially frozen in the drain pot. Believe that there is quite a bit of condensate in the line on 706D side that you can get by alternately heating, draining and putting vacuum on condensate pot at Xmas junction. If you try this, you may get vacuum to last longer on next dissolving in A1. Vacuum of 7C dissolving went down from 15" to 4".

Run Status:

7B is settling in A11 until 8^00 A.M. Lab analysis of 8WMB was only 25 C's. Carbo-phosphate solution is in A5.

7C - Settling until 11^48 A.M. Water is cut off. Temperature is 40°C. Let it coast as low as 35°C.

7D - Cooling to 40°C. Sampler is circulating. Regular sample for lab has to be taken. We did not

take Baldwin's samples on 7C because we were running behind.

12-16-45
8-4

Batch E in A1 dissolving
" D in A9 Hot Settling til til 5^{25}
8WMC (95c.) settling in A11 at 35°.

Have all M.W.'s run for Pb. Used 200cc $Pb(NO_3)_2$ on D. If loss is OK, can use less than 300cc call for, on later extractions.

PB1. area warm. Fan duct HOT. A8-A5DA steam strainer in plug AE-C9 is hot. 3rd floor funnel area HOT.

Steam hose on XMas tree has been effective in getting A-1 Vac.

Took a second Baldwin Sample on 1D.

Pls. drain H_2O line to M10 after using. It took several man hrs. to thaw it out.

12/16/45
4-12 Crud removal equipment tested - O.K. at the moment
m.L. $7^{22}/P$ 12/16/45 - no guarantee issued

apparently the weather is affecting cell ventilation system the same as A4-205 line — took 5½ hrs to empty the duct tonight.

Run status

7C - in A6 ready for W'9 ing - 8.2 C.
7D - in A8 - awaiting analysis.
7E - in A9
7F - to be started - acid in scale tank.

A1 Vacuum situation same - O.K. when freshly drained - drops fast - requires watching

→ suggest day shift investigate possibility of emptying pot via say suction flask or some other such system which
→ could be operated without shutting off system. - also maybe we can sell the condensate - it's hotter then M.D.P.'s B.K. in H.

Integron on PB1 broke for the better at 9P - only thing happening was emptying of duct.???

12-17-45
12-8
SJR

We got only 5" vacuum in A1 right after draining Xmas tree junction. We did not drain from 205 back to the junction.

A1 Sampler was plugged with UNH. We blew it out.

Room Status:

A1 – 7F diluted and sampled.

A5 – 7D decanted from A11. Sample in lab.

A9 – 7E settling at 40°C until 8^50 A.M.

Analysis on 8WMD was 95 C. So we settled it for five hours and decanted to A5 and sampled. Put in A6 and neutralize with CO_3-PO_4 in M1.

We fitted NaOH to M11 and bottled it to 20% in M11.

The suction to A5-A6 was cut off about 1/2" below floor level during the last shut down. This was required because the sump was full at least over the strainers with sand from the chewed up concrete. WPB

Lab reports 90.8% K_2CO_3.

12-17-45 The H_2O drain on water line to
9-4 M11 was found closed again!!!

NH. 8WME (205C) was re-agitated &
200cc $Pb(NO_3)_2$ added & re-settled in
A11. If F ~~LS~~ hi, similar treatment may
be required.

in The 700c in cell B is in B6,
4.m. evaporated to about 4 L. Add this to
extraction G.

Carrier No. 3 returned from Y,
was about 1R in spots. Being given
acid in Rm. 9. Carrier & cone to be
put in use evaporating $BaCl_2$
soln. See WPB.

Air on 3rd floor about noon — 3000 cts

A1 — 7G ~~dissolving~~ diluted
A9 — 7F settling Til 7:25 P.M.
A8 — MT
A11 — 7E settling
B6 — 700c's for Batch G extraction.

Notify H.P. whenever you are going to jet
or sparge. — WPB

12-17-45 Run status
4-12 7G - in A9 settling hot until 1 42/ cold till 6 42/
m.L. 7F - in A8 awaiting analysis - flash - 24.3 C
to be jetted to A5 + dumped.
First dummy evaporation - ap per sheet just finished - to be dropped & inspected - carrier, cone, and adapter all warm - not too hot though - 100 mr or so.

Solution for second dummy evaporation on desk in chemistry office

12-18-45 We removed Run I $BaCl_2$ dummy
12-8 evaporation. Lab reports 92.2% recovery of
SJR Barium. The carrier read greater than 5 R, but on addition of water reading went down to about 3 R. The sample taken to the lab. (about 250 c.c.) read 2500 mr next to the bottle. A slight amount of iron discoloration was noticed in the cake. The water solution of the cake is green. We notified the chemists to save the sample. Run II was started at 2 30 A.M. We pulled it off at 6 00 A.M, but since it was still wet, we put it back on to evaporate until shift change. Vacuum pump, suction flask etc are on third floor for removal of Run II from the cone. Note: Run II looks better than Run I, the cake being almost completely white.

7G is in A8. Sample 8WM G is in lab.

First sulfuric acid wash in A9 will be through settling at 10 18 A.M.

At 2 30 A.M H.P. said gas masks would have to be worn on 3rd floor. We opened all the windows

on third floor. Next two air samples were not low, but were enough below tolerance to discontinue wearing gas masks.

12-18-45
8-4 Loaded 250 slugs in A1. Thats all for now.

Both $BaCl_2$ evaps. show 81% efficiency.

A9 - ready for metathesis.
A8 - 8 WU, to be sampled.
A11 - 8 WMG (206 C) settling after addition of $Pb(NO_3)_2$.
A1 - 250 slugs. NaOH 35% in T9.

12/18/45
4-12 Evaporation run at 145° Cone air, 120 Head heater, 25 air flow
M.L. and 0.1" off gas flow. - solution poured into cone by hand.
Kept two evaporations (per WPD) to be as follows
1. 125° Cone Air - other conditions as above
(in progress) 2. 0.2" off gas flow, other conditions as above.
→ if the transfer to cell B occurs between 7 30/A + 8 A/- hold till 8 - if it is to occur before 7 30/A - call Walt about 1 hr previous to transfer + hold for him.

Off gas flow manometer now reading vacuum on down stream side of orifice - use some standards as specified (0.1, 0.2 etc)

Run status

A1 – 7H metal solution in progress
A8 – 1st methathes waste – awaiting second (acidified)
A9 – 2nd " settling until 1 10/A
A11 – 7G – ready to decant to A5 whenever Vacuum becomes available (to be sampled in A5)
A5 – 1 batch of CO_3-PO_4 for neutralization of 7G.

B19 – Dummy evaporation in progress (no 2 on page 135)

12-19-45
12-8
SJR

We removed above dummy evaporation, and sent sample to lab. We poured fresh solution into cone directly and started another evap. at 125°C Cone heater air temperature. Started evap. at 5:00 A.M. Let it go about 6 hours. There is one more dummy evap. similar to this one to do.

Run Status: A1 – 7H diluted and sampled
A8 – Metathesis wastes and water washes – Save.
A9 – Transferring the Run to B Cell.

Metathesis Wastes alone ran 189 Curies (8WC). Combined metathesis wastes and water washes samples is in lab (8WCW) at 7:00 A.M.

12-19-45
8-4

Dummy evap. No. 5 completed & sent to lab. The carrier & cone were as hi as 7R in spots, mostly B. They are in Rm 9 in acid. Should be ready to put in cell soon.

Poor results on 7H are predicted. All contents (heel of 7G, metath. wastes & W.W.) were added to A9 extraction H. We left 5" of A1 soln in A1 but should have left more, as A9 overflowed to A11 upon addition of H_2SO_4. Present contents of A11 should be added to 7I extraction.

3 Steam valves on PB 4A replaced.

Cell A & B air intake ducts are partially blocked to give better cell vac.

The 2 slug carriers are to be decontam. so they can be painted, per UPB.

No. 7 is in B12 at 25 amps til 8^{55} P.M.
B6 was MTied, not rinsed out.
7I in A1, dissolving.
7H in A9 settling til 8^{15}

12-19-45

(4-12) Run 7 I - A-9 Digesting
Run 7 H - Awaiting analysis in A-8

7-A-G is in B-6 boiling down to dryness. 1" on B6 Manometer at 11:45 PM

B-9 checked and no vacuum.

B-11 checked 1 liter to B-19 It is Okay.

Bigler suggested that B-1 and B-2 be washed and checked.

Walt will be in 2:30 to 3:00 A.M. Call if needed sooner.

Taskie wants exact time of HCl ether addition.

12-20-45 Only 200 lbs 60% HNO_3 and 86# dilution
12-8 water was used in batch J in order to take care
SJR. of excess volume of UNH solution lying around.
After decanting Batch I make sure that you use the 20 gal. heel in A11 in A9 along with the stuff in A1. After addition of 90% H_2SO_4 total volume in A9 should be about 90 gal.

8WMH had 76 C. and was neutralized in A5 because A11 had a large heel to be used in next extraction (21 gal. heel).

After boiling down The Run in B6, it was sucked up to B11, dropped to B21R thru movable funnel, and followed by two water washes. When The Run was dropped, the solution looked clear thru the scope. On the first wash the solution looked dirty. On last wash it was clear. After second and last wash B11 was put under slight pressure and about 200-300 c.c more solution came out into movable funnel. Apparently there is some hold-up in B11 and line from B11 that requires pressure to blow it free. Some of the last run was probably held up here in B11.

Run Status:

A1 - 7J dissolving slowly
A9 - 7I Settling until 8:30 A.M
A11 - 20 gal. heel to be combined with 7J in A9.
B3 - 8WFN - Sample in lab - Hold for lab results.
B6 - T and rinse - " " - " " "
B20T - HCl-ether waste and washes - Not sampled.
B17 - The Run - not sampled.

[Dissolving past J appears to be heels]

Well looks as though the one other hurdle is to evaporate it properly. If done I plan to leave for the North tomorrow AM.

In re the holidays and shift work. It will be necessary to maintain regular shifts to man tank farm but as long as two men are present at all times, others can take time off if desired. The rules say you get paid time and one half for Dec 25 and Jan 1 if you work them -- straight time if you don't -- unless it is your scheduled day off in which case it cuts no ice at all. Amen

A Merry Christmas to all -- and to all a good night -- Boy am I tired!

W.A.R.

8-4 No. 7 in B19 until 5^15 at which time the ~75cc in B17 (rinse of B21T) is to be added

Batches H & I were given all washes preparatory to metathesis just in case it was needed. Last

Wash in A9, to be decanted at 4:00 P.M.
See WPB about what to do with it.

12-20-45
4-12
338 c's - 8 MJ
7.1 " 8WMI
1.1 " 8WA

A-6 was set not working. Let this neutralized waste remain in A-6 - W.P.B.
75 cc from B-17 added to the cone. At 9:00 PM the cone was dropped and inspected. about 5 cc uncvaporated. Readings were taken by the lab. on the run, when the carrier was pushed to the chimney. the plug will be placed down into the cone enough to cover the opening. Do not disturb the carrier or plug until tomorrow on day shift.

A-5 a patch of carbonate is in ~~M-1~~ to neutralize 8WMI which is in A-11. about 4000 lbs is needed.

A-9 extraction at 7-J digesting until 12:10 A.
~~A-1~~ T-9 HNO_3 to dissolve slugs in A-1

7J is to be decanted at the end of the extraction, to A-8 which now contains the water washes of extraction cake 7H & I, Sample these two wastes together.

12-21-45
12-8
SJR

A5 and A6 contain neutralized metal waste.

7J is settling in A9 until 8^10 A.M.

Added 510# 60% HNO_3 to A1 to cook remaining heels. (K)?

56642
57441

A8 still has water washes of 7H & 7I.

It is suggested that M11 be used as an emergency storage tank for 20% caustic. It is a lot more trouble to make up 20% caustic in M11 than it is to make up 4% caustic in M10 by jetting 50% caustic directly to M10. So if you go to greater trouble to make up 20% caustic in M11, it stands to reason that 20% caustic from M11 should not be used to make up 4% NaOH in M10 unless you do not have time to jet the 50% stuff to M10. M11 stays empty most of the time as it is, and unless we can agree to limit withdrawals on 20% NaOH in M11 to emergency use only, it will continue to stay MT. Since we have the tank, we might as well use it.

We drained 205 offgas line from the jet to the pot, and got good vacuum. Previously we did not get any vacuum by draining at the pot alone. However, Vacuum on A1 dropped down so low that you may have to drain it from the jet to the pot again.

Program for Period Dec 21 to Jan 2.

1 - All Shifts are to be covered by at least 2 men, except on Dec 25 and Jan 1.

2. - Listed below are the items to be taken care of during this idle period.

a - Decontaminate Blisters, sampling equip. and all other hot equipment + areas.

b - Clean up Decontamination Rm #9.

c - Store or dispose of items lying around building - ladders, acid baths.

d. - Clean the slug carriers for painting.

e - Clean all glass ware - that at the 3rd floor lab bench + at the Glass Panel Board.

f - Clean up E. Platform + Fan House.

3 - Let the solutions set in A9, B29, and continue to dissolve out the Keils in A1 (watch the time + apply steam when necessary and drain often).

4. - Supervisors should start on their work as outlined in memo 12/21/45 in operations booklet.

5. - There is going to be painting done during this period so get as much done before that starts as possible.

Any questions call me at 5-3764

Merry Christmas

W.P.B

4-12

12-21-45

H_2SO_4 pump M-7 is not working. We are using M-9 which pumps to T-3.

A-6 to W-9 jet is now working properly.

(V) 2. A-1 Nitric dissolving slugs.

A-11 8WMJ settling until tomorrow sometime. - W.P.B.

A-9 7K extraction settling until 4:40 AM.

A-5 has one batch of carbonate to neutralize waste in A-11

Newton is ill and won't be in to-night. Called hospital.

12-8
12-22-45

A-9 7K decanted at 4 40/A.M. Sampled. sample in S. Lot lab. in Carrier. Tag on carrier marked 8WMK.
A-11 settling.
(L)? A-9 untouched since decanted.
A-1 still heating.
notice - 4-12 [illegible] to note about H_2SO_4 pump.

8-4 12-22-45

Waste from Batch K settling in A-8
Waste from Batch J settling in A 11
Product of Batch K in A-9. Instructions are to hold as is until monday per W. P. B. (all three tanks)
Batch 7-L was transfered to A-5 and neutralized and is now in A-6
Batch 7-M is now cooking in A-1.
W. P. B. wants a sample taken of each heel Dissolving before neutralizing
A sample of 7-L is in the Lab.

12/22/45
4-12
Boiled 7-M for three hours with 500# 60% HNO_3 to dissolve heel in A-1 cooled & sampled.
made up batch CO_3 PO_4 for

Neutralization of # 7-N and fitted to A-5
Dumped HNO_3 put 400# in scale tank for another boiling but W-9 jet would not work.
Drained vacuum line all the way to 205 Stack.
NOTE A-8 - A-9 - A-11 are to be left as is until Monday as per W.P.B.
12-8 12/23/45
Normal operations.
Decanted A6 To W9

8-4 12-23-45

A-1, Batch 7-N cooking.
A-6, Batch 7-M Neutralized and Ready for Waste Carrier in Room 9 cleaned and ready for painting. Room 9 was also straightened up.

4-12 12/23/45
Sampled HNO_3 that was in A-1 after boiling until about 7 PM
Made up batch CO_3 PO_4.
A-6 Contains neutralized waste ready for W-9.
Disposed of oily rags in red can that was left in fan house.

12-8 Unable to get get A-6-W-9 to get
12-24 all other operations Normal.

8-4
12/24/45 Worked on decontamination room. Product carrier not touched. Drained Xmas tree

H-12-12/24/45
Failed to get W-9 fit to work after about 3 or 4 hours. gave it up as a bad job.

Merry Xmas

12-8
12-25-45 Normal Operations

8-4
12/25/45 Nothing new

12/25/45 (H-12)
Holiday (Day of rest)

12-8
12-26-45 Cleaned third level.

Program.

1. Decant and collect all heels in A9, from all the other tanks. Then settle A9 & and decant to 4" thurs. 12/27 leaving a heel to start Run #8 with in A9.

2. The 1st floor + stairs are to be painted. All surfaces to get 2 coats, so work will be staggered so that all floors are accessible.

3. Check all samplers for operation and see that they have the right vol.

12-26-45
8-4
M.L.

A-11 decanted to A5 + sampled, heel returned to A9

Gave up trying to get A6-W9 jet to work and dumped stuff to W-11.

Status.

A5 - 7J, to be neutralized via A5 → A6 → A5 method.
A9 - Settling. - leave as is
A8 - settling, to be decanted to A5 whenever A5 is available. Heel to be returned to A9.
stuff jetted to A5 to be sampled.

12/26/45 ① 6K metal waste sample is in
4-12 doorway of hot lab (floor painted
EJW and no chemist available). We are
holding the waste in A5 until
lab results are gotten.
The 6K heel from A8 was
put in A9. A11 and A8 was rinsed
with 100 lb. H_2O and jetted to A9.
② A6 contains neutralized metal
waste ready for W9.
③ Floor area around B3 and B6
samplers was scrubbed down.
No smears were taken after
cleaning, please check.

12/27/45
8-4 E.E. Pierce ill & won't be in tonight
M.L.

Everything else is as was.

A16 off gas system draining

Floor in front of B3 + B6 now smearing around 2000 cts/min
compared to > 200,000 or so yesterday.

12/27/45 Cleaned floor - in front B-3 B-6
4-12. Samplers Did not check it
Everything Same as 8-4 Shift
JB

12-28

8-4 Floor in front of B-3 & B-6
Blister's okay 200 c'ts on smears.

A-16 on.

12-29

12-8 Veni, Vidi, non laborare

Pax vobiscum

Please Notice: Whenever mops or the floor polisher is used, please dispose of pot equipment and remove any used brushes from the polisher.

12-29

8-4
tested 22' hoist with 3 ton load.

M-7 pump okay.

1-2-46

Wash thru B-21 - B-17 sent to B-3 & sampled. — Hold.

HCl - ether from B-20 T to B-3 sampled & disposed of.

Steam is coming from A-6-W9 jet pit to A-6 allow steam to go thru this line until a noticeable increase in temperature, attempt to jet this solution to W9 after heating to about 50°C.

Repeat the above procedure if A-6-W9 Jet does not work.

Run 8 Coaling removal from A-1 last shot of 20% NaOH in T-8 Loading slurry # 10 in progress 4:00 PM.

— M-L — I called in the order for slurry pickup for 6 AM — they are to call you before coming down.

1-2-45
4-12

We have Cell B air intake shut off entirely & Cell A " " partly shut off to increase cell vacuum. Would suggest keeping an ear on the big fan to see if any irregularities develope.

Vacuum on A1 pettered out after 1hr. of dissolving. We have started steam hose on XMas tree.

M.W. in A6 pitted to W-9. Whatever was in A5 we neutralized. Unknown 10" in A8 also dumped. A9 deserted to A8 & sampled.

Air count on 3rd floor going up. 1080 cts/min. at north end — 1/10 th of tolerance. Keep checking constant recorder on 3rd floor. The air count rose during period when the following pits were on: A9-A8DB, A8-A5, A5-A6. The next time A9-A8DB is used, please have H.P. set up pptor at PB-2 & have it going for sure when jet is vented.

R.S.P. →

1/3/45 Where is the ~~near Reactor Cradle and~~ the gasket for
12-8 cell I door? ~~they were~~ it was in front of the cubicle + ~~were~~ was
m.L. removed sometime over the holidays. ↑ decontamination room.

Run Status

8A - settling in A9 until 11 40/A.

8B - diluted - to be sampled, tube in place - sampler partially plugged

7 K+I etc. in A6 ready for W9'ing

Slug loading in progress 2 loads in.

1-3-46

(8-4)

A-11 8WMA awaiting analysis

A-9 8WMB digesting
Bubblers off so, it is not settling

A-1 8-C coating removal in process.

a hot spot on the first floor under A-1 blister. 2R/hr

A-5 has a batch of carbonate

1-3-46
4-12

A9 manometer long tube was plugged, so manometer was hooked to short tube only, so it indicates 4" less than is in tank.

M.L. → U.A.R. wants you to hook up long tube (on 2nd floor), open valve, etc. after A9 is decanted + try to unplug same during the beginning of extraction. If not successful by time to settle, revert to short tube system.

A1 – 8C Sampled.
A9 – 8B settling til 12^15 A.M.
A11 – heel from 8A
A5 – 8WAA neutralized.

Hot spot under A1 blister treated with plenty of HNO_3 + some HCl. Still warm, needs more work.

1/4/46
12-8
M.L.

Unplugged A9 manometer line + now connected as previous to trouble (correct reading + not longer 4" low as mentioned above)

Run Status
8B – settling in A11
8C – settling in A9 'til 10^55/A
8D – diluted + sampled.

B21 given 4 dilute nitric rinses + 4 water rinses of 4 l each.
activity 3 feet from reactor reduced from ~ 4500 mr to ~ 200 mr. Reactor proper still > 4R However.

Area around A1 blister given 1 soap + cornmeal treatment and then one nitric acid wash - ~~[illegible]~~.
no smears taken after the acid wash.

ALL SHIFTS

I Housekeeping is getting bad. The shifts are not taking care of their respective areas - 1st floor - Graveyard.
2nd floor & platform - Day
3rd floor - Swing.

II Inventories are not being filled out satisfactorily. Record vol. in each vessel and give content to the best of your knowledge. Start sooner if it requires more time.

III Watch the date and time you record on the run sheets.

WPB.

?? 1-4-45 8-4 [illegible] 2 IR.

Slug loading will start tomorrow at 2:00 P.M.

When neutralizing in A5, do not fill A5 over 62". A5 cannot hold the whole batch. Jet part of the batch to A6.
[illegible] acid jet [illegible] to M11

have been [illegible] and steam traced. Steam is now on. [illegible] ok to put [illegible] caustic into A11

Run Status at 4:00PM

8B – neutralized metal waste in A6
8C – metal waste in A11 plus 82 curie heel from 8B – settling until 7 PM.
8D – extraction settling until 9:30PM. turn on cooling water at 4:30P.M.
8E – metal solution diluted and cooling, to be sampled.

LRM – Clean the trough under PB #2 its about 550 mr/hr. – mainly under A9 & A8 get vents.

1-4-46.
4-12 down to 80 mr.

A9 – 8E digestion til 12:10 A.
A1 – 8F dissolving.
A11 – 8D settling.

12 - 8
1 - 5 - 45

8WMd 165 c's

allowed to settle as long as possible. Carbonate in A-5 and part in A-6 ready to receive 8WMd

A-9 - 8E settling until 8:10 AM.

A-1 8F dissolved

Slugs are being loaded in A-1 9 loads in

8F - 425 c's and 72 slugs.

T-9 contains 136# 60% HNO_3 for coating removal

T-8 has 280# 90% H_2SO_4 for 8F extraction.

1-5-46
8-4
SJR

Large Sample bottles are in cabinet north of Cell B.

Two slug carriers above hot labs give high smear on the sides. Simons recommends soap and water brushing followed by acetone rinse. He says to be careful and not wash contamination from top of carriers down on sides. These carriers are to be spray-painted on the sides in near future.

Comp

Hot leak under A1 blister is getting worse. A lead barricade was built around it.

Run Status

8D – Neutralized metal waste in A6
8E – High metal waste in A11 settling, ready to decant
8F – Extraction settling until 7:00PM
8G – metal solution diluted; sampled.

Two final product carrier and cone (back from Y), one in decontamination room and one in middle of 1st floor are to be cleaned, painted and put away.

1-5-46
4-12

We have been able to reduce air counts around PB2 during & after jetting A9-A8DB by keeping the vent line under water during jetting and venting. Readings, except in one case, have been low. In following this procedure, it is felt that the trough should be MT'ed of water within a few minutes after venting in order to break any vacuum being formed by condensation of residual steam in the line. In the exceptional case mentioned, A8 was being sparged while A9-A8DB was jetting & venting. Air activity shot up to 9,000 cts. Consequently, A8

sparger should not be turned on until after A9-A8DB is vented.

Special prod. carrier - de-rusted and painted.

B12 given HNO_3 treatment, rinsed out with water.

A6 → W9 jet not working. A6 being warmed up.

A1 - 8H diluted, to be sampled.
A9 - 8G Settling hot, til 1 AM.
A11 - 8F " til 3^{25} A.

8H is last extraction before metathesis.

12-8 A1 - 140# acid added. See p. 1 of 8I - Step 5.
A9 8H digesting to 8^{30} AM
A8 8G Waste (Sampled at 7^{30})
A11 MT
Transferred A11 heel to 8H in A9.

A9 Sp gr. manometer not working properly. Failed to get A6-W11 jet functioning. Product Carrier OK - removed to storage area. Cone still decontaminating in acid. Rotate during shift to clean completely & have HP check.

1/6/46
8-4
EJW

① A4-205 line either not being properly drained or not drained frequently enough. The nitric that was left in A1 at 8:00AM started to react on the metal (with no steam to jacket) and there was no vacuum in A1 until the line was completely drained from 205 stack. Before the line could be drained, pressure started to build up in A1. This was caught in time to prevent contamination of PB-1 but it could have been more serious.

② Pressley — do not load slugs on your shift as originally scheduled. Loading postponed until Monday night.

A6 — 8G [illegible]

A11 — 8G [illegible]

A9 — 8H [illegible]

4:30 PM

A1 — 8I [illegible]

?

CAN'T READ!

1-6-45
4-12

A9 last wash decanted at 11 58 P.M.
Then metathesis
A8 - washes to be sampled.
A11 - 8H Settling
A1 - 8I Sampled.

1-7-46
A-9 Metathesis decant 9:15 AM

A-8 First Metathesis decantation

A-I 8I sampled.

8 - 8WW 5.9 c's 4.0 S.T
8 - 5WM H { 17.0 c's 12.0 S.T
18.0 g lead

1-7-45
8-4

A double layer of kraft-decontent was laid on the floor around B3 & B6 samplers in order to minimize contamination of floor around these samplers during Run 8. Leave this paper on the floor for the duration of Run 8.

706-C carrier and core is in decontamination room ready for clean out.

There are only 31 pounds 45% NaOH in weigh tank, and no other caustic is available. Line from M1 to M11 was taken apart from M11 valve in make-up room to outer wall where line is lagged. Line from M1 to M11 is plugged

on the outside apparently at some portion where it is lagged. We stirred one barrel of caustic, and left it dissolving. The quickest way of getting some caustic will probably be to dump this barrel in M2 when it is thawed out.

The chemists request that we use rubber gaskets on sample tubes. They should reach down about 3/16" under rim of tube on the outside.

Run status at 4PM

① First portion of run 8 being transferred from A9 to B12

② slugs being loaded into A1 which contains batch 8I metal solution

③ A11 contains high metal waste bed from 8H, to be reworked in 8I extraction

④ A8 contains combined metallurgic and metathesis wastes.

→ Electrolyze 8H for a total of 15 hours — 4 hours at 15 amps and 2.5 amps to 5AM.

1-7-45
4-12

8A in B12 @ 25 amps til 8.00 A.M.

8I in A9 settling til 2.00 A.M.

A11 contains small heel (overflow from 8I extr.) to be put in next extraction.

8J in A1 dissolving.

A9 agitator is making a noise again. Scope is installed on 1st floor to permit viewing of A9 base during agitation periods. Note whether A9 spot weld breaks loose, causing fault vibration.

Loaded only 11 loads of slugs as 105 had pushed only 2 cars toward No. 12.

Off-gas line to 205 seems to be gasket water in big amts from somewhere - perhaps a leak at a weld.

164 1-8-46
12 - 8

A-11 8 w M I high loss.
settling.

A-9 8 J settling

A-1 8 K dissolved & sampled

We drained the off gas line to 205 twice. The vacuum is hard to hold on A-1

Run 8 H electrolyzing until 8:00 A.M.

a batch of carbonate is in A-5 to be jetted to A-6 prior to decanting A-11

There seems to be quite a vibration around A-9 when the agitator is on.

A-11 S p G and L.L. manometers seem to leak so we turned bubbles up to hold the L.L.

1/8/46 8-4 We are still getting high air counts when venting jets. The two best methods found for doing this have been 1) vent gases under water and then draining trough and 2) So not vent jet for 2 minutes after decantation is complete then vent and close valve. Both methods appear to work equally well.

A4-205 off-gas line filling up with water faster than lines. It is necessary to drain line completely before each dissolving to make sure you have sufficient vacuum through a dissolving. After 8M dissolving is finished Walt suggests that we cut off the jet at 205 bldg completely and turn off A4 scrubber. Drain system completely and close the valve at the Christmas tree to 205 stack. Turn on jet and hold vacuum between 205 to Christmas tree only. Just before vacuum is needed again in A1, drain A4-205 line through Christmas tree and note volume of water discharged, if any.

Slug loading for batch 8M is scheduled for 7PM. 105 bldg and maintenance have been notified but

please check with them again after 4 P.M.

Run Status

B6 — 1st half of run 1500 ml, half

B3 - 3WPb - Sample in lab. at 1^{30} P.M.

A1 - 8L dissolving

A11 - 8J settling until 8^{30} P.M.

A9 - 8K settling until 11^{50} P.M.

When dumping sulfuric, use syphon with tygon tubing. Using syphon with rubber tubing causes discoloration of sulfuric acid.

Housekeeping in the building is not up to par. Please go to work on this subject. There are ash trays in the building. Please use. The floor and especially drains are not place to put butts. The area in the south end of the second floor has just been painted. The last few mornings a cup of butts have been taken off that floor!

Let's have some thought as to why we are [illegible] so much water in the [illegible] system.

A4-205

4-12
~~12-8~~

AMK. Made a short test of the 205 off gas system but had to stop it in order to have vacuum ejector vessel A-1 during slug loading. Test not of long enough duration to draw any conclusions.

8L in A1
8K in A-9. Decant at 12 M.
8J held in A-11 - to be worked with the extraction of 8L

171 # 46% NaOH in T8. Use 114# of 46% caustic and 149 # of water to make up the 263 # of 20% caustic called for in step 7 of coating removal.

Loading slugs for batch M. 3 more loads to go.

Housecleaned on 3rd floor.

1-9-46
12-8

Finished loading slugs.

A-1. 8M dissolving

A5- standing.
A6- sitting.

A-9 8L settling

A-11 8K ready to decant to A-5. It has a high waste. A-6 has one later of carbonate.

1/9/46
8-4

N. B. Please —— do not jet CO_3 PO_4 solution to A5 before decanting A11 to A5 if A11 contains a high waste loss. The reason for this is that we must sample metal waste in A5 prior to neutralization and if A5 contains CO_3 PO_4 it must be jetted to A6. The metal waste must then be neutralized in reverse or in A6. The reaction is violent and the air count in building gets up extremely high due to loss of vacuum. If A11 contains a high waste loss, jet CO_3 PO_4 to A5 only after A11 - A5 decantation is completed, solution in A5 is sampled and

jetted to A6. Neutralizing in A5.

→ Extraction washes and metathesis are to follow batch 8M. Batches N, O and P will be processed but will not be included in this run.

Run Status:

A1 - Batch N dissolving - Sp. Gr. coming up fast, 1.50 at 3^30 P.M.

A9 - Settling hot until 5^55 P.M. and then cold until 10^55 P.M.

A11 - Settling until 7^10 P.M.

A1 is losing vacuum. It dropped from 15" to 5". Jew may be able to limp through.

1/9/46 Run status
4-12 A-1 8MN sampled + waiting
A6 - Neutralized 8WML
A11 - Heels
A9 - settling till 1^55

Get off at stack + entire line draining. Proposed plan is to start up jet + operate it with valve at christmas tree closed to see if moisture is being picked up between "tree" + stack.

Program (per WAR)

1. Settle A9 till 1^55, then decant - rush analysis!
2. Get A11 heel to A9 as soon as decanting is complete, sparge before transferring etc.

3. The first wash to be added to A9 via A11 to consist of 2 - 25 #/gallon of 25% H_2SO_4, sparge in A11 before transfer.
4. Settle in A9 one hr for each 8" of solution
5. Metal Waste 8WMM to be decanted from A8 → A5 if possible — if less than 150 C. < 150 C's
6. First Wash (H_2SO_4 + A11 Heels) to be sampled + dumped if possible

End of 12-8

7. all the water washes to be routed via A11.
8. 8WW to be dumped if 100 C or less
9. Metathesis liquor (K_2CO_3) to be routed to A9 via A11 (Heat + sparge in A11, then jet to A9)
10. A9 mechanical agitator to be used only intermittently + only during metathesis — for washes, both before + after metathesis use Hand Crank
11. Washes after metathesis to be added directly to A9.

1-10-46
12-8

See program as per W.A.R above.

A-1 8MN dissolved

A-8 1st acid wash sampled.

A-9 8 I-M has first water wash settling till 8:17.

A-9 L.L. and Sp G. manometers partially plugged.

A-6 has batch of neutralized waste ready to take to W-9.

Changed NH_3 cylinders

1-10-45 First metathesis settling until 6^10 P.M.
8-4 in A9.
JJR

8MN diluted and sampled in A1.

A carrier with cone, adapter and plug is being held on 3rd floor for Run 8.

Decontamination on carrier received from 706-C was started.

391. Curies were lost on first Sulfuric Wash.

8WW analyzed only 3.0 Curies, and was discarded.

Run records have improved a lot but Housekeeping is not up to par. First floor especially needs some work (e.g. back of cell block).

W.A.R.

1/10/46
4-12
M.L.

8 MN - still in A1
8 WC - in A8 awaiting analysis
8I-M, first wash settling till 1 45/A

1-11-46
12-8

Jet A-9 - B-26 and A 9-B12 plugged. The condensate ?? to B-12 and B-26 was collected in B-12 and transformed to B-3 via B-7 and sampled. Sample was hot.
Jetted from A-9 to B-1 Then B-1 to B-26. Run is filtering from B-26 to B-27 at shift change.

The area on east side of cell A and cell B is ready for painting.

B-1 water wash from A-9 to follow through B-26 and B27.

Stuff in B3 to be saved!

1-11-46

8-4

•B12 @ 25 amps til 7 P.M.
A9 – 8N extraction settling til. 7^{35} P.M.
A11 – heel to be added to next extraction.
A1 – 8O Sampled.
A5 – one Batch CO_3.

We are to make an (~) 100 C. run with 8N, 8O, and possibly 8P.

ML → Gasket put on Cell I door with rubber cement.

Gasket put on prod. carrier plug.

Hi smears on 3rd floor, cell A + funnel area) scrubbed down.

Kaskie's iron and lead works hauled to Cell B chimney.

After B8 is used to move the
4-12 → run from B12 → B6 ——— ? ?

~~Stuff~~ in B3 — 3 C's.

Steam trap on H. Pressure (125) line behind P.B. 2. replaced.

Gasket supplied & cemented in place on prod. carriers.

174

1/11/96
JEC

4-12 cont'd

Run Status —

A-1 — 8-0 Sampled
A-9 — 8N — jets and inst. lines plugged to be resetted
A-11 — heel to be added to next extraction in A-9.
B-12 — PbO_2 to be removed.
B-6 — Final heel to 350 cc. in progress.

(* 6P — 2800 C's @ ST
1.72 gms Pb. —)

— Inadequate $Pb(NO_3)_2$ added to 8N Extraction — see Wak for instructions —.

3 C's in B-3 to be added to 8-0 Extraction —.

A4-205 line is draining thru shift change

1-12-45 The Run is sitting in B17
12-8 awaiting 17P analysis.
SJR HCl-Ether solution started to polymerize when being transferred from B21T to B20T. B21T was rinsed thoroughly over to B20T which is in bad shape. The HCl-ether solution in B20T is solid. B20T may have to be broken. For the present let it sit. 3WFN was transferred from B3 to B10 to make way for the HCl-ether waste, if we could get it out in time before it polymerized. B3 now contains 20 liters 1% NaOH solution for neutralization of HCl-ether waste. B10 has fuming nitric waste. First shot of 4 liters of 25% HNO_3 and 200 c.c 30% H_2O_2 are in B12 to remove PbO_2. Let this sit in B12 until some of the wastes in B cell are cleared up.

A9 is still in bad shape. Jets and liq. level do not work yet. We did get 22" of something from A9 to A8, probably condensate. Since Batch N is the first batch in A9, since it does not have enough Pb in it, and is generally fouled up because of the poor condition of A9, it is planned to throw Batch N out, if anyone can figure out a way of getting it out of A9, clean out A9 good, and then finish up batches O & P in A9.

B6 has two liters of water added after the Run was transferred to the glassware. B6 rinse came 375 C. Hold.

B1 has 19" of we don't know what. It may be metal solution from A9.

1-12-46 Starting Run back thru glassware
8-4 due to hi Pb. After 17P, Run was moved to B6, B17 rinsed 3 times, B6 evap to 1/2" on man, B6 rinsed over S.P., evap to 1/2" again. Ready for glass.

Contamination exists on B17 probe handle, 1st flight of stairs (N) and the usual places.

1-12-46
8-12

① Run 8 in B-17 awaiting analysis — Looks like a Mid-nite Boil —.
② Cell "A" is to remain as is for the present. Let's all be cogitating as to how to rid A-9 of its contents!
③ Hold B-6 Rinse — 5 3 C's. (Now in B-6) for Admiral Nimitz & Navy!

1-13-46 A9 was heated up and jet A9-A8C
12-8 started to work. Tank A9 was emptied and contents
STR neutralized. A couple water washes were put in tank A9, heated up, cooled and jetted out in order to clean out tank A9 further. Jet A9-A8C works good now.

Batch O in A1 was neutralized in A5 and 515# 65% HNO_3 added to A1 to dissolve Batch P. This metal is being discarded because of the poor condition of A9 tank.

Started clean up of the Decontamination Room.

The Run was transferred to B19 via B8 pipette. We had trouble with the new air filter. It was packed way too tight with glass wool. We put back only 1/2 of the glass wool that was in the filter at first and we still could not get enough air flow to keep the heater from kicking out, 120°C being the maximum temperature that we could get. All the glass wool had to be removed before normal temperature could be obtained. The evaporation came up to temperature at 4:30 A.M. We are leaving it on temperature through shift change.

Hollinan drained the Xmas tree in the regular fashion. When he opened valve to 205, he could hear water gurgling back into the condensate pot. So, he checked and drained pot again, finding plenty of condensate. Then he cut off 205 jet and drained line thoroughly to get plenty of vacuum (off the barometer) on A1. This would seem to indicate that leak was between Xmas tree and 205 stack. It is suggested that sometime when A1 is free, you get a good vacuum by draining Xmas tree from 706-D building and from 205. You know the line is clear now. Then cut valve to 205 and cut off 205 jet. Let stand two hours. Drain Xmas tree. Then open valve to 205 and check pot at Xmas tree for condensate. If you get a lot of condensate in the pot, you know that line to 205 is filling up with water.

Run Status

A9 - 75# water cooling } combine & discard to WH.
A8 - water from A9 }
A1 - dissolving Batch P

discard { B10 - Fuming Nitric waste - 50 C - hold
{ B3 - 10 liters 1% NaOH for HCl-ether waste

hold B24 - HCl-ether waste

hold — B6 - 2 liter rinse - 53 C - hold
B12 - First shot 25% HNO_3 for PbO_2
B-1 - Throw away

leave { B26
as are { B27

1/13/46
8-4
SWR

Run finished evaporating approx 9:00 Am. First "sky-shine" taken one more due at 6:00 Pm. Then plug is to be put in cone and carrier to be raised out of all Bas per WAR

Heels dissolving in vessel A1. A-9, + A8 had boiling 30% HNO_3 treatment. After heels are all dissolved, decontamination of cell A to proceed as outlined on typed sheets.

B10, B3, B1 discarded as per WAR

Nothing done to B12 [illegible]

Maintenance men worked on A9 LL manometers today.

Building needs a good scrubbing down to eliminate contamination

1/13/95
4-12
JEC

(1) "Sky-shine" #2 run for Kaskie — data on Clip board.

(2) Product removed and placed near S. Doorway Carrier is very contaminated Avoid

(3) Continued dissolving of remaining slugs in A-1. One batch of CO_3-PO_4 in M-1 to neutralize batch now in A-1 (almost to gravity).

(4) 105 off-gas had to be drained hourly during dissolving — max of 4"-6" available following draining

(5) Entire crew became highly contaminated during "Sky Shine" and removing product, necessitating a lengthy personnel decontamination.

(6) Air on 3rd floor rising do to Kaskie's "Galaxy" and lack of Vac in A-1

A9

(7) ~1000 #'s 30% HNO_3 has been cooking all shift. Let cook until remainder of sludge dissolved.

(8) Maintenance replaced regulating valves on hot water heater (steam to and water to). They are scheduled to replace various others when operation permits (25# steam line etc)

1-14-46 Cell A vacuum was restored
12-8 by jetting about 5000# solution out of duct to sump
SJR to A6 to W11.

PbO_2 removed from B12 and discarded.

Thirty percent HNO_3 from A9 cooked in A8 & A11 and then discarded.

Added 510# 60% HNO_3 to A1 at 4:00 A.M. Sp. Gr. started to come up fast at 7:00 A.M and leveled off at 1.72, and is now rising slowly. Metallic heels are about all cooked out now. Add only 200 or 300# 60% HNO_3 on next shot and cook for awhile.

We noticed fumes on 3rd floor, but chart for air activity gave no reading. We opened windows to clear away fumes anyway, and air reading jumped way up and bounced back to zero. We are leaving the windows open.

Drained line from 205 to Xmas tree by cutting off steam to jet at 205 stack, but did not get as much vacuum as we usually get (only 6").

Work for tonite

4-12, 12-8

Try to get the HCl = Ether wastes successively to B3 and sample. Make 1st dilutions only according to instructions left by Kaski. (Unless I talk him out of an analyst)

Do first

Rinse out cell 4 to B22, collect in B3 or B6 and sample

Rinse B21R and B21T to B17 thence to B6 and sample.

Boil down product in B6 to 250cc.

Done

Clean up cone and carrier now in Equip. Decontamination Rm. Put under B19. Transfer soln from B6 (250cc) to B11 → B23 → B19. Evaporate to dryness.

Put Hastelloy C now outside east door in second floor low storage.

Collect all viewing instruments, clean for repair.

Housecleaning this joint

Put HP on trail of hot spots on floors, rails, steps etc.

Continue cleanup cell A.

SJR -- I want to see you in AM

WAR

Since steam valve at 2C5 jet is broken open and it will be impossible to drain off-gas line by shutting it off; please use the procedure outlined on enclosed typewritten instructions and drawing, it works very well.

1-14-45 8-4 Hot (7.5R@6") $CaCl_2$ trap from Glass P.B. removed to burial grounds.

A1, 9, 8, 11 boiling. The latter 3 have 30% HNO_3; A1 has 60%. Have each had 4 hr. boils.

B1 given 2nd cleanout shot & moved to B3. To be sampled.

1/14/45 There has been an uneven distribution of the amount of acid dumped between shifts. This is no accusation, let your conscience be your guide EJW

1/14/46 4-12 316C in B6, — Hold

Status of HCl ether

Run 1. { 2 l in B17
Rest in B24

Run 2 { Some in B3 + 16 l of H_2O + 250 g of NaOH
Rest in B20T — partially polimerized

cell A Status

A1 – 60% HNO_3 boiling
A5 – HNO_3
A8 – Na_2CO_3 boiling
A9 – Na_2CO_3 boiling
A11 – HNO_3 boiling

} about ready to move

We've been dumping from A11 to A5, then moving stuff from A8 to A11, A9 to A8, Head tanks to A9 Cook thus, then discard stuff in A11, move everything one tank etc.

A1 has been treated separately until heels are all gone

at 11³⁰/PM 1/14/46 Reading in cell A

Door wg – 12" above stool placed on step – is now 11R.

1-15-46
12-8
SJR

There is a rising-stem steam valve at 205 stack jet that can still be used to cut off steam to jet so that you can drain off gas line back to Xmas tree. We got vacuum on A1 off the chart.

Started to collect all viewing instruments at south end of building, second floor.

No rise in Sp. Gr of 60% HNO_3 in A1 was noticed. So started to add solutions for first cycle to Cell A tanks. The following additions to decontamination program are considered desirable:

1.) Since A8, A11, A5 and A6 do not have

a condenser, boil solutions in these tanks for 10 minutes only. Excessive boiling of 60% HNO_3 in these tanks will send so much nitric through the offgas system as to cause possible corrosion of large cell fan.

2.) To heat solutions use steam sparger and to cool use air sparger, watching vacuum closely.

3.) When making up 5% HNO_3 rinse in A1, add most of your water before adding required amount of 60% HNO_3 so that you do not get a violent reaction between 60% HNO_3 and any possible heel of 25% Na_2CO_3 left in A1.

Decontamination Status:

A1 - 5% HNO_3 rinse - cooling - ready to jet to A9 if temp. is 40°C at 8:00 A.M

A9 - MT

A8 - 1200# 25% Na_2CO_3 - cooking - ready to cool

A11 - 1200# 25% Na_2CO_3 - ready to cool.

A5 - 900# 60% HNO_3 - cooling

A6 - MT

1-15-46 To: All "A Eleven"
From: LRM.
Subject: Operating Manual.

For several reasons, W. A. Rodger has assigned in letter of 12-21-46 each of us considerable duties in formulation of information, techniques, procedures, descriptions, distributions, etc., relative to the construction, maintenance, operation and decontamination of 706D. One of the things I have been slugged with is fathering the formulation of the operating manual. It has been my understanding through WAR that each of you would gladly supply written accounts of various parts needed to complete the Manual. Your co-operation in this is a matter of your conscience, good-will, etc. Of course the effect of your duties in this matter lie between only you and W.A.R. I am merely serving as a collection agency. A hopeful date for completion of the manual has been set at Feb 15. (not by me!). A list of expected treatises follows. These have been assigned after due thought to each persons experience with particular

phases of the operation. If you have any squawks in these, pls. give them to W.A.R. I would like to briefly discuss with each of you the approach to your phase of the write-up before you get it written in final form. Object: to try to make the ~~op~~ manual a bit of continuous reading. It is estimated that at least 2 hrs/shift will be needed per man to meet the deadline.

SQAWKS

WAR { Safety Regulations
Exposure "
Divisions of Responsibility
(Supv. op. lab, janitors, H.P., Maint.).

RSP { Complete chemistry of process + flowsheet
Sol'n Make-Up Directions.
Complete jet list, all cells
(size of lines, type jets, type suction ends, service, P.B. control, thermo indicators, all jet line numbers, etc.).

A.C.V. { Complete lay-out, service, description, operating technique, chemistry involved, rules and flow-sheet, and any other pertinent data needed to fully describe purpose and operation of Thick Farm, 206, ponds + basins

M.L. Complete description & operating techniques of all phases of cubicle.

Complete Drawing List. all prints and drawings pertaining to construction of any part of 706D & equipment, listed by No. and cross indexed systematically by equipment No. or service.

Simons Complete write-up of duties, privileges, etc. of H.P. Dept.

S.J.R. 1. Methods, precautions, techniques required in decontamination of: (a) personnel (b) Bldg (c) Equipment.
2. Discussion, precautions, techniques of sampling.

RMR Complete lay-out and operating methods of both off gas systems & large fan & auxiliaries.

Discussion of 706D - Heat, Lighting, Power supplies, ventilation, cell Vacuum, distilled water.

JEC. Discussion and description, use of ① all electronic equipment ② Industrial equipment ③ all scopes

J.R.F. Specific techniques + precautions in these operations:
1. Slug loading
2. Neutralizations (include chemistry).
3. Jetting and Decanting.
4. Final Product handling + loading.

J.C.K. Purposes, methods, general techniques in handling + analyzing hot samples. Nomenclature of samples.

Final dry Prod. testing.

L.R.M. Operating procedure, description, and relation to process of each piece of equipment in cells A + B.

{ Collect all manual info.
+ arrange

1/15/46
8-4
AMK

First cycle of decontaminating procedure completed, and well on its way, samples taken, data recorded in decontamination procedure copy lying on desk near PB1.

Hot spots (smears) on all 3 floors cleaned up where found.

Used the dichromate test for testing acids qualitatively. Took a piece of filter paper, soaked it in saturated dichromate soln, allowed to dry. a drop of soln shows up on the paper as follows:

HNO_3 – gray
H_2SO_4 – green
H_2O_2 – purple → white

1/15/46
4-12
M.L.

HCl ether wastes from B17, D24, + B20 disposed. (Samples in upper barrels of S lab.)

Each set of glass ware given 2 dilute nitric rinses – any help in decontaminating cubicles will be appreciated [vessels all hold 4½ l ~~at least~~]

Reading at reference pt in cell A at 4% was 8R

Status of Decontamination Runs in Cell A.

A-1 — 1200 #'s Na_2CO_3 heating to boil (Cycle 3)
A-9 — 900 #'s 60% HNO_3 boiling (Cycle 3)
A-8 — 1000 #'s 5% HNO_3 cooling prior to going to A-11 → AN7 (Cycle 2)
A-11 — MT.
A-6 — MT.
A-5 — Two batches of Na_2CO_3 + 1 batch 60% HNO_3 neutralized awaiting 5% HNO_3 from A-8-A-11 to be dumped and W-11'ed.

JEC

1-16-46
12-8
SJR

Reading at Cell A reference point was still 8 R. The slime on Cell A floor showed over 100 R. We broke up the slime with a firehose, but pulled out quick.

A5-A6 jets and A6-W11 jets are on at shift change.

Take neutralized waste samples in A5, since there is a A6 sampler is missing.

Decontamination status

Cycle 4 Started { A1 - First batch 25% Na_2CO_3 - ready to cool.
A9 - 60% HNO_3 - evolving

Cycle 3 { A11 - 5% HNO_3 - ready to cool.
A5 - Neutralized nitric and carbonate - to be sampled

1-16-46 New S.S. hex top screws for cone
8-4 adapter pins are stored in bottom shelf of cabinet, 3rd floor N.

As suggested by S.J.R., the high radiation at Cell A entrance is probably due to slime on floor, please start boring down cell through sleeve in wall and 3rd floor and continue this method until it is practical to use fire hose at cell entrance.

1-16-46 CYCLE 4

A-4 MT
A-8 5% HNO_3 COOLING
A-11 25% Na_2CO_3 Ready To Jet To A-5
A-5 25% Na_2CO_3 Holding For A-11 + A-6
A-6 60% HNO_3 Holding For 2nd Batch Na_2CO_3

CYCLE 5

A-1 60% HNO_3 Boiling

Plugged line M9 → T3 being worked on by maint. Line is also broken on 3rd floor.

1-16-46.
4-12

Cycle 4 completed.

A-5 MT
A-6 MT

Line from M-9 to T-3 unplugged after steaming.

B-20 and B-21 washed with 3 X 60% HNO_3. The transfer line B-21 T to B-3 must have a leak as the solution does not show an increase in volume in going to B-3 by probing.

Sluicing getting from A-11 to A-5 one could see liquid splashing on floor. There must be a leak in the line.

Sampler A-1 is plugged and could not be unplugged even with the sampler unplugger which Mc Lellan made over in the shop.

Cycle - 5

A-1 cooling second batch Na_2CO_3

A-9 1st batch Na_2CO_3 - 25%

A-8 jetted from A-9 as it was getting too full - Na_2CO_3 - 25%

A-11 50" HNO_3 Ready for A-5

Pulled plug on third floor and hooked floor to overflow twice.

1-17-46
12-8
SJR

Cell A dust keeps filling up from some unknown source. Cell A vacuum was only .04 inches. After five hours jetting vacuum was 1.1 inches in Cell A. Reading in Cell A is 2300 mr at exposure point. When Cell A vacuum fell off, air on 3rd floor started to go bad. So we put the plug back in. We did some hosing of Cell A with firehose way back from the door (reading 200 mr). Dust should be jetted empty for two hours each shift, since it keeps filling up.

Decontamination Status:

A5 - 60% HNO_3 - ready to boil
A8 - 25% Na_2CO_3 - on boil
A9 - 25% Na_2CO_3 - on boil
A1 - Ready to add 5% HNO_3 rinse
} Cycle 6.
A11 - MT
A6 - MT

1/17/46 8-4 N.B. The fire hose provided as standard equipment in this building are not to be used for decontamination purposes. Use the old fire hoses provided by the fire department only.

Decontaminated B6 + B17 probe handles

Started work on A9 jet steam straw.

A-1 sampler unplugged with the R.L. Newton et al super sampler unplugged which consisted of replacing a missing rubber gasget inside the sample blister.

HWO, pump in make up jet packing gland tightened. Maintenance promised to put Grease to packing gland. However pump may still need a repack job

4-12 [illegible] — please place an emergency order to remove that B24 strainer on E cell wall. After cleaning it up please replace.

A fire hose stand should be ready at 4PM to be used for hosing down of cell by remote control, try using this method but monitor the sump level and duct constantly to prevent loss of vacuum.

CYCLE - 6

A-11 5% HNO_3 READY TO BE COMBINED WITH WASTE IN A-5, JETTED TO A-6 AND SAMPLED

CYCLE - 7

A-9 - 60% HNO_3 READY TO GO TO A-8

A-8 - MT

A-1 FIRST BATCH OF 25% Na_2CO_3

A-6 MT

A-5 WASTE HOLDING FOR 5% HNO_3 FROM A-11

Cycle # 7

4-12 A-9 MT

1-17-46 A-8 25% Na_2CO_3 cooling

A-5 cooling 60% HNO_3

A-11 Ready to get to A-5

A-1 - 5% HNO_3 heating.

Hoist cell A. thru S. wall.

B-24 strainer leaked at top weld. Maintenance removed it and we buried it.

12-8

1-18-46

Reading of 1.5 R on stool in cell A

Cycle # 8

A-9 2nd $CO_3^=$ heating

A-8 1st $CO_3^=$ heating

A-11 MT

A-1 5% HNO_3 heating

A-5 60% HNO_3 heating

1/18/46 8-4 ① Alternate fluosilicate and HNO_3 cycles in cell A vessels over week-end. Each batch of fluo solution should contain 40 lb fluo + 130 HNO_3 + H_2O to make 800 lb total weight of solution. This solution should be neutralized with 650 lb 25% soda ash solution or 400 lb 16% NaOH solution (stuff in M11).

Fluo solution should not be heated over 55°C. Use circulating jets and spargers, no steam sparger. Be careful not to jet the solution into tank containing boiling HNO_3

Continue hosing down of cell A, use pump.

A ② Beware!!

Pump discharge line from Cell A sump to decontamination room reading ~100 mr.

③ Cell A is undergoing a hosing via mechanical hose rack. No D Bldg. personnel is to expose himself while hosing down cell by manual means. Do Not Overflow to Sump During Hosing (Slave labor to be recruited for total dosage job).

316 C's from B6 discarded
B21 given 4 dilute HNO_3 washes
B20 given 2 " " "

1-18-46
4-12

Maintenance repaired pump
Cleaned spark plug.

attempt was made to wash
cell IV. a hose was placed
in scope opening and water
sprayed in. It did not
flow out the drainage fast
as expected. Part of the
solution came out the opening
at the bottom of door.
Absorbent paper was placed
to catch the solution.
The paper were picked up
and placed in a red can
and taken to the burial
ground. 17 R/hr.
all man power used
up scrubbing floors and
discarding hot stuff.
The air was checked
and Okay. Locker room
floors, 2nd and Third
floor okay.

the settling basin was above normal - 7.5 mr/hr on outlet side, 40 mr on inlet side. 10 bags of soda ash were dumped in the diversion box about 11 PM.

Maintenance called to put a Westinghouse coupling on B-27 vacuum and pressure line so to steam the strainer. This order is to be passed on to the 12-8 shift

A-1 - 5% Flus.
A-9 - (M-T
A-8 - 68% HNO_3 cooling
A-11 5% Flus.

After washing cell IV, the solution was jetted to B-10 from B&2 It is to be jetted to B-3 and sampled. We did not have the manpower to sample it, as it is hot. Integron on East side of cell 100 mr/hr

A-11 thermocouple hay wire. water temperature.

1/19/46
12-8
AMR

Order for Chicago coupling to be put on B27 vacuum & pressure line put off until day time. (9:00 AM)

Tank farm jet from W6 to settling basin turned off. Dilution water to settling basin cut down as per A.C.V.

A1 sample blister leaking hot liquid out on first floor.
Cleaned up part of floor which had been contaminated on 4-12 shift. N.W. stairway also contaminated according to H.P.

60% nitric cycle now in cell A

Nothing done to cell B

1/19/46
8-4
J.E.C.

(1) Never cry over spilt milk, but have in the hole did whole 1st floor area Became Contaminated?

(2) Area of Contamination reduced to extent of personnel. Only contaminated areas remaining (outside of raped off area) are those in area near personnel monitoring rm. (400 cts/min/smear)

Status

A1 - Fluo
A9 - HNO_3
A11 - Fluo

301 all cell A → cell B lines getted through + steam blown through.

Reading 1 ft ~~from~~ beyond step into cell A – 1050 mr – ~~about~~ 4 ft above the floor.

1-19-46

4-12

Contaminated area flushed with H_2O after building dam with Slipseal.

4 bags carbonate dumped in ~~settling~~ diversion box.

HNO_3 & Sulfuro. cycles continued.

A-1 60% HNO_3 cooling
A-9 5% Sulfuro. cooling
A-8 60% HNO_3 – cooling
A-11 MT
A-5 5% Sulfuro. cooling
A-4 M.T.
M-1 Batch CO_3-Poly solution.

1-20-46

M9 pump plugged solid with K_2CO_3. Removed.

E.J.W. – How about ~~that~~ water line ???

1ST Floor cleaned of debris, floor given several carboys acid with squeegees. Cement under cell & scrubbed with acid,

VERNON ROYAL LINE 1143 X

202

acetone & brush. Will need an effective paint remover to get the remaining 3 R.

DO NOT use fire hose in its present position; it shoots through plug cracks on 1st floor & open plug on 2nd floor. Papers laid around A1 blister to get warm water.

Hot Box (~4R) removed to East Platform. 8-4 pls. dispose.

Status

A-1 MT
A-5 MT
A-6 Flu O
A-8 Flu O
A-9 HNO_3 60%
A-11 HNO_3 60%

Seems to be plenty H_2O in duct.

1/20/46 8-4 Cell A Hosing to start tomorrow. Vessels ~~[illegible]~~ to be empty at 8 A/ & Entrance etc. surveyed

citric acid used on cell II area, 3R area → 500 mr, However it is still Hot, some spots on lead ~7R. spots on floor ~3R. now down to ~3 R.

Status

A1 - Fluo
A4 - HNO_3
A8 - Fluo
A11 HNO_3
A5 - Na_2CO_3
A6 - Fluo

203

125

1-20-46
4-12

Cell A sump level to overflow [illegible] and cell pressure 0. We jett[illegible] of the sump but the level [illegible] to 22"? By checking the jack[illegible] A-11, A-9 and A-8 and listen[illegible] the sound of water splashing [illegible] was discovered in A-9 jack[illegible] duct was full of H_2O also.

No heating in any cell A tank[illegible]

Cell IV area contaminat[illegible] to 80 MR at corner lead b[illegible] 800 MR. in far corner. Floor [illegible] the dam was scrubbed wi[illegible] & and rinsed. Corner concrete [illegible]

1-21-46
8-4

205 steam engine G.T.O. [illegible]

Cell IV hot spots treated with [illegible] several times. The paint should be ready [illegible]

7⁰⁰ AM. Cell A stool = 4.-5.R - with all [illegible] & rinsed and no water on floor

SECRET