0066896

Enclosure 1

LIST OF DOCUMENTS USED AS A BASIS FOR ADMINISTRATIVE CLOSURE

The following list of documents was used to demonstrate that the 216-U-12 Crib treatment, storage, and disposal (TSD) unit has never actually been used to treat, store, or dispose of corrosive mixed waste, regulated pursuant to the requirements of Chapter 173-303, Dangerous Waste Regulations, Washington Administrative Code (WAC). These documents were provided to John Price of Ecology on May 6, 2005.

1 Engineering Log book UO3 Plant, RHO-RE-NB-234, pages 7 through 13, and 77 through 102.

This log book provides an account of activities during 1987 from an engineering standpoint. It also documents that the last corrosive mixed waste discharge to the 216-U-12 Crib last occurred in February 1987.

2 Operations Log book, pages 270-304.

This log book provides an account of activities during 1987 from an operations standpoint. It demonstrates that no accidental discharges occurred after the effective date of mixed waste (August 19, 1987), until the time the 216-U-12 Crib was cut and capped (February 1, 1988).

3 Letter, From G. E. Millward, Staff Engineer, Westinghouse Hanford Company, to D. W. Medley, Westinghouse Hanford Company, "Characterization of Process Condensate to 216-U-12 Crib," dated January 4, 1989.

This letter documents that there were no discharges of corrosive mixed waste after July 27, 1987. This date is the effective date of Substitute Senate Bill 5071, amending the Revised Code of Washington to add 70.105.109 concerning mixed waste.

4 Dangerous Waste Permit Application, Part A, Form 3 for the 216-U-12-Crib, Revision 0, September 1, 1987.

The original Part A for the 216-U-12 Crib contains language concerning the operations of the UO3 plant.

5 Plant Operating Procedure, UO-080-006, "UO3 Environmental Sampling" (also known as Sample UO3 Liquid Effluent), Procedural History Data Sheet, and Revision B-0, dated June 4, 1987.

This procedure shows the sampling methodology for the 216-U-12 Crib effluent discharges.

6 Temporary Work Procedure UO-WP-0002, "Neutralize TK-C5 Process Condensate at 224-U," Revision A-0, dated June 4, 1986.

This procedure shows that the temporary neutralization system was in place in 1986. It demonstrates DOE was proactive about eliminating the corrosive mixed waste discharges.

RECEIVED
SEP 30 2005
EDMC

7 Work Plan, UO-WP-0007, "Measure the pH Buffer Capacity of Tank C-5 Using Phosphoric Acid and Potassium Hydroxide," dated April 13, 1987.

This work plan contains provisions to prevent corrosive discharges to the 216-U-12 Crib when buffering chemicals were being evaluated for the neutralization system.

8 Annual Report, "Westinghouse Hanford Company Effluent Releases and Solid Waste Management Report for 1987: 200/600/1100 Areas," Westinghouse Hanford Company, dated May 1998, Section 6.0 and Appendix A.9.3.

This annual report documents no additional discharges in 1987.

9 Congressional Report, "Plan and Schedule to Discontinue Disposal of Contaminated Liquids Into the Soil Column at the Hanford Site, Response to Congressional Request," dated March 16, 1987, pages iii and iv, 7-8, 11-12, and 26.

This report shows DOE's awareness of the need to eliminate and control liquid discharges to the soil column at the Hanford Site to Congress.

Date Received for Clearance Process (MM/YY/DD): 05/05/05

INFORMATION CLEARANCE FORM

A. Information Category

- [ ] Abstract
- [ ] Journal Article
- [ ] Summary
- [ ] Internet
- [ ] Visual Aid
- [ ] Software
- [ ] Full Paper
- [ ] Report
- [x] Other Environmental

B. Document Number REG-0436 Rev. 0

C. Title 216-U-12 Crib Information Package to Ecology, dated May 5, 2005

D. Internet Address

E. Required Information

1. Is document potentially Classified? [x] No [ ] Yes (MANDATORY)

Manager's Signature Required

If Yes _____ [ ] No [ ] Yes Classified

ADC Signature Required

2. References in the Information are Applied Technology [ ] No [ ] Yes

Export Controlled Information [ ] No [ ] Yes

3. Does Information Contain the Following: (MANDATORY)

a. New or Novel (Patentable) Subject Matter? [x] No [ ] Yes

If "Yes", Disclosure No.: _____

b. Information Received in Confidence, Such as Proprietary and/or Inventions?

[x] No [ ] Yes If "Yes", Affix Appropriate Legends/Notices.

c. Copyrights? [x] No [ ] Yes If "Yes", Attach Permission.

d. Trademarks? [x] No [ ] Yes If "Yes", Identify in Document.

4. Is Information requiring submission to OSTI? [ ] No [ ] Yes

5. Release Level? [x] Public [ ] Limited

F. Complete for a Journal Article

1. Title of Journal

G. Complete for a Presentation

1. Title for Conference or Meeting _____
2. Group Sponsoring _____
3. Date of Conference _____
4. City/State _____
5. Will Information be Published in Proceedings? [ ] No [ ] Yes
6. Will Material be Handed Out? [ ] No [ ] Yes

H. Author/Requestor Joel F. Williams Jr. (Print and Sign)

Responsible Manager (Print and Sign)

I. Reviewers

	Yes	Print	Signature	Public Y/N (If N, complete J)
General Counsel	[x]	Leland Williams		(Y) / N
Office of External Affairs	[ ]			Y / N
DOE-RL	[ ]			Y / N
Other	[x]	M.L. Sprackels		(Y) / N
Other	[ ]			Y / N

J. If Information Includes Sensitive Information and is not to be released to the Public indicate category below.

- [ ] Applied Technology
- [ ] Protected CRADA
- [ ] Personal/Private
- [ ] Export Controlled
- [ ] Proprietary
- [ ] Procurement-Sensitive
- [ ] Business-Sensitive
- [ ] Patentable
- [ ] Predecisional
- [ ] Other (Specify) _____
- [ ] UCNI

Information Clearance Approval

APPROVED FOR RELEASE — OFFICIAL DOCUMENT — Date 5/5/2005

K. If Additional Comments, Please Attach Separate Sheet

NOTEBOOK/LOGBOOK UNCLASSIFIED COVERSHEET

SECTION I	Notebook No. RHO-RE-NB-234
RECORD COPY	Date of Issue 6-23-86 Copy #1
Not for Circulation	Title Engineering Log Book - UO3 Plant 11/20/86 - 5/18/88
Author Risenmay/MR Morton	If continued from another notebook give the notebook number

This is a Controlled Notebook. The assigned custodian is responsible for this book. When the book is completed, contact your Records Management Specialist for a Retention Schedule. Complete Section II of this form and return the Notebook to Unclassified Document Control, A3-95.

Responsible Custodian	Payroll No.	MSIN	Date Assigned
MR Morton	0018998	X5-55	2-24-97

SECTION II Complete this section prior to returning notebook to Unclassified Document Control, A3-95

Abstract: (Give brief description of notebook contents)

Period Covered: (Inclusive dates - Month/Day/Year)

Certification Statement: This notebook does ☐ does not ☐ contain any Quality Assurance Record Material (as described in Section 9.0 of WHC-CM-3-5) and has been verified to be a complete and legible record.

Custodian's Signature and Date

Retention Schedule:	Specialist Concurrence Name	Custodian's Manager's Name

BD-6001-256 (10/95)

RH-RE-1986-234

UNCLASSIFIED

(1) FE-S-1

1/6 X-30 Corrosion product analysis — Cr is high and would throw off product specifications. Asking lab to verify Cr number. If correct, will resample.

T-Hopper: Attended a meeting w/ R. Stautacher, Cothell, R. True, Larry Schiker to go over the "action" items resulted from the type B investigation on the T-Hopper contamination in July 85. Process Engineering ~~was given~~ is to incorporate some of the upgrades in the procedures. We have until 4/1/87 to complete the procedure changes.

1/7 Work Authorization Class: Attended the class conducted by Phil Mortell. UO_3 Plant will start to implement the new system in another 1-2 months.

207-U Instrument Relocation: the construction for ESR 7509 was completed on 12/19/86. Leroy has checked out the proportional sampler, the two circuit boards need to be replaced. He had placed an emergency order for the boards. Still need to test the flow measurement device. Cothell is writing a letter to postpond the operation by (from 12/19/86).

C-5: DOE has verbally order UO_3 plant to bring the pH in U-12 stream up to ~~an~~ acceptable range. UO_3 Plant will reduce C-2 boiloff rate by cutting down C-2 steam coil pressure and periodically take C-5 sample for pH test.

1/8 Program Meeting:
- ESR 9053 (211 upgrade) will need to be descoped — Estimated upgrade cost is ~ 475K. Jim & Keith will reevaluate.
- ESR 8185 rescope needs to be rescoped. Want a catch pan istead of a catch tank.
- ESR 8167 may need to be deleted. W.O. was out to replace the copper tubing w/ S.S.T.
- Will need an ESR to add a second pH probe for 207-U stream. Also need a pH recorder. The EO for the already designed pH system will be modified by the new ESR.

DOE Procedure Audit: The changes on UO-040-004 were due on Dec 19, 86. This action item was taken cared of on 12/19/86 by issuing ~~Rev B.4~~ PDA-00121 ~~of UO-040-004~~. However the responsible QA (D.C. Mace) was not notified, so they got on AATS list. I'll contact Mace to resolve this problem.

C-5 Sampling: Taking 3 samples a day for pH test (using hand-held pH meter). pH is obtained from the first ~~sa~~ sample (while C-2 was not boiling) was 2.25.

1/8 (Cont'd) New Environ. Regulation:
R.A. Hughes (Environ. Regulatory) gave an update on the upcoming changes on RHO-MA-139 for liquid & gaseous effluents. UO_3 may need major design upgrades on building exhaust.

1/9 DOE Procedure ~~A~~ Audit: D.C. Mace (3-5442) will take the two action items (which were completed on time) off the AATS list. I have sent him a copy of Rockwell response letter on the bus.

1/9 X-30 SAMPLE LHB HAS INDICATED THE CR # WAS NOT IN ERROR FOR SAMPLE # E835 — REQUESTED TWO SAMPLES BE TAKEN BY OPERATIONS. SAMPLE NUMBERS ARE P-7630 AND P-7631. THESE SAMPLES WILL HAVE TO BE RETRIEVED ONCE THE ICP IS DONE AND SENT TO Z PLANT FOR U ANALYS.

Powder shipment

Lots 86-20, ~~86-21~~ 86-19, and 86-22 are shipped. Lot 86-21 was not shipped due to a loose bolt on the bottom lid.

1/12/87. C-5 Neutralization:

a. Plant was getting direction (uncertain the origination) via Operation to put pH probe in C-5 ASAP. ~~We ~~ There is also a possibility that we may have to get the neutralization system going at an accelerated schedule.

b. the pH of C-5 at a reduced C-2 boiloff rate is slightly above 2.5 as read from the hand-held pH meter. ~~Dump~~

c. Calculated the average HNO_3 discharged to V-12 during ~~dow~~ standby period:

9,000 gal/wk → 7 lb of HNO_3 per day
5,000 gal/wk → 4 lb of HNO_3 per day

d. Tried to start calibrating neutralization system instruments. ~~Joh~~ Jones removed the retractable pHE-C5-2 probe to make sure there was no cap on the electrode. There wasn't even an electrode in there.

e. Checked handheld pH probe. pH 0.84 in .3001 M HNO_3
3.95-4.04 in pH4 buffer. .3001 M = pH 0.52.

1/12/87. X-44 damper motor control – No progress has been made on finding another motor since no one was working on it. Gave Sid Bevans the little bit of information available.

1/13/87 ISSUED ESR # 9434 TO INSTALL INSULATED WALL REDUCING NOISE LEVEL OF AIR COMPRESSOR — ISSUED ESR 9435 TO REPLACE SAFETY SHOWER / EYE WASH AT 211-4.

C-5: Continued ~~monitoring~~ spot checking pH in Tk-C5. Took reading in pH 2 buffer. pH meter read 2.22. Latest C-5 pH reading was 2.51

Procedure Audit: Drafted a letter to status the procedure updates resulted from DOE-RL procedure audit in Sept '86.

1/14/87 C-5 Neutralization:
Held meeting w/ Plagge, Stehlow, Hedengren, Cottrell, Keith, Rasmussen & myself to discuss the upgrades to the existing neutralization system so that we meet the pending new requirements

Log A

Drawing As-Built: Talked to Zalubil about updating X-28/X-29 drawings.

IEFD's: Issued letter to T.M. Morrison to put our IEFD's on Facility Control list. Proc. Engineering needs to go thru the Masters IEFD's (at a rate of one per week) to ensure they are up to date.

1/15/87 Isolate U-16 Plug: Met w/ RHO construction force to discuss what is needed to carry out the EO for isolating U-16 crib.

Butterfly Valves on X-28 Air Exhaust Lines:
Prepared ESR 9436 to replace MV-X-28-1 & MV-X-28-2 w/ the new air actuated valves. ESR also requested the remote control capability for the valves.

Visitors: Two WMCO representatives toured the plant.

C-5: Continued ~~monitor~~ spot checking the pH in Tk C-5. pH has been staying above 2.

1/18/87 TK-C-5: Instrument tech is continuing working on the pH probe in the C-5 catch tank.

~~Isolate~~
Isolate 4-16 crib: Investigated all cooling H_2O sources from the plant in support of the construction for isolating 4-16 crib.

1/19/87 TK-C5: The pHE-C5-2 catch tank pH electrode was calibrated. The instrument indicates the correct pH when calibrated with buffer solutions in small beakers, but gives highly erratic readings when inserted in the catch tank. A ground loop of some sort is suspected.

Condensate is now being routed through the catch tank. The TK-C2 concentrator continues to be regulated according to regular spot checks of the TK-C5 pH. pH's remain above 2, and good agreement was found between lab and probe pH results. Probe pH about 0.2 pH units higher than lab.

X-28 Exhaust Valves Upgrade: Issued ESR 9437.

More on TKC-5: • Reviewed and commented on draft letter "Reliability Improvement for the U3 Plant Process Condensate Neutralization System" prepared by System Engineering. Comments are being resolved by System Engineering.

207-U pH Monitoring: Prepared ESR 9437 to provide analog pH monitoring capability for 207-U cooling water discharge

Issued ESR #9438, "REMOVAL OF ABANDONED X-36 PUMP". THIS IS A STARTUP ITEM FOR THE CAUSTIC/NEUTRALIZATION SYSTEM.

Issued ESR #9439 "INSTALL SAFETY SHOWER/EYE WASH IN 203-U ENCLOSURE". THE INSTALLATION WILL BE NEAR THE TK-X-36 NEWLY INSTALLED PUMP.

1/20/87 OSR update - Spoke with Judy Siemer on issuing a letter for recommendations on upgrading safety systems for the concentrators. Letter should also address 1985 Audit and person responsible in Safety Analysis Group to work on OSR.

1/20/87 X-44 damper motor update – Found spare motor in spare parts. Sid Bevans found it mounted in inaccurate position. Have request H. A. Plogge for EO positioning motor correctly and installed a platform for it to rest on.

~~HE~~
Hanford Site RCRA Waste Stream Compliance Report Review:
Reviewed & sent comment on DSI to B. J. Breizy.

Compressor: Assigned ~~new~~ valve labels for the 3 new valves installed on the 2nd floor.

Procedure Status: issued letter 65940-87-52 to status the action items resulted from RL audit of UO_3 plant procedures.

1/21/87 V-44 MOTOR DAMPER HAS BEEN REPLACED. OPERATIONS WILL FUNCTIONAL TEST TOMORROW.

IEFD: Started to Review and relim IEFD's (H-2-91946) for ① UNH Conc. & HNO_3 Addition, ② Load Vent System (H-2-91951)

~~Tk~~ X-20 IVF Calibration: Found error in the ~~ex~~ PISCES for X-20 IVF Hi/Lo alarms. Same kind of error was also found in X-20 calibration chart. Figured out the new Hi/Lo alarm set points.

1/22/87 207-U Instrument Relocation: Due date (AATS) ~~may have~~ been postponed to mid February

Attended computer security training class.

ESR: Issued ESR "~~Pr~~ Backup pH monitoring System for 207-U"
- Updated ESR data base.
- Issued ESR "upgrade UO_3 Plant Proc. Condensate Neutralization System"

HAZWMP Tasks: Talked to D. E. True about supporting waste management on HAZWMP. Kick mtl/schedule

1/23/87 Procedure Update - Issued PDA # UO-00143 "Spot Check Particle - Size Analysis of UO_3 Product."

1/27/87 Received Corosion analysis on X-30 samples. Requested operations to pick samples up from 222-S and deliver to Z plant for uranium analysis.

1/28/87 Received X-30 uranium analysis results.

1/30/87 Reviewed procedures with operations.

Prepared ESR # 09441 "Install platform in C-Cell".

2-3-87 207-U Instrument: Bench ~~testing~~ tested Manning sampler & Flow monitor system is working properly. Needs PISCES input, set up spare parts & labels.

PISCES: Worked on PISCES input changes.

C-5 OTP: 2nd draft out to Strehlow, Topham & Plaggl for review.

IEFD: Gave Zalubil "UNH Concentration & H_2SO_4 Add. System" for redline incorporation.

2-4-87 J.R.

<u>UO_3 Process Condensate pH:</u> The TK-C2 UNH waste ~~concentrator coil~~ was inadvertantly allowed to simmer overnight on February 2 and 3, 1987. The resulting condensate became progressively more acidic as the acidic TK-C2 wastes became more concentrated. Approximately 2000 gallons of condensate at a pH of 1.8 - 2.0 were pumped to the crib, before the problem was discovered on day shift. A PDA is being prepared to provide clearer guidance for TK-C2 concentrator operation in the shutdown/stanby mode.

<u>UO_3 Plant Process Condensate Neutralization System:</u> The TK-C5 catch tank pH measurement instrument loop is still not operational. The probe does not indicate the same pH when mounted in the catch tank as when dipped in a sample of catch tank contents. After the probe tip briefly contacts the bottom of the catch tank, however, the readings agree for a period of time, until the disparity gradually resumes. Factory representatives have made two recommendations: 1) Sparge the catch tank to ensure that the solution is homogenous; and 2) Mount a grounded wire mesh screen over the pH electrode sensing tip to guard against stray electrical currents. Plant maintennance forces have not been available to perform this work for the past four days, due to higher priority instrumentation work, including starup of the 207-U proportional sampler. A work order is being prepared to complete these tasks.

2-4-87 LLA 207-U: Leroy found the flume in the new manhole is wider and deeper than the one for the U-16 stream. — we cannot use the Flow Rate - Liquid Depth calibration sheet for the 6" flume. Called Chad Hahn for vendor info.

125-V Battery Meeting - Discussed the optimions and decided choice of battery which will be installed as part of the switchgear upgrade. Also discussed other instrument/equipment which need to be on the battery for the event of electricity outage.

2-5-87 207-U: Chad Hahn contacted Strehlow & Chip Conselman (3-1355) about getting CVI on the flume. Will have to get back w/ them next Monday.

J.A. Jones

LLA

pH info on Effluent: Dick Shrey (Environmental Compliance Unit) requested info on pH for U-12 & U-14 streams for V. Hall (Waste Management Program) to present to DOE. Provided Dick info on U-12 pH from Sample Log in the shift office. Dick will get the pH result of the weekly sample for U-14/207 from M. Hall.

LCCS: Tom Ibsen will send someone to UO3 Plant to see what is needed to get our PC's ~~to get~~ on LCCS. (Lab Customer Communication System).

Effluent Flow #'s for M. Hall:
Worked on getting flow volumes for U-12 & U-14 streams for Mike Hall of Environmental Lab. The flow volumes ~~between each weekly samples~~ the sampling intervals will ~~be a~~ help the lab to properly proportion the monthly composite samples.

JR

~~UO3 Process Condensate Neutralization System:~~ Troubleshooting of the TK-C5 catch tank pH probe was completed by Plant Engineering and Maintennance. The probe is operational. The spurious readings were found to result from poor mixing within the catch tank. When the catch tank was sparged with air, the probe readings matched the grab sample pH. An EO will be issued to continuously sparge the catch tank. The TK-C5 in-tank pH transmitter was found to be defective. While the local display is in calibration, the proper 4-20 mA output cannot be obtained. The transmitter will be moved to the instrument shop today. In the event that the transmitter cannot be repaired, a replacement was ordered and is scheduled for shipment on February 13, 1987. None of the other instrument loops comprising this system have been adressed to date.

7/30/87 (Cont'd)

Sulfuric Acid Spill

One of the sulfuric acid drums on the second floor pipe gallery was leaking. The leak was detected immediately and the acid that was leaked out on the floor was neutralized before reaching the floor drain (which leads to chemical sewer). All content in the leaky drum was transferred to a different drum. The estimated quantity of acid leaked out is 1 gallon.

Process Condensate Neutralization (JHER)

Continued working on the OTP.

UO_3 Startup Check List (LJJ)

Continued working on the check list.

Safety Equipment List (STW, LLLA)

Finalized the second draft. Will be typed tonight.

7/4/87 (Tues)

Building Ventilation Procedure Update (STW)

Drafted a PDA for the 224-U building ventilation. Addition steps were added to ensure that proper air flow is maintained when the main building supply fan is down.

Hazardous Waste Permit Application (LLLA)

Worked with Battelle photographer on getting pictures of U-12 crib and Tk C-5 for purpose of the permit application.

Planned Waste System Upgrade (LLLA)

Updated the status on Planned Waste System Upgrade and forwarded to Tank Farm Process Engineering.

OSR Fault Tree Analysis (LLLA)

Met with Safety Analysis Unit to go over the draft fault tree analysis on UO_3 OSR. Will provide comments to SAU by end of this week.

X-30 to X-38 Transfer (JHER)

Investigated the routing for transferring the out-of-spec material in Tk X-30 to Tk X-38.

OTP for Switchgear Upgrade (JHER)

Re-reviewed the ATP prepared by Dhillon Engineering. Determined that an OTP is not necessary.

Chemical Discharge History Data (JHER)

Filled out the Chem Discharge History Data Sheet for the month of July. Forwarded to Tank Farm Process Engineering.

Personnel Training (LJJ)

L. Johnson attended the technical writing class held at Tri-City University.

8/24/87
(Hon.).

OSR Fault Tree Analysis (LLLA)

Reviewed and consolidated the comments on the second draft of fault tree analysis. D. Oestreich will finalize the analysis tomorrow.

ESR's (LJJ)

Prepared two ESR's: Removal of RE-1 Roof Exhaust Fan and Install HEPA on CAM Vacuum Pump Exhaust.

Procedure Review

Performed DARF signoff review for sulfuric acid handling procedure. (LJJ)

Performed peer review on the procedure for routine process sampling. (JHER)

Loadout Hood Scale Upgrade (LLLA)

Reviewing the ATP for the new loadout hood scale installation.

Safety Equipment List (STW)

PUREX Nuclear Safety has reviewed the list. Few comments need to be incorporated. Will have typist update the list and send out for other reviewer signatures this afternoon or tomorrow.

Tk C-1 Calibration (STW)

Completed updating the work sheet in LOTUS Sym for Tk C-1 calibration table.

Tk C-5 High Weight Factor Alarm (JHER)

Completed the installation of the temporary high WF alarm system. Will perform functional test tomorrow morning.

Procedure Check List (LLLA)

Did work assignment for of procedure check list incorporation. The ECD is 9/23/87.

8/25/87 (Tues)

Safety Equipment List (STW)

Received the revised list from typist. Delivered to PUREX Nuclear Safety for signoff.

Process Condensate (JHER)

Received information on phosphate precipitation test from lab. By using simulated condensate containing little calcium, no precipitation was observed. Significant uranium precipitation had occurred during the previous testing with simulated groundwater containing significant calcium concentrations.

Continued working on OTP. First draft is 95% complete.

Performed functional test on Tk C-5 high level alarm. With the length of the conductivity probe in the tank, the alarm sounds off at 78" -- 2" below the over flow. Will need to modify the spare probe to get a alarm point lower than 78".

Tk C-1 Calibration Table (STW)

Printed out the spread sheet of C-1 calibration table and sent to the statistician for review.

ESR's

Prepared an ESR on Removal of Fire Hoses. (LLLA)

Prepared an ESR on Improve Pick-Up Bin Air Flow Efficiency. (LJJ)

Both ESR's are awaiting Dukelow's signature.

PISCES (LJJ)

Working on getting the high amperage alarm transducer in the PISCES.

Fault Tree Analysis (LLLA)

Met with Operation to go over their comments. There are quite a few comments.

8/26/87 (Wed)

Process Condensate Neutralization (JHER)

Continued working on OTP.

By-Product Waste Permit Part A (LLLA)

Met with Hart Crowser consultant to go over the comment on the draft Part A. Have some minor changes. Also need to provide dimension of the U-12 crib to Graphics.

8/26/87 cont'd)

Fault Tree Analysis for OSR (LLLA)

Forwarded more comments to Oestreich.

Review ATP for Loadout Hood Scale Upgrade (LLLA)

Finished reviewing the ATP prepared by T-Plant Mechanical Development.

Safety Equipment List (STW)

PUREX Nuclear Safety (G. Strickland) signed the document.

Procedure Updates (STW)

Prepared a DCR for the vessel vent operation procedure.

8/27/87 (thurs)

Fault Tree Analysis Review (LLLA)

Met with D. Oestreich to go over the remainder of the comments.

Load-Out Room Scale ATP Review (LLLA)

Met with design engineer (preparer of the ATP) to go over the review comments.

Team Meeting (LLLA)

Attended the weekly team meeting and statused the Informal Readiness Review items. Postponed the following two items:

Prepare procedure for responding caustic spill (ECD: Mid October)

Prepare startup checklist (ECD: 9/25/87)

It'll still be tight to meet these dates.

ESR's (LLLA)

Rewrote the ESR 9470 "Structural Evaluation of UO_3 CAM Carrier" to cover all carrier equipment or lifting devices that are "home made".

Tank C-1 Calibration Table Update (STW)

Working on getting LOTUS Sym to print out the calibration table in the right format.

Tk C-5 High Level Alarm (JHER)

Cut the spare alarm (conductivity) probe and installed in Tk C-5. Performed the functional test. Passed. High level alarm now goes off at 70 inches.

Process Condensate OTP (JHER)

Continued working on the OTP.

PISCES (LJJ)

Added instructions in the PISCES input forms for function testing of the radiation and low flow annunciators for the 224-UA roof CAM's.

8/31/87 (Mon.)

Safety Equipment List (STW)

The document was all signed off. Will be issued this afternoon.

Engineering Training (LJJ)

Studied for UO_3 Phase II re-qualification test.

Start-Up Check List (LLLA)

Reviewing the draft start-up check list.

Procedure Check List (STW)

Four DCR's were issued to incorporate check lists. There are all together 25 procedures which need check lists.

Lifting Device Certification (LLLA)

Talked to Bob Pan about the ESR on Structural Evaluation of Portable Plant Equipment. Will need to set up a meeting to go over all "home-made" portable plant equipment.

9/1/87 (Tues)

T-Hopper Procedure Up-date -- Start-up Item (LLLA)

Received the WMCO (Westinghouse Material Company of Ohio) document on the T-Hopper inspection criteria. Started to up date our T-hopper inspection procedure accordingly.

Tk C-1 Calibration Table (STW)

Met with the statisticians to go over their comments on the revised C-1 calibration chart.

Process Condensate Neutralization (JHER)

Preparing a PDA to reroute the condensate to Tk X-37. This is to allow Kaiser to work on the C-5 to U-12 discharge line.

Procedure Check List (LJJ)

Preparing DCR's to incorporate check list in procedures.

Process Start-Up Check List -- Start-up Item (LJJ)

Set up a meeting for next Wednesday to go over the review comments on the draft start-up check list. The meeting will involve Process Engineering, Production Operation, PUREX Nuclear Safety and Plant Maintenance.

9/2/87 (Wed)

Process Condensate Neutralization (JHER)

Continued working on OTP. Ready for first-time review.

Design Review (LLLA, JHER)

Met with Plant Engineering and Production Operation to go over the preliminary design on the 211-U interim upgrade.

Hazardous Waste Part A Permit (LLLA)

Met with Hart Crowser consultant to review the plant flow sheet and determine if any additional part A is necessary.

ESR Priority Meeting (LLLA)

Met with T. Van der Sys, and Production Operation to determine the priority for the next 21 post-startup ESR's.

ESR (LJJ)

Issued an ESR to evaluate the existing building ventilation balance. This is to support the up-coming building upgrade project.

Engineering Training (LJJ)

Continued the study for Phase II requal.

9/3/87 (Thurs)

Neutralization OTP (JHER)

Printed out draft for review. About 120 pages!

Newly Discovered Pre-Startup Upgrades (LLLA)

While doing the loadout hood scale upgrade, discovered that the scale pit sump alarm should be replaced. Design support will be needed for the replacement.

Reroute and Blankoff Old Nitric Acid Lines (LLLA)

Traced the old nitric acid lines in E and F cells in preparation of writing the ESR.

C-1 Calibration Chart Revision (STW)

Continued working on getting the final calibration chart to print out on LOTUS Sym.

Procedure Check List (STW)

Completed preparing the DCR for the six procedures that require check list.

Team meeting (LLLA,JHER)

Attended the weekly team meeting.

U-17 Readiness Review (LLLA)

Attended the review meeting. A compliance plan will not be the crib tie-in requirement. However, should the uranium level goes above MA-139 limit after start-up, a compliance plan will be necessary.

9/9/87
(Wed)

CAM Carrier Certification (LLLA)

Rich Giller came over to take a look at the CAM carrier. He'll provide scketch and load limit which are needed to certify the carrier.

UO_3 Plant Start-up Check List (LJJ, LLLA)

Met with PUREX Nuclear Safety, Production Operation and Maintenance to review the first draft of the start-up check list prepared by LJJ.

Instrumentation (LJJ, LLLA)

Worked with instrument tech to determine the high and low DP alarm set points for the X-29 filter bags.

Engineering Training (STW, LJJ)

Studied for UO_3 Phase II Engineering Certification test.

Trend Analysis (LLLA)

Worked on getting effluent plots for trend analysis with LOTUS Symphony.

Process Condensate Neutralization (JHER)

Held a weekly construction status meeting. Will complete the tie-in of the transfer lines to and from Tk X-37 this weekend.

Prepared two PDA's for rerouting the process condensate to allow Kaiser construction.

ESR's (LLLA, JHER, STW)

Prepared the following ESR's:

Improve Temperature Controls for Tanks X-1, X-2 and X-38
Repair Steam Jacket Leak for the 100% UNH line to Tk X-30
Replace Loadout Scale Pit Sump Alarm
Reroute and Blankoff Nitric Acid Lines in E/F Cell and Luck Pot Room

Tc-99 In Ground Water (JHER)

Received a phone call from Al Law. The Battelle analysis on the ground water sample taken from around U-17 crib indicated high Tc-99 concentration - 1,500 picocuries/l. This is the first data point we have on Tc-99. Al Law will issue a letter to detail the result.

Tk-X-38 Result (JHER)

The extractibility test on X-38 sample indicated good extractibility. Still awaits Cl result.

C-1 Tank Calibration Revision (STW)

The revised calibration is being signed off.

9/14 & 9/15
(Mon & Tues)

NOx PSD Compliance Inspection (LLLA, JHER)

Met with Eric Vogt, Van Meter, R Pavilina to discuss the NOx compliance and monitoring plan for both UO_3 and PUREX. This is in preparation for EPA inspection next Monday and Tuesday. Agenda for the two-day inspection was also discussed.

Phase II Certification (LJJ, STW)

LJJ took and passed the Walk-Thru portion of the test.

STW studied for the test.

UO_3 Start-up Check List (LJJ, LLLA)

Worked on re-formatting the check list to make it easier to be used as a field procedure.

UO_3 Readiness Review List (LLLA)

Met with Operation and went over the newly revised readiness review items. Also determined the action assignees.

Nuclear Material Control Administrative Procedures (LLLA)

Met with Process Engineering Management and A. Light to discuss whether it was Process Engineering's responsibility to write the procedures.

PISCES (LJJ)

Received another NCR (prepared by Maintenance) on an out-of-tolerance instrument. Working on providing disposition for the NCR.

ESR's (LJJ, LLLA)

Working on compiling a list of ESR's for prioritizing purpose.

Effluent Sample Result (LLLA)

Evaluated lab sample results on 207-U samples. Noticed an out-of-trend result on the samples taken during the week of 8/10. The pH is lower than usual and U content is higher than usual, but both are within the control limits. The results on the samples taken the week after were within normal range. Discussed with Production Operation, nothing conclusive at this time.

9/16/87 (Wed)

NOx PSD Compliance Meeting (LLLA, JHER)

Had a second meeting with Eric Vogt, R. Van Meter, R. Pavilina and G LeBaron to review the NOx compliance for both PUREX and UO_3 plants. A brief presentation will be given to EPA by LeBaron and Rasmussen. Tours of the plants and the NOx monitoring system will follow the respective presentation. In preparation for the presentation, we reviewed the available view graphs. Still need to make up 2 to 3 more view graphs.

Process Condensate Neutralization OTP (JHER)

Copies of the draft OTP will be out to reviewers on Sept 18 (Friday). The sketches for the OTP will follow next week.

PDA to Support Neutralization System Tie-In (JHER)

Before the PDA's can be issued, Kaiser and Rockwell QCs will have to approve the new transfer lines which will be used in carrying out the PDA's. An inspection tour will be conducted by the QC's along with Process Engineering and WHC project engineer.

OSR Fault Tree Analysis (LLLA)

Received the letter from Oestrich.

Phase II Engineering Certification Test (STW)

S Willett studied and took the open book portion of the certification test.

PISCES (LJJ)

Provided input forms to add the DP alarm functional checks for X-29 filters.

Procedure Update (LJJ)

Reviewed the procedure on plant surveillance for DARF signoff.

CAM Carrier Certification (LLLA, LJJ)

Worked with Maintenance Engineering on obtaining information on the hoist used to lift the CAM carrier. This information is requested of us from Rich Giller (Structural Evaluation).

T-Hopper Procedure Update (LLLA, STW)

Reviewed the WMCO (Westinghouse Material Company of Ohio) document and working on incorporating the new T-hopper inspection/handling requirement into UO_3 Plant procedures. There are all together three procedures affected. This is one of the UO_3 Plant start-up readiness review items.

9/29/87 JC

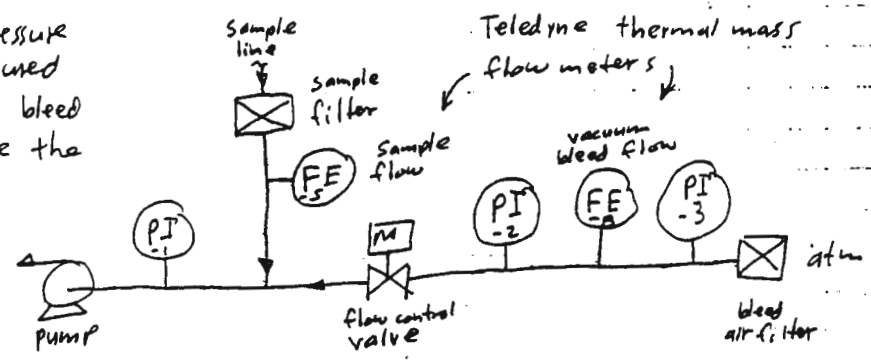
Neutralization

UO_3 condensate is now draining to TK-X37. Ph recorder pen #2 now reads the in-line pH between the TK-C9 catch tank and TK-X37. TK-X37 pH from dip sample is 3.11. 3.44 on chart - probe hasn't been calibrated yet.

IRR: Gave VanderSys the ECD's for the revised CRR items

9/30/87 (Wed) 296-U-4 Record Sampler Testing continued with interruptions from switchgear upgrade. Test setup:

Flow rates and pressure drops were measured in the vacuum bleed line to evaluate the flow control valve sizing.



Data:

PI-1 "Hg	FE-5 slpm	PI-2 "H2O	PI-3 "H2O	FE-B slpm	Remarks
4.5	74	14	–	79.5	Clean sample filter
8	74.5	6.5	–	53.3	In-service filter

Using Teledyne-Hastings's valve sizing formula, the Cv for maximum bleed flow; i.e, with clean filter paper is ~ 0.6. Our valve has a nominal 0.9 Cv max. Sizing looks OK.

$$C_v = (.0000022)(Q)\sqrt{\frac{(SG)(TA)}{P_1^2 - P_2^2}}$$

where Q = SCCM
SG = 1
TA = 530 R
P_1 = PSIA upstream
P_2 = PSIA downstream
$\frac{P_1}{P_2} < 2$

Data were taken today to estimate the valve sensitivity. The valve stepping motor makes 50 steps/revolution. The controlled flowrate (thru sampler) must change < the controller dead band per valve step, or else the valve will oscillate.

PI-1	FE-5	PI-2	PI-3	FE-B	Remarks
8	76.3	6.5	<2	54.1	Initial Settings (I.S.)
8	77.1	5.5	<2	51.5	Close 90° from I.S.
8	75.5	6.5	<2	56.6	Open 90° from I.S.
8	78.9	–	–	–	Close 180° from I.S.
10.3	87.9	2	<2	22.8	@ Closed Limit SW. (CLSW)
10.3	86.8	2	<2	26.9	Open 90° from CLSW

38 9/30/87
JL cont...

The maximum flow change per step (assuming 12 steps per 90 degrees) was 0.15 SLPM/step, or 7.5 mV/step.

Plan to do 2 things tomorrow: ① indirectly measure controller dead band. ② Check valve sensitivity with plugged filter paper.

10/1/87
JL

U-4 Sampler Finished sampler test. Dead band with time delay OFF was 6 divisions (0.6 SLPM). Upped it to 1.05 SLPM. Measured by applying 2.5 VDC from reference source to flowmeter input and adjusting setpoint until valve begins to move. Deadband is offset between setpoint + flow to cause the valve to begin moving.

Flow data with dirty filter paper (from yesterday)

PI-1	FE-5	PI-2	PI-3	FE-B	Remarks
12	72.9	2"	<1	23.2	Valve @ closed limit switch
11.7	71.7	2	<1	28.1	Opened 90°

Change per step ~ 0.1 SLPM

U-17 IRR : Need to look into compliance test requirement in U-12 stream.

Wet Scrubber : Bill Carlos came over & examined the scrubber.

Neutralization : Jerry Bell, Nevarez & Olivo came to see the status of neutralization project. JR gave a short description on the process flow. Cottrell gave them a tour of backside.

10/2
(Fri)

C-1 Instrumentation Upgrade

H. Plagge gave a presentation to Ellis on the alternatives for the upgrade. Outcome: will use Alt. #1 (DP) using PUREX spare DP transmitter as a short term solution. Use Alt. #4 (Robertshaw) tape as permanent soln. However, we could not find the spare DP transmitter at PUREX.

5/87 EL **U-4 Sampler** Teledyne mislabled the flow control valve. It is actually an MVH-W8R. They labelled them as MV-W8R. The bellows we received were for an MV-W8R. Teledyne will replace them with MVH-W8R bellows at no extra charge. The 2 MOV's which had been returned last summer finally arrived and are being repaired by the factory. Per Lee Shelby, the yoke plate was not adjusted properly, and may not have operated the limit switches correctly. The 2 repaired valves will be shipped the week of 10/19/87.

28/87 EL **Neutralization** Repeated portions of section J, caustic addition system test using water, now that P-X36-2 and P-X36-3 fuses have been modified. Instead of 1 10-A fuse for the panel + 2 pumps, each pump has its own 15A fuse and the panel has a separate fuse. P-X36-3 was recalibrated. Put 15-sec filter on PHC-C5-1 input A and 30-second filter on input B. Metering pump stroke settings were fairly stable. Flow rate for P-X36-3 was only 25% of the nominal rate @ full stroke. Pumps can now start simultaneously from external interlocks without blowing fuses.

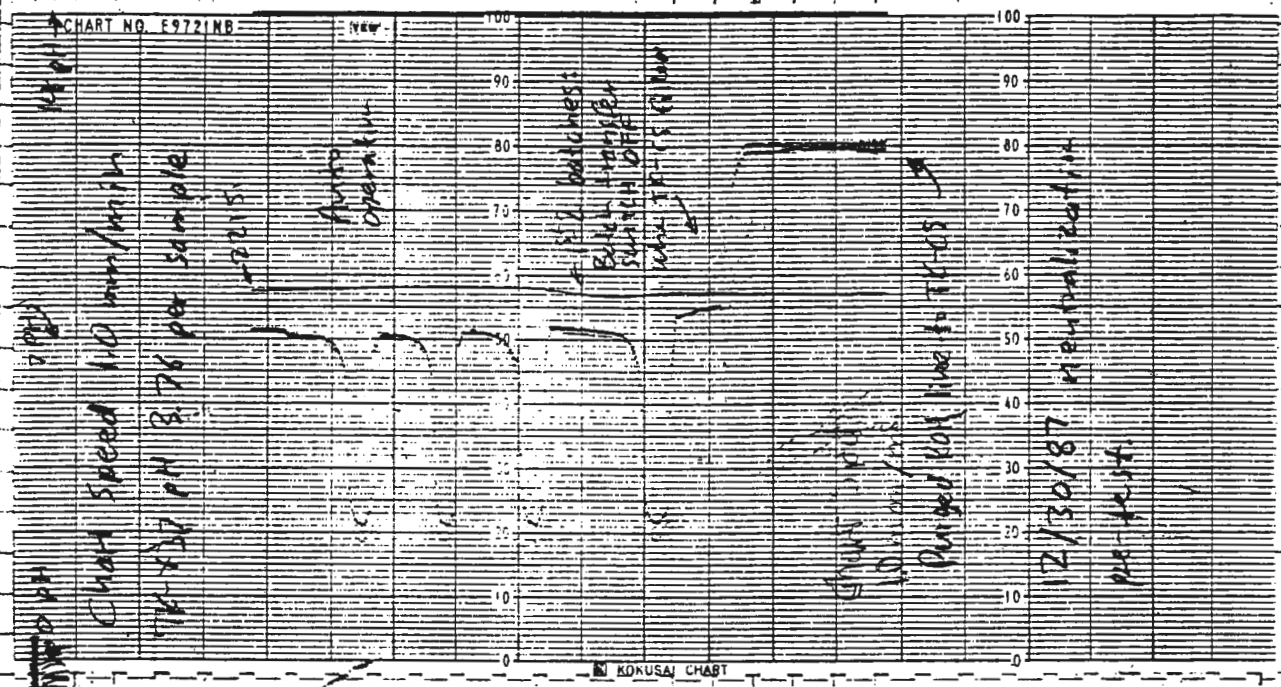
OTP Status

		Date → 12/30/87 ~~Date →~~
Part I-C	75%	TK-X36 ~~Level~~
D	100%	
E	100%	
F	75%	TK-X36 Temp control
G	100%	
H	100%	
Part I avg.	92%	
Part II- A	100%	
B	100%	
E	100%	
G	100%	
I	100%	
J	80%	X36 Level 90%
K	100%	
L	100%	
M	0%	
N	0%	
Part II average		79
TOTAL		84%

first time pure condensate is neutralized

1/4/88 JC

Neutralization – On 12/30, some of the condensate in TK-X017 was transferred thru TK-C5 with the neutralization system running. The system performed flawlessly. (see chart)



On 12/31, TK-C5 was acidified for a more complete pre-test. The TK-C5 pH controller failed to track the TK-C5 pH. Erratic spikes from pH 0.5 to pH 7 occurred. These spikes did not occur when the controller inputs were disconnected from the current loop and connected to a calibrator. The pH recorder registered the pH with no spikes.

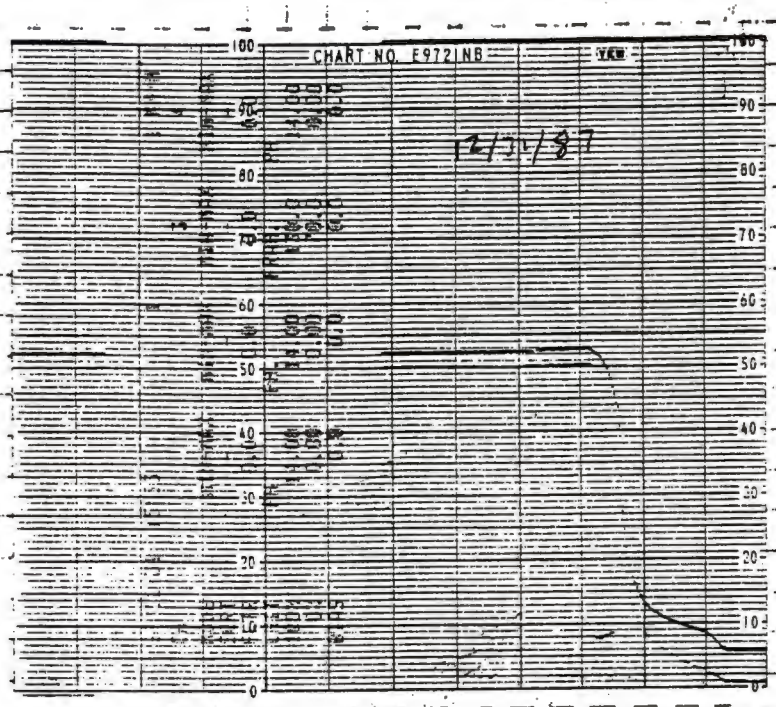
Neutralized the batch by supplying input to controller via calibrator. See chart on next page. Performed well.

1/5/88. JC

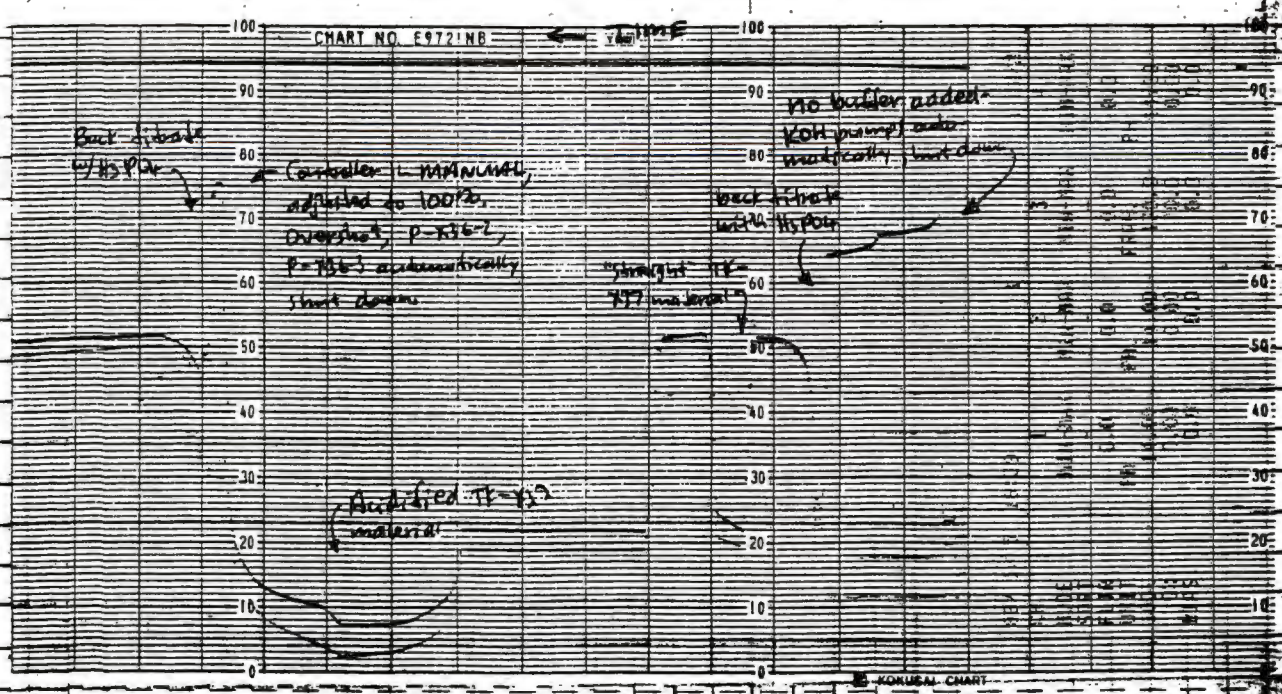
Neutralization – The controller also behaves itself when disconnected from the annunciator. Hubert put a scope on the annunciator DC leads to the pHCT-C5-1 "contact" output transistor switched. Found 80 VAC on 'em! Perhaps wiring was damaged when KEH pulled new wires for C sump alarm thru old conduit on 12/30/87 AM. Now investigating extent of problem – numerous wires appear to be affected.

16/88 JEL

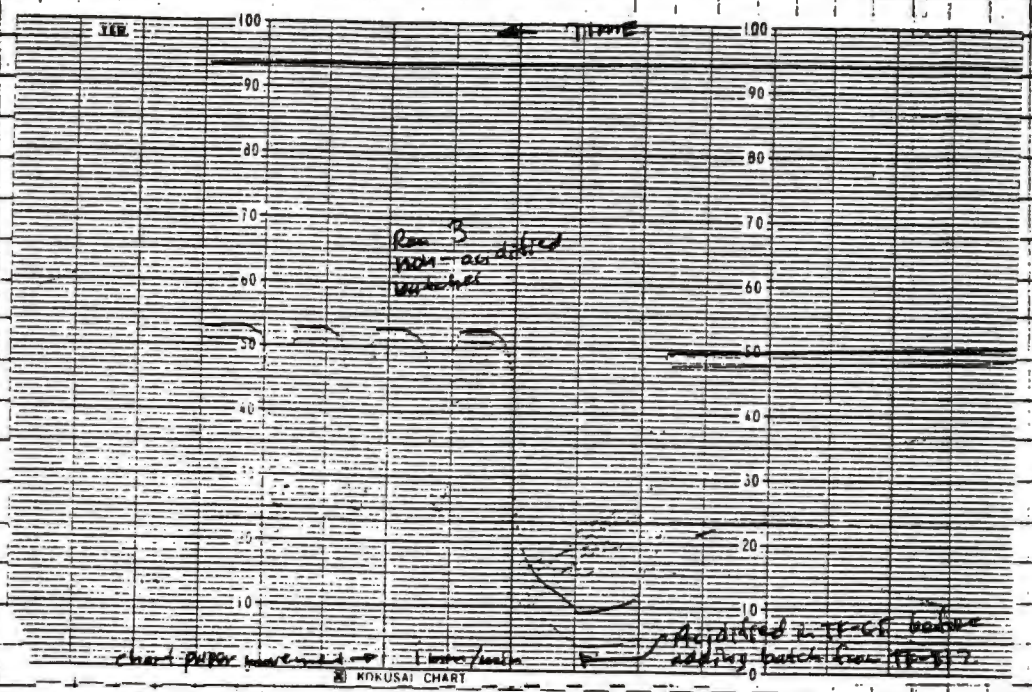
Neutralization — It was discovered that no actual short exists. The interference is being picked up by inductive coupling in the conduit. More ground points were provided, and the system now looks operational.



Made some more pre-OTP tests. Neutralized 1st batch without buffer. Overshot. H_3PO_4 metering pump failed to pump. It took a lot of hammering to free up a stuck check valve. LS-C5 "stuck" again. HA Plagge suspects bubble or wicking be-



92 1/6/88 JC (cont) Neutralization — between sensing rod and shroud. He recommends adding a spacer/insulator to outside of teflon probe jacket.



Note: DTA Completed on 1/6/88 Switched to ur-17 & started Distillate 1/31/88.

2/1/88 JC (graveyard) Started up E-0-7 @ 5:30, shut down @ 0745. NO H_2SO_4 flow. No calciners on-line. Changed out PT-X361. KOH loop recirculating, neutralization not started up.

2/1/88 WEN (day) H_2SO_4 metering pump still not functioning properly. Don't know exactly what the problem is.

5 calciners are heating up.

Special sampling: (WP-00013)

- Started to take un-neutralized batch samples in 1-liter bottles.

Have not started to take drum samples (since the plant hasn't started up)

- May need to change 8 gt to 5 gt in the WP. since the flow rate from MV-X37-5 is low. Operators will not have enough time to take both pre-neutralized & neutralized samples. Hence, please find out the flow rate from MV-X-37-5 & MV-C5-6

Special NOx Sampling (RATA Sampling).
Haven't started

* To All Shift Engrs:
Do Not forget to call Lab (3-2435) for X-37 (U, Tc) & 207-U (U) results for samples taken from previous shift. Please document results in this log book.

2/1/88 LJJ (Swing) X-37 sampling flow rate to pull a 1-L bottle takes 7.4 sec.

Sulfuric pump was cleaned & had fresh oil put in. Increased the stroke to ~90%. Pressure still not good about 15 psi. — Although it is pumping out a bit faster.

ED-7 started at approximately 2215. Graveyard will have to make sure dropout is ok. Currently X-1 SpG out of service. Instr. Tech is steaming out line.

Provided instructions for ~~water~~ dropout calculation. Attached to clipboard in operating Gallery. Overcall for Graveyard @2300 swing is 667 ppm.

- 207-U Samples for 1800 did not get taken. NOT enough sample was in the jug.

— If sulfuric pump needs to be shutdown (zero stroke) — it will still leak through gravity feed. Shut valves.

12/88 JEL GY Sampling - Pulled EB3, E-D-3 samples when E-D-6 and E-D-7 both up. Drained ~ 10 gts before E-B-3 sample. 30 before E-D-3 sample. Need R numbers from Rich Webb.

- Chopped off the pre- and post-neutralized sample lines. Much handier + better flow without excess tubing. Only ran a few batches through neutralization. Noticed P-X36-1 had been deadheading against MV-X36-17 since swing-shift. Reopened. Still no liter @ 207-U.

- U numbers good from previous shift. Tc-lab has problems.

Calciners - Put H1 on continuous agitation. Then couldn't get water to T-A-3. Steam plume is coming out of U-4. Condensation (or something) is disrupting the U-4 flow. Leroy blew down annuban. Didn't stay steady for long.

2/2/88 Day - 162A

Influx Water to TA-3: Found the problem! There is an artifice place (down stream of RC-9) with a teflon disk in front of it. Don't know why they are there. Is Kaiser responsible for this?

Special Sampling:

* • Please emphasize to the sampling operator the importance of tagging the samples — Lab needs to know the time on sample # in order to make their selection process. There are 14 - 17 samples in SWP that did not have any labels on them!

• R. Clero ~~wished~~ came to see the sample results from the special sampling. Glad to have the uranium plot to show him!

• Changed the sample rate for 207-U - sampling from 50,000 gallons/sampling to 10,000 gal/sampling. (Each sampling collects about 300 ml). Hope this will give enough liquid in the 5-gal jug. Future Reference: If any time there is inadequate liquid in the 5-gal jug, pour only 4-oz sample in the 207-U-Comp sample bottle. Pour as much as possible to fill the other liter bottle.

JR, please change the digistrip clock tonight to reflect real time (it's one hour off, thanks to daylight savings!)

More on Special Sampling:

Got R markers for ED-3/ED-3 condensate samples — R-7215 & R-7216. Could not be sure which are the right samples to tag. There are two suspicious looking bottles which are wrapped together by paper towel ~~with~~ w/ "Hold" written on it in the SWP Lobby. Could they be the right ones? JR: please find out from who ever took the samples this AM and make sure ~~they~~ to tag them.

JR: Bruce Godfrey may have already found & tagged please the samples. Thanks. Billy

Got results back on U-2300, 2301, 2302, 2307. ~~for~~ Also got 207-U result (U-2258) back. See clip board. Missing results on U-2303 to U-2306. Suspect samples were not tagged & delivered.

Calcium: Attempted to start up two calciums this AM, but found the DPI for V3-2 filter was not getting any reading. ~~[illegible]~~ ~~Calcium~~ Instr. tech found a kink in the line. DPI was back in operation.

Calciners (Cont'd)
Started H calciner 15:00 ; J calciner 15:30.

NOx Analyzer gas blew down the analyzer @ ~ 17:15 seemed to be OK now.

2/2/88 Swing LJJ Called lab about missing sample numbers U2303 — U2306. LAB used numbers for standards. for future reference lab also used U2322 — U2335.

- TA-3 TOWER — NO WATER/CONDENSATE IN C-2. ADDED WATER TO MAINTAIN LIQUID IN TOWER. HOSE ON @ 20:00 OFF @ 21:45

- FT-TA-3-5 and SGT TA-3 WERE PLUMBED IN INCORRECTLY WHEN TRANSMITTERS WERE CHANGED OUT FROM LAST RUN. CONSEQUENTLY FIC-TA-3-5 & SGRC-TA-3 DO NOT INDICATE PROPERLY. KEVIN WRITING WA TO FIX PLUMBING.

- SEVERAL CHARTS STILL NOT INKING — DPRC-X-28-2, TR-TA-3, SGRC-TA-3, DPRC-X-28-1 & DPRC-X-29-2 (NEEDS TO BE LOOKED AT).

- FIC-U4 READING WAS DOWN TO 29.9 — REQUESTED RPT TO CHANGE FILTER PAPER.

STARTED UP ED-7 CONCENTRATOR @ 21:41
STARTED L CALCINER AT ABOUT 2100 KICKED OUT HI TEMP
STARTED G CALCINER @ 2200

TRYING TO START L AGAIN (2230) NO. 1 DOV LEAKING
M FLUIDIZING VALVE NOT WORKING CORRECTLY. WHEN 1st put in continuous agitation at shift change. CHANGED BACK TO AUTO. FLUIDIZING SYSTEM NOW FIXED. 2300 PUT M CALCINER BACK IN CONTINUOUS AGITATION.

NO SAMPLE NUMBERS YET AT 2230.
NEW SAMPLES SENT TO LAB AT 2030

IF POWDER BUILDS UP SUFFICIENTLY IN V-26 HOPPER THERE IS A PARTIALLY FILLED HOPPER ~~CONTAINING~~ W/ gross wt of 5416 lb ONLY FILL ANOTHER 8700 lb. DO NOT USE TARGET WT AS SPECIFIED IN PDA WD-171

ED-6 STARTED AT 2245.

96 2-2-88
Swing
Cont'd

1 FEED DOV #1 — NO CONTROL — FEED POURING IN TO FAST COOLING ONE END OF CALCINER. OTHER END CONTINUED TO HEAT — REASON WHY IT KICKED OUT EARLIER WA WRITTEN TO FIX FEED DOV.

- Graveyard might want to get a hydrometer reading for TH-3 tower nitric acid sp.g. Requested Operations manager to get a reading — all operators busy.

NOx sampler is running OK now.

Sampling — taking samples for drums

Sulfuric ppm is running ok 5816.4 last reading

Lab was unable to give results on Tass — Machine down
[illegible]

2-3-88
G-Y
JEL

NOx Monitor — NOx monitor failed on swing shift, ~ 11 PM.
Sample suction line to aspirator turned out to be partially blocked. Back on line ~ 5 AM.

Record Sampler — Sample line temperature control is not working. Filter paper quickly becomes soaked by condensation. Cannot maintain 7.5 ~~liters~~ lpm.

Concentrators — ED6, ED7 up all shift.

Calciners — had all 5 up by end of shift.

2-3-88 Notification of U-2 startup:
Wayne called L. Voigt to inform her of the time of U-2 startup. ② Switch over to U-17 (1/31/88)

Jaime, Please make sure the night tech give you the circular charts (properly labeled & dated) at the end of swing shift. Thanx

Priority Message: The funding situation for N restart for FY 89 is not known at this time. Jacobi & Lawrence will meet w/ IOWIN employees when the decision is made.

Loadout Scale: changed the anticipated T-hopper filling rate in the microprocessor to 200 lbs/min. Also changed the sample frequency to every 250 lbs. Also the sampler cycle time was changed to 50 sec (from 48 sec). Please find out if this will give all [illegible] scale

Scale (cont'd)

* The weight of loadout head + set of vibrator ≅ 75 lbs.

* Loaded out 88-1-3 & 88-1-4 Filling rate was 393 lbs/min

JR: Please fill out the KOH NCR disposition block tonight. 謝謝.

RATA Sampling: Not smooth! First we lost vacuum in flasks. Wayne got a vacuum pump from HEHF. Then found out the grab sampling pump did not work. Swing shift pipefitter will fix.

NOx Monitor: Working smoothly all shift.

U-4 Rexnord Sampler: Electrician is continuing working on heat trace

5 calciners & 2 concentrators (ED-6, ED-7) operated smoothly all shift.

Special Sampling: Took ED-3 & ED-3 condensate samples (sample # R-7242 & R-7243)

Run Schedule: At present rate, we'll run till sat thru day shift.

2/3/88 swing

5 calciners & 2 concentrators running smooth all shift

- U-4 Rexnord sampler heat trace is still not working. Electrician thinks heater maybe shot.

- X-22 rotary valve has a temporary wiring bypass. Broken wire will need to be replaced. Rotary valve now working.

Rata Sampling - Pipefitter changed out filter/rotameter & pump. Left system running.

- Special X-37 sampling day shift sampler did not get picked up at 2:00. Therefore no sample results available at 2350 since day shift samples were just delivered with swing shift

- Monitor NOx has low flow took a grab sample using flask No 52 @ 2252. Asked JR to take another grab sample graveyard.

5 calciners, 2 concentrators ran smoothly all shift.

2-4-81
GY
JE2

Neutralization - Barely keeps up with 2 concentrators now that TK-X37 pH is running ~0.4. Gain about 2" per batch. Patty and Teresa are sampling TK-X37 when TK-C5 pumps out - the solution sits in transfer line a while. Obtained dark, cloudy mixture when first open MV-X37-5 for sample. Patty collected some in poly bottle - please get "R" # and send to lab. Need to find out what it is.

NOx - Monitor behaved itself all shift. Except during record sampler repair - electrician from Purex turned off too many breakers. This occurred during grab sampling.

Grab sampling - Obtained 4 grab samples per WP. Had to get surgical tubing from lab. On 1st flask, #58, the valved cap came loose while removing from tubing on sample Tee. Do not use. We left surgical tubing connected to flask, just disconnected from tee to make sure flask cap was not disturbed. Also note lots of the bottles have low vacuum. Did not try to run vacuum pump. Digistrip Ch 406:

Left grab sample pump running with all 3 valves open.

Record Sampler - Leroy jumpered to Athena temp controller 110V output contacts, and presto! Sample flow returned to 75. Got Purex electrician to replace Athena unit. Wires are mislabled - Leroy had to swap 32V instrument leads to get the system working. Back to normal ~6:30 AM.

2-4-88
days

Record Sampler U-4 - RPT changed filter paper once this morning due to low flow and as of noon flow has been holding steady above 70SLPM.

Took 5 sets of RATA samples, 4 samples each

Changed loadout sample frequency back to 300 lb. at 250 lb the controller tends to miss

Obtained R number requested by JR, on sample bottle in SWP lobby

Switched drums for pre and post neutralized effluent. On 3rd set.

LJJ for LLA per telecon — Some Tc_{99} numbers back — Lab said low confidence level recun using old method. 1st results available tomorrow am.

C-5 proportional sample adjusted needle valve currently collecting 200 - 300 ml / C-5 discharge Did not have time to get more exact # or remove valve handle. Take 1 liter comp. sample every day.

Phosphoric add timer — Turn timer T-5 down to setting 4.8 (from 7) The calculation was based on the assumption that very little phosphoric acid was consumed per batch. JR please check — so far No high pH alarm yet!

2 concentrators & 5 calciners running smoothly all shift.

Last T-Hopper (88-2-1) produced day shift.

2-4-88 — Timed the caustic injection — it now takes ~22 min.
SWING LTT

— Asked Kervin to take Chloride purge sample — Trays were dry

— Sample U2270 came back high for Uranium 207-U SAMPLE

5 calciners & 2 concentrators running smooth all shift.

No sample results from midway thru graveyard — Stopped neutralization discharge 2230

2-5-89 JR

Calciners – 5 calciners running smoothly

Concentrators – E-D-2 + E-D-7 running all shift.

Stack – NO_x monitor needs to operate in range B. It was operating on 0-3000 ppm range when Leroy went to do span filter check. Now reset to 0-6000 ppm range.

Record sampler operating OK. However, the low flow alarm setpoint was found to be 4-5 lpm. Need to reset to 60 lpm.

Neutralization – KOH recirc loop piping vibrates all the way back to 203-U when P-836-3 is stroking. Vibration much more pronounced in C cell. Otherwise running OK. Note that during one batch, pH continued creeping up after ~~P-836~~ controller output went to 0%. Didn't happen again.

Samples – Several samples came back high. Monthly average so far is still OK. Concentrations came back down – restarted neutralization. ^{99}Tc numbers still not in range. Detection limit > limit. Finished drum sampling

2-5-88 Day, ~~LEA~~

Calciners – 5 calciners running smoothly all shift.

Concentrators – E-D-2 & E-D-7 running all shift.

U-2 / U-4: Vent & Balance came 2/4/88 at about 13:00 to take flow readings. Here is the result:

U-4 Stack 2441 CFM
U-2 Stack 1843 CFM

U-4 Stack: Had considerable leak at base of the stack. Contaminate leaked thru the roof and into the operating Gallery. X-1 SPG tubing was ~~up~~ removed (2) by the contaminate. This caused both WF & and SPG to quit working for part of afternoon. WF is working ~~fab~~ late day shift. SPG is still out of commission.

Lockout Room

Sampling ~~Completed all 6 drums for a histogram~~
- obtained & labeled all 15 effluent samples from last two Fridays.
- Tc #'s from lab still have detection limit of 10^{-2} pCi/l
  lab is working on getting a better detection limit
- delivered JR's spreadsheet 1-37 sample to lab.

Tour: DOE RA's had a tour of the plant.

Neutralization: Talked to Plant Engineering about PXT-36-3 vibration problem. Stethlow is supposed to come out and see the problem.

NO_x sampling - pulled 6 sets of samples today. Sent to lab for analysis.

Don Nelson (3-4203) will be over tomorrow morning to take a record sample from C-5 for organic analysis. A pipefitter will be needed for the task.

2-5-88 SWING/LJJ

X-1 WF - INST. TECH TOOK OUT OF SERVICE ~ 1900. WHEN PUT BACK ON-LINE 1 HOUR LATER READING WAS 20 DIVISIONS LOWER. Performed time calculation for sulfur ppm at 1965 & 2100. INST. TECH. WORKING ON FINDING AN AIR LEAK IN LINE. STILL CALCULATING PPM @ 2300.

Neutralization - Stopped sampling @ 2100 → no sample results back yet.

U-4 stack - Condensate leak was cleaned up in Operating Gallery

Sulfuric Acid used for addition did not have a QC accept tag on it. Drum was not labeled with a number. Operations took sample to verify weight percent. (No Hold tag either)

5 calciners & 2 concentrators running smooth all shift.

2 T-hoppers loaded this shift (NEXT THOPPER # IS 88-3-1)

2-6-88 JH GY

X-1 WF - Got lo level alarm @ 0115. X1 WF = 31.2. @ 12:30 X-1 WF was 31.5. Compared dropouts earlier in the week with F1-UNH. @ 77% of 16 gpm, estimate 739.2 gph. Data for 2-4-88 from 0800 - 1200:

102 2-6-88

GY

JC

cont...

X-1 WF - (cont)	TIME	X-1 WF	Corr WF	gal
		202.1	124.0	39825
	0830	~~34.2~~	~~20.48~~	~~30411~~
	1100	~~26.4~~	~~16.11~~	
		196.8	117.84	37931

$$\text{Flow rate} = \frac{39825\ \text{gal} - 37931\ \text{gal}}{150\ \text{min}} = 12.63\ \text{gpm}$$

FI-UNH ~ 77% of 16 gpm = .77×16 gpm = 12.32 gpm

FI-UNH agrees within 2.5% of manometer

During OTP, X-1 low level alarm was @ 21.8 corr. WF. @ 12.32 gpm, processing rate is 739.2 gph, ~~or~~ 21.8 corr WF = 8416 gal. 11 corr. WF (11 actual in. + instrument heel of 1754 gal, or 5.17") corresponds to 5131 gallons. 3285 gallons left to go, or 4.4 hrs.

However, since we don't have an X-1 WF indicator, a more conservative calculation is being used. Assuming alarm @ ~20 act WF, and stopping 3" above 11 WF mark, run for:

$$\frac{7894\ \text{gal} - 6052\ \text{gal}}{12.32\ \text{gpm}} = 150\ \text{min},\ 2\tfrac{1}{2}\ \text{hours.}$$

Concentrators - Shut down E-D-7 @ 0545, E-D-2 @ 0550. C-2 was started @ 0530 to provide water to TK-C9. TK-C9 pH began dropping when concentrators shut down.

Neutralization - Sample results looked good. Restarted TK-X37.

2-6-88
Dg. LLB

Shut down ~~[illegible]~~: started calciner shut down at 9:55 AM. Completed shut down at 11:30

Production: Run # 15 loaded ~~25+~~ 25+ T-hoppers (Last filled hopper is 8F-3-~~4~~ 5)

Special Sampling: The last two quick-turn-around samples taken are:
TK-X-37: 4-2453
217-U: 4-2286
called Lab (Don) and informed them of the shutdown.

Requested instr tech to adjust 217-U sampling rate to every 50,000 gal (from 10,000 gal)

RECORD

UO_3 LOG

3124/56

TP

12/10/57

Turned on X-44 blower to test. Flow controller appeared to operate satisfactorily. One of the CAMs on sampler is not getting vacuum through (loss of flow alarm) WA is written to repair.

Sign painter completed hanging confined space labels on 211-U tank, X-29's, and old load out system

Continued work on leaky Sanitary water line in lunchroom. Shut down Air compressor and dryer and water supply. Very small leak still in odd nipple off header and new threaded 45°. Cannot stop. Reassembled piping and turned system back on. Will wait for ESR/EO or leak to seal itself.

Retrieved spare RU-Fan from 2714-U. Fan had been used and was very "crapped up". will use for spare parts but store here.

8/19/87 KBT

covered fresh air in B-cell for capital crew welding of vacuum system supports.

covered fresh air in UA tower for boiler maker grinding doing prep work for X-28 ~~Dryer~~ door lifting ~~bail~~ replacement. The finished grinding all four tower doors will return tomorrow.

Picked up building breathing air station pressure gauge from 300 area after calibration to put bldg system back on line

had 125# steam
turn off on s
replacement/repa
components.
at this time

~~steel metal~~
removal of gr
around RU-1
removed - some
They suggested
to eliminate
removal will
still in the way;
will be requir
for removal.
Jim will take
decision made -
1/2 to 1" layer
then (according to
insulation". W

Electricians re
conduit which
"dog house".

loaned out 10,0
for load bi

8/20/87 KBJ

Boiler maker
lifting bail - Rec

224-UA building
was off in the
unknown - waiti
look at -

Teresa notice
cracks in th

had 125# steam to 224-U building turn off on swing yesterday for replacement/repair of various leaking components. Steam is still off at this time.

~~sheet metal~~ Carpenter came for removal of grossly contaminated roofing around RV-Fans - No roofing removed - some conduit in the way. They suggested only covering the contamination to eliminate/reduce levels - say removal will take about 3 weeks (conduit still in the way). RPTs say greenhouse will be required to 6 week minimum for removal. Rad Eng. looking up Regs. Jim will take up the line - no work till decision made - roof consist of about 1/2 to 1" layer of Rock and tar, paper then (according to Eng) 1" of "firm insulation". Will need to test for asbestos.

Electrician removed old, temporary conduit which had fed to old CAM "doghouse".

loaned out 10,000 # of weights to B-Plant for load test.

8/20/87 Boiler maker finished pup work on X-28
1630 lifting beam - Ready for welding tomorrow

224-UA building vacuum cleaner breaker was off in the switchgear room. Reason unknown - waiting to have electrician look at -

Teresa noticed what looked like cracks in the X-28-2 housing on the

south side near the vibrator mount. Will have QC inspect.

Contamination around RV-1 thru 6 will be cleaned up as good as possible and then carpenters will cover with new roofing material. AM was too windy to start work.

Wind also stopped decon work on RE-1. Smearable levels ~~was~~ already low, 500 cpm or less. Need to remove as ~~much~~ much rust as practical. Needs motor dismounted from unit.

Started work on deconning UA tower stair platforms. SLOW WORK!

Covered capital crew welding support for Vacuum system in R-Cell

X-44 system appears to be operating properly. Annunciator NO/NC contact switch was in wrong position, two units were being run from 1, 1/4 HP Vacuum pump causing low flow. plugged in existing 1/2 HP unit and transferred load to it.

Transported X-30, X-38, Thiam #1, Thiam #2, and UO_3-40 samples to REDOX Lab. Mike Hall will send us analysis request form for UO_3-60 sample which is to go to HEHE for analysis. Fill out form and return to Mike. He will ship Sample to HEHF

8/21/87 KBT

Took routine

cleaned around

worked on decon
Metal too con
Place with RE-2
used.

Tested C-5 lev
Instr tech

Back motor con

8/24/87 KBT

Two operator
and do decon
around exhaustes
also

Sunday at 9:00
power outage
and X-14 blown
put air compres
removed off tel

pumped out C-5

8/25/87 KBT

Vent and Bala
on U-13 & stac
X-44 flow
System is

cleaned RU-1,
roof exhaustes

Continued deco
landings.

Repaired leak in

8/21/87 XBT

Took routine sampler

cleaned around RU-exhaustes

worked on deconning RE-1 - levels to high - Metal too corroded - will remove and Place with RE-2 for which is currently not used.

Tested C-5 level probe - some problems - Instr tech will work on Monday -

Barn maker continued fit up of X-28 lifting bails

8/24/87 XBT

Two operator worked on Sat. to love Kurie and do decon work - completed cleaning around exhaustes. ~~[illegible]~~ worked in stairwell also

- Sunday at 9:00 Am (approx) there was a power outage which caused the air compressor and X-14 blower to go down. Power operator put air compressor back on line but X-14 remained off till 0700 This morning.

pumped out C-5 Tank

8/25/87 XBT

Vent and Balance performed flow test on U-13 stack. Flows agreed well with X-44 flow controller indication. System is running with no CAM alarm

cleaned RU-1, 3, & 4 roughing filters on roof exhaustes

Continued deconning of UA tower stairwell landings.

Repaired leaks in PX-2 discharge checkvalves

8/26/87 KBT — Inspected/surveyed ground around 207-U basin for contamination per ES&S inspection Report EP-87-31 - did some marking with paint - will need to clean-out 2 week with 3 operators & shovels - 30 hours

Thimble #1 and Thimble #2 sample results showed no radioactivity. drums (5 gal) were surveyed and released from zone and placed at KOH loadout pad.

8/27/87 KBT — Kaiser performed test on new switchgear automatic tie in controls - Automatic system failed - Manual system works. Kaiser will start tieing in permanent power to MCC's 1, 2 & 3. Switchgear will have to be run manually until GE Rep comes out to solve problem.

C-5 Alarm were put into service and is functioning - alarm point is >20" H_2O -

8/28/87 KBT — * C5 pH problem (NON)

+ Air compressor Down (overload trip)

* pH results from Environmental lab on weekly Environmental samples were 1.86 for 8/14/87 and 2.08 for 8/7/87. The Environmental compliance group called us and said they were going to notify DOE because of pH < 2. Results from Process sampler, tank pH meter and portable probe all showed pH > 3.0. Re notified DOE of Error. Env. lab results are for their internal use only, not official.

+ Kaiser switched air compressor from Temp. to new switchgear power. Rotation was backwards switched wiring but compressor wouldn't start. Problem was traced to failed heater reset buttons. will be on diesel all weekend

8/31/87 KBT — Tank routine

Insulation began

Rot completed

Rigger removed mount in A-

Electrician ... compressor with ... New part for ... installed prior to

9/1/87 KBT — Packaged batte...

Rigger continued removal.

continued clean...

Fire alarm sou... at about 13:0... responded. Opera... or smoke. Alar... in switchgear ... from ceiling by ... WA written to ... sheet will be ...

NOTE: T... at the same ... operator ... problem

Took routine sampler

Insulator began removal of asbestos at 211-4.

8/5/87
KBT

Rof completed SCBA re-training

Rigger removed A-6 tank from floor mount in A-cell

Electrician replaced broken part in air compressor with part from new backup compressor. New part for new compressor must be ordered and installed prior to hookup and testing.

9/1/87
KBT

Packaged batteries for shipment

Lagger continued work in 211-4 asbestos removal.

continued cleaning tower stairwell

Fire alarm sounded in 224-UA building at about 13:00. Fire Departmentment responded. Operator search turned up no fire or smoke. Alarm was from smoke detector in switchgear room which was hanging from ceiling by its wires. Fireman reset it. WA written to remount. An event fact sheet will be issued.

NOTE: The UA supply fan went down at the same time as the alarm. Power operator started it back up with no problems.

9/3/87 KBT

Tested the Alhato. high pressure hot water cleaning unit. It would not develope enough pressure and the heater wouldn't come on to heat the water properly. Will have to have Maintenance troubleshoot.

continued completed cleaning UA tower stairwell.

Washed down D cell

continued removal of lagging at 211-4

4/87 KBT

Took weekly routine samples -

shipped 38 waste hoppers to burial.

211-4 asbestos removal continued -

decomed hammermill room in UA tower.

8/87 KBT

began construction of greenhouse around 211-4 counter pit manifolds. Asbestos was loose. Lagger sprayed. HEHF is sampling Operators doing the building

Traced continued condensate generation in concentrators and X-30 to apparent leak in jacketed conc. to X-30 line - Steam to the jacket was shut off.

Wrapped up components of old loadout scale for burial

Held monthly safety meeting

9/9/87 KBT

Filter removed trap wet scrubber. E flange on both and corroded. Spa scrubber will al flange on entire T

Continued constru 211-4

9/10/87 KBT

Scott Caylor and Rob Criticality re-training

Sanitary water was sh faulty valve in P.G. by lunch time.

Greenhouse @ 211-4 done

9/11/87 KBT

Took weekly routi

Outside contractor sh

Completed 211-4 gree remove asbestos s

Rigger moved scaf around RE-3 and R for decon

Rick & Scott attended

9/14/87 KBT

Repaired wind damage Lagger continued asb down of greenhouse.

Respiratory protection for HWO.

9/9/87 KBT — Fitter removed traps from below K&L wet scrubber. ~~Flange~~ Scrubber bottom flange on both are severely pitted and corroded. Spare parts has 4 scrubbers will also have to replace trap flange on entire trap.

Continued construction of greenhouse at 211-4

9/10/87 KBT — Scott Caylor and Rod Rodgers attended Criticality re-training for fissile handlers

Sanitary water was shut off in AM to replace faulty valve in PG. Water was back on by lunch time.

Greenhouse @ 211-4 done except for ~~#~~ Ante room

9/11/87 KBT — Took weekly routine samples

Outside contractor strung cable for LAN

Completed 211-4 greenhouse - Laggers will remove asbestos starting tomorrow.

Rigger moved scaffolding and put up around RE-3 and RE-4 for greenhouse for decon

Rick & Scott attended fork lift driving training

9/14/87 KBT — Repaired wind damage to 211-4 greenhouse - Laggers continued asbestos clean up and wash down of greenhouse.

Respiratory protection did some "sniffing" for HNO_3 fumes for baseline case.

9/15/87
KBT

Overnight work shedded most of 211-U greenhouse. All work was completed except in pump pit. Removed upper portion of greenhouse and covered only pit to complete work.

Kaiser began removing rock from 272-U roof to prepare for new roofing coat.

RPT's surveyed a few spots on West wall of 224-U. ~~A more~~ additional surveying will be done tomorrow.

9/16/87
KBT

3 operator Randall, Teresa, and Rod completed training on JLG operation.

RPT's continued surveying 224-U west wall

Laggan continued work at 211-U

Constructed greenhouse around RE-3 and -4. Sheetmetal will disassemble tonight on OT. Operator will begin Decon

Inspection of steam PRV station

9/17/87
KBT

Inspected buildings for open conduit/electrical boxes and other shock hazards

Constructed greenhouse around Lucky pot stack for asbestos removal

Were informed that the new UNH tank trailer is involved in a manufacturer recall - It will be picked up on Tuesday.

9/18/87
KBT

Took week

Recirculate
sampled an
lake

Shipped 50

Excavated
access road
remove con
or less.
no detecta
over and t
with a deci

9/21/87
KBT

Fitter remov
and measur
wear patte
of mech is

Kaiser rem
material f

9/22/87
KBT

RPT complet
224-U bldg

New UNH
and picked
Manufactu

Laggan co
insulation
the roof lev

Asbestos an
211-U.

9/18/87
KBT

Took weekly routine samples.

Recirculated tank X-38, 10:00 to 14:30, sampled and delivered sample to REDOX lab.

Shipped 50 boxes of waste to Burial.

Excavated 3 to 4" of dirt along side of 272-4 access road east of 224-4A to try and remove contamination. Levels on 200 cpm or less. RPT's say they won't release until no detectable. Marylin and Lindsay came over and took a look at. They will get back with a decision.

9/21/87
KBT

Fitter removed C-7 to C-2 jet for inspection and measurement of neck". No unusual wear pattern is visible. Original dimension of neck is not known

Kaiser removed waste drums of roofing material from roof.

9/22/87
KBT

RPT completed surveying West Wall of 224-4 bldg.

New UNH trailer was surveyed, released, and piked for return trip to town due to Manufacturer's recall

Laggen completed removal of asbestos insulation from Lucky Pot exhaust above the roof level.

Asbestos and pipe removal continued at 211-4.

9/22 cont. Cleaned up tumbleweeds @ 211-4 and put in compactor.

9/23/87 KBT. Reviewed Emergency response to loss of electricity Procedure.

continued pipe : asbestos removal at 211-4

9/24/87 KBT Fitter found liquid in pipe being cut at 211-4. pH paper indicated pH > 10. Liquid is probably caustic Small quantity dripped onto scaffolding. No personell contamination

Worked on decontaminating old transformer

Kaiser continues applying roofing material to 224-UA and 272-U roofs

Wooden SWP "doghouses" were too small to fit SWP containers in

9/25/87 KBT Took weekly routine samples

Inspected 224-U and UA building ventilation ductwork for dust. Found lots of dirt but not much dust/combustible

Shipped 58 waste boxes to burial

Dennis Hysell & Dave Romine completed SKAPAC training.

As part of neutralization up grade. Valved B-3/D-3 condensate to X-37 tank using newly installed C-9 (C-5 catch tank) to X-37 line. Condensate will be collected in X-37 until new C-5 to cuf lines have been installed. It is estimated that TK-X-37 will hold two weeks of condensate.

9/28/87 KBT Completed S

Cement fin
cracks, con
pit and ot

Kaiser Load
at 2714-4

Began cleani
of carbonati
re-instalation
-Concrete f
damaged an

Carpenter a
on North

9/29/87 KBT Fitter Remo
putting cove
gas inlet f
and downcom
New scrubber

Sheet metal
Lucky pot roof
to do RE-1

Cement fin

Kaiser roofer

Kaiser is still having problems with new Switchgear Manufactured by GE. The Automatic switching mechanism will not work - GE Rep came and solved problem of possible tie in of normal and emergency power at same time.

9/28/87 KBT

Completed Sept. Eyewash / safety shower inspection

Cement finishers are working on repairing cracks, corroded concrete in Load out scale pit and other Misc. jobs

Kaiser Load tested T-hopper survey stand at 2714-4.

Began cleaning out P-307-4 pit at 211-4 of carbonate and neutralized acid for re-instalation of repaired 307-4 pump. - Concrete floor of pit is severely damaged and corroded.

Carpenters are installing new entry door on North end of 224-4 bldg.

9/29/87 KBT

Fitter Removed K wet scrubber. severe pitting occurred on outlet, and both gas inlet flanges. Flanges on gooseneck and downcomer will need to be replaced. New scrubber from spare parts will be installed

Sheet metal re-attached RE-3 and-4 to Lucky pot roof - they will be back tomorrow AM to do RE-1

Cement finishers continued with repair

Kaiser roofers continue roofing @ 272-4 and 224-4A

9/30/87 KBT

Electrician repaired ground fault in Radon Fan and it is now running.

Conducted Fire drill - Scenario: Operator cooking bacon on stove in lunchroom - heat out of control fire starts -

Kaiser completed roofing of 272 U and 224-UA

Fitter and welder worked on H_2SO_4 load out catch pan - possible crack in welds -

Kaiser continued troubleshooting switchgear Power to MCC's was lost frequently - All up and running at end of shift.

Performed test on U-4 stack sampler flow control valves - valve appear to be correct on - will verify proper controller settings

MW completed reassembly of P-307-4 at 211-4

10/1/87 KBT

completed removing approx. 4" of dirt, 2 ft wide along narrow access route to 272-U. New gravel will be brought in to refill so temporary zone posting can be moved back.

Fitter completed installation of P-307-4. Recirculated contents of tank X307-4 to test - Now functional

Sign painter showed up to hang "ON Mach" sign holders - holders were wrong size - they will build more.

10/2/87 KBT

Took weekly ro
Process condens
for construction
Took two
analysis - one
from TK-X-37

Operators atte
training with

locked out X-37
removed for
~~end of~~ shift.
lock will be

MW placed
RU-1. Locked
224-UA bldg. O
vibration. F
Fan is runn
Fan needs
testing nes
and repair. w

Fitter contin
pipe from 211-
Approx. 1 qt

10/5/87 KBT

Riggers set
for valve in
in 5IK cell

U&B began t
Rakestraw to

An additional
collected from
Header pipe (8")
a large quantity

10/2/87
KBT

Took weekly routine sample of 207-U. Process condensate is waived to Tank X-37 for construction. No discharge to U-12 crib. Took two special samples for Tc 99 analysis - one from 207-U and one dipped from TK-X-37 (U-12)

Operator attended work Authorization training with Phil Martell.

Locked out X-37 ~~pump~~ discharge valve - pump removed for work. ~~Tag removed by and off shift.~~ Kaiser still working - lock will be left on

MW placed new vibration mount on RU-1. Locked and tagged breaker on MCC#1 224-UA bldg. Original problem was excessive vibration. Fan still vibrates too much. Fan is running, lock was removed. Fan needs to run for Vent and balance testing next week then shut down again and repair vibration.

Fitter continued cutting and removing pipe from 211-U. Caustic was encountered. Approx. 1 qt was collected and neutralized.

10/5/87
KBT

Riggers set up scaffolding at truck spot for valve insulation. Also set up scaffolding in J&K cells to assist U&B in tests.

U&B began testing under direction of Larry Rabestrom to characterize 224-UA bldg.

An additional quart of caustic was collected from pipe removal at 211-U. Header pipe (8") is also ~~ab~~ estimated to have a large quantity of caustic in it. Header has been

10/5 cont.	cut loose, opening plugged with rags and is laying on scaffolding. Will require crane/ rigging for removal. Waiting on Rubber stopper before cutting vertical piping. all horizontal piping that has had lagging removed has been cut.	solidified cau More lagging can continue
10/6/87 KBT	Randall Roberts complete Rad Worker requalification	Unload Flat Begun inspec using new close - about from fork tr
	Installed new water heater - Buffalo room	10/12/87 KBT 1 operator Karen con
10/7/87 KBT	change out dust stops in Load out hood.	continued i
	brought in clean gravel and covered contaminated (<200 cpm) dirt to extend roadway east of UA bldg.	Filter remo downcomer
	Vent & Balance continued testing in UA bldg	Flanges were spool pieces removed and
	Fabbed CAM protective covers for UA bldg.	also very
10/8/87 KBT	Vent & Balance completed measurements in the UA bldg.	Constructed gr around Old asbestos remo
	211-U piping removal continued - 3" vertical line found full of solidified caustic. - wiped down and cleaned up area -	Put Perman on C-1 Agi Lock out i
	Filter removed JK-X-1 view port for inspection of inlet piping for down comer	agitation of organic layer
10/9/87	Picked up lab sample returns from Z-Plant	Put Caution tape "T" to on Platform
	Took routine sample at 207-U - no U-82 Discharge - all condensate routed to X-37 tank	MW worked on Motor breaker (9/87)
	211-U piping removal continued - piping with	

in	solidified caustic cut up and put in drums.
cranes/	More bagging removal requested before cutting
	can continue
cutting	
ing that	Unload Flat car full on T-hoppers -
t.	Began inspecting and surveying T-hoppers
	using new stand. Tolerances are real
	close - about 3/4" clearance - and visibility
in	from fork truck almost 0.
10/12/87 KBT	1 operator worked Saturday covering
oom	Karen construction.
load.	continued inspecting T-hoppers.
terminated	Fitter removed K- wet scrubber
f UA bldg.	downcomer for replacement. upper
	Flanges were also corroded. 17"
"	spool pieces above downcomer also
	removed and flanges checked - corrosion
bldg.	also very severe / requires replacement
on the	Constructed greenhouse in G cell 0' level
	around Old K acid scrubber for
	asbestos removal.
ential	
	Put Permanent ~~#~~ Lock and Tag (Caution)
	on C-1 Agitator breaker MCC #3, 224-U.
	Lock out is OSR related - to prevent
eetin	agitation of tank ~~and so~~ overloading of
	organic layer.
	Put Caution tag on C-5 to U-12
Plant	time "T" to ?. Valve is located
	on Platform along North East Fence.
- U-12	
2 tank	MW worked on G & H motor shaft guards -
	Motor breaker previously locked out
with	(5/87)

10/13/87 KBT

Held monthly Safety meeting - discussed start up requirements

Continued inspecting T-hoppers

Lock & Tag

Installed, then removed (work complete); Buffalo spray pump, MCC #1, 224-4 for green wire replacement and RU-1 breaker, MCC #1 224-4A building for Troubleshooting

Installed but work not complete steam supply valve to UHH feed to TK-X-30 heat trace (below D-6).
* PX-2 breaker, MCC #3, 224-4 for green wire replacement.

10/14/87 KBT

Retrieved spare RU fan from 2714-4 storage bldg. (had to break seal - will reseal tomorrow

cleaned T-hopper that had contamination

Lock & Tag

Installed lock on two steam valve to C-1 tank dip tube blowdown. - did not remove

Fitting removed C-1 tank dip tubes measured lengths (8" of 102" SpG 172" high) and pressure tested to 25 psi
long tube has 1/2" notch
Sp6 tube does not

10/15/87 KBT

Removed
to check
None
Vent ha
rodded to
middle fla

Jim complete
class

10/16/87 KBT

Took weekly
207-4 -
condensate s

Sampled ca

MW contin
of loadout

shipped 33

10/19/87 KBT

Pat Rogers

MW continue

Carpenter dide

Performed
safety check

10/20/87 KBJ

Lock & Tag

Locked st
jet (near
repair on
Lock rem

used

10/13/87
KBT

Removed tank trailer demister ~~pad~~ vent to check for cracks in welds - None found.
Vent has been re installed
rodded tank trailer 3 1/2" at middle flanges.

Buffalo
weir
MCC #1

Jim completed Hazardous waste class

10/14/87
KBT

Took weekly routine samples from 207-U - No discharges to U-12 - condensate still routed to TK-X-37

Team
30

Sampled caustic heel in 321-4

MW continued working on installation of loadout scale

714-4
resual

Shipped 33 boxes of waste to Tank Farms

10/19/87
KBT

Pat Rogers completed Fork lift requal.

MW continued working on scale installation

line to
not remove

Carpenter didn't show up for work here

measured
)

Performed Monthly safety shower & eye wash safety check

10/20/87
KBT

Lock & Tag

Locked steam supply valve to backside jet (near 203-UX enclosure / X-30) for repair on Transfer line to TK-C-7
Lock removed, work complete

(cont.)

10/20 ot Locked ~~xo~~ breaker to H calciner power for cable inspection - still locked.

Laborer dug holes for posts around T-hopper storage area.

Performed preliminary test on X-38 load out system pump interlock system. PX-1, PX-2, and PX-2-3 all worked properly. PX-38 also worked (run with no alarm, shut off on high alarm) but automatically restarts when high alarm is cleared. PX-2-3 needs breaker adjusted.

Electrician and Instr. Tech corrected problems with H.S.M. calciner ~~motor~~ power system; one had blown fuse, one a loose wire and one was out of adjustment

10/21/87 KBT Performed OTP (required section) on ~~Pan~~ Tank trailer loading system. Under OTP loaded trailer with recycle UNH from TK-X-38. Had to unplug line first - shipped truck to PUREX.

Lock and Tag

- Locked MUS-SU-1 (125# steam to PG 115# PRV station) for line repair - work completed and lock removed
- Locked out power to PD-11-2 (H_2SO_4 pump) on 2nd floor - D-12 tank removed for Kaiser modification. - still locked -

Rigger came to turn over scale platform and set in place to template holes. Decided they had to have a crane

10/22/87 Loaded out into tank

Bypassed ter out) to ope transfer lin Removed

Performed T with PX-38 and MDU to control on and th unsafe cond of power over flow.

Carpenter be will be ba carpenter b in hot side

Rigger come platform was again after doing work

Lock i Tag Locked repair remove

Locked disco chang

ower	10/22/87	Loaded out second batch from TK-X-38 into tank trailer and shipped to PUREX
T-hopper		Bypassed level probe (with pump locked out) to open MOV and steam out transfer line into tank trailer. Removed lock and bypass after steam out.
load out 4, PX-2, also 2 alarm) alarm ted.		Performed test on Tank trailer loading system: with PX-38 recirculating TK-X-38 contents and MOV open, turned off power to control panel. The pump remained on and the MOV open - This is an unsafe configuration, accidental shut off of power could cause tank trailer overflow.
problem - system ice and		Carpenter began roll up door PM - they will be back tomorrow. Other carpenter began putting up sheet rock in hot side bathroom.
recycle leg line -X.		Riggers come to flip scale platform (again) platform was contaminated - came back again after lunch then left again without doing work -
PG 4/5 # PRU mpleted		Lock & Tag Locked steam supply to C-2 coil for repair on condensate strainer removed lock after repair were complete
SOY pump) ved for ched -		Locked out RV-1 breaker - Electrician disconnected motor. MW will be changing fans - Lock still in place
tform		
7		

10/23/87 KBT

Vent & Balance took 4-4 stack flow
U&B 2T57
indicator 2358
Δ 201 on < 10%
X-14 blower & JA-1 jet operating
C-2 boiling

Took weekly routine samples from 207-U. (flow 5% totalizer 341547)
No discharge to U-12, still piped to TK-X-37

Received empty tank truck from PUREX
Will drain heel and rinse for transport to T-Plant for annual Hydro test next week.

Rigger set scaffolding platform in place for hole templating, then removed and turned over for drilling on Monday.

10/27/87 KBT

Power operator turned off 15 psi steam to 224-U building. Laggers removed insulation from two preheat steam supply valves (Fitter will repair and replace Monday) Locked and tagged valves - removed tags and P.O. returned steam to service

Locked out steam supply to the 203-U sump jets. Fitter repaired leaky flange - work complete lock removed

10/24/87 KBT

P.O. shut of Buffalo unit and M-Four and 225# steam to building for changeout of preheat steam valves.
Locked and tagged 15# steam valve by PRV and 225# main supply valve.
Fitters replaced preheat valve to DOU. Preheat supply (had frozen handle) was not repairable. Valve is also odd sized and no replacement on hand. Reassembled

as as. Will
change. Loc
ventilation

Fitter installe
tank trailer
in preparation
Tank level roll

mw drilled hole
waiting for bol

Held Weekly M

Drained Tank
Bypass (have an
to PUREX.

Sampled tank
not been sent

Recirculated to
will analyze

Lock & Tag
* Removed loc
switchgear
* used torch to
while tighten
still out

Fitter began T
fittings. G.S.
removal (W

Began packag
waste (RMW)
BCC and in q
awaiting disposa

as is. Will order replacement or get design change. Lock removed. Steam and ventilation back on.

Fitter installed flange and hose onto tank trailer drain valve to drain heel in preparation for annual hydro test. Tank heel valved at 3" - 70 gallons

MW drilled holes in scale platform - now waiting for bolt coupler

Held Weekly Mini safety meeting

10/27/87 KBT

Drained Tank trailer flush - removed Bypass (hose and flange) - shipped to PUREX.

Sampled tank X-37 - sample has not been sent to lab -

Recirculated tank X-2 and Sampled. will analyze for impurities

Lock & Tag

* Removed lock from H calciner switchgear
* used lock to lock out Acid pot drain valve while tightening drain line fittings - Lock still out

Fitter began tightening Acid pot drain line fittings. G & S require some insulation removal (WA required)

Began packaging of Methylene chloride waste (RMW) cans and rags are bagged per BCC and in galvanized drum and drum liner awaiting diatomite void filler.

10/28/87
KBT

Condensate leak in south stairwell was ~~repaired~~ repaired.
Locked and tagged 15# and 125# steam lines to traps in PG SE corner and 15# supply to south end of bldg in buffalo room for repair.
Locks removed at end of shift.

10/29/87
KBT

Kaiser troubleshot switchgear unit - power was down most of the day - Lost compressor on line.
Power outage delayed calibration of Vent. System instruments.

removed insulation from UNH line to TK-X-30 for Engineering inspection

Removed lock and tag from RV-1 exhauster.
Motor has been rewired after squirrel cage replacement - ready for bumping and operation.

10/30/87
KBT

Took weekly routine samples at 207-4.
still no discharge from TK-C-5 to U-12.
All water in TK-X-37 now at 146" H_2O.
Maximum is 150.

Removed caution tags from C-5-1 and C-5-2 pumps.
Removed danger tags from C-1 dip tube steam blow down valves.

Operators were trained on use of C-1 level measuring Rushon computer program

Neutralization System ATP continued.

11/2/87
KBT

Patty Bailey and
instrumentation

continued work
scale

11/3/87
KBT

U.B took s

Patty Bailey had

Mark schull
and inspected
Load cells he
a lot of wir
bridge in

Pumped som
and discharge
system work

11/4/87
KBT

Bruce Godfrey

Power Operator
winterization

Cement fir
load cells

constructed gu
hood in line
change out.

Rigging remo

11/5/87
KBT

completed
Scale Vend
testing. Some
and correct

~~on explosi~~	11/2/87 RBT	Patty Bailey and Bob Bergum had ~~sec~~ ~~building~~ security orientation
time to ply to repair		continued work on installation of new loadout scale
	11/3/87 RBT	U;B took stack flows
power wa on line. Vent.		Patty Bailey had building orientation
to TK-X-30		Mark schull of Western Scale came in and inspected scale installation - Load cells had been leveled. Stall had a lot of wiring to do. Riggers ~~the~~ set bridge in place.
exhaustion, ied cage ge and		Pumped some of TK-37 into TK 65 and discharged to U-12. Pump interlock system worked well
07-U. 1-12. 16" H_2O.	11/4/87 RBT	Bruce Godfrey passed Plant Specific exam. Power Operator and fitter worked on ventilation PM
C-5-2 the stem C-1 m		Cement finisher put in grout under load ~~s~~ cells on loadout scale
		constructed greenhouse around lab sample hood in lucky Pot room for HEPA change out.
		Riggers removed scaffolding in M cells
	11/5/87 RBT	completed wiring of new loadout scale - Scale Vendor came for power up and testing. Some wiring problems encountered and corrected. (Dwgs were wrong/not accurate)

more

11/5 cont. found that one of four load cells was a 1,000 # instead of 5,000 # unit. Will have to be replaced.

load cell on small electroscale for calibration of weight was also bad - need replacement.

Boiler maker started work on X-28 crack repair. - Want welder to cut off ~~we~~ vibrator bracket instead of grinding.

changed out HEPA and Pre filter on Lab hood - needs DOP testing

Fabbed powder spill cover sheets

11/4/87 KBT

Removed load out down comer for modification

Randall completed Shapes training

Patty Bailey completed Plant Specific exam

m calciner free end lid is ready for removal.

- Welder began cutting X-28 vibrator bracket. hot slag started fire on level 4. Put out that fire but ~~the~~ burning material started fire on level 3 and then level 2 (backer of C-2 filter). building was evacuated and fire dept (911) called - Fire was put out. Area was sampled for release of radioactivity - no release - Investigation committee was formed and began investigation. - No damage to processing equip. in tower. about 10'X15' area of rubber matting ~~a~~ on level 3 boxes of C-2 filter on level 2 were burned. Entire tower is covered

11/9/87 KBT

11/10/87 KBT

11/11/87 KBT

with black, filter need

HMW drum w chemical Waste filled out and

Reviewed and ATP with

Fire Investigai 224-UA tower

DOE-RL turn for cleanup

Held Monthly

Began changes in UA bldg.

Caustic meterin properly when te Troubleshooting w

Kavin began wo ~~exception~~ list

PUREX RPT gave T orientation. They 8

Began clean up vacuum clean

Completed chang UA bldg. Bldg. Used Man lift roof exhaust

with black, ~~dry~~ soot - all dust stop filter need to be changed out.

11/9/87 KBT — HMW drum w/ paint stripper - required - that chemical Waste Disposal request be sent in. Filled out and sent in same -

Reviewed and signed Neutralization ATP with acceptions.

Fire Investigation committee toured 224-UA tower for inspection.

11/10/87 KBT — DOE-RL turned UA tower over to us for cleanup and ~~release~~ work.

Held Monthly safety meeting.

Began changing out ~~#~~ Dust stop filter in UA bldg.

Caustic metering pump controller would not work properly when tested by mech. Tech - Troubleshooting w/ Maint. Eng. began.

Kaiser began work on ~~d~~ completing ATP ~~exception~~ list.

11/11/87 KBT — RPT gave PUREX T's & Q shift personal bldg. orientation. They will be cleaning the UA bldg. &

Began clean up of tower Initially using vacuum cleaner to pick up loose soot.

Completed change out of all dust stops in UA bldg. Bldg. ventilation returned to service. Used Man lift to change G-M cell roof exhauster filter.

(More)

11/11 cont. Problems with caustic metering pumps were found and repaired.

Met with QC, QA, operations, Engineering and construction to resolve differences on performing OTP prior to completion of all ATP exception list items

11/12/87 KLB

- Removed Load cell From Load out Scale in Preparation For Replacement on 11/13/87
- Completed Removal Steam PRV For X37 & X36.
- Replaced Seals on Pump X37
- Started OTP on New Neutralization System Found deficiencies on X1 & X2 Low Level Alarm Set Points, Tk D-12 WF Not working Due to open Line connected to High Side of Dip tubes, and Tk X36 Hi Hi Alarm By Pass ~~not~~ is By Passing The Alarm and The Pump Shut off.

11-13-87 Continue w/ prestart activities.

11-14-87 Broke Menu on top of Tank tech clean

Installed By control circuit AOV open de closed during vice versa -

TR X-36 leve not working hi and hi hi

Ran into proble C-5 batches - pH 7 - w Auto but

11-16-87

- Replace Fire 2244A Tower
- Continued OTP For mentioned
- Continued on
- Started
- Sent one operator

11-17-87

- Change out 3 on Swing Shift.
- Bob Barger attende mornings.
- Replace load cel calibrated weig

11-14-87 Broke Mercury filled thermometer on top of tank X-36 - Had instrument tech clean up with spill kit

Installed By Pass on TR-C-5 AOU control circuit (WA 24-73180001) to have AOU open during recirculation and closed during discharge instead of vice versa -

TR X-36 level probes are apparently not working - filled tank to above hi and hi hi probe but no alarms -

Ran into problems with controller on C-5 batcher - with both probes in pH 7 - would not pump out in Auto but would in Manual -

11-16-87 • Replace Fire Extinguisher That were use in 224UB Tower Fire.

• Continued OTP but not much progress Due to The For mentioned Deficiencies.
• Continued on Load out Down Comer.
• Started Mrg audit of Organizing.
• Sent one operator For Physical

11-17-87 • Change out 3 Cons in 224 UB Tower on Swing Shift.

• Bob Barger Attended HAZ-Com SFTY Trng Class in mornings.

• Replace load cell on Calibration Scale and calibrated weights

11-14-87 RLB

- Sent B. Godrey To Security Re orientation
- Tower was taken off Most in PM.
- Removed old UNH Line From X-37
- inspected M-Cal inner Bed. Several Hard Chunks (Load out) will come out
- Started A Pre ATP Test of Scale.
- Sent Ro Robert For a Physical.
- Pickup ~ ½ of Uranium samples at ~~Z~~ Z plant LAB.
- Started Decon of Cams From UA Tower Fire
- Housekept The plant For Readyness Review Tour on Thursday.

11/20/87 B.E. Bielicki swing

- A little after 9pm got beta cam alarm on 4th floor of tower building. Posted appropriate doors "on mask" and summoned an RPT. Since steady increases on charts (no spikes) probably Radon. Initial counts were about 7E-10 uci/ml. Decayed for an hour (hour up @ 10:55pm or so - time lost trying to find RPT). Decayed down to 2.2E-11 uci/ml in 1 hr so Radon (11pm).
- At 9:40pm, got a high and low record sampler alarm (FA-296-4) on stack 296-4. Had RPT change out plugged filter, flow, as digitally indicated on FIC U-4, went from approximately 60 SLPM to 75 SLPM (Liters per min), at which time the alarm cleared.
- Continued cleaning tower building - in fairly good shape. At this point the expense/benifit ratio is quite high and halting further deconning should be concidered.
- Bill Bailey said to have "P" shift report to UO_3 on days, monday, as planned, and "Q" shift report to PUREX on swing, monday.

11-14-87 R.J.B.

- Left key to tr
- Set Randall To SCBA Re
- Started Resh Moved T-hopper Report To The Moved The For The Run. Storage Pad.
- Tested The P Wouldn't Recirc
- Repaired The Swing Shift.
- Replaced The Fire dept. at 224 UA Bl
- Completed Bes
- Completed the Personnel For

11-20-87 R.J.B.

11-21-87 SAT. R.J.B.

- Continued Ne Noted - C5 making a whi - There is s surge while in opening A Also solution under pressure Rate our co To Be change (over)

• Left key to truck in Jims middle desk drawer.

11-19-87 R.J.B.

• Set Randall Roberts and Theresa Brighton To SCBA Respirator and Security Reorientation

• Started Reshuffling The T-hoppers... Moved T-hoppers listed on QC surveillance Report To The Storage Pad. Moved The 37 Hopper To Be used For The Run. The Rest are Located 27144 Storage Pad.

• Tested the Phosphoric acid Pump, Pump Wouldn't Recirculate To Tank.

• Repaired The X-37 Pump completed on Swing shift.

• Replaced the window in # 76 Fork Truck.

11-20-87 R.J.B.

• Fire dept. Test Smoke + Heat detectors At 224 UA Bld.

• Completed Reshuffling T-Hoppers.

• Completed The Training class For Purex Personnel For The UO_3 Run.

11-21-87 SAT. R.J.B.

• Continued Neutralization OTP. Noted — C5 agitator has started making a whining noise.
— There is quite a bit of solution surge while the C5 discharge valve is opening and the sample valve is closing. Also solution is coming out the vent line under pressure during this sequence. At this rate our composit sample tank would have to be changed Daily.
(over)

- Portable Radio will cause The C5 Tank PH To Spike Downward, Causing The Discharge Valving To Close. This will Have To be made a No Radio use Zone or more Sheilding on equipment.
- C5 - Batch counter is 1/2 digit OFF.

11-23-87 R.L.B.

- Started Startup check list For UA Tower
  - X22-2 Rotary Valve conduit Hanging Loose.
  - X24-2 Missing Bolts on Downcomer.
- Mounted SCBA outside 272 Shop Hotshop Door By Step OFF Pad.
- Welded Cover on TK 331 at 2114
- Shipped the Rest of X37 out. Low level X37 Prob Fail To Alarm. Same Problem as X38. Replacements order.
- Continued UA Clean up.

11-24-87 R.S.B.

- Started Load out ATP on Scale. Weight variance To High.
- Trained Personal (OJT) on Haz and non Waste
- Continued UA Check List
  - Had Plug Feed lines on G, H, J & L.

11-25-87 R.S.B.

- Completed Part 1 of Neutralization OTP
  Open Items: P-C5-2 Pump
  D-12-WF
  X36-Temp
- Found 3 55 gal Stainless Drum at 2715 U For Ship off Rec Hndg. Move to 224 UA For inspection
- Started Removing inspection Ports on M-Calciner
- Connected Offices PCs To LAN. Writing On Programing.

11-30-87 R.L.B.

- Completed Switchgear
- Started Pro System. Pl Talk To Serv
- Sent The Repair.
- Started Ne - PX36 S
- Conducted
- Continued Co
- Worked off weekend.

12-1-87 R.S.B.

- Started inspection
- Cut The X Piping is S Schedule 40 Sent to ma
- Boiler maker Vibraton Plate That started
- ATP Load Vendors cam Calibration Pro in Load is o Load or over long Perio After 20 hrs drifting down

11-30-97 R.B

- Completed Electrical PM's on UA Switchgear.
- Started Programing the LAN Computer System. Planner computer would not talk to server. ongoing.
- Sent the Lushman to Town for Repair.
- Started Neutralization OTP part 2 - PX36's Pump not working Right
- Conducted a Contamination spread Drill
- Continued Confined space signs installation
- Worked off C2 and sumps from out the weekend.

12-1-97 R.I.B

- Started Fire extinguisher and safety shower inspection tickler.
- Cut the X20 condensate line and found piping is schedule 10 and parts are schedule 40. Parts will need to be sent to machine shop for modification.
- Boiler makers started grinding off vibraton plate on X28.2. Same job that started fire in tower on 11-6-97.
- ATP Loadout scale. Yakima scale vendor came out to troubleshoot scale calibration problem. Scale seem to be working in load is on longer enough to measure it. Load over long period of time zero drift off after 20 hrs zero was 17 lbs high and start drifting down and over several hours.

12-1-87 (cont.)
- Continued OTP on Neutralization on day's and Swing.
- Sampled H3PO4 For Esential Material Sample analysis. Sent to Redox.
- Installed Flangeguards on Truck spot

12-2-87 R.S.B.
- Continued OTP. Still Having Problems With the P-X36 pumps. P-X36-1 is working but not ~~cor~~ Right.
- Continued Prep OF X28-2 Repair

12-8-87
8 hour PDA on UO-552-002
Step 7 Needs to include start up CS pump.

J Lappin
J Adamson

12-3-87 R.L.B
- Continue with X20 Tie-in.
- Start Leak Check on Concentrator WF For ED-2 didn't work + ED-6 WF has Slow Drop
- P-X36-3 Not working Coupling For Adjusting Arm is Jamming Against the eccentric cam.
- Boiler makers continued on X28-2 Vibrator Plate is off Found 18" crack in Cone.

12-4-87 R.S.B.
- Continued with X20 Tie-in.
- Boiler maker Took measurements For X28-2 Plate
- Completed Danger Tag Review
- Reassemble X-26-1 vent system Filter, missing Heliuxgage
- Continued testing Load out Scale. Scale still Drifts over a Period of hours.
- Repaired X36-1

12-5-87 R.S.B.
- Continued Re
- Continued Re

12-7-87 R.S.B
- Sign Painter
- Removed weir Free wd Lid Drive End Lid
- Reassembled Section
- Started Putting
- Ground off Sh To the buck

12-8-87 R.S.B.
- DOP Lab Ho
- Supported L
- Unbolted Lid Pull.
- Recieved L X36 After and Sump. H Lockout and To use. Un Are done
- Had to install To Start A-X WAS Removed WAS Listed To As if There wa
- Sampled Tk out ~~Per~~.
- Restarted C

12-9-87 R.S.B
- Finished weld QC-OK.
- Shipped 3 Pow
- Package 30
- Completed C5
- Pulled M-Cale out chunks

12-5-87 • Continued Restart Check List
R.S.B. • Continued Repair Of X36-3

12-7-87 • Sign Painter installed Heat Trace Signs
R.S.B • Removed weir From M-Calciner And Moved Free end Lid To 0' Level. Ready to Removed Drive End Lid.
• Reassembled P-C-6 and OTP This Section
• Started Putting P-X-36-2 Back together.
• Ground off Sharp edge on Stain Plateform To the Lucky Pot Room.

12-8-87 • DOP Lab Hood Filters
R.S.B. • Supported LAN Repairs
• Unbolted Lid For M-Calciner Ready to Pull.
• Recieved Load of KOH into Tank X36 After Pumping H_2O to X37 And Sump. Had to install Jumper X36 → X37. Lockout and Isolated X36. Not Ready To Use until Metering Pumps And OTP Are done
• Had to install Bypass At MCC For A-X37 To Start A-X37 AT MCC. Start/Stop Button WAS Removed During upgrade and never WAS Listed To Reinstall. MCC WAS Wired As if There was a Start/Stop Button.
• Sampled Tk-X37 And Start Batching out ~~Per~~.
• Restarted C2. will Run ALL nite.

12-9-87 • Finished welding on X28-2 Waiting For
R.S.B. QC-OK.
• Shipped 3 Powder Samples to Redox
• Package 30 C5 Samples Taken During OTP.
• Completed C5 → Truck Spot Tie-in.
• Pulled M-Calciner Lid And Continued Pulling out Chunks

12-17-87 8 hr PDA ~~PD~~ 40-550-001
Use Revised Data Sheet.
R. L. Baugh Sam Wilkett

-1-87
ont.)

12-17-87 8 hr PDA. 40-550-001 PDA 40-00154-S.
Delete caution statement page 9 of PDA.
R. L. Baugh J E Asmussen

2-2-
R.S.

2-8-8

2-3-
R.L.

12-4
K.P.

Westinghouse
Hanford Company

Internal
Memo

From: UO_3 Plant Operations 12123-89-002 Rev.1
Phone: 3-3423 MO-107/200W, T7-20
Date: January 4, 1989
Subject: **CHARACTERIZATION OF PROCESS CONDENSATE TO 216-U-12 CRIB**

To: D. W. Medley H4-50

cc: LLL Adams T7-20
JE Cottrell Dec T7-20
GEM LB/file

The 216-U-12 crib received process condensate waste from the UO_3 Plant from 1978 until January 31, 1988, when the U-12 crib was isolated. The process condensate was a result of the boiling off of radioactive solutions, and as such was considered to be a contaminated stream.

During the first part of 1987, the operation of the process was modified to assure that the pH of the process condensate going to the U-12 crib was greater than 2.0. Samples of the process condensate were collected and analyzed for determination of what was being sent to the crib. The process condensate was sampled as it was being sent to the crib. The samples were collected over a period of one week. Environmental and process samples were taken every Friday from the collected process condensate samples. The sample point designated as C-5 was the process sample taken and analyzed within two to three days. The analysis results for C-5 process sample are attached. It can be seen that after January 1987, the pH of the process condensate sent to the crib was always above 2.0.

The process condensate that was sent to the 216-U-12 crib after July 27, 1987 was not corrosive and should not be considered Radioactive Mixed Waste.

G. E. Millward, Staff Engineer
UO_3 Plant Operations

gem

Att:

4/1/87 Rev. 0

(All — areas are spaced for elite type, i.e., 12 characters/inch).

2.6-1-12 CR.5 9/..87 REV. 0.

FORM 3

DANGEROUS WASTE PERMIT APPLICATION

I. EPA/STATE I.D. NUMBER 6

W A 7 8 9 0 0 0 8 9 6 7

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (mo., day, & yr.)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA/STATE I.D. Number, or if this is a revised application, enter your facility's EPA/STATE I.D. Number in Section I above.

A. FIRST APPLICATION (*place an "X" below and provide the appropriate date*)

☐ 1. EXISTING FACILITY (*See instructions for definition of "existing" facility. Complete item below.*)

MO.	DAY	YR.
0 4		6 0

FOR EXISTING FACILITIES, PROVIDE THE DATE (*mo., day, & yr.*) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED (*see the dates in the left*)

☐ 2. NEW FACILITY (*Complete item below.*)

MO.	DAY	YR.

FOR NEW FACILITIES, PROVIDE THE DATE (*mo., day, & yr.*) OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION (*place an "X" below and complete Section I above*)

☒ 1. FACILITY HAS AN INTERIM STATUS PERMIT

☐ 2. FACILITY HAS A FINAL PERMIT

III. PROCESSES — CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process (*including its design capacity*) in the space provided on the (*Section III-C*).

B. PROCESS DESIGN CAPACITY — For each code entered in column A enter the capacity of the process.
1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER (barrel, drum, etc.)	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D80	GALLONS OR LITERS
LANDFILL	D81	ACRE-FEET (*the volume that would cover one acre to a depth of one foot*) OR HECTARE-METER
LAND APPLICATION	D82	ACRES OR HECTARES
OCEAN DISPOSAL	D83	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D84	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER (Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Section III-C.)	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
LITERS	L
CUBIC YARDS	Y
CUBIC METERS	C
GALLONS PER DAY	U

UNIT OF MEASURE	UNIT OF MEASURE CODE
LITERS PER DAY	V
TONS PER HOUR	D
METRIC TONS PER HOUR	W
GALLONS PER HOUR	E
LITERS PER HOUR	H

UNIT OF MEASURE	UNIT OF MEASURE CODE
ACRE-FEET	A
HECTARE-METER	F
ACRES	B
HECTARES	Q

EXAMPLE FOR COMPLETING SECTION III (*shown in line numbers X-1 and X-2 below*): *A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.*

LINE NUMBER	A. PROCESS CODE (*from list above*)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (*specify*)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (*enter code*)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G	
X-2	T 0 3	20	E	
1	D 8 5	50,000	U	
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONTINUE ON REVERSE

III. PROCESSES (continued)

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESS (code "T04"). FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

D85

The 216-U-12 Crib was historically used to dispose of UO_3 Plant corrosive process condensate waste. The 216-U-12 Crib is a percolation unit which was designed to receive the radioactive mixed wastes from UO_3 Plant for approximately five minutes every hour 100 gallons per minute and to dispose of those wastes by percolation into the soil column.

When UO_3 Plant is not operating, the process condensate is not a dangerous waste. The plant ha not operated since September, 1986, and will not operate again until a neutralization unit currently under construction is completed (by the end of 1987). At that time, discharges of radioactive mixed wastes to the 216-U-12 Crib will be discontinued, and the non-hazardous radioactibe wastes will be discharged to a new crib, 216-U-17. At that time, the 216-U-12 Crib will be closed under interim status.

IV. DESCRIPTION OF DANGEROUS WASTES

A. **DANGEROUS WASTE NUMBER** — Enter the four digit number from Chapter 173-303 WAC for each listed dangerous waste you will handle. If you handle dangerous wastes which are not listed in Chapter 173-303 WAC, enter the four digit number(s) that describes the characteristics and/or the toxic contaminants of those dangerous wastes.

B. **ESTIMATED ANNUAL QUANTITY** — For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non—listed waste(s) that will be handled which possess that characteristic or contaminant.

C. **UNIT OF MEASURE** — For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. **PROCESSES**

1. PROCESS CODES:

For listed dangerous waste: For each listed dangerous waste entered in column A select the code(s) from the list of process codes contained in Section III to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non—listed dangerous wastes: For each characteristic or toxic contaminant entered in Column A, select the code(s) from the list of process codes contained in Section III to indicate all the processes that will be used to store, treat, and/or dispose of all the non—listed dangerous wastes that possess that characteristic or toxic contaminant.

Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: DANGEROUS WASTES DESCRIBED BY MORE THAN ONE DANGEROUS WASTE NUMBER — Dangerous wastes that can be described by more than one Waste Number shall be described on the form as follows:

1. Select one of the Dangerous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other Dangerous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other Dangerous Waste Number that can be used to describe the dangerous waste.

EXAMPLE FOR COMPLETING SECTION IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* — A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non—listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
X-1	K054	900	P	T03 D80	
X-2	D002	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002			T03 D80	included with above

Continued from page 2.

216-U-12 CRIB

9/1/87 REV. 0.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I.D. NUMBER (enter from page 1)

WA789000886 7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)				2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1	D002	4,454,000	P	D85				Percolation
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								

CONTINUE ON REVERSE

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM SECTION D(1) ON PAGE 3.

The 216-U-12 Crib was historically used to dispose of corrosive UO_3 Plant process condensate waste. This waste consisted of process condensate off-gases from the production of UO_3 wder from Uranium Nitrate Hexahydrate (UNH) solutions. When the plant was operating, the of these wastes ranges from 0.5 to 1.5 standard units.

The plant is not currently operating. When the plant is not operating, the pH of the process condensate wastes ranges from 2.1 to 4.0 standard units. At current processing rates, 1,700,000 gallons per year of process condensate are disposed of in the 216-U-12 Crib.

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail)*.

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail)*.

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
46 32 027	119 37 015

VIII. FACILITY OWNER

[X] A. If the facility owner is also the facility operator as listed in Section VII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

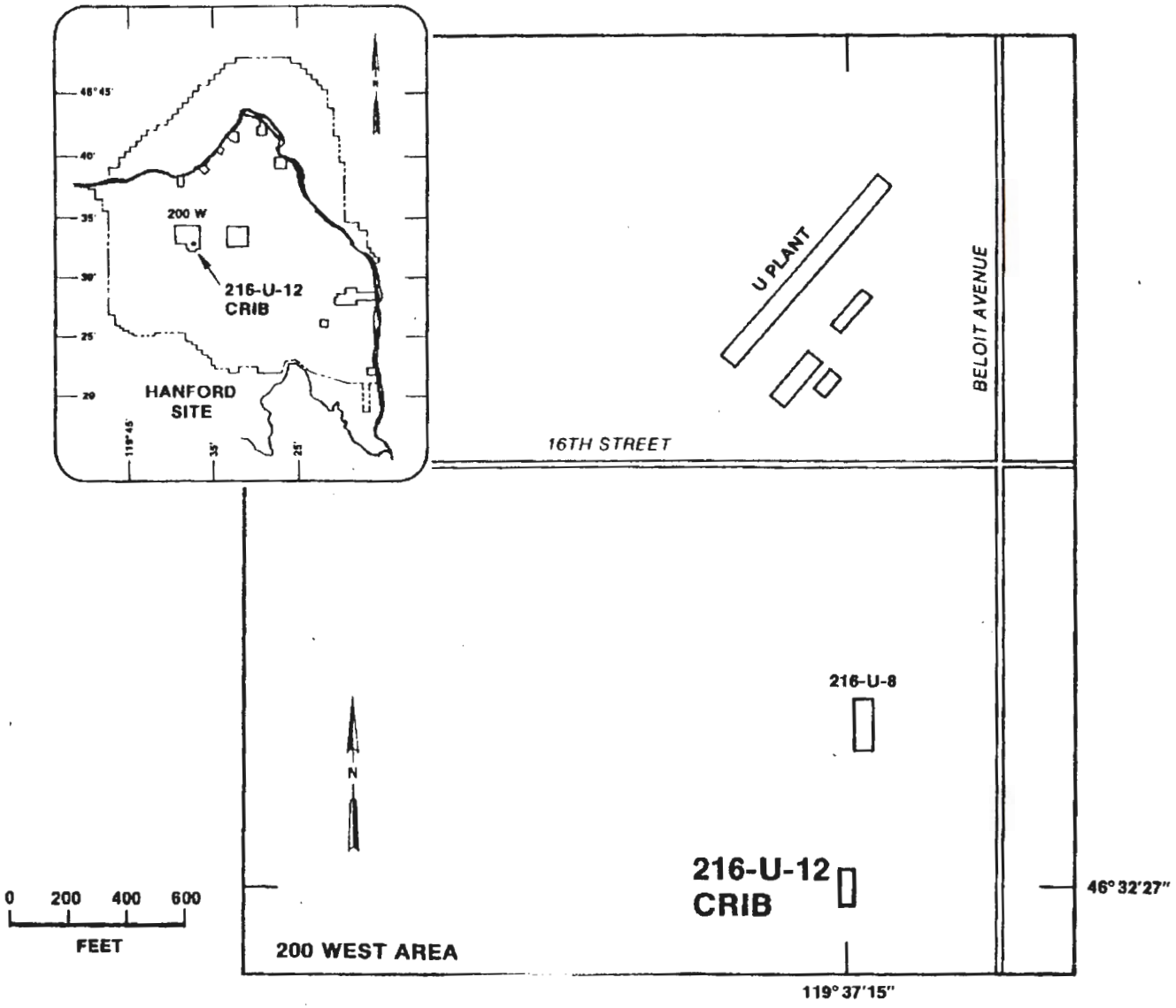
NAME *(print or type)*	SIGNATURE	DATE SIGNED
JJ Keating, Assistant Manager Safety, Environment and Security		

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NAME *(print or type)*	SIGNATURE	DATE SIGNED

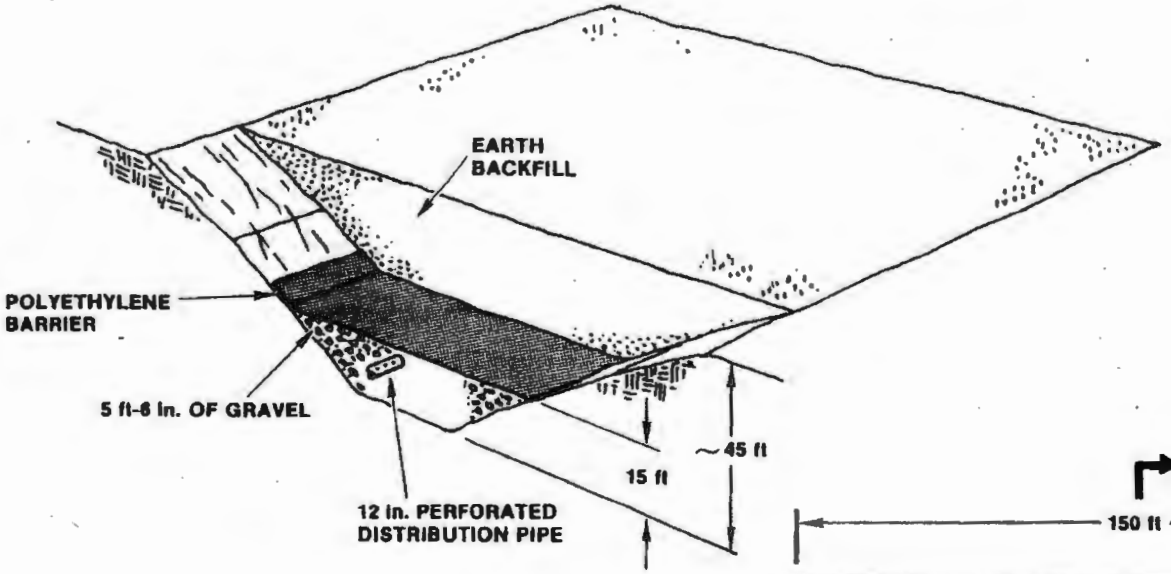
216-U-12 CRIB
SITE PLAN



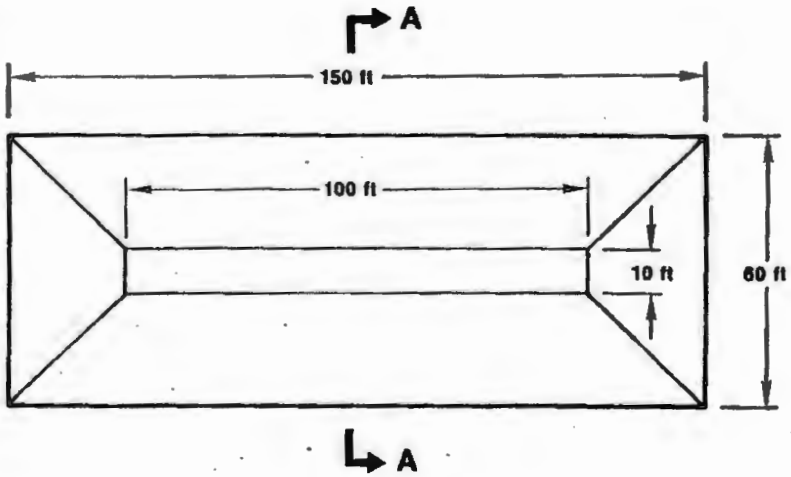
2B8707-13.81

WA7890008967

216-U-12 CRIB



SECTION A-A



PLAN

2B8707-13.80

WA7890008967

PROCEDURE HISTORY DATA SHEET

Procedure Type/Number PUP / UO-080-006

Title UO_3 ENVIRONMENTAL SAMPLING

Issue Date

DATE	REV/MOD	INITIATING DOCUMENT				DEVELOPMENT MATERIAL			ACCEPTANCE DOCUMENTS			RESPONSIBLE TASK ANALYST
		Verbal Request *	DSI	PDA	UCR	Rough Draft	Specialist Comments	Safety Evaluation	Preliminary Review Form	Document Acceptance Review Form (DARF)	Copy of Master	
6/25/84	A-0	✓				✓	✓	✓	✓	✓	Y	BRADLEY
8/10/84	A-1			X						X	X	JOHNSON
9/25/84	A-2				X					X	X	JOHNSON
6/5/87	B-0			133		✓			✓	✓		MT / LJJ
5/4/88												
5/4/88	B-2			✓		✓		✓				[illegible]
2-2-89	~~BR~~ / B-3			✓		✓	✓	✓		✓		PRR
4-20-89	B-4			✓		✓	✓	✓		✓		[illegible]
1/24/90	B-5			✓		✓	✓	✓		✓		newbill
10/4/91	B-6				✓	✓		✓		✓		newbill
12/20/91	B-7			✓		✓		✓		✓		newbill
1/22/92	B-8			✓				✓		✓		newbill
3/27/92	B-9			✓	✓		✓	✓		✓		newbill
4/30/92	B-10			✓				✓		✓		newbill
9/28/92	B-11			✓	✓	✓		✓		✓		newbill
2-3-92	B-12				✓		✓	✓		✓		newbill

*With requestors name

FIGURE: 1

Rockwell Hanford Operations	DOCUMENT ACCEPTANCE REVIEW FORM

DOCUMENT:

Type: POP
No.: UO-080-006
Rev./Mod.: B-0
Title: Sample UO_3 Liquid Effluent

Prepared by:
Name: MM Tardiff
Title/Organization: Task Analyst / Proc Eng

☒ New or Revised Document - Full Review Required

☐ Modification - Changed Pages _____

☒ Full Review Required

☐ Review Limited To Change Pages/No Preliminary Review Required

☐ Administrative Change –
☐ PDA – Approved Changes Only –
} No Review and Approval required except for the approval authority's

PDAs AND DCRs

Incorporated	Not Incorporated
PDA UO-00133	CANCEL 1 2 REISSUE 1 2

Work Station Copy Distribution:
1A, 2A, 3A, 5A, 20A

Changes to Information Copy Distribution:

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☑	☐	☐	F. J. Johnson	ENGINEER / PPE	5/14/87
☐	☑	☐	MK Frankman	RAD ENG / Purex Health Physics	5/18/87
☑	☐	☐	CA Colupini (RHO 11)	Sr. Eng. / Op. Qual. Eng.	5/19/87
☐	☑	☐	L. E. Cottrell	Shift Mgr / UO3 Operations	5/30/87
☐	☐	☐			
☐	☐	☐			
☐	☐	☐			

ACCEPTANCE REVIEW CHAIRMAN

MM Tardiff (Signature) — Task Analyst / Proc Eng (Title/Org) — _____ (Date)

APPROVED FOR RELEASE:
☐ All objections resolved
☐ Unresolved issue exists

APPROVAL AUTHORITY

Ra Van Metre (Signature) — PUREX Services + UO_3 Op Mgr (Title/Org) — 6/9/87 (Date)

OPERATING DOCUMENT CHANGES REQUIRED BY ART

pg. 3 STEP 9 please add —
Deliver sample Bottle to AWP Lobby in 224-U
for RPT survey.

pg. 4 STEP 9 AS ABOVE

Comments pgs. 1, 3, 4 fac

OBJECTIONS TO DOCUMENT - AS IS OR WITH CHANGES ABOVE INCORPORATED:

SAMPLE UO_3 LIQUID EFFLUENT

I. SYSTEM DESCRIPTION

This procedure gives instructions for liquid effluent sampling required by FSS-U-080-00001, URANIUM OXIDE PLANT SAMPLE SCHEDULE, Appendix II.

Sampling of liquid effluent streams is required during operation of the plant and during standby. Weekly composite samples are taken.

Sample tags are filled out and attached to each sample bottle or jar. Sample tag shall include the following:

- Serial number from shift manager's log
- Sample source
- Date
- Time.

Sampling of gaseous effluent streams is performed by the Radiological Protection Technologist (RPT).

II. PRESTART CONDITION

None

III. SAFETY

Warning - Wear eye protection and rubber gloves during sampling. Solutions encountered during execution of this procedure are expected to be composed primarily of water. Effluent streams are potentially contaminated (UNH) and may be slightly acidic (nitric or sulfuric).

Caution - When taking 207-U samples, take care not to damage the level probes when removing sample cap from sample jug.

After taking 207-U samples, do not empty contents into flume. This may wet the ultrasonic level detector in the flume.

III. SAFETY (Cont.)

Applicable Safety Documents - Provisions of Standard Requirements and Procedures, RHO-GM-MA-2, Section 61-02.5 (GEN-0), Radiation Work Permits U-2 and U-3, 224-U General Plant Safety Rules, Master Safety Rules, and RHO-MA-221 apply to all work performed under this procedure. Refer to Material Safety Data Sheets #80 or #1384 for information about nitric acid and #84 or #1529 for information about sulfuric acid.

IV. TOOLS AND SUPPLIES

4-Oz Sample Bottles (2)
1-L Sample Bottles (8)
Sample Tags
Plastic Bags
Dip Sample Holder
Funnel
Eye Protection
Rubber Gloves
UO-080-001, UO_3 PROCESS SAMPLING
UO-080-002, PACK AND SHIP SAMPLES
UO-080-003, DIP SAMPLING

V. TASK/ACTIVITY INDEX

	PAGE
A. TAKE U-12 ENVIRONMENTAL SAMPLE	3
B. TAKE 207-U EFFLUENT SAMPLE	4
C. DIP-SAMPLE 207-U EFFLUENT	6
U-12 SAMPLE DATA SHEET	7
207-U SAMPLE DATA SHEET	8
FIGURE 1 - S-5000 SAMPLER CONTROLS	9
FIGURE 2 - SAMPLE APPARATUS	9
FIGURE 3 - UTL/UTF/UTC-2102M ULTRASONIC SYSTEM WITH RECORDER	10

VI. PROCEDURE

A. TAKE U-12 ENVIRONMENTAL SAMPLE

WARNING

WEAR EYE PROTECTION AND RUBBER GLOVES DURING SAMPLING.

NOTE - Tank C-5 has an automatic batch sampler used to take a weekly composite sample for environmental reporting of the effluents going to the U-12 crib (216-U-12). If requested by supervision, a daily 4-oz sample may also be taken per UO-080-001.

- If C-5 sampler is working, sample does not need to be taken.

- If C-5 sampler is not working properly, and if requested by supervision, a dip sample may be taken from Tank C-5 per UO-080-003.

1. Remove stainless tubing from C-5 polyethylene sample jug.

2. Cap C-5 sample jug and agitate contents of sample jug.

NOTE - There may not be sufficient volume to fill all sample bottles. Fill one 4-oz bottle and as many 1-L bottles as possible, up to 4.

3. Fill one 4-oz sample bottle and four 1-L sample bottles approximately 3/4 full using a funnel to prevent spillage.

4. Cap sample bottle.

5. Empty the C-5 sample jug into Tank C-7, by pouring down nearby drain

6. Place sample jug in its original location.

7. Place free end of stainless tubing in sample jug.

8. Wipe sample bottle with rag.

9. Deliver sample bottle to SWP lobby in 224-U. for RPT survey

10. Fill out and attach sample tag to sample bottle.

A. TAKE U-12 ENVIRONMENTAL SAMPLE (Cont.)

11. Record DATE, TIME, and SAMPLE NUMBER on U-12 SAMPLE DATA SHEET.

12. Record flow totalizer numbers located behind south panel board in Operating Gallery on DATA SHEET.

13. Pack sample bottles for shipment per UO-080-002.

14. Sign DATA SHEET and give to supervision.

B. TAKE 207-U EFFLUENT SAMPLE

WARNING

WEAR EYE PROTECTION AND RUBBER GLOVES DURING SAMPLING.

NOTE - If proportional sampler at 207-U is not working, perform Task C. If it is working, perform Task B.

1. When measuring chamber (Figure 2) is empty, turn function switch to OFF position (Figure 1).

CAUTION

Take care not to damage the level probes when removing sample cap from sample jug.

---

2. Remove sample cap from 5-gal sample jug. See Figure 2.

3. Remove the sample jug from the sampler. Place cap on jug and agitate sample jug.

4. Fill one 4-oz and four 1-L sample bottles about 3/4 full using a funnel to prevent spillage.

5. Cap sample bottles.

6. Wipe sample bottles with rag.

7. Fill out and attach sample tag to each sample bottle.

B. TAKE 207-U EFFLUENT SAMPLE (Cont.)

CAUTION

Do not empty contents into flume. This may wet the ultrasonic level detector in the flume.

8. Empty remaining contents of 5-gal jug into 207-U basin.

9. Place 5-gal jug in its original location.

10. Replace sampler cap on the sampler jug.

NOTE - Supervision or Process Engineering will determine if the sample rate needs to be changed. Instrument technician will adjust sample rate.

11. Set the function switch to FLOW. See Figure 1.

12. Record DATE, TIME, and SAMPLE NUMBER on 207-U SAMPLE DATA SHEET.

13. Record % FLOW and TOTAL FLOW from ultrasonic system (see Figure 3) on the DATA SHEET. If flow totalizer is not working, notify supervision.

14. Sign DATA SHEET and give to supervision.

15. Deliver sample bottle to SWP lobby in 224-U. for RPT survey

16. Pack samples for shipment per UO-080-002.

C. DIP-SAMPLE 207-U EFFLUENT

WARNING

WEAR EYE PROTECTION AND RUBBER GLOVES DURING SAMPLING.

1. Attach a 1-L sample bottle to dip bottle holder.

2. Take a sample by dipping bottle into basin near inlet pipe.

3. Remove bottle from holder and cap bottle.

4. Wipe sample bottle with rag.

C. DIP-SAMPLE 207-U EFFLUENT (Cont.)

5. Fill out and attach sample tag to each sample bottle.

6. Record DATE, TIME and SAMPLE NUMBER on 207-U SAMPLE DATA SHEET.

7. Repeat Steps 1-6 until one 4-oz and four 1-L samples have been obtained.

8. Record % FLOW and TOTAL FLOW from ultrasonic system on DATA SHEET.

9. Deliver sample bottles to SWP lobby in 224-U. for RPT survey.

10. Pack samples for shipment per UO-080-002.

11. Sign DATA SHEET and give to supervision.

U-12 SAMPLE DATA SHEET

DATE	TIME	FLOW TOTALIZER NO.	SAMPLE NUMBER	OPERATOR SIGNATURE

OPERATIONS MANAGER: _____ DATE: _____

207-U SAMPLE DATA SHEET

DATE	TIME	% FLOW RATE	TOTAL FLOW	SAMPLE NUMBER	OPERATOR SIGNATURE

OPERATIONS MANAGER: _____ DATE: _____

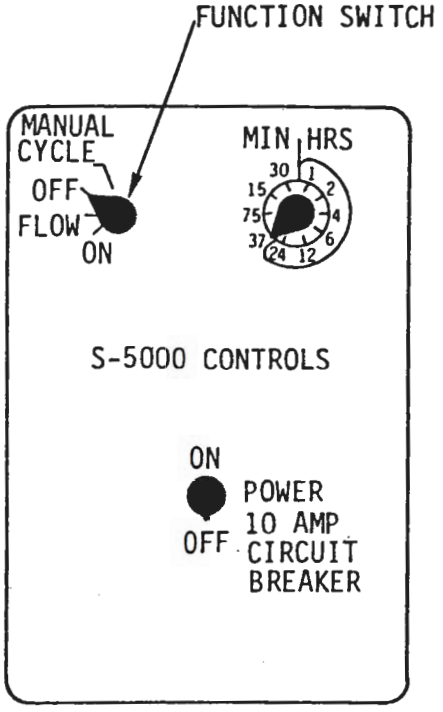


FIGURE 1 - S-5000 SAMPLER CONTROLS

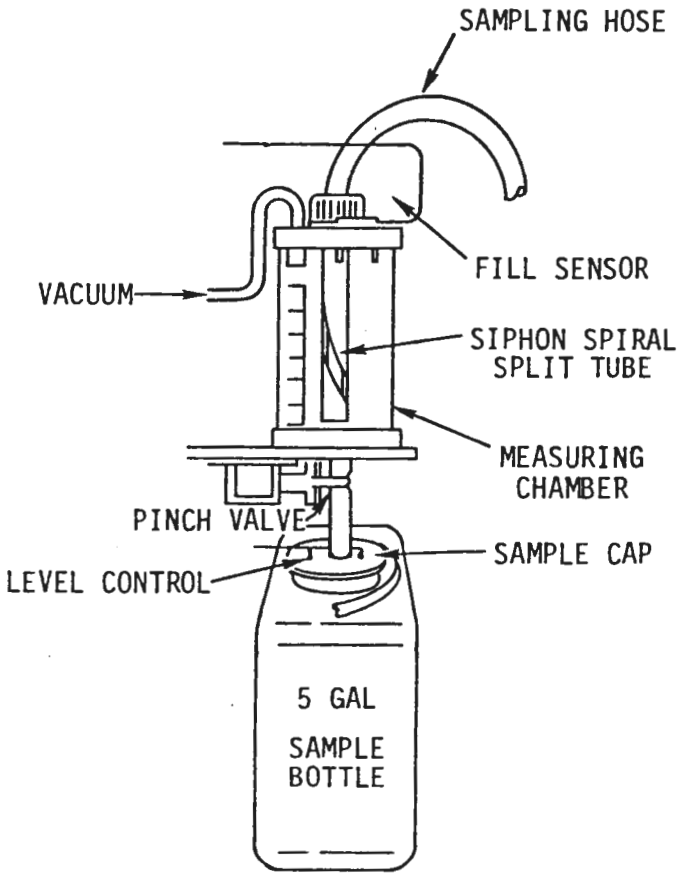
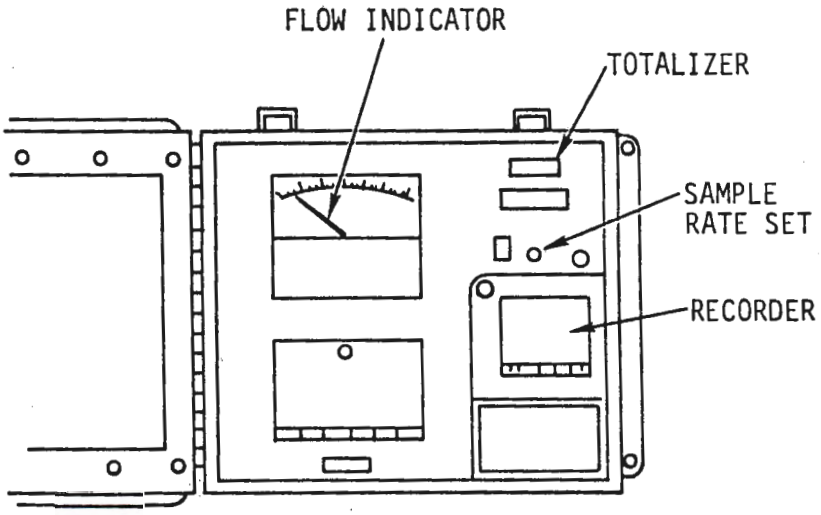


FIGURE 2 - SAMPLE APPARATUS

Ref: UO-5027



Ref: U0-3002

FIGURE 3 - UTL/UTF/UTC-2102A ULTRASONIC SYSTEM WITH RECORDER

Rockwell Hanford Operations	DOCUMENT ACCEPTANCE REVIEW FORM

DOCUMENT:
TEMPORARY WORK PROCEDURE (Type) U0-WP-0002 (No.) A-0 (Rev./Mod.)
NEUTRALIZE TK-C5 PROCESS CONDENSATE AT 224-U (Title)

Prepared by: J.H.E. RASMUSSEN (Name)
ENGINEER - U-T-S PROC. ENG. (Title/Organization)

☒ New or Revised Document - Full Review Required

☐ Modification - Changed Pages _____

☐ Full Review Required

☐ Review Limited To Change Pages/No Preliminary Review Required

☐ Administrative Change –
☐ PDA – Approved Changes Only –
} No Review and Approval required except for the approval authority's

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	CANCEL
	1
	2
	REISSUE
	1
	2

Work Station Copy Distribution:

Changes to Information Copy Distribution:

ADVICE AND SERVICE MEMBER SIGNATURES:

DOCUMENT IS: ACCEPTABLE AS IS	ACCEPTABLE With Changes Noted	NOT ACCEPTABLE Objections on Reverse or Attached	(Signature)	(Title/Org)	(Date)
☐	☒	☐	CA Colvin	Sr. Qual Eng. PUREX QE+C	5/28/86
☐	☒	☐	MK Arankman	RAD Eng. / Purex Health Physics	5-30-86
☐	☒	☐	[illegible]	Proc. Eng / 2-U-T-S	6/3/86
☐	☐	☐			
☐	☐	☐			
☐	☐	☐			
☐	☐	☐			

ACCEPTANCE REVIEW CHAIRMAN

(Signature) _____ (Title/Org) _____ (Date) _____

APPROVED FOR RELEASE:
☐ All objections resolved
☐ Unresolved issue exists

APPROVAL AUTHORITY

J. E. Cathrell (Signature) — U03 Operations Mgr. (Title/Org) — 6/9/86 (Date)

A-6400-101 (8-85)

Rockwell Hanford Operations	OPERATING DOCUMENTS PRELIMINARY REVIEW FORM		
Title: Neutralize TK-C5 Process Condensate at 224-U	Document Type: Temporary Work Procedure	Number: U0-WP-0002	Rev/Mod: A-0
Prepared By: (Name) J.H.E. Rasmussen	Title/Org.: Engineer / U-T-5 Process Eng	Date Submitted: 6-2-86	

	COMMENTS	DISPOSITION
PEER REVIEW (Continue On Second Sheet If Necessary)	Performed By: [signature] (Name) Proc. Engr. (Title) 6/3/86 (Date)	
USER TEST (Continue On Second Sheet If Necessary)	Performed By: T. E. [signature] (Name) NPO (Title) 6-3-86 (Date) Observed By: [signature] (Name) Engr (Title) 6-3-86 (Date)	

A-6400-184 (N-5-9)

WORK PROCEDURE

NEUTRALIZE TK-C5 PROCESS CONDENSATE AT 224-U

I. GENERAL DESCRIPTION

This work procedure provides instructions for the neutralization of acidic process condensate in building 224-U prior to being pumped to the 216-U-12 crib. A temporary system, shown in Figure 1, has been installed at 224-U to neutralize the process condensate in TK-C5 with sodium hydroxide (NaOH). Details of the temporary modifications to TK-C5 and associated equipment are shown on Engineering Orders 35054, 20957, and 35741. In addition to neutralizing TK-C5 contents as required, this operation will generate design data for a permanent, automated, less labor intensive condensate neutralization system.

Caustic (50 wt. % NaOH) is received in drums and is transferred to the TK-C8 holding tank in the C cell sampler room on the second floor of 224-U. The P-C8 metering pump injects caustic from the holding tank into a recirculation loop on TK-C5, where it is mixed with and neutralizes the condensate in TK-C5.

A pH meter displays the pH of the recirculating mixture in TK-C5. The operator manually adjusts the metering pump to keep the pH of the TK-C5 contents between 2 and 12.5. Plant Maintennance will check the pH probe daily, as fouling or drifting of the electrode could occur.

For environmental reporting purposes, the composite samples of TK-C5 will continue to be be obtained. The small catch tank which normally supplies reflux water to TA-3 will not be affected by the temporary neutralization system. If the catch tank runs dry, fresh water must be used to provide the reflux flow. The neutralized condensate in TK-C5, which may contain significant amounts of sodium, must NOT be pumped to TA-3.

II. PREPLANNING/COORDINATION

This test can be performed at any time after the temporary neutralization system has been installed. The operation of the caustic handling, metering, and pH measurement equipment will be performed by Production Operations. The pH meter will be serviced on a daily basis by Production Support. Process Engineering will monitor the neutralization system operation and review and evaluate the data sheets.

III. SAFETY

Warning - Sodium hydroxide (caustic) is very corrosive to tissue and can cause severe burns of the eyes and skin.

If caustic contacts skin,immediately wash with soap and large amounts of water. If caustic contacts eyes, immediately flush

with large amounts of water for at least 15 minutes. Notify supervision and RPT.

A full acid suit, including rubber gloves, boots, and face shield, must be worn whenever transferring caustic to or from drums. Spilled caustic may present a slipping hazard.

Applicable Safety Documents - Provisions of General Regulations and Practices for Radiation Zone Work (GEN-0) and Radiation Work Permit U-2 apply to all work performed under this procedure. Observe RHO-MA-221 V.2., Chemical Safety Guide #11 for all work with sodium hydroxide (caustic).

Every effort should be made to correct any caustic leaks as they occur. Caustic in the C Cell sump/ TK-C7/ TK-C2/ TK-X38 system may cause difficulties reworking the UNH waste at PUREX. Part F of this procedure describes the response to a caustic spill.

IV. TOOLS, EQUIPMENT, AND SUPPLIES

A. Full acid suit, including rubber gloves, boots, and face shield.

B. Drums of 50 wt. % NaOH (any grade).

C. Drum pump and flex hose.

D. pH buffer (pH 4 and 7) and distilled water rinse solutions.

E. Beaker(s) and/or styrofoam cups to contain pH buffer and rinse solutions.

V. PROCEDURE

A. SERVICE pH METER.

NOTE: This step must be performed at least once per day while neutralization system is operating.

1. Request craftsman to remove pH electrode from TK-C5.

2. Request craftsman to rinse pH electrode with distilled water.

3. Request craftsman to inspect electrode, and clean or tighten fittings as necessary. Record observations on DATA SHEET.

4. Request craftsman to insert pH electrode in pH 4 buffer, and record buffer traceability data and "As-Found" reading on DATA SHEET.

5. Request craftsman to rinse pH electrode in distilled water.

6. Request craftsman to insert pH electrode in pH 7 buffer, and record buffer traceability data and "As- Found" reading on DATA SHEET.

7. Request craftsman to rinse pH electrode with distilled water.

8. Request craftsman to insert pH electrode in pH 7 buffer, and adjust STANDARDIZE control until meter reads 7±.1 pH.

9. Request craftsman to rinse pH electrode in distilled water.

10. Request craftsman to insert pH electrode in pH 4 buffer, and adjust EFFICIENCY control until pH meter reads 4 ± .1 pH.

11. Repeat steps D.7 - D.10. until the pH meter reads pH of 4 ± .1 in pH 4 buffer and pH of 7 ± .1 in pH 7 buffer without further adjustment. Record final "As Left" pH readings of buffer solutions on DATA SHEET.

12. Request craftsman to reinstall pH probe in TK-C5.

B. START UP NEUTRALIZATION SYSTEM.

1. Transfer drum(s) of caustic from loading dock to area adjacent to C cell sample room.

WARNING

WEAR FULL ACID SUIT, INCLUDING RUBBER GLOVES, BOOTS, AND FACE SHIELD, WHEN TRANSFERRING CAUSTIC FROM DRUM TO HOLDING TANK TK-C8. Caustic is very corrosive to skin, eyes, and tissue.

CAUTION

The caustic holding tank TK-C8 capacity is only 150 gallons. Do not overfill.

---

2. Using drum pump and flex line, pump caustic to holding tank until it contains 100 - 125 gallons, as measured by scale on side of tank.

3. Close valve MV-C8-3 between metering pump and TK-C5.

4. Open the following neutralization system valves:

   a. Caustic holding tank outlet MV-C8-1

   b. Metering pump outlet MV-C8-2

   c. Metering pump to TK-C8 MV-C8-4

5. Start TK-C5 recirculation mixing pump P-C5-4 using pushbutton SW-P-C5-4.

6. Turn on metering pump by plugging metering pump power cord into electrical receptacle.

7. Adjust metering pump as directed by Process Engineer.

8. Route caustic flow to TK-C5 by **first** opening MV-C8-3 and **then** closing MV-C8-4.

C. PERFORM SURVEILLANCE AND MAKE ROUTINE ADJUSTMENTS.

NOTE: Begin performing surveillance as soon as neutralization system is started up, and at 20- minute intervals thereafter, until metering pump is turned off. Also perform surveillance every time that caustic is transferred to TK-C8 and whenever the metering pump is adjusted.

1. Record date, time, and TK-C5 pH on DATA SHEET.

2. Adjust metering pump as directed by Process Engineer to bring TK-C5 pH into 3- 11 range. Record metering pump setting on DATA SHEET.

3. Record TK-C8 volume,as measured by scale on side of tank, on DATA SHEET in "Before Adding" blank. If TK-C8 volume is below 50 gallons, use drum pump and hose to add caustic from drum until TK-C8 volume is 100- 125 gallons. Record final TK-C8 volume on DATA SHEET in "After Adding" blank.

4. Observe caustic piping and tubing for leaks. Record observations on DATA SHEET and initial. Promptly notify management of any caustic leaks, and proceed immediately to part F of this procedure if a caustic spill occurs.

5. Repeat steps 1-4 every twenty minutes or as requested by management.

D. SHUT DOWN NEUTRALIZATION SYSTEM.

1. Divert caustic flow from TK-C5 by **first** opening MV-C8-4 **and then** closing MV-C8-3.

2. Shut down metering pump by unplugging power cord from receptacle.

3. Shut down recirculation/mixing pump P-C5-4.

4. Request management to approve completed data sheet(s) and give to Process Engineer. Request Process Engineer to sign data sheet(s), signifying receipt.

NOTE: Perform the following steps only when requested by management. Draining the caustic lines may be necessary for maintennance, preventing freezups at the onset of winter, etc.

E. DRAIN CAUSTIC LINES

1. Request fitter to remove cap from MV-C8-6 in C Cell and install flex hose from MV-C8-6 to spare flange on TK-C5.

2. Close valve MV-C8-1.

3. Open valves MV-C8-2, MV-C8-3, MV-C8-4, and MV-C8-6.

4. Allow caustic lines to drain for 15 minutes.

5. Close MV-C8-6.

6. Request fitter to remove flex hose from MV-C8-6, and to replace cap on MV-C8-6 and flange on TK-C5 which had been removed.

F. RESPOND TO CAUSTIC LEAK AT 224-U

1. Immediately notify management and shut down neutralization system per part D of this procedure unless leak is very minor and management directs otherwise. Immediately take steps to isolate source of caustic spill as directed by management.

WARNING

WEAR FULL ACID SUIT, INCLUDING RUBBER GLOVES, BOOTS, AND FACE SHIELD, WHEN HANDLING SPILLED CAUSTIC. Caustic is very corrosive to skin, eyes, and tissue.

NOTE: The response to a caustic leak depends on the location and extent of the spill. Refer to the step(s), below, which deal(s) with the situation at hand.

NOTE: A caustic spill in C cell is not only a personnell hazard. Excessive amounts of caustic reaching the UNH recycle system could cause difficulties when reworking the UNH at PUREX.

2. Respond to caustic spill in C Cell:

   a. Flush the spilled caustic to the C Cell sump with large amounts of water.

NOTE: The stainless steel enclosure beneath TK-C8 can safely contain several gallons of caustic. Unless the caustic is radioactively contaminated, it can be safely used in the neutralization process.

3. Respond to caustic spill in stainless steel enclosure beneath TK-C8:

   a. If the leak is large (a gallon or more), pump the caustic to TK-C8 using drum pump and flex hose. Rinse enclosure with water and pump this to TK-C8, as well.

   b. If the leak is small (less than a gallon), carefully mop up with water. Dump bucket containing mopped-up water into TK-C8.

NOTE: Caustic spilled in the C cell sampler room is prevented from draining to the chem sewer by a low concrete dam.

4. Respond to caustic spill in C Cell sampler room:

   a. If the leak is large (an inch deep or more), pump the caustic to TK-C8 using drum pump and flex hose. Rinse enclosure with water and pump this to TK-C8, as well.

   b. If the leak is small (less than an inch deep), carefully mop up with water. Dump bucket containing mopped-up water into TK-C8.

NOTE: Caustic spilled adjacent to the C Cell sampler room may drain to the chem sewer. Any spill of caustic to the

chem sewer is a reportable hazardous waste discharge.

5. Respond to caustic spill adjacent to C cell sampler room:

   a. Carefully mop up spilled caustic with water. Dump bucket containing mopped-up caustic into TK-C8.

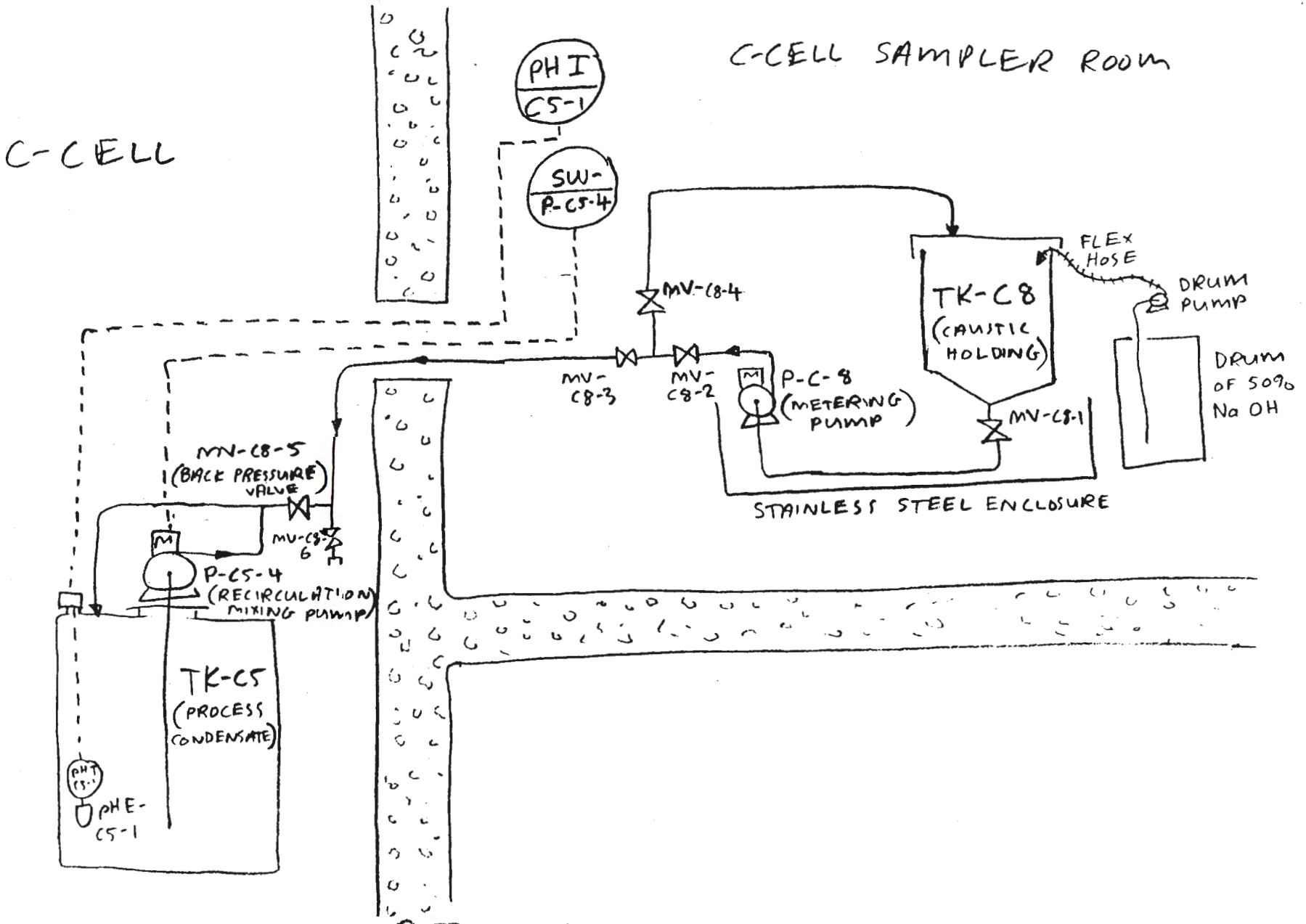

FIGURE 1

TEMPORARY TK-C5 NEUTRALIZATION SYSTEM

DATA SHEET

SERVICE pH METER

Date _____ Time _____ Craftsman _____

Observations _____(Step A.3)

	pH 4 Buffer	pH 7 Buffer
Buffer Traceability	_____(Step A.4)	_____(Step A.6)
As Found Reading	_____(Step A.4)	_____(Step A.6)
As Left Reading	_____(Step A.11)	_____(Step A.11)

PERFORM SURVEILLANCE AND MAKE ROUTINE ADJUSTMENTS

DATE	TIME	TK-C8 VOLUME Before Adding	TK-C8 VOLUME After Adding	TK-C5 pH	P-C8 Setting	OBSERVATIONS	OP.
(Step: C.1	C.1	C.3	C.3	C.1	C.2	C.4	C.4)
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____
____	____	_____	_____	_____	_____	_____	____

Management Approval _____Date_____ Process Engineer_____Date_____ (Step D.4)

EXAMPLE OF SETTINGS CALCULATION

The metering pump transfers 50% NaOH (19.5 M) into the TK-C5 recirculation/mixing loop, where an in-line mixer mixes the caustic with the recirculating solution. The caustic pumping rate is set as a percentage of 10.4 gph. The flow rate into TK-C5 is estimated by dividing the working volume between the upper and lower limit switches (27 to 70 WF, or 411 gal) by the time between pump shutdown and pump restart (on circular chart). The pH of the condensate entering TK-C5 can be measured by grab sample at the catch tank upstream of TK-C5. The pH of the neutralized condensate is displayed on the new TK-C5 pH meter. The condensate in TK-C5 will be neutral (i.e., pH of 7) when the molar caustic flowrate matches the molar acid flowrate in the condensate.

TK-C5 Flowrate: $\frac{\text{(411 gallons) (60 min/hr)}}{\text{time per cycle (pump off)}}$, gph

Caustic Flowrate: (% scale) (10.4 gph) , gph

H^+ Flowrate: (TK-C5 Flowrate) (3.785 l/gal) (10^{-pH}), moles/hr

Caustic Needed: $\frac{\text{(H}^+\text{ Flowrate) (l/19.5 mole) (gal/3.785l)}}{\text{(10.4 gph/100\% of scale)}}$

=(H^+ Flowrate) (.1303) , pump setting, % of scale

Example: TK-C5 cycle interval= 48 minutes, pH=0.77

TK-C5 Flowrate: (411 gal) (60 min/hr) / (48 min) = 514 gph

H^+ Flowrate: (514) (3.785) ($10^{-0.77}$) = 330 moles/hr

Caustic Needed: (330) (.1303) = 43% of scale, pump setting

This calculation is approximate, only. Neither the caustic concentration, the degree of mixing in TK-C5, nor the caustic flowrate are precisely known. The condensate flowrate and pH are subject to variation as the plant operates.

These calculations can be used to trim the caustic flowrate. Use the TK-C5 pH as the starting point, rather than the incoming condensate pH. If the pH of TK-C5 is above 7, use pOH instead of pH.

Rockwell Hanford Operations	DOCUMENT ACCEPTANCE REVIEW FORM

DOCUMENT:

Type: WORK PLAN — No.: UO-WP-0007 — Rev./Mod.: A-0

Title: MEASURE THE PH BUFFER CAPACITY OF TANK C-5 USING PHOSPHORIC ACID AND POTASSIUM HYDROXIDE

Prepared by:

Name: J.H.E. RASMUSSEN

Title/Organization: ENGR / PPE

☒ New or Revised Document - Full Review Required

☐ Modification - Changed Pages _____

☒ Full Review Required

☐ Review Limited To Change Pages/No Preliminary Review Required

☐ Administrative Change – } No Review and Approval required except for the approval authority's

☐ PDA – Approved Changes Only – }

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ACCEPTANCE REVIEW CHAIRMAN

(Signature): J H Rasmussen — (Title/Org): Engineer / PPE — (Date): 4/13/87

APPROVED FOR RELEASE:

☐ All objections resolved

☐ Unresolved issue exists

APPROVAL AUTHORITY

(Signature): R.A. Van Meter telecon — (Title/Org): Manager / Sves. Purex + U03 Opns. — (Date): 4/13/87

A-6400-181 (8-85)

1.GENERAL DESCRIPTION

In order to prevent uranium migration in the new 216-U-17 crib, it may be necessary to maintain the UO_3 process condensate pH between 7 and 8.5. A test will be performed in TK-C5 to determine whether the neutralization system presently being designed per ESR 9440 can comply with these tight requirements with the addition of a phosphate buffer.

ESR 9440 will provide the UO_3 Plant with a batch neutralization system, where condensate is collected in TK-X37, and neutralized batch-wise in TK-C5 prior to discharge to the crib. The system is expected to control the condensate pH between 3 and 11. The minimum controlled caustic addition rate will be 33 ml per minute.

The modification being tested is to add 1 liter of phosphoric acid to TK-C5 each time a batch of condensate is transferred from TK-X37 to TK-C5. The phosphate ions are expected to "buffer" the TK-C5 pH between 6 and 8, so that the desired pH range can be approached in a controlled manner using the caustic metering pump. The goal of the test is to demonstrate the capacity of 1 liter of phosphoric acid to buffer the TK-C5 condensate, so that the metering pump delivering 33 ml per minute of 13M KOH will not overshoot the pH range within two minutes after reaching a pH of 7.

For the test, TK-C5 will be filled to the expected batch operating volume of 713 gallons with condensate and/or water. A liter of phosphoric acid (H_3PO_4) will be added to TK-C5, and neutralized to a pH between 2 and 6 with approximately 400 ml of 13M KOH. After mixing the tank, the pH will be measured by the in-tank pH probe. KOH will be added in 50 ml increments, with mixing and pH measurement after each increment. The test will be concluded after the TK-C5 pH increases beyond 8.5.

Other quantities of phosphate and/or caustic may be tested as the design is finalized.

2. PREPLANNING/COORDINATION

This work involves personnel from Plant Operations, Plant Maintenance, Process Engineering, and Radiological Protection. Plant Maintenance will temporarily remove a spare blank flange from the top of TK-C5. Plant Operations will fill the tank with water and/or condensate to 713 gallons, and add H_3PO_4 and KOH from 1-liter bottles to TK-C5 using a funnel inserted in the spare opening. Process Engineering will coordinate the test, collect, and evaluate the test data. Radiological Protection will survey personnel and materials exiting the 211-U radiation zone for radiological contamination.

The TK-C2 waste concentrator must be shut down for the duration of each test run. The TK-C5 discharge pumps must be locked out until the test is completed, and the condensate pH meets the RHO-MA-139 limits of 2-12.5.

A prejob planning/safety meeting will be held prior to performing the work.

3. SAFETY

All radiological and industrial safety considerations pertaining to the handling of dilute nitric acid, concentrated phosphoric acid, and concentrated potassium hydroxide in a radiation zone are applicable to this work plan. This work plan requires special care to avoid contact with H_3PO_4, KOH, and condensate, which contains nitric acid.

Warning - Wear full acid suit, including rubber gloves, rubber boots, chemical goggles, and face shield when filling TK-C5, measuring or adding chemicals, and removing or replacing fittings on TK-C5.

Warning - Do not mix KOH, phosphoric acid, and condensate, except in TK-C5. Violent reaction, spattering, and heat may result if KOH is mixed with water or H_3PO_4.

If H_3PO_4, KOH, or condensate contacts skin or eyes, immediately flush with large quantities of water. Contact RPT for survey, and report to first aid. Notify supervision.

The nearest safety shower and eyewash must be tested for operability before work begins.

If a chemical spill occurs, flush to C cell sump with copious quantities of water. Avoid contact with spilled material.

Applicable Safety Documents - Provisions of Radiation Work Permit U-2 and General Regulations and Practices For Radiation Zone Work, (GEN-0), apply to all work performed under this procedure.

Refer to the following material safety data sheets for the chemicals to be used during this test:

H_3PO_4 - MSDS # 83
KOH - MSDS # 114
HNO_3 - MSDS # 80

4. PLAN

4.1. OBTAIN THE FOLLOWING TOOLS, EQUIPMENT, AND SUPPLIES.

4.1.1. Funnel, polyethylene, polypropylene, or stainless steel.

4.1.2. 500-ml graduated cylinder.

4.1.3. 1-liter bottle containing 85% H_3PO_4

4.1.4. 2 1-liter bottles containing 50% KOH

4.1.5. Acid suit, including rubber gloves, rubber boots, chemical goggles, and face shield.

4.2. PREPARE TK-C5 FOR TEST

4.2.1. Request instrument technician to calibrate TK-C5 pH electrode pHE-C5-1.

4.2.2. Request manager to approve waste volumes in TK-C2 and TK-C7, and approve shutting the waste concentrator operation down for the duration of the test, on Work Plan Execution Sheet (WPES).

4.2.3. Shut down TK-C2 waste concentrator per UO-182-001.

4.2.4. Shut off TK-C5 discharge pumps P-C5-1 and P-C5-2. Apply CAUTION tag, per RHO-MA-221, Accident Prevention Standard #7.

4.2.5. Request fitter to remove blank flange from spare fitting on top of TK-C5.

4.2.6. Using water hose, fill TK-C5 to 75 ± 2 WF. Record TK-C5 WF on WPES.

4.2.7. Turn on TK-C5 mixing pump P-C5-4.

4.2.8. Insert funnel in open flange on top of TK-C5.

4.3. MEASURE BUFFER CAPACITY OF TK-C5.

4.3.1. Make initial H_3PO_4 and KOH addition to TK-C5.

4.3.1.1. Request process engineer to specify, on WPES, how much H_3PO_4 and KOH to add to TK-C5.

4.3.1.2. Using graduated cylinder, measure and pour specified amount of H_3PO_4 bottle into TK-C5. Record volume added, on WPES.

4.3.1.3. Rinse graduated cylinder with water. Pour rinse water into TK-C5.

4.3.1.4. Using graduated cylinder, measure and pour specified amount of KOH into TK-C5. Record volume actually added, on WPES.

4.3.1.5. Wait 20 minutes for TK-C5 contents to become well mixed.

4.3.1.6. Record TK-C5 pH on WPES.

4.3.2. Make additional KOH addition to TK-C5.

4.3.2.1. Request process engineer to specify, on WPES, how much KOH to add to TK-C5.

4.3.2.2. Using graduated cylinder, measure and pour specified amount of KOH into TK-C5. Record volume actually added, on WPES.

4.3.2.3. Wait 20 minutes for TK-C5 contents to become well mixed.

4.3.2.4. Record TK-C5 pH on WPES.

4.3.3. Repeat step 4.3.2., until pH of TK-C5 exceeds 8.5.

4.4. OBTAIN ADDITIONAL DATA WITH DIFFERENT H_3PO_4 OR KOH CONCENTRATIONS.

4.4.1. Obtain another WPES from manager.

4.4.2. Request management to determine need for TK-C2 waste concentrator operation. If not necessary to resume TK-C2 waste processing, skip to step 4.4.7., of this procedure. Otherwise continue.

4.4.3. Dispose of TK-C5 contents and resume TK-C2 waste processing per part 4.5., of this procedure.

4.4.4. When TK-C2 waste processing status is acceptable, obtain management approval on WPES, to take TK-C2 waste concentrator out of service.

4.4.5. Prepare TK-C5 for buffer addition, per steps 4.2.3. - 4.2.8., of this procedure.

4.4.6. Skip to step 4.4.8., of this procedure.

4.4.7. Obtain management approval on WPES to keep TK-C2 waste concentrator out of service.

4.4.8. Test buffer capacity of TK-C5 per part 4.3., of this procedure.

4.5. DISPOSE OF TK-C5 CONTENTS.

4.5.1. Record TK-C5 pH on WPES.

4.5.2. If TK-C5 pH is between 2.5 - 12.0, skip to step 4.5.7. Otherwise, continue.

4.5.3. Request manager to specify on WPES how much, and what type, of neutralizing agent to add to TK-C5.

4.5.4. Add neutralizing agent to TK-C5 as specified.

4.5.5. Wait 20 minutes for TK-C5 pH to stabilize, then record resulting pH.

4.5.6. If TK-C5 pH is not between 2.5 - 12.0, repeat steps 4.5.3. - 4.5.5. Otherwise, continue.

4.5.7. Request manager to approve on WPES, the disposal of TK-C5 contents to 216-U-12 crib.

4.5.8. Remove funnel from TK-C5 open flange.

4.5.9. Replace blank flange on TK-C5.

4.5.10. Notify manager that TK-C2 waste concentrator system may be returned to service.

4.5.11. After CAUTION tag has been removed from TK-C5 discharge pumps, switch TK-C5 discharge pump switch SW-P-C5-1 or SW-P-C5-2 to AUTO position.

5. WORK PLAN APPROVAL / SIGNOFF

Plant Operations _____

Process Engineering _____

Quality Assurance _____

Radiological Engineering _____

6. WORK PLAN EXECUTION SHEET (WPES)

A work plan execution sheet (WPES) must be completed for each tankful of water/condensate that is buffered and neutralized per this procedure.

6.1. INFORMATION TO BE SPECIFIED BY MANAGEMENT:

6.1.1. Approval to take/keep TK-C2 waste concentrator out of service and prepare TK-C5 for test:

Manager:_____ Date: _____

6.2. TK-C5 PREPARATION:

TK-C5 WF: _____

6.3. TK-C5 BUFFER CAPACITY DATA:

Specified H_3PO_4 vol.	Specified KOH vol.	Actual H_3PO_4 vol.	Actual KOH vol.	TK-C5 pH
_____	_____	_____	_____	_____
	_____		_____	_____
	_____		_____	_____
	_____		_____	_____
	_____		_____	_____
	_____		_____	_____

6.4. DISPOSAL OF TK-C5 CONTENTS (pH must be between 2-12.5):

Beginning TK-C5 pH	Neut. Agent to be Used	Amount to Add	Manager	Date
_____	_____	_____	_____	____
_____	_____	_____	_____	____

Approval to dispose of TK-C5 to crib 216-U-12: pH: _____ Manager: _____ Date: ____

WHC-EP-0141
UC-11

Westinghouse Hanford Company Effluent Releases and Solid Waste Management Report for 1987: 200/600/1100 Areas

F. M. Coony
D. B. Howe
L. J. Voigt

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Prepared for the U.S. Department of Energy
Assistant Secretary for Defense Programs

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6.0 EFFLUENT SYSTEM IMPROVEMENT ACTIVITIES

At PUREX, operational testing of the Moving Filter Radioactive Aerosol Monitor (MFRAM) was completed in mid-1987. The MFRAM provides continuous monitoring for ^{85}Kr and ^{131}I, and a greatly improved monitoring sensitivity for ^{239}Pu and $^{89,90}Sr$ emissions from the 291-A-1 main stack. The MFRAM is capable of detecting $^{239,240}Pu$ and ^{90}Sr concentrations as low as 100 times the DCG.

Installation of the dissolver offgas (DOG) stack mixer at the base of the PUREX Plant 291-A-1 main stack was completed in 1987. The purpose of the stack mixer is to distribute evenly the DOG streams into the 291-A-1 main stack flow originating from the canyon and process cells. An even mixing of these exhaust sources will ensure equivalent and representative sampling at all three 291-A-1 stack probe locations.

Implant modifications at the PUREX Plant were completed and have been responsible partially for a 10-fold reduction in concentrations of $^{239,240}Pu$ in the PUREX Plant process condensate (PDD). Condensate flow from the H4 concentrator was eliminated and a portion of the L Cell vent line was rerouted to preclude a sample jet from discharging into the PDD header.

A project for an inline neutralization system for the PDD was initiated in 1987 and is scheduled for completion in late 1988. This system will replace the interim neutralization system installed in 1986.

During cladding removal operations at the PUREX Plant, the concentration and mass of ammonium hydroxide in the discharge of ammonia scrubber distillate to the 216-A-36B Crib has, in the past, exceeded the limits in Chapter 173-303,WAC.and CERCLA. In late 1987, use of the 216-A-36B Crib was discontinued and process changes were implemented to reroute future production of ammonia scrubber feed to waste management facilities for storage and evaporative volume reduction to comply with the limits in Chapter 173-303, WAC.

A revised version of the PUREX and UO_3 Plants nitrogen oxide monitoring plan was issued. The plan addresses comments received from the EPA, Region X and satisfies a requirement in the PSD Permit Number PSD-X80-14.

At B Plant, inline pH and radiation monitoring systems on the chemical sewer discharge were installed. These monitoring systems will become operational on correction of the deficiencies in the operation of the flow monitor. Improvements to the pH monitoring and flow proportional sampling systems for the B Plant cooling water discharges were completed in 1987. The radiation monitoring system on the two effluents that contribute to the cooling water discharge were improved with modification to allow calibration with a liquid source. Improved submersible pumps are being installed for both of these sampling and monitoring stations. The upgrade of the de-entrainer at the E-23 concentrator is projected to reduce the $^{89,90}Sr$ and ^{137}Cs concentrations in the B Plant process condensate to below ACL values.

At the UO_3 Plant, a neutralization system for the process condensate discharge was installed; the system is designed to maintain the pH between 5 and 10. In Tank Farms, projects for upgrading the sampling and monitoring systems for the 244-AR vault cooling water discharge and the 241-AY and 241- AZ Tank Farm exhaust system heating condensate are in progress. Both projects will be completed in 1988, prior to startup of either facility.

An improved analytical method for ^{241}Am in both gaseous and liquid effluent samples was introduced; the method has reduced the detection limit below the derived concentration guide.

- Stack 296-U-4--UO_3 Plant Calciner Exhaust. This stack exhausts unfiltered exhaust from the process offgas system (vessel vent, concentrator, and calciner) on the 224-U Building. The sampling and monitoring system consists of a record sampler and NO_x monitor.

- Stack 296-U-13--UO_3 Plant Powder Loadout Hood Exhaust. This stack exhausts filtered air from the powder loadout hood. The sampling and monitoring system consists of a record sampler, an alpha CAM unit, and beta CAM unit.

A.9.3 Liquid Effluents

- UO_3 Plant Process Condensate (U-12) to the U-12 Crib. The stream is comprised of condensate from concentrators, calciners, vessel vents, and steam jet exhaust. Process condensates are collected in tank C-5 and sampled prior to discharge. An automatic, incremental flow-proportional sampler is activated when Tank C-5 is discharged.

- UO_3 Plant Wastewater (207-U) to the 216-U-14 Ditch. This stream receives cooling water, steam condensate, and chemical sewer discharge from UO_3 Plant, and sump water from 221-U, 271-U, and 222-U. Discharge is to the 216-U-14 ditch via the 207-U retention basin. Grab samples from the basin were collected weekly.

A.10 PLUTONIUM FINISHING PLANT--PLUTONIUM EXTRACTION, RECOVERY, AND FABRICATION

A.10.1 Description

The Plutonium Finishing Plant (PFP) recovers plutonium in the form of plutonium nitrate by processing plutonium scrap. In addition, plutonium metal is produced from the recovered nitrate and plutonium nitrate received from the PUREX Plant.

A.10.2 Airborne Effluents

- Stack 291-Z-1--PFP Process and Building Ventilation. This stack exhausts filtered air from the 234-5Z, 232-Z, 236-Z, and 242-Z Buildings. The stack also exhausts process ventilation. The sampling and monitoring system consists of a record sampler and an alpha CAM unit.

- Stack 296-Z-3--241-Z Vault Ventilation. This stack exhausts filtered air from 241-Z vault sump and vessel ventilation. The sampling and monitoring system consists of a record sampler and an alpha CAM unit.

- Stack 296-Z-5--2736-ZB Building Exhaust. The system exhausts filtered air from the shipping and receiving building, 2736-ZB. The sampling and monitoring system consists of a record sampler and an alpha CAM unit.

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Plan and Schedule to Discontinue Disposal of Contaminated Liquids Into the Soil Column at the Hanford Site

Response to Congressional Request

March 16, 1987

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EXECUTIVE SUMMARY

Liquid wastes have been generated as a result of operations conducted at the Hanford Site for over 40 years. These wastes are discharged to soil column disposal units in accordance with U.S. Department of Energy (DOE) Orders that require protection of public health and safety and are intended to control and, to the extent possible, minimize adverse impacts on the environment. Current DOE policy on radioactive waste management states that disposal operations involving discharges of contaminated liquids directly to the environment or natural soil column shall be replaced by other techniques (DOE 1984). The DOE was directed by Congress to provide a plan and schedule to discontinue disposal of contaminated liquids into the soil at the Hanford Site. The purpose of this document is to provide the requested plan and an implementation schedule.

Within the Hanford Site, 32 active liquid waste discharges are currently released to soil column disposal units. These discharges consist of large quantities of cooling water and smaller quantities of other discharges, many of which contain low levels of radioactive contamination resulting from operations at the Hanford Site. All discharges from DOE-facilities are required to be as-low-as-reasonably-achievable. The principal radioactive contaminant in these wastes is tritium, which meets the DOE derived concentration guide at the site boundary without treatment.

Active liquid waste discharges are routinely monitored for radioactive constituents. Based on process evaluations and sampling done to date, none of the liquid waste streams that are routinely released to the soil column have been designated as hazardous waste. The radiation dose resulting to the hypothetical maximally exposed offsite individual from Hanford Site operations, including discharges to the soil column, was calculated to be 3 mrem in 1985, well under the offsite dose limits of 500 mrem for occasional exposure and 100 mrem for prolonged exposure. These numbers also compare favorably to the average annual natural background exposure for the United States of about 100 mrem.

In accordance with the policy to replace the practice of soil column disposal for contaminated effluents, DOE has been studying alternative effluent treatment and disposal methods, the results of which are presented in this plan. The criteria for effluent disposal used in this study are derived from review of regulations enacted pursuant to the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Clean Water Act (CWA), the State of Washington Water Pollution Control Act (WWPC), and the Atomic Energy Act. A liquid effluent is considered suitable for disposal to the environment, including the soil column, if it meets the established criteria derived from the aforementioned statutes.

Based on consideration of the CWA and WWPC, the best-available technology (BAT) economically achievable would be evaluated and applied to all discharges currently going to the soil column. The process of selecting and implementing alternative technology would include preparation of

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required National Environmental Policy Act documentation. As appropriate, consultation and coordination with other State and Federal agencies would be maintained throughout the design process to ensure that all technical requirements are met. Technology for the removal and disposal of tritium is currently not available. The available alternatives for management of tritium contaminated waste water include direct discharge to the Columbia River, volatilization to the atmosphere, and discharge to the soil column. Of these alternatives, soil column disposal is preferred because it results in the lowest offsite dose and is also the lowest in cost. Evaluation of tritium waste technology will continue with future implementation dependent upon the successful development of technically feasible methods.

The implementation schedule presented in the plan is based on application of a two-phased prioritization system for liquid effluents. Of the 32 discharges, 16 would be designated as Phase I, and appropriate treatment technologies could be implemented by 1995. Preliminary cost estimates for the Phase I projects range from $120 to $160 million in capital funds and $28 million in support costs.

Within the higher priority actions grouped in Phase I, the implementation of the planned N Reactor effluent treatment scheduled for completion by 1989, followed by shutdown of N Reactor in 1995, results in the overall reduction of total radionuclide discharges (excluding tritium) to the soil column by approximately 98%. Similarly, implementation of effluent treatment for three Phase I waste streams would also result in approximately a 90% reduction in nitrate discharges, which is the principal chemical constituent of the wastes. Phase I implementation would also provide additional engineered controls to prevent the nonroutine discharge (spills) of chemical substances. The plan incorporates ongoing activities in support of waste treatment system upgrades and effluent treatments to reduce quantities and improve the quality of the wastes discharged. These activities address laboratory and chemical sewers, process condensates, and waste water streams.

The estimated costs for implementation of Phase II would range from $130 to $200 million in capital funds with an additional $23 million in development or support costs. The total estimated capital and support cost for implementation of Phase I and Phase II ranges from $300 to $410 million. The estimated annual operating cost following implementation of both Phase I and Phase II projects would be approximately $50 million per year.

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Table 1. Effluent Generating Facilities, Effluents, and Effluent Disposal Units. (sheet 1 of 2)

Hanford Site area	Effluent generating facility	Effluent category	Disposal unit identification number	Disposal site type	Millions of gal/yr[a] (1985)
N Reactor (100 Area)	N Reactor	N Reactor effluent	1325-N	Crib	960
	100-D Laboratory[b]	Chemical sewer	100-D pond	Pond	17[c]
Chemical separations and waste management (200 Area)	PUREX (fuels reprocessing facility)	Chemical sewer Process condensate Cooling water Steam condensate Process condensate (ammonia scrubber)	216-B-3/A-29 216-A-10 216-B-3[d]/A-25 216-A-30/A-37-2 216-A-36B	Pond/ditch Crib Ponds Cribs Crib	460 27 3,250 233 20
	B Plant (waste fractionation plant)	Chemical sewer Process condensate Cooling water Steam condensate	216-B-63 216-B-62 216-B-3[d]/A-25 216-B-55	Ditch Crib Ponds Crib	82 1 950 2
	Laboratories	222-S Laboratory waste 2101-M Laboratory waste[b] 209-E Laboratory waste	216-S-26 2101-M pond 216-C-7	Crib Pond Crib	12 1[c] <0.1[c]
	UO_3 Plant (uranium recovery plant)	Process condensate Waste water[e] (cooling water, steam condensate and chemical sewer)	216-U-12 216-U-14	Crib Ditch	1 33
	Plutonium Finishing Plant	Waste water[e] (cooling water, steam condensate and chemical sewer)	216-Z-20	Crib	100
	Evaporator/ concentrators	242-A process condensate 242-A cooling water 242-A steam condensate 242-S steam condensate	216-A-37-1 216-B-3[d]/A-25 B-3/A-29 216-U-14	Crib Ponds Ponds Ditch	13 920 22 5

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Table 1. Effluent Generating Facilities, Effluents, and Disposal Units. (sheet 2 of 2)

Hanford Site area	Effluent generating facility	Effluent category	Disposal unit identification number	Disposal site type	Millions of gal/yr[a] (1985)
Chemical separations and waste management (200 Area) (cont.)	T Plant (decontamination facility)	Laboratory waste water Cooling water[b] (steam condensate)	216-T-1 216-T-4-2	Ditch Ditch	0.3[c] 21[c]
	Steam plants[b]	Cooling water (200 East Area Powerhouse) Cooling water (200 West Area Powerhouse)	216-B-3[d]/A-25 Powerhouse pond	Ponds Pond	4[c] 2[c]
	Waste storage tank facilities	A-Farm cooling water 244-AR Vault cooling water AY, AZ Farm steam condensates	216-B-3[d]/A-25 216-B-3[d]/A-25 216-A-8	Ponds Ponds Crib	105 23 0.06
	Laundry	Laundry effluent	216-W-LC	Crib	19
	S Plant	Cooling water[e]	216-S-10	Ditch/ pond	53
Fuels fabrications and laboratory operations (300 Area)	Fuels fabrication facility and laboratories	Chemical sewer[e]	300 Area process trenches	Trenches	58
400 Area	Air conditioning[b]	Cooling water[e]	400 Area pond	Pond	5[c]

[a]Total volume discharged is 7.4 billion gal in 1985.
[b]Nonradioactive generating facility.
[c]Estimated volume.
[d]Includes the 216-B-3-3 and 216-B-2-3 ditches.
[e]Includes two or more waste categories.

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3.0 STRATEGY

3.1 LIQUID EFFLUENT DISPOSAL CRITERIA

It is the policy of DOE that operations are conducted in a safe, cost-effective, and environmentally sound manner, and that discharges of radioactive and nonradioactive materials released to the environment meet applicable regulatory requirements and are ALARA. It is also the policy of DOE that the disposal of contaminated effluents to the soil column be replaced by other techniques (DOE 1984). Implementation of this policy is based on criteria for soil column disposal derived from DOE orders and relevant environmental regulations. The environmental legislation used to develop the liquid effluent disposal criteria include the following:

- RCRA (PL-94-580, as amended, 42 USC 6501, et seq.) and WAC-173-303, "Dangerous Waste Regulations"
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (PL-96-510, 42 USC 9601, et seq.)
- Clean Water Act (CWA) (PL-92-500, 33 USC 1251, et seq.) and Washington Water Pollution Control Laws (90.48 Revised Code of Washington (RCW))
- National Environmental Policy Act (NEPA) (PL-91-190, 42 USC 4321, et seq.)
- Atomic Energy Act (AEA) (PL-83-703, 42 USC 2011, et seq.).

The aforementioned environmental statutes were enacted to protect public health and the environment, and preserve and protect present and future beneficial uses of the environment, including the groundwater. The following sections address how these environmental statutes and the implementing regulations are used to establish criteria for liquid effluent treatment and disposal. A liquid effluent is considered suitable for disposal to the environment, including the soil column if it meets the established criteria.

3.1.1 Resource Conservation and Recovery Act

The RCRA provides for protection of health and the environment from activities associated with the management and disposal of hazardous wastes. Subtitle C of RCRA sets forth requirements for generators and transporters of hazardous waste and also establishes a specific permit program for owners and operators of facilities for treatment, storage, and disposal of hazardous wastes. Contained within the implementing regulations are criteria for the designation of hazardous wastes. If a liquid effluent meets or exceeds these criteria, the effluent is considered a hazardous waste, which requires the generating facility to treat, store, or dispose of the waste according to the provisions of the RCRA.

States may obtain the authority to administer and enforce a hazardous waste program under the provisions of section 3006 of the RCRA. Washington State obtained final authority from the EPA to administer a hazardous waste program in January 1986. In July of 1986, the EPA published a notice in the Federal Register indicating that states must be authorized to regulate radioactive mixed wastes and that in order to obtain and maintain authorization to administer and enforce a mixed waste program, states must demonstrate the ability to regulate the hazardous components of radioactive mixed wastes. Washington State is developing the necessary documentation and is expected to gain authority for regulation of the hazardous components of mixed wastes during 1987.

Presently, the Washington State Department of Ecology administers the hazardous waste program under the regulations found in WAC 173-303. In order to gain authority to administer the hazardous waste program, state regulations must be at least as restrictive as federal regulations. The criteria for liquid effluent disposal at the Hanford Site are based on the present requirements of WAC 173-303 (until mixed waste regulations are promulgated), which require liquid discharges to the soil or environment be nonhazardous according to the designation criteria established in WAC 173-303.

3.1.2 Comprehensive Environmental Response, Compensation, and Liability Act

The CERCLA establishes reporting and remedial action requirements for other than federally permitted releases of chemical substances above minimum reportable quantities (e.g., spills). Federal agencies are subject to the reporting and remedial action requirements of CERCLA, but are not entitled to use the trust fund established by the CERCLA for cleanup.

The specific criteria derived from CERCLA require the use of control and containment systems to prevent the release of reportable quantities of chemical substances. Administrative controls are currently in place to prevent the release of reportable quantities of chemical substances. Engineered barriers are being added to provide additional protection against the release of chemical substances. Several years are required to complete the design, funding, and construction of these barriers.

3.1.3 Clean Water Act

The CWA was established to restore and maintain the chemical, physical, and biological integrity of the navigable waters in the United States. Effluent limitations are established and administered through the NPDES permit program and include technology-based limitations and established water quality standards. The Best Available Technology (BAT) economically achievable is a base-level treatment requirement established under the CWA.

Table 2. Prioritization Summary.

Waste stream[a]	Prioritization criteria			
	Hazardous waste character-istic	Potential to receive reportable substance discharge	Radionuclide concentration	Overall priority
B Plant process condensate	—	—	Phase I	Phase I
PUREX ammonia scrubber discharge	—	—	Phase I	Phase I
AY, AZ steam condensate	—	—	Phase I	Phase I
N Reactor effluent	—	Phase I	Phase I	Phase I
PUREX process condensate	—[b]	Phase I	Phase I	Phase I
UO_3 Plant process condensate	—[b]	Phase I	Phase I	Phase I
PFP waste water	—	Phase I	Phase I	Phase I
PUREX chemical sewer	—	Phase I	—	Phase I
UO_3 Plant waste water[c]	—	Phase I	—	Phase I
B Plant chemical sewer	—	Phase I	—	Phase I
222-S Laboratory sewer	—	Phase I	—	Phase I
2101-M Laboratory sewer	—	Phase I	—	Phase I
300 Area process sewer	—	Phase I	—	Phase I
T Plant waste water	—	Phase I	—	Phase I
100-D Laboratory waste water	—	Phase I	—	Phase I
209-E Laboratory sewer	—	Phase I	—	Phase I
B Plant steam condensate	—	—	—	Phase II
PUREX steam condensate	—	—	—	Phase II
242-A process condensate	—	—	—	Phase II
Laundry waste water	—	—	—	Phase II
PUREX cooling water	—	—	—	Phase II
242-A steam condensate	—	—	—	Phase II
A Tank Farm cooling water	—	—	—	Phase II
S Plant waste water	—	—	—	Phase II
B Plant cooling water	—	—	—	Phase II
242-S steam condensate	—	—	—	Phase II
242-A cooling water	—	—	—	Phase II
244-AR Vault cooling water	—	—	—	Phase II
T Plant cooling water	—	—	—	Phase II
200 East Area Powerhouse cooling water	—	—	—	Phase II
200 West Area Powerhouse cooling water	—	—	—	Phase II
400 Area cooling water	—	—	—	Phase II

[a]Waste streams listed by decreasing radionuclide concentration.

[b]Stream exhibited low pH during 1986. Neutralization systems have been implemented and are being upgraded.

[c]UO_3 Plant waste water chemical sewer upgrades are Phase I priority. The cooling water and steam recycle projects are Phase II.

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