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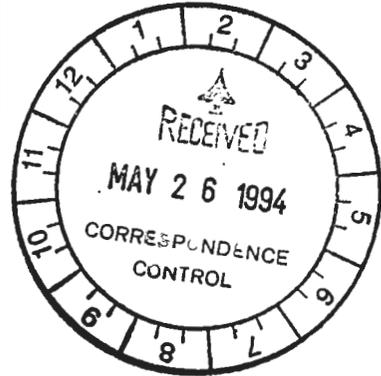
STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

9403662

7601 W. Clearwater, Suite 102 • Kennewick, Washington 99336 • (509) 546-2990

May 17, 1994

Mr. Gene Senat
U.S. Department of Energy
P.O. Box 550
Richland, WA 99352



Mr. Doug Hamrick
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Dear Messrs. Senat and Hamrick:

Re: PUREX/ UO_3 Dangerous Waste Compliance Assessment

Thank you for the assistance of the U.S. Department of Energy (USDOE) and Westinghouse Hanford Company (WHC) personnel during the Washington State Department of Ecology's (Ecology) recent dangerous waste compliance assessment of the PUREX and UO_3 facilities. The assessment was conducted to determine current compliance with interim status requirements under Chapter 173-303 Washington Administrative Code (WAC) and to review applicability and appropriateness of requirements for currently permitted vessels, and those vessels that will be added to the PUREX Part A Permit Application (Part A). The applicability of a UO_3 Part A was also assessed.

Below is a summary of 1) findings and observations, and 2) requirements for compliance with interim status standards. The attached assessment report provides background information and details regarding each finding and observation.

In many cases, interim status requirements are being met or are close to being met. Minor changes in existing documents are all that is necessary to come into compliance with several items listed below. Some changes are already underway. For example, USDOE/WHC had already begun to make needed changes in the PUREX/ UO_3 personnel training plans before Ecology's compliance assessment began.

SUMMARY OF FINDINGS AND OBSERVATIONS

Finding 1: Surveillances were not conducted in accordance with existing procedure (Plant Operating Procedure, Perform PUREX Routine

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Surveillance for OSR Compliance During Standby, PO-040-305, issued November 29, 1993).

- 9413202.077
- Finding 2: Surveillances were not conducted in accordance with existing procedure (Plant Operating Procedure, Perform PUREX Surveillance for OSR Compliance During Standby, PO-040-307, issued April 16, 1993).
- Finding 3: The PUREX Staffing/Training Plan, as provided to Ecology, does not include the name of the employee filling each job.
- Finding 4: The PUREX/ UO_3 Organizational Directory does not mirror the organizational structure presented in the PUREX Staffing/Training Plan, e.g., organization codes are inconsistent or missing, and organization titles are inconsistent.
- Finding 5: Employees have not received training as required under the PUREX Staffing/Training Plan.
- Finding 6: The UO_3 Facility Staffing/Training Plan, as provided to Ecology, does not include the name of the employee filling each job.
- Finding 7: RCRA protocol samples are not being taken in accordance with Table 10, PUREX Plant Sample Parameter List, in the PUREX Waste Analysis Plan (WAP).
- Observation 1: The Emergency Plan for UO_3 Facility should be updated to include reference to the Hanford Facility Contingency Plan, issued October 1993.
- Observation 2: The Emergency Plan for PUREX facility, Appendix 1, "Hazardous Waste Location and Emergency Response Matrix," has mis-entered data in the "Credible Event" category.
- Observation 3: Procedure, WHC-CM-5-9, Section 4.23, Management of Waste Stored on the PUREX Canyon Waste Pile or in the PUREX Storage Tunnels, needs to be revised to exclude waste pile management.
- Observation 4: The title for procedure WHC-CM-5-9, Section 4.25, "Inspection of Containerized Dangerous Waste Accumulation Areas," should be changed, e.g., "Inspection of Containerized Dangerous Waste Accumulation Areas and Interim Status Treatment/Storage Tank

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Systems." ("Accumulation areas" refers to container storage under WAC 173-303-200 requirements, not interim status TSD requirements for waste storage tanks.)

Observation 5: RCRA protocol samples are not being taken on a quarterly basis as required under the PUREX WAP.

REQUIREMENTS FOR COMPLIANCE WITH INTERIM STATUS STANDARDS

WAC 173-303-300 General waste analysis

- o USDOE/WHC need to perform waste analysis protocols as outlined in the PUREX WAP (WHC-SD-WM-ANAL-020, Rev. 0). (Finding 7)
- o USDOE/WHC will need to revise the PUREX WAP to include the additional vessels deemed applicable for inclusion into the existing PUREX Part A.

WAC 173-303-320 General inspection

- o USDOE/WHC need to perform inspection and surveillance protocols as outlined in inspection plans (WHC-CM-5-9, Section 4.25, Rev. 4; PO-040-305, PO-040-307). (Findings 1, 2)
- o USDOE/WHC will need to revise WHC-CM-5-9, Section 4.25, Inspection of Containerized Dangerous Waste Accumulation Areas, to include the additional vessels deemed applicable for inclusion into the existing PUREX Part A. The seven tanks (E5, F15, F16, F18, G7, U3, U4) and one concentrator (E-F11) currently under the existing Part A permit are the only tank systems identified for inspection in this procedure.
- o USDOE/WHC will need to revise the surveillance checklists (PO-040-305, PO-040-307) to include any additional vessels deemed applicable for inclusion into the existing PUREX Part A that are not already on a surveillance schedule.

WAC 173-303-330 Personnel training

- o USDOE/WHC need to revise the PUREX and UO₃ Staffing/Training Plans to either reference the Organizational Directory, or include the name of the employee filling each job. USDOE/WHC need to review and revise the Organizational Directory to assure coordination with the Staffing/Training Plans. (Findings 3, 4, 6)

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- o USDOE/WHC need to assure training is provided in accordance with the PUREX Staffing/Training Plan. (Finding 5)

WAC 173-303-350 Contingency plan and emergency procedures

- o USDOE/WHC will need to revise the emergency plan for PUREX, e.g., Attachment I to the emergency plan, to include additional vessels deemed applicable for inclusion into the existing PUREX Part A.

WAC 173-303-380 Facility recordkeeping

- o See WAC 173-303-300 and -320 above.

WAC 173-303-640 Tank systems

- o USDOE/WHC will need to label containers to include WAC 173-303-630(3) and -640(5)(d) requirements for any vessels deemed applicable for inclusion into a Part A Permit Application for interim status storage. Vessels may be exempted from labeling requirements, on a case-by-case basis, e.g., location (inside the canyon), upon written approval from Ecology. USDOE/WHC will need to submit a written request to Ecology identifying tank number and reason why WAC requirements cannot be met.

40 CFR 265.191 Assessment of existing tank system's integrity

- o USDOE/WHC will need to perform a tank integrity assessment to satisfy Chapter 173-303 and 40 CFR requirements for tank G7, concentrator E-F11, and any other treatment and/or storage tanks that do not meet secondary containment requirements. Vessels may be exempted from integrity assessment requirements, on a case-by-case basis, upon written approval from Ecology. USDOE/WHC will need to submit a written request to Ecology identifying vessel number and reason why WAC and 40 CFR requirements either cannot be met or should not be required, e.g., date waste expected to be removed from vessel, etc.

A Part A is not necessary for the UO₃ facility, provided that on-site accumulation requirements are met (WAC 173-303-200). As a result, dangerous waste stored and/or treated in vessels within UO₃ must meet generator requirements rather than TSD facility interim status requirements.

Many employees with whom I spoke at the facility expressed their frustration about keeping up with current procedural requirements due to the delays in processing procedure change authorizations, i.e., the changes are outdated by the time the procedure gets issued. I understand the magnitude of administrative responsibility at

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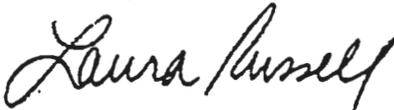
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PUREX; however, especially with the PUREX deactivation project piloting the way for future deactivations, the administrative record is most important. Increased focus in this area is needed by USDOE and WHC PUREX management. (Note: In revising the WAP, contingency plan, etc. to include additional vessels to be added to the Part A, an addendum to the existing document is sufficient to satisfy State regulatory requirements. An abbreviated revision such as an addendum may expedite the administrative process.)

Members of Ecology's PUREX Team (Moses Jaraysi, Nancy Uzilemblo, Alex Stone, and I) will meet with USDOE and WHC in the next few days to agree on completion dates for resolving deficiencies identified in this letter, i.e., findings and observations. Please note that this investigation was performed under the guise of an environmental assessment rather than a compliance inspection. However, failure to correct the deficiencies may result in a compliance action pursuant to the authorities granted to Ecology by RCW 70.105 (Hazardous Waste Management).

Should you have any questions or require clarification on any items in this assessment letter, please contact me at (509) 736-3024, or Moses Jaraysi at (509) 736-3016.

Sincerely,



Laura Russell
Compliance Inspector

LR:sr

Enclosure

cc w/enclosures:

Greg LaBaron, WHC
Ed Smith, WHC
Mike Stephenson, WHC

cc w/o enclosures:

Jim Mecca, USDOE
John Wagoner, USDOE
Pat Willison, USDOE
Sue Price, WHC
Julie Robertson, WHC
LaMar Trego, WHC
Kenny Young, WHC
Ken Redus, MACTEC



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

7601 W. Clearwater, Suite 102 • Kennewick, Washington 99336 • (509) 546-2990

NUCLEAR WASTE PROGRAM
HANFORD PROJECT
DANGEROUS WASTE COMPLIANCE ASSESSMENT
PUREX / UO₃ FACILITIES

1. Introductory Information:

Name and Address of Owner:
U. S. Department of Energy
Richland Operations Office
P.O. Box 550
Richland, WA 99352

ID Number: WA7890008967

Operator:
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Time and Date of Assessment:
April 20, 1994 0915-1600 hours
April 27, 1994 0900-1000 hours
May 6, 1994 1000-1100 hours

Phone Number and Contact:
Mr. Gene Senat, USDOE
(509) 372-2046
Mr. Mike Stephenson, WHC
(509) 376-3870

Date of Assessment Report:
May 17, 1994

Type of and Reason for Assessment:

Assessment conducted to determine current compliance with interim status requirements under Chapter 173-303 WAC. At the time of this report, nine individual treatment and/or storage units (seven tanks, one concentrator, one containment box) are included in the existing PUREX Part A Permit Application (document #DOE/RL-88). To date, a Part A Permit Application has not been submitted for any of the tanks within the UO₃ facility. This assessment is being performed to review applicability and appropriateness of requirements for currently permitted vessels and those vessels that may be added to the PUREX Part A. Applicability of a UO₃ Part A will also be assessed.

Report prepared by: Laura Russell

Assessment conducted by: Laura Russell

Laura Russell
Laura Russell, RCRA Compliance Inspector

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Personnel contacted during this assessment include:

Mike Stephenson, WHC/RCRA Support
Bob Bowersock, WHC/PUREX
Kenny Young, WHC/PUREX
Sean Eiholzer, WHC/PUREX

Larry Shinker, WHC/PUREX
Troy Roberts, WHC/PUREX
Bill Foreman, WHC/PUREX
E. Gonzales, WHC/VO₃
Reece Risenmay, WHC/VO₃

2. Background

From 1955 through 1990, PUREX operated as a nuclear fuel reprocessing facility. It operated in sequence with the Uranium Trioxide (UO₃) facility which converted the PUREX liquid uranium nitrate product to solid UO₃ powder. PUREX and UO₃ contain hundreds of vessels that contain or contained material comprised of a dangerous and/or mixed waste component. In December 1992, the U.S. Department of Energy (USDOE) ordered PUREX and UO₃ to be deactivated (Attachment 1). As a result, the dangerous and/or radioactive mixed material, previously deemed product, became waste and therefore subject to dangerous waste management requirements under Chapter 173-303 WAC.

WAC 173-303-200 Accumulating dangerous waste on-site. (1) A generator, not to include transporters . . . may accumulate dangerous waste on-site without a permit for ninety days or less after the date of generation, provided that: (a) All such waste is shipped off-site to a designated facility or placed in an on-site facility which is permitted by the department A generator who accumulates dangerous waste for more than ninety days is an operator of a storage facility and is subject to the facility requirements of this chapter and the permit requirements of this chapter as a storage facility

In 1988, USDOE submitted a PUREX Part A Permit Application (document #DOE/RL-88) (Part A) that identifies nine individual treatment and/or storage units (seven tanks, one concentrator, one containment box) which fall under interim status requirements. *PUREX contains vessels containing dangerous and/or mixed waste that are not currently included in the Part A.*

- Vessels currently identified in the PUREX Part A
- Tanks E5, F15, F16, F18, G7, U3, U4
- Concentrator E-F11
- Containment building

USDOE has not submitted a Part A Permit Application for any of the tanks within the UO₃ facility. USDOE and Westinghouse Hanford Company (WHC) do not consider any of the vessels within UO₃ as applicable for RCRA regulation.

3. Document Review

I reviewed the following documents for conformance to WAC 173-303 requirements for interim status facilities:

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- 1) Emergency Plan for UO₂ Facility (Attachment 2)
- 2) Emergency Plan for PUREX Facility (Attachment 3)
- 3.) Hanford Facility Contingency Plan (Attachment 4)
- 4) PUREX Plant Waste Analysis Plan (WAP) (Attachment 5)
- 5) Management of Waste Stored on the PUREX Canyon Waste File or in the PUREX Storage Tunnels (Attachment 6)
- 6) Inspection of Containerized Dangerous Waste Accumulation Areas (Attachment 7) - Note: contains inspection procedure for permitted tank systems.
- 7) Plant Operating Procedure, Perform PUREX Routine Surveillance, PO-040-305, Rev D-8, dated November 29, 1993 (Attachment 8)
- 8) Procedure Change Authorization, Perform PUREX Routine Surveillance, PO-040-305, effective date April 7, 1994 (Attachment 9 - modifies Attachment 8 above)
- 9) Plant Operating Procedure, Perform PUREX Surveillance for OSR Compliance During Standby, PO-040-307, Rev. A-7, dated April 16, 1993 (Attachment 10)
- 10) Procedure Change Authorization, Perform PUREX Surveillance for OSR Compliance During Standby, PO-040-307, effective date April 7, 1994 (Attachment 11 - modifies Attachment 10 above)
- 11) PUREX Staffing/Training Plan (Attachment 12)
- 12) UO₂ Facility Staffing/Training Plan (Attachment 13)
- 13) PUREX Plant Dangerous Waste Tank Systems Integrity Assessment Report (Attachment 14)

1) Emergency Plan for UO₂ Facility - No deficiencies noted. USDOE/WHC will need to revise the contingency plan (Attachment B to the emergency plan) to include Chapter 173-303 requirements for any vessels deemed applicable for inclusion into a Part A Permit Application for interim status storage. The contingency plan currently covers satellite storage areas and <90 day accumulation areas only.

OBSERVATION 1: The Emergency Plan for UO₂ Facility should be updated to include reference to the Hanford Facility Contingency Plan, issued October 1993.

2) Emergency Plan for PUREX Facility - No deficiencies noted. USDOE/WHC will need to revise the emergency plan, e.g., Attachment I to the emergency plan, to include additional vessels deemed applicable for inclusion into the existing PUREX Part A.

OBSERVATION 2: Appendix 1, "Hazardous Waste Location and Emergency Response Matrix," has mis-entered data in the "Credible Event" category.

3) Hanford Facility Contingency Plan - No deficiencies noted. The Hanford Facility Contingency Plan, *in conjunction with each treatment, storage, and disposal (TSD) unit-specific contingency plan*, is designed to meet the WAC 173-303 requirements for a contingency plan.

4) PUREX Plant Waste Analysis Plan (WAP) - No deficiencies noted. USDOE/WHC will need to revise the WAP to include the additional vessels deemed applicable for inclusion into the existing PUREX Part A, and their particular sample requirements.

5) Management of Waste Stored on the PUREX Canyon Waste Pile or in the PUREX Storage Tunnels - The following problem was noted:

OBSERVATION 3: The original procedure needs to be revised to exclude waste pile management.

The procedure was issued in October 1992 and covered the placement, storage, and retrieval of waste stored in the PUREX waste pile and the storage tunnels. In August 1993, a new procedure, WHC-CD-CP-PLN-021, was written by Mr. Bob Bowersock, WHC PUREX Regulatory Compliance, to address "containment building" management (Attachment 15). (Classification was changed from "waste pile" to "containment building" to avoid RCRA restrictions on storage durations.) The containment building is part of the existing Part A for PUREX (DOE/RL-88). An inventory of the containment building was provided (Attachment 16).

The draft Project Management Plan (December 1993) proposes final closure of PUREX storage tunnels to occur at the same time as other PUREX canyon TSD units. USDOE has submitted Part A (DOE/RL-88-21) and Part B (DOE/RL-90-94) permit applications for the PUREX tunnels.

6) Inspection of Containerized Dangerous Waste Accumulation Areas (WHC-CM-5-9)

OBSERVATION 4: The title for procedure WHC-CM-5-9, Section 4.25, "Inspection of Containerized Dangerous Waste Accumulation Areas," should be changed, e.g., "Inspection of Containerized Dangerous Waste Accumulation Areas and Interim Status Treatment/Storage Tank Systems." ("Accumulation areas" refers to container storage under WAC 173-303-200 requirements, not interim status TSD requirements for waste storage tanks.)

The seven tanks (E5, F15, F16, F18, G7, U3, U4) and one concentrator (E-F11) under the existing Part A permit are the only tank systems identified for inspection in this procedure. USDOE/WHC will need to revise this procedure to identify the additional vessels deemed applicable for inclusion into the existing PUREX Part A.

The daily inspection log checklist provided in this procedure asks, "Has surveillance been performed per PO-040-305 and PO-040-307?" In order to satisfy WHC-CM-5-9 requirements, checklists from PO-040-305 and -307 need to be completed daily. Together, the data sheets in Plant Operating Procedures -305 and -307 require the following inspections of the currently permitted units:

(Note: Values for volumes are from the PUREX Vessel Regulatory Status Report, April 19, 1994 - Attachment 17)

VESSEL	PROCEDURE	SURVEILLANCE	VOLUME (gal)
E5	PO-040-307	Weight Factor	0-15
F15	PO-040-305	Weight Factor	0-21
F16	PO-040-305	Weight Factor	0-57
F18	PO-040-305 PO-040-307	Weight Factor, Specific Gravity, Volume, Temperature	1389
G7	PO-040-305	Weight Factor	1169
U3	PO-040-305	Weight Factor, Specific Gravity, Volume	1632
U4	PO-040-305	Weight Factor, Specific Gravity, Volume	4240
E-F11	PO-040-305	Weight Factor	1844

7) Plant Operating Procedure, Perform PUREX Routine Surveillance for OSR Compliance During Standby (PO-040-305, issued November 29, 1993)

FINDING 1: Surveillances were not conducted in accordance with existing procedure.

Procedural changes were implemented prior to the effective date of the revision. The inspection data sheets used for January 31, 1994, surveillances are not those that appear in the procedure, rather they are the data sheets that appear in a Procedure Change Authorization effective three months in the future (April 7, 1994).

8) Procedure Change Authorization, Perform PUREX Routine Surveillance for OSR Compliance During Standby

This change, effective April 7, 1994, revised the entire surveillance procedure PO-040-305.

9) Plant Operating Procedure, Perform PUREX Surveillance for OSR Compliance During Standby (PO-040-307, issued April 16, 1993)

FINDING 2: Surveillances were not conducted in accordance with existing procedure.

Procedural changes were implemented prior to the effective date of the revision. The inspection data sheets used for January 31, 1994, surveillances are not those that appear in the procedure, rather they are a version of the data sheets that appear in a Procedure

Change Authorization effective three months in the future (April 7, 1994).

10) Procedure Change Authorization, Perform PUREX Surveillance for OSR Compliance During Standby

This change, effective April 7, 1994, revised the entire surveillance procedure PO-040-307.

11) PUREX Staffing/Training Plan

FINDING 3: The plan, as provided to Ecology, does not include the name of the employee filling each job.

After speaking with Mr. Larry J. Shinker, Manager, PUREX Technical Training, I was provided with a "PUREX/VO, Organization Directory" which identified Organization Code, Organization Name, Employee Name, Job Title, Phone Number, Mail Stop, Work Location, and Shift (Attachment 18). The PUREX/VO, Organization Directory is not referenced in the Staffing/Training Plan and does not appear as an appendix. ("PUREX Plant Personnel Rosters" are mentioned in Section 1.2, Scope, but are not otherwise referenced and do not appear as an appendix.)

FINDING 4: The PUREX/VO, Organizational Directory does not mirror the organizational structure presented in the PUREX Staffing/Training Plan, e.g., organization codes are inconsistent or missing, and organization titles are inconsistent. For example, the "PUREX Deactivation" organization, code 17700 in the Organizational Directory, is not included as a management organization in the Staffing/Training Plan.

FINDING 5: Employees have not received training as required under the PUREX Staffing/Training Plan.

I reviewed training records for seven PUREX employees and found the following inadequacies:

Robert V. Bowersock is identified in the Organizational Directory as a principal engineer with the Safety/Regulatory Compliance organization (code 17730). Although organization 17730 does not exist in the Staffing/Training Plan, training requirements are identified for a principle engineer in the PUREX Regulatory Compliance organization (code 17540). Assuming these requirements are applicable to Mr. Bowersock's position, he would be required to fulfill training identified in the plan as categories A, B, and E. Limiting the focus to dangerous waste-type training courses, the following training did not appear as complete on Mr. Bowersock's training record:

031110 / 032020 24 hour RCRA/TSD Hazardous Waste Training (initial and annual retraining)

031220 / 032030	Hazardous Waste Operations Training - 40 Hour (initial and annual retraining)
035012	Waste Designation
020059	Certification of Hazardous Material Shipments
031500	Hazardous Waste Shipment Support
035010	Hazardous Waste Designation Support
031310	8 Hour Manager/Supervisor Waste Operations Training

Bill G. Foreman is identified in the Organizational Directory as a Shift Manager with the "A" Shift Surveillance organization (code 17221). In this position, Mr. Foreman would be required to fulfill training identified in the plan as categories A, B, C, and F. Limiting the focus to dangerous waste-type training courses, the following training did not appear as complete on Mr. Foreman's training record:

031310	8 Hour Manager/Supervisor Waste Operations Training
020059	Certification of Hazardous Materials Shipments
02006S	Hazardous Waste Shipment Certification
035012	Waste Designation

Charles W. Scott is identified in the Organizational Directory as a Nuclear Process Operator (NPO) with the Regulated Material Handling organization (code 17230). Although organization 17230 does not exist in the Staffing/Training Plan, training requirements are identified for a NPO in the Regulated Material Handling organization (code 17240). Assuming these requirements are applicable to Mr. Scott's position, he would be required to fulfill training identified in the plan as categories A, B, and D. Limiting the focus to dangerous waste-type training courses, the following training did not appear as complete on Mr. Scott's training record:

02006B	Hazardous Communication and Waste Orientation
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Charles W. Scott was deficient in many Nuclear Process Operators Fundamentals courses required under category D for a NPO. Review of training records for three other NPO's found similar deficiencies.

12) UO, Facility Staffing/Training Plan - the following problems were noted:

FINDING 6: The plan, as provided to Ecology, does not include the name of the employee filling each job.

After speaking with Mr. Larry J. Shinker, Manager, PUREX Technical Training, I was provided with a "PUREX/UO₃ Organization Directory," as noted above. The PUREX/UO₃ Organization Directory is not referenced in the UO₃ Facility Staffing/Training Plan and does not appear as an appendix. ("PUREX/UO₃ Plant Personnel Rosters" are mentioned in Section 1.2, Scope, but are not otherwise referenced and do not appear as an appendix.)

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As noted above, the PUREX/EO₃ Organizational Directory does not mirror the organizational structure presented in the EO₃ Staffing/Training Plan, e.g., organization codes are inconsistent or missing, and organization titles are inconsistent. For example, the "EO₃ Work Control" organization, code 17120 in the EO₃ Staffing/Training Plan is not included in the Organizational Directory.

13) PUREX Plant Dangerous Waste Tank Systems Integrity Assessment Report

Chapter 173-303 and 40 CFR requirements call for owners or operators to perform a tank integrity assessment for tank systems that do not meet requirements for secondary containment. The above tank integrity assessment report, issued March 1993, only covers tank system F18, U3, and U4. The report offers the following results (page iii):

- 1) The TK-F18 and TK-U3/TK-U4 tank systems are not leaking.
- 2) The waste transfer jumper from Nozzle W on Tank F18 to Nozzle F-T1 on the F Cell wall may yield due to a design/abnormal temperature or a seismic event.
- 3) The support legs on TK-U3 and TK-U4 may become overstressed and fail in the horizontal seismic overturning load case.
- 4) The mild carbon steel tank and piping supports show general corrosion.
- 5) The Teflon gaskets in D Cell and F Cell may have been exposed to radiation levels above the recommended damage threshold.
- 6) The underground portion of Line U285, a four inch waste transfer line from the PUREX analytical laboratory to TK-U3 and TK-U4, does not meet the secondary containment requirements. The disposal of dangerous waste through this line has been stopped.
- 7) The piping downstream of the TK-U3 and TK-U4 steam jets shows some evidence of corrosion and/or erosion.
- 8) Small amounts of rainwater seep through the U Cell cover block joints into the secondary containment for TK-U3 and TK-U4.
- 9) The original chemical resistant coating of the secondary containment is no longer intact and no longer provides an impervious coating for the concrete.

Section 3.3., Systems Not Included in the Integrity Assessment, of the above report, reads:

The following PUREX Plant dangerous waste systems identified in the Part A Permit Application were not evaluated in this integrity assessment since they are not expected to treat or store dangerous waste during the standby or shutdown periods:

1. Ammonia Scrubber Waste (ASW)
2. Cladding Removal Waste (CRW)
3. Neutralized Zirflex Acid Waste (NZAW)

Section A2.0, Regulatory Compliance Plan, of the Draft PUREX/EO₃ Deactivation Project Management Plan, relates regulated processes and waste to specific tanks:

(Note: Values for volume of waste currently stored in the following Part A tanks are from the "PUREX Vessel Regulatory Status Report, April 19, 1994)

TANK	VOLUME (gal)	PROCESSES / WASTE
F18	1389	Storage/treatment of miscellaneous mixed waste (collected from 22 process cell sumps and E-F11 concentrator bottoms)
U3	1632	Storage/treatment of miscellaneous mixed waste (from headend, including drain from lab)
U4	4240	Storage/treatment of miscellaneous mixed waste (from headend, including drain from lab)
E5	0-15	Treatment of cladding removal waste.
F15	0-21	Treatment of neutralized zirflex acid waste
F16	0-57	Treatment of neutralized zirflex acid waste
G7	1169	Treatment of ammonia scrubber waste
E-F11	1844	Treatment of ammonia scrubber waste

As shown on the above table, tanks E5, F15, and F16 have reportedly been drained and only heels remain. Tank G7 and concentrator E-F11 are storing waste.

USDOE/WHC will need to perform a tank integrity assessment to satisfy Chapter 173-303 and 40 CFR requirements for tank G7, concentrator E-F11, and any other treatment and/or storage tanks that do not meet secondary containment requirements. Vessels may be exempted from integrity assessment requirements, on a case-by-case basis, upon written approval from Ecology. USDOE/WHC will need to submit a written request to

Ecology identifying vessel number and reason why WAC and 40 CFR requirements either cannot be met or should not be required, e.g., date waste expected to be removed from vessel, etc.

4. Field Inspection

Wednesday, April 6, 1994

I, along with several Ecology staff, was given a tour of the PUREX facility. Many tank systems located inside and outside the facility were not identified as to their contents. USDOE/WHC will need to label containers to include WAC 173-303-630(3) and 640(5)(d) requirements for any vessels deemed applicable for inclusion into a Part A Permit Application for interim status storage. Vessels may be exempted from labeling requirements, on a case-by-case basis, e.g., location (inside the canyon), upon written approval from Ecology. USDOE/WHC need to submit a written request to Ecology identifying tank number and reason why WAC requirements cannot be met.

Wednesday, April 20, 1994

I met Mr. Stephenson and Mr. Kenny Young, WHC PUREX, at the PUREX conference room at 0915 hours. We discussed the scope of the assessment and reviewed records.

Mr. Bob Bowersock, WHC PUREX Regulatory Compliance, joined us and explained the procedure he wrote for managing waste in the containment building (Reference: Attachment 15). He also provided a copy of the containment building inventory sheet.

After lunch, Mr. Stephenson and I went inside the Canyon facility and met with Mr. Troy Roberts, WHC PUREX. Mr. Roberts maintains procedures, inspections logs, waste transfer logs, etc., for the facility. I requested the following information:

- Waste transfer logs for transfer of F-18 waste to tank farms
- Daily inspection log checksheet for the tanks currently under the Part A

The daily inspection logs were provided (Attachment 20). The waste transfer logs had to be cleared, but were provided to Ecology within a few days of the inspection (Attachment 21).

In checking data from January 31, 1994, the checklist from WHC-CM-5-9 was complete, and noted a problem with the weight factor alarm switch for tank E5. However, the data sheets from PO-040-305 were not used on this date; a 12 page version was used instead. Further, tank E5 did not appear on the 12 page version. I asked Mr. Bill Foreman, Operations Shift Supervisor, why tank E5 was not on the form. He said the tank was probably empty and removed from the list, but then someone realized that it was a regulated tank and added it back to the list. He said he thought a new checklist had been developed. (Reference Section 3, Document Review, above.)

After lunch, Mr. Stephenson, Mr. Young, and I performed a visual inspection of the emergency equipment locker located outside 2714A chemical warehouse. The emergency plan for PUREX, WHC-IP-0263-202A, contains a comprehensive list of emergency equipment at various locations through the facility. *All emergency items required under WHC-IP-0263-202A for 2714-A were in the locker as required.* In addition, PUREX staff had a laminated phone list inside the locker door with a list of emergency contacts and phone numbers.

Mr. Stephenson, Mr. Young, and I met with Mr. Sean Eiholzer, PUREX Process Engineer, to discuss the PUREX WAP and associated sampling. I requested copies of the RCRA protocol sample results for tank F-18 from the last several sampling events. Mr. Eiholzer provided the documents (Attachment 22). Mr. Eiholzer stated that the last RCRA protocol samples were taken in October 1993, prior to the last shipment of waste from PUREX/F-18 to Tank Farms. I asked about the quarterly sampling schedule identified in the WAP (WHC-SD-WM-ANAL-020, Rev. 0, Section 4.2, page 16). He said that if no shipment is made, no quarterly RCRA samples are taken. Hence, no RCRA protocol samples from tank F-18 have been taken since October 1993. (NOTE: Mr. Eiholzer later reported that another shipment of waste had been sent to tank farms in December 1993, but no RCRA protocol sample was taken.)

OBSERVATION 5: RCRA protocol samples are not being taken on a quarterly basis as required under the PUREX WAP.

The following four sets of data identified by PUREX staff as RCRA protocol sample analyses were provided by PUREX staff:

February 25, 1993

Sample #3256

All required analyses performed, except volatile organic analysis (VOA)*

May 14, 1993

Sample #3843

Analyses missing for NO₂, NO₃, pH, Pu, VOA

June 21, 1993

Sample #4075

Analyses missing for NO₂, NO₃, pH, Pu, VOA

October 25, 1993

Sample #4492

All required analyses performed, except volatile organic analysis (VOA)*

* The PUREX WAP, issued June 1993, states, "Volatile organic analysis of PUREX wastes is required by the DST waste analysis plan but has not been conducted on any of the RCRA samples taken to date since VOA capabilities have only recently been available. Before a VOA analysis is requested, coordination between PUREX and 222-S Laboratory will be required"

FINDING 7: RCRA protocol samples are not being taken in accordance with Table 10, PUREX Plant Sample Parameter List.

Wednesday, April 27, 1994

I met Mr. Stephenson, Mr. Young, and Mr. Eiholzer at the PUREX conference room at 0900 hours. I discussed the difficulty I was having in correlating surveillance checklists with specific tanks. As written, the checklists correlate surveillance instrumentation

(identified by a unique numbering system) to surveillance activities (weight factor measurements, temperature, etc.), but do not always indicate which tank is being monitored. Mr. Eiholzer said that he would redline the checklists to clarify the surveillance activities and the associated tank. (NOTE: Mr. Eiholzer's redline checklists were provided the next day. Reference: Attachments 8-11)

We discussed the history of Tank E-5. Mr. Eiholzer said that E-5 was drained to Tank F-18 from June 17-18, 1991. A work package was initiated on July 19, 1991, to fix a malfunctioning weight factor alarm switch, as indicated on the January 31, 1994, checklist. Mr. Eiholzer said that in 1991, staff had not yet confirmed that E-5 would no longer be used for waste storage, and therefore issued a work order to fix the switch. An April 26, 1994, J-1 Work Request summary (Attachment 23) indicated that the work item was completed on February 16, 1993, and the system was functional.

Friday, May 6, 1994

I met Mr. Stephenson and Mr. Young at the UO₃ facility at 1000 hours. I asked about dangerous waste remaining in the facility. Mr. Risenmay explained that Phase 1 of the UO₃ cleanout process was completed February 28, 1994. This initial phase consisted of removing process material and flushing equipment and vessels, activities Mr. Stephenson reported are considered by USDOE/WHC to be part of the facility's last routine operation. Phase 1 was completed February 28, 1994, and is being considered the first day of a 90-day accumulation period for any waste remaining in tanks. Mr. Risenmay said that all dangerous waste would be removed from UO₃ within the 90-day accumulation period.

Mr. Risenmay reported that all tanks at UO₃, except four deemed active, have been flushed and are emptied of any dangerous waste. The last flush samples taken from now inactive tanks were summarized in a report written by Mr. E. Gonzales, WHC Advanced Engineer. I reviewed the report but was not given a copy because final signature has not been obtained. (A draft had been provided to Ecology at a previous meeting, Attachment 24). Mr. Risenmay stated that two active tanks, X-37 and C-5, contain distilled water with no dangerous waste component. The other two active tanks, C-1, and C-2, currently contain dangerous waste. Mr. Risenmay explained that Phase 1 final flushes went to C-2 and were concentrated. The beel solution from C-2 went to C-1 and is scheduled to be shipped to PUREX Tank P-4 next week. Mr. Risenmay said that after next week's shipment, neither tanks C-1 nor C-2 will contain waste with any dangerous waste component. (NOTE: Mr. Risenmay said that C-2 will continue active and discharge through X-37 and C-5 to the U-17 crib. This waste stream [contaminated rain water] is covered under the Liquid Effluent Consent Order and scheduled to cease discharge by September 1994. He said tank C-1 will also remain active through December 1994.)

5. Summary of Findings and Observations

Finding 1: Surveillances were not conducted in accordance with existing procedure (Plant Operating Procedure, Perform PUREX Routine Surveillance for

OSR Compliance During Standby, PO-040-305, issued November 29, 1993).

Finding 2: Surveillances were not conducted in accordance with existing procedure (Plant Operating Procedure, Perform PUREX Surveillance for OSR Compliance During Standby, PO-040-307, issued April 16, 1993).

Finding 3: The PUREX Staffing/Training Plan, as provided to Ecology, does not include the name of the employee filling each job.

Finding 4: The PUREX/UO₃ Organizational Directory does not mirror the organizational structure presented in the PUREX Staffing/Training Plan, e.g., organization codes are inconsistent or missing, and organization titles are inconsistent.

Finding 5: Employees have not received training as required under the PUREX Staffing/Training Plan.

Finding 6: The UO₃ Facility Staffing/Training Plan, as provided to Ecology, does not include the name of the employee filling each job.

Finding 7: RCRA protocol samples are not being taken in accordance with Table 10, PUREX Plant Sample Parameter List, in the PUREX WAP.

Observation 1: The Emergency Plan for UO₃ Facility should be updated to include reference to the Hanford Facility Contingency Plan, issued October 1993.

Observation 2: The Emergency Plan for PUREX facility, Appendix 1, "Hazardous Waste Location and Emergency Response Matrix," has mis-entered data in the "Credible Event" category.

Observation 3: Procedure, WHC-CM-5-9, Section 4.23, Management of Waste Stored on the PUREX Canyon Waste Pile or in the PUREX Storage Tunnels, needs to be revised to exclude waste pile management.

Observation 4: The title for procedure WHC-CM-5-9, Section 4.25, "Inspection of Containerized Dangerous Waste Accumulation Areas," should be changed, e.g., "Inspection of Containerized Dangerous Waste Accumulation Areas and Interim Status Treatment/Storage Tank Systems." ("Accumulation areas" refers to container storage under WAC 173-303-200 requirements, not interim status TSD requirements for waste storage tanks.)

Observation 5: RCRA protocol samples are not being taken on a quarterly basis as required under the PUREX WAP.

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6. Conclusions/Recommendations

Applicability of a UO₃ Part A

- o A Part A is not necessary for the UO₃ facility provided that on-site accumulation requirements are met (WAC 173-303-200). As a result, dangerous waste stored and/or treated in vessels within UO₃ must meet generator requirements rather than TSD facility interim status requirements.

WAC 173-303-300 General waste analysis

- o USDOE/WHC need to perform waste analysis protocols as outlined in the PUREX WAP (WHC-SD-WM-ANAL-020, Rev. 0). (Finding 7)
- o USDOE/WHC will need to revise the PUREX WAP to include the additional vessels deemed applicable for inclusion into the existing PUREX Part A.

WAC 173-303-320 General inspection

- o USDOE/WHC need to perform inspection and surveillance protocols as outlined in inspection plans (WHC-CM-5-9, Section 4.25, Rev. 4; PO-040-305, PO-040-307). (Findings 1, 2)
- o USDOE/WHC will need to revise WHC-CM-5-9, Section 4.25, Inspection of Containerized Dangerous Waste Accumulation Areas, to include the additional vessels deemed applicable for inclusion into the existing PUREX Part A. The 7 tanks (E5, F15, F16, F18, G7, U3, U4) and 1 concentrator (E-F11) currently under the existing Part A permit are the only tank systems identified for inspection in this procedure.
- o USDOE/WHC will need to revise the surveillance checklists (PO-040-305, PO-040-307) to include any additional vessels deemed applicable for inclusion into the existing PUREX Part A that are not already on a surveillance schedule.

WAC 173-303-330 Personnel training

- o USDOE/WHC need to revise the PUREX and UO₃ Staffing/Training Plans to either reference the Organizational Directory, or include the name of the employee filling each job. USDOE/WHC need to review and revise the Organizational Directory to assure coordination with the Staffing/Training Plans. (Findings 3, 4, 6)
- o USDOE/WHC need to assure training is provided in accordance with the PUREX Staffing/Training Plan. (Finding 5)

WAC 173-303-350 Contingency plan and emergency procedures

- o USDOE/WHC will need to revise the emergency plan for PUREX (e.g., Attachment I to the emergency plan) to include additional vessels deemed applicable for inclusion into the existing PUREX Part A.

WAC 173-303-380 Facility recordkeeping

- o Reference WAC 173-303-300 and -320 above.

WAC 173-303-640 Tank systems

- o USDOE/WHC will need to label containers to include WAC 173-303-630(3) and -640(5)(d) requirements for any vessels deemed applicable for inclusion into a Part A Permit Application for interim status storage. Vessels may be exempted from labeling requirements, on a case-by-case basis, e.g., location (inside the canyon), upon written approval from Ecology. USDOE/WHC will need to submit a written request to Ecology identifying tank number and reason why WAC requirements cannot be met.

40 CFR 265.191 Assessment of existing tank system's integrity

- o USDOE/WHC will need to perform a tank integrity assessment to satisfy Chapter 173-303 and 40 CFR requirements for tank G7, concentrator E-F11, and any other treatment and/or storage tanks that do not meet secondary containment requirements. Vessels may be exempted from integrity assessment requirements, on a case-by-case basis, upon written approval from Ecology. USDOE/WHC will need to submit a written request to Ecology identifying vessel number and reason why WAC and 40 CFR requirements either cannot be met or should not be required, e.g., date waste expected to be removed from vessel, etc.

7. Attachments

- 1) Letter, USDOE-HQ to USDOE-RL, dated December 21, 1992
- 2) Emergency Plan for UO₂ Facility
- 3) Emergency Plan for PUREX Facility
- 4) Hanford Facility Contingency Plan
- 5) PUREX Plant Waste Analysis Plan
- 6) Procedure, Management of Waste Stored on the PUREX Canyon Waste Pile or in the PUREX Storage Tunnels
- 7) Procedure, Inspection of Containerized Dangerous Waste Accumulation Areas
- 8) Procedure, Perform PUREX Routine Surveillance, dated November 29, 1993
- 9) Procedure, Perform PUREX Routine Surveillance, dated April 7, 1994
- 10) Procedure, Perform PUREX Surveillance for OSR Compliance During Standby, dated April 16, 1993
- 11) Procedure, Perform PUREX Surveillance for OSR Compliance During Standby, dated April 7, 1994
- 12) PUREX Staffing/Training Plan
- 13) UO₂ Facility Staffing/Training Plan

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- 14) PUREX Plant Dangerous Waste Tank Systems Integrity Assessment Report
- 15) PUREX Canyon Mixed Waste Storage Plan
- 16) Inventory of Waste in the PUREX Containment Building
- 17) PUREX Vessel Regulatory Status, dated April 19, 1994
- 18) PUREX/UO₃ Organization Directory
- 19) Employee Training Records
- 20) Daily Inspection Logs
- 21) Procedure, Perform Sump Handling and TK-18 Disposal
- 22) 1993 RCRA Protocol Sampling Results
- 23) J-1 Work Request Summary
- 24) Draft UO₃ Report

Note: Attachments are in Ecology's Master Compliance File, Report #94.042

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