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ROCKWELL OCCURRENCE REPORT NO. 86-07

REQUESTED BY: <u>R. D. Carrell</u>	DATE: <u>2-14-86</u>	TIME OF REQUEST: <u>10:00 A.M.</u>
PHONE NO. <u>373-1046</u>	ORGANIZATION CODE: <u>37500</u>	

LOCATION OF OCCURRENCE: <u>202-A (211-A)</u>	DATE: DD: <u>2-14-86</u> <u>2-12-13-86</u>	TIME OF OCCURRENCE: <u>2-12-86</u> <u>2-13-86</u>
SUBJECT OR TITLE OF OCCURRENCE: <u>Exceeding the pH Limits in PUREX Chemical Sewer During Regeneration</u> <u>of Demineralizer</u>		

PHONE NOTIFICATIONS BY INDUSTRIAL HYGIENE & SAFETY:		Initial
DOE-RL (3-7461)	Date: _____	Time: _____
RHO-Correspondence Control (2-1937)	Date: <u>2-14-86</u>	Time: <u>10:10am</u>
RHO-HS&E (3-1389)	Date: _____	Time: _____
RHO-HS&E (3-2203)	Date: _____	Time: _____

OCCURRENCE CANCELLED BY: _____	DATE: _____	TIME: _____
NOTIFIED:	DOE-RL	[]
	RHO-Correspondence Control	[]
	RHO-HS&E	[]
	RHO-HS&E	[]

RECEIVED

FEB 21 2017

EDMC

Initial Received:	Interim Received:	Final Received:
<u>2-21-86</u>	1st: <u>2-28-86</u>	<u>8-18-86</u>
(Due 3 WD)	(Due 10 WD)	
<u>(2-20-86)</u>	<u>3-3-86</u>	
	2nd: <u>3-11-86</u>	
	(Due 30 CD)	
	<u>3-16-86</u>	
	3rd: _____	
	(Due 180 CD)	

A-6700-170 (R-2-80)

Rockwell Hanford Operations

UNUSUAL OCCURRENCE REPORT

1. UOR No.
86-07

2. Status and Date:
Initial 2/18/86 Interim 2/24/86 Final 8/14/86

Department or Project

PUREX Operations

4. Facility, System, or Equipment
PUREX/202-A/211A Demineralizer

5. Date of Occurrence
2/12 & 13/86

6. Time of Occurrence
0945 hrs/1015 hrs

7. Subject of Occurrence
Date Declared: 2/14/86

Exceeding pH limit of PUREX Chemical Sewer Discharge during Routine Regeneration of Water Demineralizers

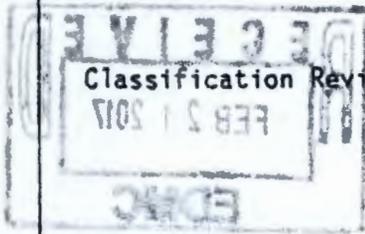
8. Apparent Cause:
Design Material Personnel Procedure Other (Explain in Item 14)

9. Description of Occurrence
On February 12, during routine regeneration of a water demineralizer, the sulfuric acid flush was discharged to the chemical sewer in accordance with Procedure #PO-180-200. The chemical sewer pH monitor alarmed at this time. The discharge was below a pH of 2. The flush discharge and alarm were coincident with a 15 minute overflow to the chemical sewer from the nitric acid tank (TK-156) in the Aqueous Makeup Area (AMU). On February 13, 1986 another demineralizer was regenerated while being carefully monitored by Process Control Engineering. The chemical sewer exceeded the pH limit again during the sulfuric acid discharge.

These two releases were reported to WDOE as required.

Distribution

- Appendix C
- A. D. Daniel
- J. H. Ellis
- D. G. Harlow
- W. M. Harty, Jr.
- R. A. Van Meter
- B. F. Weaver



Classification Review by: R. H. Sudmann

[Handwritten signature] 2/14/86

10. Operating Conditions of Facility at Time of Occurrence
Head End and solvent extraction were operating.

11. Immediate Evaluation
 Initial evaluation of the pH alarm suspected that regeneration of the demineralizer had been the cause. When the nitric acid overflow to the sewer was also identified, regeneration of the other demineralizer was closely observed to verify that it could cause this condition.

12. Immediate Action Taken and Results
 Management was notified. Regeneration was terminated on 2/13/86 when the pH limit was exceeded again. The chemical sewer was manually diverted to the 216-A-42 basin and regeneration was completed.

13. Is Further Evaluation Required: Yes No If Yes, Before Further Operation: Yes No NCR Required? Yes No
 If Yes, By Whom? D. G. Harlow
 When: Complete (ref. IL #65940-86-152)
 NCR Number C.A. Colvin
 Facility QA Rep. Signature

14. Final Evaluation and Lessons Learned
 Regeneration of the PUREX water demineralizers is required three to four times per week. The cation and anion exchange units require concentrated sulphuric acid and sodium hydroxide respectively for this regeneration. While blending of both discharge streams (co-regeneration) can neutralize the discharge, it is difficult to maintain proper mixing and control on a continuous flow basis without a retention/neutralization vessel. Until funding and installation of a chemical sewer retention and neutralization system can be accomplished, some risk of recurrence exists since current facility configuration requires reliance on administrative controls as the primary preventive barrier.

15. Corrective Action: Taken Recommended To be supplied
 1. Revise the operating procedure to require co-regeneration of the demineralizer tanks. Action complete.
 2. Implement policies and procedures to require diversion of the chemical sewer to the 216-A-42 retention basin for neutralization when the pH discharge limits are approached. Action complete.
 (continued)

16. Programmatic Impact
 The loss incurred by this occurrence is less than \$1000.

17. Impact Codes and Standards
 None

18. Similar Unusual Occurrence Report Numbers
 A review of the UOR's occurring in the last 30 months has been made. Two similar events were identified: UOR 86-20 (B-Plant) and UOR 86-35 (PUREX).

19. Originated By	Title	Date
R. D. Carrell <i>Robert D Carrell</i>	Sr. Mfg. Eng., PUREX Processing Group	
Reviewed By		Date
R. A. Van Meter <i>R.A. Van Meter</i>	Manager, PUREX Services Group	8-17-86
D. G. Harlow <i>D.G. Harlow</i>	Manager, PUREX Process Engineering	8/14/86
G. T. Dukelow <i>G.T. Dukelow</i>	Plant Manager, PUREX Operations	8-15-86
R. B. Gelman <i>R.B. Gelman</i>	Manager, QA	8/13/86
A. C. Crawford <i>A.C. Crawford</i>	Director, Chemical Processing	8/15/86
R. H. Sudmann <i>R.H. Sudmann</i>	Health Representative	8/14/86
J. E. Albaugh <i>J.E. Albaugh</i>	Director, S&OA	8/13/86
J. C. Gilliland <i>J.C. Gilliland</i>	Director, External Affairs	
R. W. Szempruch <i>R.W. Szempruch</i>	Manager, PUREX Health Physics	8/14/86

UOR No.
86-07UOR Date
2/12 & 13/86Facility
PUREX/202A**15. Corrective Action, Continued:**

3. Adjust chemical sewer pH monitor alarm set points to provide adequate advance warning to permit diversion of the effluent stream prior to reaching the pH discharge limits. Action complete.
4. Design and installation of the retention/neutralization system will be tracked under Capital Project B-669, "Demineralizer Regeneration Neutralization System".

NOTE: Please use this form when there is insufficient space for providing complete information on pages 1 and 2. Indicate the appropriate page number, UOR number, and UOR date. When entering information on this form, use the appropriate item number and title for each item carried over from pages 1 and 2.