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Department of Energy

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JUN 30 1992

Mr. Paul T. Day  
Hanford Project Manager  
U.S. Environmental Protection Agency  
Region 10  
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Mr. David B. Jansen, P.E.  
Hanford Project Manager  
State of Washington Department of Ecology  
Post Office Box 47600  
Olympia, Washington 98504-7600

Dear Messrs. Day and Jansen:

COMPLETION OF HANFORD FEDERAL FACILITY AGREEMENT MILESTONE M-17-11 (TABLE D-5 INTERIM OPERATING RESTRICTIONS FOR PUREX PLANT EFFLUENT STREAMS) AND PROPOSED MILESTONES M-17-22A, M-17-23A, AND M-17-24A AND CONSENT ORDER MILESTONES

This letter is to inform you of the completion of three proposed Hanford Federal Facility Agreement Milestones M-17-22A, -23A, and -24A (Change Package M-17-91-05) and the respective operating restrictions per State of Washington Department of Ecology (Ecology) Consent Order, Number DE-91NM-177. The following are the proposed milestones as well as the operating restrictions.

Tri-Party Agreement Proposed Milestones Change Package M-17-91-05

- Plutonium-Uranium Extraction (PUREX) Plant Steam Condensate Milestone M-17-22A

Discontinue discharge of the PUREX Plant steam condensate to the 216-A-30 and 216-A-37 cribs. Reroute effluent flow to the 216-B-3 pond system via the PUREX chemical sewer.

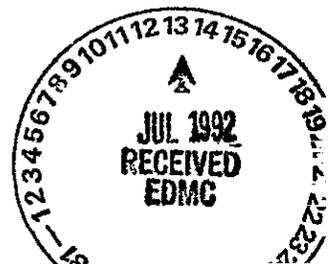
- PUREX Plant Cooling Water Milestone M-17-23A

Reroute effluent flow to the 216-B-3 pond system via the PUREX chemical sewer.

- PUREX Plant Chemical Sewer Milestone M-17-24A

Complete PUREX reconfiguration and source control to minimize volume and reroute the remaining PUREX cooling water and steam condensate to the 216-B-3 pond system via the PUREX chemical sewer.

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Ecology Consent Order DE-91NM-177

In addition to the requirements listed above, the consent order lists the following:

- Limit chemical sewer effluent discharge to the 216-B-3 pond system to less than or equal to 600 gallons per minute (gpm), averaged over the calendar month by June 1992, provided continued discharge is consistent with the closure schedule and strategy within any Ecology-approved 216-B-3 Pond System Closure Plan.
- Measurement of the discharge flow volume shall be by a combination of magnetic and pneumatic flowmeter with data recording by strip chart recorder. The data sheets shall be stored at the PUREX Plant.

The steam condensate discharge has been discontinued to the cribs by rerouting to the 216-B-3 pond system via the chemical sewer. The cooling water has also been rerouted to the 216-B-3 pond via the chemical sewer. Seventy contributors to these streams have been blanked leaving eight remaining contributors. One of these has administrative lockout control and the combined flow of the seven remaining contributors and the previous chemical sewer flow will be less than 600 gpm, averaged over the calendar month. The enclosure provides information on the accomplishment of these milestones.

These proposed milestones and operating restrictions differ from the Milestone M-17-11, Table D-5 interim operating restrictions for the PUREX effluent streams in that the combined total monthly average flow rate for the PUREX Chemical Sewer is less than 600 gpm (proposed) instead of 500 gpm. The Chemical Sewer flow will be maintained under 500 gpm until the 216-A-42 Retention Basin will need to be pumped out in late July, 1992. We anticipate Change Package M-17-91-05 will be approved by that time.

Should you or your staff have any questions, you may contact me at (509) 376-6798 or Mr. J. E. Mecca at (509) 376-7471.

Sincerely,



S. H. Wisness  
Hanford Project Manager



OPD:SSC

Enclosure:  
Plutonium-Uranium Extraction (PUREX) Plant  
Liquid Effluent Milestone Information

cc w/encl:

G. Anderson, Ecology  
R. J. Bliss, WHC

R. E. Lerch, WHC  
J. C. Midgett, WHC

T. B. Veneziano, WHC

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PLUTONIUM-URANIUM EXTRACTION (PUREX) PLANT  
LIQUID EFFLUENT MILESTONE INFORMATION

EFFLUENT SYSTEMS

PUREX Plant Steam Condensate

The historical flow rate of the Steam Condensate (SCD) effluent stream has been 300 to 700 gallons per minute (gpm) during processing and 50 to 150 gpm during non-processing periods. Nineteen of 23 contributors to the SCD stream were eliminated through the installation of 61 piping blanks. One contributor, the Crane Maintenance decontamination shower, has been administratively locked out-of-service. Three remaining contributors are as follows:

1. Condensed steam from heaters for the fourth (Main Stack) filter building which only flows during the winter months (this equates to an annualized flow of 0.2 gpm).
2. Condensed steam from the proposed operation of a nonhazardous wastewater concentrator (E-F11) to minimize water accumulation (equates to less than 1Q gpm if operated).
3. Sump drains from the area beneath the water fillable doors for the PUREX storage tunnels (normally dry, water fillable doors operated less than annually).

The SCD diversion valve has been locked in the DIVERT position, directing any flow from SCD to the 216-A-42 retention basin where it is sampled, analyzed, and transferred as a batch via the Chemical Sewer (CSL) to the 216-B-3 pond system. See section below discussing retention basin operation.

PUREX Plant Cooling Water

The historical flow rate of the Cooling Water (CWL) stream has been 6,000 to 10,000 gpm during processing and 500 to 1500 gpm during nonprocessing periods. Source controls have eliminated 51 of 55 contributors to the CWL through the installation of 112 piping blanks. The four remaining contributors are as follows:

1. Cooling/seal water for the PUREX Plant (202-A Building) sample vacuum pump (a flow of approximately 8 gpm) - This flow is necessary for providing environmental record samples and monitoring for personnel protection. A new line which will route this flow directly to the CSL upstream of monitoring instrumentation is scheduled to be completed this fiscal year.

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PLUTONIUM-URANIUM EXTRACTION (PUREX) PLANT LIQUID EFFLUENT  
MILESTONE INFORMATION

2. Cooling water for the Main Stack sample vacuum pump (a flow of approximately 20 gpm) - This pump is necessary for providing the required environmental record samples of the stack. Installation of the first of two closed-loop chillers, which will eliminate the cooling water flow, is scheduled to be completed by the end of July 1992. The second chiller (back-up) installation is scheduled to be completed by the end of August 1992.
3. Seal and cooling water for a solution transfer vacuum pump in the N Cell plutonium-oxide system (volumes are anticipated to be a few thousand gallons per use/test) - This pump will be operated infrequently to transfer solutions between tanks during N Cell cleanout work.
4. Cooling water for the system supplying dry air to the N Cell plutonium-oxide hoods (a flow of approximately 40 gpm) - This system will be operated infrequently to supply dry air during N Cell cleanout work.

The CWL line has been blanked, diverting any flow from the CWL to the 216-A-42 retention basin where it is sampled, analyzed, and transferred as a batch via the CSL to the 216-B-3 pond system. See section below discussing retention basin operation.

PUREX Plant Chemical Sewer

The historical flow rate of the CSL is 500 to 1200 gpm during processing and 200 to 600 gpm during nonprocessing periods. Flow in the CSL has been reduced by valving out flow to the Acid Fractionator (acid recovery system) condenser cooling coils and reboiler tube bundle. (Additionally, no deionized regenerations are expected and therefore no discharges of resin regenerants ( $H_2SO_4$  and NaOH) or rinse water are anticipated.) The balance of the flow in CSL is from building heating and cooling, equipment cooling, backup fire system supply (Tank 2901-A) overflow and minor contributors such as personnel showers, cold-side floor drains, and sanitary water heater condensate. The reductions in flow are sufficient to keep the future combined CSL (including minor contributors from the SCD and CWL) below the 600 gpm limit. Records show the CSL flow has been approximately 350 gpm for the last few months. The flow added by contributors from the SCD and CWL should be less than 50 gpm averaged over a month.

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PLUTONIUM-URANIUM EXTRACTION (PUREX) PLANT LIQUID EFFLUENT  
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216-A-42 RETENTION BASIN OPERATION

The 216-A-42 retention basin provides hold-up capacity for liquid effluents which may not be releasable to the environment due to chemical or radiological contamination. Historically, flow in the SCD, CWL, or CSL has been diverted to the basin when radiological or pH release limits were approached (mostly spurious alarms). The diverted water was sampled and analyzed to determine whether it was releasable or needed to be sent to double shell tanks. When the water was releasable, it was pumped to the 216-B-3 pond or 216-A-30 and 216-A-37-2 cribs. The route to the cribs is locked out. When water is pumped out of the basin, the volume transferred is measured and documented in a batch mode, per Plant Operating Procedure PO-600-120, "Operate Effluent Diversion System." This flow (release) is then added to the monthly flow (releases) of the appropriate stream.

The SCD diversion valve has been locked in the DIVERT position and the CWL line has been blanked so that any flow in these lines goes to the basin. The retention basin is therefore part of the rerouting system for the remaining three SCD and four CWL flow contributors discussed previously. The two continuous flow contributors which transfer approximately 25 gpm to the basin will be routed to the basin on an interim basis during installation of the main stack sample vacuum pump chillers and the 202-A Building sample vacuum pump seal water drain line. The first chiller is estimated to go on line in late July 1992, which will eliminate most of the 25 gpm flow. Reroute of the sample vacuum pump seal water drain line will be completed in September 1992, and will direct the remaining continuous flow to the CSL, upstream of all monitoring instrumentation. After these projects have been completed, the basin will be recirculated, sampled, and pumped to the CSL as described above.

Typically, the flow in the CSL is less than 450 gpm, this added to the maximum capacity of the basin pump (125 gpm) would not exceed 600 gpm even on an instantaneous basis.

Should the chiller installation extend beyond the end of July, the CWL stream may need to be temporarily reestablished for about ten days while the retention basin is pumped out to the 216-B-3 Pond. Pumping out the basin will provide an additional 30 days of diversion time for project completion. The basin can hold approximately 1.8 million gallons. At 25 gpm the basin would contain one million gallons in 30 days (June 30 to July 30). It is desired to keep the remaining 0.8 million gallons of space available, so that the CSL could be diverted to the basin in the unlikely event that radioactive or hazardous materials were released to the stream.

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PLUTONIUM-URANIUM EXTRACTION (PUREX) PLANT LIQUID EFFLUENT  
MILESTONE INFORMATION

SUMMARY

The following data summarizes the historical effluent stream flow rates from the PUREX Plant and the reductions which have been accomplished through source control and isolation.

<u>PUREX STREAM FLOWS</u>			
	During Fuel Processing Periods	During Nonprocessing Periods	After Modifications Completion
SCD	300-700 gpm	50-150 gpm	0
CWL	6,000-10,000 gpm	500-1500 gpm	0
CSL	500-1,200 gpm	200-600 gpm	400-600 gpm (1)

(1) Projected flow rate based on projected peak flows.  
Includes rerouted flows from CWL and SCD

This has been accomplished by:

1. Installation of blanks on 70 contributors.
2. Administrative lockout control on one contributor.
3. Diversion of the remaining seven contributors to the 216-B-3 pond via the CSL and the 216-A-42 retention basin, the two continuous streams on an interim basis.

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# CORRESPONDENCE DISTRIBUTION COVERSHEET

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Subject: COMPLETION OF HANFORD FEDERAL FACILITY AGREEMENT MILESTONE M-17-11 (TABLE D-5 INTERIM OPERATING RESTRICTIONS FOR PUREX PLANT EFFLUENT STREAMS) AND PROPOSED MILESTONES M-17-22A, M-17-23A, AND M-17-24A AND CONSENT ORDER MILESTONES

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