For Approval of

Name	Approved	Date
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WJ Bjorklund	WJB	10/9/89
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October 11, 1989

Mr. R. D. Izatt, Director
Environmental Restoration Division
Department of Energy
Richland Operations Office
Richland, WA 99352

Dear Mr. Izatt:

SUPPLEMENTAL INFORMATION REGARDING PART A WITHDRAWAL PETITIONS

Ref: Roger Stanley's letter to R. D. Izatt, R. E. Lerch, and T. D. Chikalla, dated August 17, 1989, subject "Part A Withdrawal Petition." 30-75

Attached please find Pacific Northwest Laboratory's (PNL) response to the above reference letter for the 324 Pilot Plant for your review. PNL has worked closely with Westinghouse Hanford Company to ensure that our responses are similarly formatted.

If you have any questions regarding the attachment, please contact R. L. Newell on 376-3835.

Very truly yours,

T. D. Chikalla, Director
Facilities and Operations

TDC/WJB:drm.X2

In Triplicate

Attachments

cc: D. L. Duncan, DOE-RL
R. G. Holt, DOE-RL
A. W. Kellogg, DOE-RL
D. L. Sours, DOE-RL
J. J. Sutey, DOE-RL

ADDITIONAL INFORMATION REQUESTED FOR
324 PILOT PLANT WITHDRAWAL REQUEST

As requested in the Washington State Department of Ecology letter of August 17, 1989, the following additional information is provided to support the Part A permit application withdrawal for the 324 Pilot Plant. Responses to specific requests are summarized below.

Request 1: A complete description of the use of the solution conditioning tank.

The purpose of the solution conditioning tank, in conjunction with the main sodium vessel, was to determine the effectiveness of the pilot plant at removing (i.e., decontaminating) radioactivity from sodium-wetted hardware via a four-step process. It should be noted that the solution conditioning tank was only used during a small percentage of pilot plant campaigns; i.e., it was used only when the research objectives included identifying the quantity of radioactivity removed.

The following process steps describe how the tank was used.

Step 1. The process started by filling the solution conditioning tank with deionized water and adding citric and glycoloic (hydroxiacetic) acids (common decontamination agents) to make a 2.5% solution.

Step 2. Test coupons contaminated with radioactivity were wetted with sodium, were then placed in the main vessel where the sodium was removed with the water vapor-nitrogen process.

Coupons were small (one to several inches square) pieces of metal from pumps and vessels proposed for use in breeder programs.

Step 3. To remove the radioactivity from the coupon, decontamination solution from the solution conditioning tank was then pumped into the main vessel to remove the radioactivity from the coupons.

Step 4. The coupons were then removed from the main vessel and tested to determine the effectiveness of steps 2 and 3.

As can be seen from the description of the process, the tank was a chemical makeup tank and was not used in direct contact with sodium- and/or radioactively-contaminated parts.

Request 2: Further description of the use of this facility during the 1980-1983 time period. This should include all documentation necessary to support the petition withdrawal (i.e., log books, etc.).

The laboratory record books (LRBs) that describe the operations of the 324 Sodium Pilot Plant are available for your inspection at any time. We have summarized the entries in the LRBs during the time period requested (see

Table 1). In instances where log entries were unclear, we interviewed operating personnel who were still onsite.

It should be noted that during 1980-1983, the plant was operated by the Hanford Engineering Development Laboratory, which was subsequently consolidated with PNL on July 1, 1987.

TJM:drm
ADDINFO.324

TABLE 1. Chronology of the 324 Pilot Plant Operations, 1980 Through 1983.

- JANUARY 1, 1980-MARCH 10, 1981: no activity
- MARCH 11, 1981: first run of the wetting station. Four "crevice blocks" and one "handling socket" were cleaned (i.e, the sodium was removed).
- (a)APRIL 15-17,1981: second run of the wetting station. A potential helium leak was checked. Four crevice blocks, one handling socket, and a screen cylinder were cleaned.
- APRIL 22-24, 1981: thirty, small, tensile specimens were wetted with sodium for future cleaning tests.
- APRIL 27-MAY 7, 1981: an SCA subassembly simulated the hydraulics of a fuel assembly and was cleaned (SCA is similar to a fuel assembly but it is nonnuclear and has a filter/particle trap to capture debris left over from construction). Decontamination is different from cleaning. Decontamination is the removal of deposited radioactivity using a mild acid process. The acid for this activity was mixed in the solution conditioning tank. Filter/particle traps(9) were also cleaned.
- MAY 15,1981: filter and debris (from the SCA cleaning) were dried and weighed.
- MAY 14-20, 1981: SCA cleaning run #2; 9 subassemblies were cleaned.
- MAY 29-JUNE 5,1981: SCA run #3; 9 subassemblies were cleaned.
- JUNE 9-17, 1981: SCA run #4; 19 filter/particle traps were cleaned.
- JUNE 18-29, 1981: SCA run #5; 9 subassemblies were cleaned.
- JUNE 29-July 8, 1981: SCA run #6; 9 subassemblies were cleaned.
- JULY 9-16, 1981: SCA run # 7; 19 filter/particle traps were cleaned.
- JULY 16-23, 1981: SCA run # 8; 9 subassemblies were cleaned.
- JULY 25, 1981: SCA run #9; 3 subassemblies were cleaned.
- JULY 26-AUG.3, 1981 SCA run #10; 9 subassemblies cleaned.
- AUGUST 4-10, 1981: SCA run #11; 19 filter/particle traps were cleaned.
- AUGUST 10-17, 1981: SCA run #12; 9 subassemblies cleaned.
- SEPTEMBER 2, 1981: decontamination solution put into the reaction vessel.
- SEPTEMBER 4, 1981: demineralized water added to the reaction vessel.

(a)Please note, the dates not shown had no activity.

- SEPTEMBER 8, 1981: added water to reaction vessel.
- SEPTEMBER 9, 1981: emptied decon solution from reaction vessel and rinsed.
- SEPTEMBER 10-17, 1981: SCA run #13; 11 subassemblies cleaned.
- SEPTEMBER 17-23, 1981: SCA run #14; 18 filter/particle traps cleaned.
- SEPTEMBER 23-29, 1981: SCA run #15; 12 filter/particle traps cleaned.
- NOVEMBER 2-25, 1981: decontamination feature test run.
- FEBRUARY 3-4, 1982: loaded lithium target assembly into pilot plant.
- APRIL 13-15, 1982: cleaned 9 encapsulated fuel pins.
- MAY 18-21, 1982: cleaned CLEM grapple.
- MAY 24-JUNE 2, 1982: disposal of contaminated NaK.
- JULY 21-AUG.13, 1982: decontamination run demonstration test-III.
- SEPTEMBER 24-Oct.26, 1982: cleaning of a collection of sodium wetted parts.
- OCT. 28-NOV. 19,1982: cleaned core components grapple.
- MARCH 15-APRIL 11, 1983: oxygen meter calibration studies.
- SEPTEMBER 23-30, 1983: reacted slightly radioactive sodium in can with oil circulating to cool block.
- SEPTEMBER 30-OCT.3, 1983: processed Oak Ridge contaminated sodium.
- OCTOBER 3-31, 1983: no work in the sodium pilot plant.