

START

HAND DELIVERED TO Ecology: L. Russell
J. Walker

RE: REQUESTED INFORMATION CONCERNING PROCEDURAL CLOSURE OF PHYSICAL / CHEMICAL AND THERMAL TREATMENT PART A APPLICATIONS 9/6/95

Provided below are written responses to questions/information requested by Ms. Laura Russell during an Ecology field inspection conducted August 16, 1995 and during the out briefing for the inspection August 18, 1995.

Ecology Request - August 18, 1995 (Based on electronic mail message received 8/18/95 from L. Russell, WDOE)

- (1) *Additional information regarding the ISV testing as per the 19 April 1990 letter from Energy to Ecology. The April 19, 1990 letter states two test to be performed: a pilot-scale test on a small tank and a large-scale test on a larger tank. The pilot-scale test was scheduled for April/May 1990 and the large-scale test for September 1990. Were the two tests conducted? All documentation I have indicates the September 1990 was the "pilot-scale" test. Please clarify. Also, the April 19, 1990 letter states 2500 liters of process scrub solution and 4 cubic meters of material were expected to be generated and classified as hazardous wastes. Where (were) these wastes generated? From which test? What happened to the wastes?*

Response: There were two ISV tests that were conducted in the 300 W Area as stated in the April 19, 1990 letter to Ecology. The first test was a "pilot-scale" test performed with waste simulant during September 1990. The second test was performed as a large-scale ISV test during April 1991. The second test used a larger tank (15' diameter) filled with pumice and contained no simulant. Process scrub and decon solutions were generated from the pilot-scale test. These wastes were sent to a permitted TSDF (305B). Copies of logbook entries, waste management requests, and shipping documents resulting from this activity (decon, waste handling) have been provided as requested in Attachment A.



Ecology Request - August 23, 1995 (Based on electronic mail message received 8/23/95 from L. Russell, WDOE)

- (1) *What happened to the equipment used in the large scale in-situ test at the 116-B-6-1 Crib?*

Response: The ISV equipment used for the large-scale test was decontaminated prior to release from the 100 area and shipped to the 300 W Area. PNL staff involved with the 100 Area test have verified that the large-scale ISV system was cleaned out (including scrub solution removed, solids from the scrub tanks removed, and HEPA filters removed like the pilot scale system). An inspection of records and project files did not produce analytical data demonstrating the performance of the decontamination procedures. Analytical data is expected in the next two months from pre-test analysis of the ISV off-gas treatment train and associated equipment used in the 1991 test. This equipment is currently in use at Oak Ridge, TN.

- (2) *Are additional treatability tests planned using the plasma-arc pyrolysis equipment (located in the EDL highbay)?*

Response: Additional treatability testing activity is planned for the plasma-arc pyrolysis equipment located in the 324 Building highbay. This work is expected to continue in the 324 Building.

- (3) *Pat Weaver, said Langdon Holton has information on upcoming treatability tests for the SST sludge to be performed in the C-Cell of the REC. Can you see what is available on this subject?*

Response: Included in Attachment B is a copy of the "Functions and Requirements for the Sludge Pretreatment Demonstration", Rev 1, dated October 1994. The work described in this document is intended for C-Cell of the REC.

- (4) *Mention was made of documentation PNL has regarding the decontamination of the equipment used to treat simulated*

carbon tet/nitrate samples (formally located in building 324), first floor of biological treatment test facility, now located outside of the building awaiting disposition).

Response: Prior to transfer out of the building, tap water (approx. 20 gallons) from the Bio-Reactor system clarifier was autoclaved and transferred to the process sewer. The water from the clarifier was tap water from the 324 Building and used to demonstrate the processing unit functionality. No chemicals were added to the clarifier during the standby period prior to transfer. Project records indicate the simulated groundwater (SGW) used in the Bio-Reactor system contained sodium metasilicate, carbonate, sulfate, and potassium hydroxide with a near neutral pH. Other SGWs contained potassium phosphate and sodium hydroxide (at near neutral pH). Logbook entries are provided in Attachment C showing the composition of the SGWs. Approximately 100 gallons of SGW was released to the process sewer following review and concurrence by PNL Environmental Compliance. Sand contained in a pan to catch any nutrient solutions spilled during the filling of carboys was analyzed and disposed of in accordance with PNL waste management procedures (see attached CDRR records for the sand). The other surfaces of the Bio-Reactor system were washed with water prior to removal from the 324 Building. The system was then dismantled and moved outside the 324 Building.

- (5) *What is the status of the tanks in "pit tank" area (located next to rooms 22A/B in the basement of 324 building)? What is in the tanks? Is the effluent from filtrate tanks used in waste vit processes in EDL? What happens to the effluent in these holding tanks?*

Response: The tanks function as condensate collection tanks. The condensate is generated from wet scrubbers that are used to treat gaseous effluent from vitrification equipment. The scrubbers remove the water vapor, large particulate, and depending on scrubbing efficiency, some of the acid gases and decomposition gases. The vitrification off gas is comprised of air, water vapor, entrained particulate, aerosol particles, acid

gases, and decomposition gases such as NO_x, CO_x, and SO_x. The condensate is recirculated as a scrubbing liquid when a ejector venturi scrubber (tied to Tk 20) or packed column (tied to Tk 16) are operated. The condensate can subsequently be processed through a thermosyphon evaporator or hydropulse particulate filter if evaluation of either of these process steps is part of the campaign. The condensate is either used as process makeup water for the next campaign, incrementally disposed of during the campaign (following analysis), or if the test is of short duration it is held until the conclusion of the test and disposed of after sample analysis is complete.

If the condensate meets the requirements for discharge directly to the 300 area waste effluent treatment facility, 324 Building management will remove the lockout from the drain and approve its discharge. If it exceeds the requirements it is managed as waste and disposed of through the 305B facility.