

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 70-008/80-01; 30-5728/80-01

Docket No. 70-008; 30-5728

License No. SNM-7; 34-6854-05

Licensee: Battelle Columbus Laboratories  
505 King Avenue  
Columbus, OH 43201

Facility Name: Battelle Columbus Laboratories

Inspection At: Columbus Laboratories

Inspection Conducted: April 22-24, 1980

Inspector: *for W. L. Fisher*  
C. C. Peck

6/2/80

Approved By: *W. L. Fisher*  
W. L. Fisher, Chief  
Fuel Facility Projects and  
Radiation Support Section

6/2/80

Inspection Summary

Inspection on April 22-24, 1980 (Report No. 70-008/80-01; 30-5728/80-01)

Areas Inspected: Routine, unannounced health and safety inspection, including: organization, operations review, facility changes and modifications, safety committees, internal exposure control, external exposure control, surveys, and a followup on IE Bulletin 79-19. The inspection involved 17 inspector-hours on site one NRC inspector.

Results: No items of noncompliance or deviations were identified in the areas inspected.

800714004

## DETAILS

### 1. Persons Contacted

\*W. J. Madia, Manager, West Jefferson Nuclear Services  
\*H. L. Toy, Licensing Coordinator  
W. J. Gallagher, Operations Manager, Hot Cell Laboratory  
\*H. M. Faust, Assistant Group Manager, West Jefferson Nuclear Services  
G. E. Kirsch, Health Physics Supervisor  
J. Wissinger, Plutonium Laboratory Health Physics Technician  
E. R. Swindall, Hot Cell Laboratory Health Physics Technician  
T. R. Einsweiler, Transportation Supervisor

\*Denotes those attending exit interview.

### 2. Licensee Action on Previous Inspection Findings

(Closed) Deviation (70-008/80-01; 30-5728/80-01). The inspection disclosed that the new stack monitoring system in the Hot Cell Laboratory is complete and operable as stated in the licensee's letter dated September 12, 1979 (Paragraph 5b).

### 3. General

The inspection began at 11:30 a.m. on April 22, 1980, at the licensee's King Avenue offices. Records of radiation safety meetings, audits and reviews by the Radiological Safety Committee, and correspondence related to waste handling and transportation were reviewed. The inspector toured the Hot Cell and Plutonium Laboratories, examined health physics records, and inspected waste packaging and transportation procedures at the West Jefferson Nuclear Facility on April 23 and 24.

The licensee submitted a combined application for renewal of licenses SNM-7 and 34-6854-05 in October 1977. The application has not yet been approved. The licensee is thus operating in timely renewal under licenses dated in 1973 and since amended many times. Much of the information and requirements of both the 1973 license and the 1977 application are presently obsolete because of the decontamination of the Plutonium Laboratory and changes made in the Hot Cell Laboratory.

### 4. Organization

Mr. H. M. Faust is now Assistant Group Manager of Nuclear Services at West Jefferson. His responsibilities include Transportation, Operational Health Physics, Nuclear Materials Accountability, and Environmental Health Physics.

Mr. D. A. McKown, Radiological Safety Officer, has assumed responsibility for management of Security at West Jefferson in addition to his responsibilities for radiological safety.

Mr. J. F. Dettorre, formerly manager of Nuclear Services at West Jefferson, is Project Manager for decontamination and dismantling studies.

Mr. V. Pasupathi is Associate Manager for Nuclear Materials Technology, responsible for Hot Cell Laboratory operation.

A second health physics technician has been assigned to the Hot Cell laboratory.

5. Operations Review

a. Plutonium Laboratory

All gloveboxes have been removed from the laboratory, and have been sent to waste burial or are packaged and stored. Work continues on the dismantling and removal of equipment, piping, ductwork, etc. At the time of the inspection, a portion of the laboratory which includes the metallurgical laboratory and the plutonium-238 laboratory had been cleaned and surveyed in accordance with ANSI Standard N13.12, "Control of Radioactive Surface Contamination on Material, Equipment, and Facilities to be Released for Uncontrolled Use." This portion of the laboratory was also surveyed by representatives of DOE. The licensee is awaiting affirmation by DOE that the decontaminated section may be released for unrestricted use.

Water generated during cleanup operations is being collected and pumped to the Hot Cell Laboratory for evaporation.

Operation of the laboratory stack monitors has continued. The number of continuous air monitors in use has been reduced from seven to two.

b. Hot Cell Laboratory

In a tour of the Hot Cell Laboratory, a number of modifications and improvements were noted.

- 1) A second spent fuel rack has been installed in the fuel pool with spaces for six fuel assemblies in a linear arrangement. The new rack is located on the side of the pool opposite the original rack which also provides space for the storage of six assemblies. The inspector examined the criticality analysis for the new rack and the quality assurance inspection procedures for the installation during the previous inspection (Report 70-008/79-04) and found the documents acceptable. Completed QA documentation was not inspected during this inspection.

- 2) A new air lock to facilitate access to the old hot cells has been installed.
- 3) Construction of the waste storage addition to the Hot Cell Laboratory is virtually completed and is in use. The facility replaces an outside, fenced storage area which has been removed. In addition to permitting inside storage of hot cell waste, the area is intended to facilitate waste handling and provide storage space for equipment and casks. It is anticipated that exposures to personnel will be reduced.
- 4) Installation of the new stack monitoring system for the old cells was completed in August 1979 in accordance with a licensee commitment. The system appeared completely operable at the time of the inspection.

6. Radiation Protection

a. Plutonium Laboratory

External Exposure Control - Examination of film badge records generated since the inspection of October 1979 disclosed no problems. The maximum dose for any individual for the first quarter of 1980 was 100 mrem.

Internal Exposure Control - Quarterly urinalysis data showed no evidence of plutonium in any individual.

Glovebox dismantling was concluded without internal exposure to any of the workers involved. The work was accomplished in ventilated plastic tents by people wearing air supplied respirators and equipped with lapel samplers positioned inside plastic hoods. Air activity exceeded MPC on some occasions while work was in progress. The inspector made a cursory inspection of air sampling and lapel sample data, which indicated no significant problems. The licensee said that nasal swabs, routinely taken after worker exit from the tent, had disclosed no instances of contamination.

Surveys - Routine air sample data and smear surveys have continued. Records disclosed no unusually high air activity or contamination problems.

b. Hot Cell Laboratory

External Exposure Control - The maximum dose noted to any individual for the first quarter of 1980 was about 570 mrem. A summary of film badge data for 1979 shows that the average dose was about 1100 mrem. The 1978 average was about 2000 mrem.

Internal Exposure Control - Results of semiannual whole body counts for mixed fission products conducted in June and December 1979 were examined. The data for December indicated small amounts of cobalt-60 and cesium-137 in a small percentage of workers. Highest counts in individuals were 2.8% of MPBB for cobalt-60 and 0.04% MPBB for cesium-137. The June series of counts disclosed similarly small amounts.

Surveys - The inspector examined smear survey and continuous air monitor calculations made since the inspection of August 1979. These records indicated no significant problems.

No items of noncompliance related to radiation protection were identified.

7. Followup of IE Bulletin 79-19

Actions taken by the licensee in response to IE Bulletin 79-19 were examined. The program for transfer, packaging, and shipping of waste materials was reviewed. Findings are summarized below:

- a. Current copies of NRC and DOT regulations are maintained. The licensee has copies of burial site licenses for the three active burial sites.
- b. Procedures providing instructions for the packaging of low level waste were prepared. The principal procedure is a quality assurance document, NS-PI-5, "Packaging of Licensed Low Level Radioactive Waste for Disposal."
- c. Training sessions in packaging of low level waste were conducted for licensee staff people at West Jefferson. The Transportation Supervisor held a training session in September 1979 covering regulatory requirements. The Radiological Safety Officer provided instructions in October 1979 on regulations and internal packaging procedures.
- d. Licensee management assigned responsibility for auditing low-level waste management to the Radiological Safety Officer, who conducted and documented an initial audit in October 1979. Audits are to be made annually.
- e. The inspector did not examine the waste stored on site.

8. Exit Interview

The inspector met with the licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on April 24. The inspector described the scope of the inspection and stated that no items of noncompliance had been identified.



Radioactive waste disposal problems were discussed. The licensee had generated a large quantity of waste, from both DOE-owned and licensed materials. In addition to low-level wastes, an accumulation of transuranic wastes and high level wastes has resulted from the decontamination program in the Plutonium Laboratory and work with spent fuel in the Hot Cell. Present commercial waste burial site licenses do not permit acceptance of transuranic materials or of high level wastes, and DOE sites do not routinely accept commercial wastes.