NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

April 7, 2003

Mr. Craig Jensen
Corporate Radiation Safety Officer
Battelle Memorial Institute
Columbus Operations
505 King Avenue
Columbus, Ohio 43201-2693

SUBJECT: NRC INSPECTION RECORD 07000008/2003-002(DNMS)

Dear Mr. Jensen:

On March 20, 2003, the NRC completed an inspection at the West Jefferson site located near Columbus, Ohio. The purpose of the inspection was to determine whether decommissioning activities were conducted safely and in accordance with NRC requirements. At the conclusion of the site inspection on March 14, 2003, the NRC inspectors discussed our preliminary findings with you and members of your staff. On March 20, 2003, the NRC discussed our final findings with members of your staff.

This inspection consisted of an examination of decommissioning activities at the West Jefferson site as they relate to safety and compliance with the Commission's rules and regulations. Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities in progress, and interviews with personnel. The inspection was extended through March 20 to review activities surrounding the licensee's corrective actions from previous violations and the event reporting system.

Based on the results of this inspection, the NRC did not identify any violations of NRC requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rule of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the *Publicly Available Records (PARS) component of NRC's document system (ADAMS)*. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

We will gladly discuss any questions you may have regarding this inspection.

Sincerely,

/RA/

Christopher G. Miller, Chief
Decommissioning Branch

Docket No. 070-00008
License No. SNM-7

Enclosure: IR 07000008/2003-002

cc w/encl: R. Vandegrift, Ohio Dept. of Public Health
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APPENDIX A

MATERIALS DECOMMISSIONING INSPECTION FIELD NOTES
FOR FACILITIES NEEDING SIGNIFICANT DECOMMISSIONING EFFORT

Region III

Inspection Report No.	**07000008/2003-002(DNMS)**
License No.	**SNM-7**
Docket No.	**070-00008**
Licensee (Name & Address)	**Battelle Memorial Institute** **Battelle Columbus Laboratories Decommissioning Project**
Licensee Contact	**Craig E. Jensen, Corporate Radiation Safety Officer**
Telephone No.	**(614) 424-5170**
Date of Last Inspection	**February 1-3, 2003**
Date of This Inspection	**March 10-14, 2003 with continuing NRC review through March 20, 2003**
Date of Next Inspection	**April, May, June 2003**

Type of Inspection: (X) Announced ( ) Unannounced
(X) Routine ( ) Special
( ) Initial Decomm. (X) Reinspection of Decomm.

Brief Description of Inspection Activities:

The NRC conducted a routine inspection. The inspection activities covered a wide range of program areas including, but not limited to, a review of corrective actions associated with the previous bioassay program, environmental monitoring, and the management auditing program.

Brief Description of Findings and Action:

No violations of NRC requirements were identified.

Summary of Findings and Action:

(X) No violations cited, clear NRC Form 591 or regional letter issued
( ) Violation(s), clear NRC Form 591 issued
( ) Violation(s), regional letter issued
( ) Followup on previous violations

Inspectors: _____ 4/1/03
Michael LaFranzo; Radiation Specialist Date

_____ 4/7/03
Eugenio Bonano; Radiation Specialist Date

_____ 4-1-03
Peter Lee; Radiation Specialist Date

Approved: _____ 4/7/03
C.G. Miller, Decommissioning Branch Chief Date

[Field notes are to be used by the inspector to assist with the performance of the inspection. Note that all areas indicated in the field notes are not required to be addressed during each inspection. However, for those areas not covered during the inspection, a notation ("Not Reviewed") should be made in each section where applicable. Additionally, all areas covered during the inspection should be documented in sufficient detail to describe what activities and/or records the inspector observed. The fieldnotes to the "Decommissioning Inspection Procedure for Materials Licensees" should be supplemented with: (1) the applicable inspection procedures for operating facilities provided in the Inspection Procedure (IP) 87100 series; and (2) other written documentation of the inspection, as necessary.]

1. SUMMARY OF DECOMMISSIONING STATUS

The checklist below is intended to provide, in a written outline format, summary documentation of the status of the licensee's facility in the decommissioning process. This documentation will be filed as part of the inspection report. The inspector should use this information to develop each inspection plan(s) for the various stages of decommissioning, namely, before dismantlement, during dismantlement and site remediation, and after site remediation.

A.	Licensee ceased operational program.	(X) Y ( ) N
B.	Required decommissioning financial assurance mechanisms in place.	(X) Y ( ) N
C.	Decommissioning Plan (DP) required.	(X) Y ( ) N
D.	Licensee final survey required.	(X) Y ( ) N
E.	NRC confirmatory survey required.	(X) Y ( ) N
F.	NRC closeout inspection required.	(X) Y ( ) N
G.	Licensee doing decommissioning planning and preparation before dismantlement.	(X) Y ( ) N
H.	Licensee actively remediating site.	(X) Y ( ) N
I.	Licensee completed site remediation.	( ) Y (X) N

2. INSPECTION OF KEY DECOMMISSIONING ACTIVITIES

The following is a generic checklist of major licensee activities occurring at various stages of decommissioning. From this generic checklist and from facility-specific activities you identify, develop the set of licensee activities to be inspected - for each individual inspection throughout the decommissioning process. Plan to inspect licensee activities that present potential high-risk conditions. Then apply the standard health and safety inspection areas in Section 3 of these fieldnotes (taken from the applicable 87100 series IP for the licensee's operational program) to the specific licensee decommissioning activities that are being inspected.

To complete the licensee activities checklist, the inspector will need to obtain information from the Licensing Project Manager, review the DP, make observations at the licensee's facility, review licensee records, take measurements and samples of contaminants, and undertake

other investigative measures, to determine whether the licensee is meeting all regulatory and DP commitments for each decommissioning activity the licensee is performing.

A. LICENSEE ACTIVITIES INSPECTED BEFORE DISMANTLEMENT

1. Licensed material used during operations has been removed from site. (In process) (X) Y ( ) N

2. Facility license conditions are in place and met by licensee. (X) Y ( ) N

3. Site security and control of contaminated material being maintained in compliance with 10 CFR 20.1801 and 20.1802. (X) Y ( ) N

4. Support systems and services (e.g., lighting, water supply) are in place. (X) Y ( ) N

5. Decommissioning schedules are consistent with timeliness requirements in 10 CFR 30.36, 40.42, and 70.38.
See Below

6. Licensee's record keeping is consistent with 10 CFR 30.35, 40.36, and 70.25. () Y (X) NR

7. Financial assurance requirements are being maintained in accordance with 10 CFR 30.35, 40.36, and 70.25. ( ) Y (X) NR

8. Licensee is conducting site characterization in accordance with applicable radiation protection procedures. ( ) Y (X) NR

9. Construction of new site features (e.g., roads, rail spurs, staging areas, sediment control ponds) conforms to DP and does not compromise health and safety of workers and public. ( ) Y (X) NR

10. Licensee activities conform to specific license conditions and licensee programs and procedures. (X) Y ( ) N

Basis of Findings:

During the inspection, the licensee's staff provided the inspectors with a decommissioning schedule. This schedule indicated that all decommissioning activities involving decontamination and transportation of waste off site would not be complete until approximately August 2006. At this time, the materials license expires on December 31, 2005. The licensee's staff is continuing to review schedules and programs to determine whether the site decommissioning will be completed on December 31, 2005, or whether an extension to the expiration date is necessary.

B. LICENSEE ACTIVITIES INSPECTED DURING DECONTAMINATION, DISMANTLEMENT, AND SITE REMEDIATION

1. Site security and control of contaminated material being maintained in compliance with 10 CFR Part 20. (X) Y ( ) N

2. Decontamination and dismantlement of structures are being performed consistent with DP and sound industry practice (structures include buildings, utilities, treatment lagoons, etc.). ( ) Y (X) NR

3. Decontamination and remediation of the following are being performed consistent with DP and sound industry practice:

   a. Soil. (X) Y ( ) N
   b. Sediment. (X) Y ( ) N
   c. Surface waters. (X) Y ( ) N
   d. Groundwater. (X) Y ( ) N
   e. Other mediums: (X) Y ( ) N

Radiological analysis of effluent (water and air) releases from 2002 showed no positive results of licensed materials. Based on instrument detection sensitivities, if there were releases of licensed materials, the concentrations would be well below the DCG (Derived Concentration Guide) values specified in DOE Order 5400.5, as well as the concentration guidelines specified in 10 CFR 20, Appendix B, Table 2.

Due to the removal of the concrete floor and excavation of contaminated soils, the ground water from outside Buildings JN-1 and JN-3 infiltrated the buildings. As a result, the licensee is considering the potential of contamination leaching out from the buildings. The NRC will continue to monitor future developments in this area.

4. Licensee release and disposal of decommissioning wastes are consistent with DP and approved by NRC for:

   a. Liquid wastes (e.g., groundwater, surface water, liquid from treatment ponds, process liquids). (X) Y ( ) N
   b. Solid wastes (e.g., building materials, process and other facility equipment, concrete rubble, soil). (X) Y ( ) N
   c. Other wastes: ( ) Y ( ) N

At this time, the licensee is continuing to test the WIDE (Well Injection Distribution and Extraction) system to determine whether the system will remove radioactive waste from the soil. Once fully tested and operational, the system will remove radioactive material from the soil using a pump and treat system. This system was installed to minimize the amount of environmental damage caused by digging up the contaminated soil and shipping the soil to a low level radioactive waste disposal site. The licensee anticipates that the system will have local, state and federal permits approved and will be operational on or about August 2003.

The licensee is continuing to generate solid and process liquid waste from several buildings on site, primarily JN-1.

5. Temporary, on-site storage of low-level radioactive wastes from decommissioning meets license conditions and guidance in IP 84890. ( ) Y ( ) N

This area was not inspected during this inspection.

6. Packaging and shipment of radioactive waste materials meet requirements in 40 CFR Parts 173-178 and 10 CFR Part 71. (X) Y ( ) N

This area was not inspected during this inspection.

7. Restoration of site - Licensee has restored site to meet license conditions and NRC-approved plans. ( ) Y ( ) N

The licensee is continuing decommissioning activities.

8. Licensee survey of material and equipment for free release sufficient to demonstrate compliance with release criteria.

This area was not inspected during this inspection.

Basis for Findings:

See above

C. LICENSEE ACTIVITIES INSPECTED AFTER COMPLETION OF SITE REMEDIATION

Basis for Findings:

This section is not applicable.

3. INSPECTION OF STANDARD HEALTH AND SAFETY AREAS FROM THE OPERATIONAL INSPECTION PROGRAM

Identify the standard inspection areas (from the inspection program of the licensee's operational program) to be covered during each decommissioning inspection. [Inspection areas A through L below correspond to the typical inspection areas in the 87100 series IPs that are applicable to decommissioning.] Then identify the new activities within the standard inspection areas undertaken by the licensee during decommissioning. Some of the new activities given below, as well as any other activities the inspector identifies, should be considered inspection items under the general set of health and safety inspection areas used in the applicable 87100 series IP.

Minimum inspection areas for the initial decommissioning inspection: decommissioning organization (A.1); decommissioning activities in compliance with NRC-approved DP (A.2); licensee procedures for implementing the DP (A.3); Radiation Safety Committee (RSC) and Radiation Safety Officer (RSO) responsibilities (A.4); and the licensee's decommissioning training program (E.1).

A. GENERAL OVERVIEW

1. Describe the licensee's decommissioning organizational structure:

The licensee's organization was as described in the Decommissioning Plan. The RSO performs general oversight of the radiation protection program, and ensures compliance with license conditions.

2. Licensee is performing decommissioning activities in compliance with its approved DP. (X) Y ( ) N

3. Licensee has implemented procedures for the decommissioning activities identified in the DP. (X) Y ( ) N

4. The RSC and RSO fulfill license requirements to deal with all decommissioning activities. (X) Y ( ) N

Basis for Findings:

In NRC Inspection Report 070-00007/2002-003(DNMS), three violations of NRC requirements were identified concerning this section. The violations were: 1. The failure to maintain staff assignments as specified or to request a timely amendment; 2. The failure to conduct RSO surveillances of the type and frequency specified, and to document and report as specified; and 3. The failure to brief personnel prior to entering areas assigned a RWP, to document the RWP briefing, and to verify completion of RWP briefings.

The inspector, while on site, reviewed corrective actions as stated in the licensee's, "Reply to a Notice of Violation, 26 November 2002" and determined that the licensee is currently in compliance with NRC requirements.

Two elements under of the licensee's corrective actions (Response C, Corrective Actions, Paragraph 2) for the third violation (VIO 070-00008/2002-003-03) listed above indicated:

1. An interim measure, implemented on 26 September 2002, for a listing (BCLDP Form 349) of authorized workers be physically located with each DDO-117 RWP Sign-In-Sheet at the control point;

2. An interim procedure field change for BCLDP procedure HP-AP-1.0, implemented on 31 October 2002, requiring the maintenance of a listing of personnel who have been briefed on the specific job at the control point, as well as individual worker verification of proper authorization at each RWP sign-in.

Both elements were terminated in January 2003 because they were too cumbersome. Licensee management is voluntarily maintaining a list of workers for the purpose of monitoring 10 percent of the workers who have received a pre-job briefing for work instructions and authorized on the related RWP. The other 90 percent working under radioactive waste RWPs and their immediate supervisors will be responsible for following BCLDP procedure HP-AP-1.0 and be held accountable for ensuring compliance. BCLDP procedure HP-AP-1.0 was revised to emphasize worker and supervisory responsibilities with respect to worker briefing attendance, and the RWP process. The inspector did not identify

any further items of concern or violations regarding these areas during the inspection. These violations are closed.

In addition, the inspectors reviewed a representative sample of the licensee's management structure. The inspectors noted that individuals interviewed had appropriate knowledge and authority to implement the portion of the program assigned.

B. FACILITIES

1. Describe, from field observation, the licensee-identified facilities and outdoor areas to be decommissioned:

During the inspection, the inspectors observed various activities related to the decommissioning of the JN-1 building and the WIDE system.

2. The licensee's remediation plan includes all the contaminated facilities and areas on-site and off-site. (X) Y ( ) N

3. All essential systems and services (e.g., electrical power, water supply, communications systems) are in place and functional for the planned decommissioning activities. (X) Y ( ) N

4. Licensee's emergency plan is in place and operative for the duration of decommissioning. ( ) Y ( ) N

This area was not reviewed during this inspection.

5. For complex sites needing site characterization, describe the key site characterization activities to be performed by the licensee to determine the nature and extent of contamination:

The licensee is currently reviewing the circumstances surrounding water intrusion into JN-1 and JN-3 as a result of subsurface decontamination efforts. See section 2.B.3 for further details.

6. Licensee's characterization activities performed in conformance with good industry practice. (X) Y ( ) N

C. EQUIPMENT AND INSTRUMENTATION

1. Survey instruments are applicable to contaminants of interest. (X) Y ( ) N

2. Use of survey instruments appropriate for site. (X) Y ( ) N

Basis for Findings:

The inspector noted that the licensee was using appropriate radiological survey instruments properly to analyze and address radiological conditions during the cask loading and surveys of the transportation container.

D. MATERIALS

1. Radioactive materials licensed during operations have been removed offsite; residual quantities conform to license conditions.

The licensee is continuing to remove low level radioactive waste for disposal or recycling. As a result of a disagreement between the Department of Energy (DOE) and the State of Washington, the licensee is currently unable to ship Transuranic Waste to Hanford. The licensee is unsure whether these differences can be resolved this year. Therefore, the licensee and DOE are reviewing alternative onsite or offsite temporary storage. The NRC will continue to monitor the effect of this issue on site decommissioning activities.

2. Security and control of licensed materials, including contaminated areas, is being maintained. (X) Y ( ) N

Basis for Findings:

The inspectors interviewed security personnel and noted security activities on site. The inspectors noted that security was adequate for the program.

E. TRAINING

1. Licensee has developed training program for new decommissioning activities (e.g., demolition of structures, excavation of soil); program is adequate. (X) Y ( ) N

2. Training program being effectively implemented. (X) Y ( ) N

Basis for Findings:

Under NRC Inspection Report 070-00007/2002-003(DNMS), two violations of NRC requirements were identified concerning this section. The violations were: 1. The failure to complete prescribed training for specified job categories; 2. The failure to develop job descriptions for sub-contractors, and to approve and document equivalent training.

The inspectors reviewed corrective actions for both violations as stated in the licensee's, "Reply to a Notice of Violation, 26 November 2002" and determined that the licensee is currently in compliance with NRC requirements. The inspector did not identify any further items of concern or violations regarding these areas during the inspection. These violations are closed.

In addition, the inspectors interviewed a number of licensee staff and management individuals. The inspectors noted that each individual had appropriate knowledge to ensure work was performed safely and in accordance with NRC requirements.

F. AREA RADIATION SURVEYS AND CONTAMINATION CONTROL

1. Area surveys are being performed in areas being decommissioned. (X) Y ( ) N

2. Where active remediation (e.g., demolition of structures, excavation of soil) is being performed, radiation levels in unrestricted areas do not exceed 2 mrem in any one hour. (X) Y ( ) N

Basis for Findings:

The inspectors conducted radiation surveys at various locations throughout the site. The inspectors did not identify any abnormal radiation levels.

G. RADIATION PROTECTION

1. The licensee's approved health physics program is being implemented in the field for new decommissioning activities. (X) Y ( ) N

2. Site security and control of contaminated material are in compliance with 10 CFR 20.1801 and 20.1802. (X) Y ( ) N

Basis for Findings:

<u>On-Site Laboratory</u>
The Battelle Radioanalytical Laboratory (RAL) maintains an adequate QA program for the counting instruments and radiochemical separations. The RAL participates in the semiannual DOE Environments Laboratory (EML) Quality Assessment Program. All of the analyte concentrations measured by the RAL in 2002 were within EML's activities boundaries.

<u>Air Sampling</u>
In some cases, the licensee is using general air sampling in the work areas to obtain air radiological concentrations and to assign the DAC.HRs for the internal dose assessments if the lapel air sampling cannot detect fractions of DACs due to the small volume of air being sampled. The licensee is continuing to review general air monitoring activities to ensure the licensee takes a representative air sample of the breathing zones.

<u>Bioassay</u>
The current MDCs of the urine bioassay for the Transuranic's range from $6x10^{-3}$ to $5x10^{-2}$ pCi/L that, in some cases, exceeds 1 ALI. To detect the intakes of fractions of ALI, the licensee is in discussions with the bioassay contractor to obtain an MDC close to $1x\ 10^{-2}$ pCi/L.

H. RADIOACTIVE WASTE MANAGEMENT/EFFLUENTS/ENVIRONMENTAL MONITORING

1. Offsite disposal of decommissioning wastes conforms to free release criteria and disposal site requirements. (X) Y ( ) N

The licensee has been informed not to ship Transuranic waste to Hanford. See section 3.D for details.

2. All new effluent releases conform to DP and applicable regulations. (X) Y ( ) N

3. The licensee's environmental monitoring program is being implemented in conformance with the DP and all applicable limits are being met. (X) Y ( ) N

4. Temporary storage/staging areas for radioactive wastes from building demolition, equipment dismantlement, soil excavation, etc., are adequately posted and protected. (X) Y ( ) N

Basis for Findings:
The licensee has not detected any water or air effluent concentrations in excess of NRC limits from the facility. The licensee is currently reviewing the circumstances surrounding water intrusion into JN-1 and JN-3 as a result of subsurface decontamination efforts. See section 2.B.3 for further details.

I. RECORD KEEPING FOR DECOMMISSIONING

1. Copies of the licensee's decommissioning cost estimates and funding methods are on file. ( ) Y (X) NR

2. Licensee has adequate records for decommissioning activities performed (e.g., for decontamination and dismantlement of structures; decontamination and remediation of soil, sediment, surface waters, groundwater; surveys of remediated facilities). (X) Y ( ) N

3. Licensee's financial assurance conforms with the financial assurance requirements of NRC-approved possession limits and NRC regulations. (X) Y ( ) N

Basis for Findings:

Within the areas inspected, the inspectors noted that documents to ensure decommissioning activities were performed appropriately were present and readily available.

J. TRANSPORTATION

1. Describe the licensee's program to package and ship decommissioning waste materials:

See Below

2. Licensee's program meets all applicable 10 CFR and 49 CFR requirements for marking labeling, placarding, and shipping paper requirements for radioactive waste shipments. (X) Y ( ) N

Basis for Findings:

The licensee has been informed not to ship Transuranic Waste to Hanford. See section 3.D for further details. The licensee is continuing to ship low level radioactive waste to Hanford for disposal as needed. The licensee is continuing to determine what is necessary to ship the Saxton Fuel Pin to Savannah River for disposal. The NRC will continue to monitor all activities noted above.

K. POSTING AND LABELING

1. All contaminated areas, waste processing areas, and waste handling areas are posted in conformance with regulations. (X) Y ( ) N

2. Packaged radioactive waste materials are labeled in accordance with regulations. (X) Y ( ) N

Basis for Findings:

While reviewing the licensee's health physics practices, the inspector noted that posting and labeling were properly addressed in the areas inspected.

L. OCCUPATIONAL HEALTH AND SAFETY

1. Describe the occupational health and safety observations made at the licensee's facilities:

Safety shoes, glasses and helmets were required in areas inspected. All personnel working in these areas were provided with the appropriate equipment.

2. Licensee and Occupational Safety and Health Administration were informed of occupational health and safety issues observed during the inspection. ( ) Y (X) N

4. **VIOLATIONS, NON-CITED VIOLATIONS, FOLLOWUP ITEMS, AND OTHER ISSUES**

Briefly state (1) the requirements and (2) how and when the licensee violated the requirement. For non-cited violations, indicate why the violation was not cited. Briefly describe followup items and other issues.

No violations of NRC requirements were identified during this inspection.

END