

October 12, 2002

EA-02-194

Craig Jensen, CHP
Battelle Memorial Institute
Columbus Operations
505 King Avenue
Columbus, OH 43201-2693

SUBJECT: EXERCISE OF ENFORCEMENT DISCRETION AND NOTICE OF VIOLATION
NRC INSPECTION REPORT 070-00008/2002-003(DNMS)
BATTELLE COLUMBUS LABORATORIES DECOMMISSIONING PROJECT
(BCLDP)

Dear Mr. Jensen:

This refers to the inspection conducted by representatives of this office of activities at the Battelle Memorial Institute facilities, located at West Jefferson, Ohio, on August 21 through August 23, 2002, and to the subsequent review and evaluation of additional information relating to the activities inspected, which concluded on September 11, 2002. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspection included a review of management oversight and radiological protection activities. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. This inspection also included a review of the discovery of a spent fuel pin that was not included in the current site material inventory nor accounted for in the license possession limits. A copy of our report of this inspection is enclosed.

The preliminary findings of this inspection were discussed with you and members of the BCLDP staff at the conclusion of the onsite inspection activities on August 23, 2002. A final exit meeting was conducted by telephone with you and other members of BCLDP management and staff on September 11, 2002.

Based on the results of this inspection, the NRC has determined that six (6) Severity Level IV violations of NRC requirements occurred. These violations were evaluated in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600 (enclosed). Five of the violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The sixth violation's disposition is described later in this letter. The violations are being cited in the Notice because activities were not conducted in full compliance with NRC requirements, and Battelle's license conditions. In general, the violations involve: (1) two failures to comply with management oversight requirements; (2) two failures to comply with training program requirements; and (3) one failure to comply with requirements of the Radiation Work Permit program.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration and convenience, an excerpt from NRC Information Notice 96-28, "SUGGESTED GUIDANCE RELATING TO DEVELOPMENT AND IMPLEMENTATION OF CORRECTIVE ACTION," is enclosed. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

The Battelle Decommissioning Project continues to make significant progress in remediating its facilities. In general, the radiation protection program was in compliance with applicable NRC rules and regulations, reflected effective control of radioactive material, and included monitoring personnel exposure to ALARA (As-Low-As-Reasonably-Achievable) standards. However, the number and diversity of administrative and procedural violations identified during this inspection are a cause for concern. These violations collectively raise concerns about the effectiveness of your oversight, audit, and corrective action functions within the decommissioning program. In your response to the individual violations cited in the enclosed Notice, you are requested to include an assessment of whether and how the violations may share common root causes (for example, relating to resources or management attention) and to describe actions which you have taken or plan to take to address them.

Concerning the sixth violation, on July 18, 2002, Battelle submitted to the NRC a "Preliminary Written Notification Report," pursuant to Section 10 CFR Part 20.2203, "Reports of exposures, radiation levels, and concentrations of radioactive material exceeding the constraints or limits," informing the NRC that Battelle had discovered an intact special nuclear material fuel pin during the decontamination of a former fuel pool. Incorporation of this intact fuel pin into the materials inventory caused Battelle to be in violation of license Item 8, "Maximum amount that the licensee may possess at any one time under the license."

The possession of radioactive material in excess of your license is normally categorized at Severity Level IV in accordance with the Enforcement Policy. The NRC considered whether to exercise enforcement discretion in accordance with Section VII.B.6 of the Enforcement Policy due to: (1) the historical nature of the violation in that the radiological inventory record was modified in 1973, the violation was not caused by conduct that could reasonably be linked to present licensee performance, and there had not been prior notice so that the licensee should have reasonably identified the violation earlier; (2) the radiological controls and physical security of the area containing the fuel pin during the entire period it was unknowingly possessed; (3) the NRC's realization that when the license was issued, the exact amount of radioactive material on site would not be known until certain phases of decommissioning were completed; (4) the licensee's sufficient qualifications to be able to properly handle significantly higher amounts of this type of radioactive material; and (5) the licensee's immediate and follow-up corrective actions. As part of these corrective actions, the licensee promptly requested an amendment to its license to increase the possession limit. The licensee's ability to properly handle the additional material was recognized by the fact that the NRC was able to authorize the higher possession limit, without the need to put additional conditions or requirements on the

licensee. Based on the above, and after consultation with the Director, Office of Enforcement and the Regional Administrator, Region III, we have determined that exercise of enforcement discretion is warranted, and therefore, we are refraining from citing a violation for the possession of radioactive material in excess of your license.

This letter also acknowledges your telephone conversation with Mr. Mike McCann of the Region III office, when you informed Mr. McCann that BCLDP would update its inventory with the submission of Battelle's quarterly Material Balance Report by the end of October 2002.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be made 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 have concerning this inspection.

Sincerely,
/RA/
 Marc L. Dapas, Acting Director
 Division of Nuclear Materials Safety

Docket No. 07000008
 License No. SNM-00007

- Enclosures: 1. Notice of Violation
 2. Inspection Report 07000008/2002-003(DNMS)
 3. NRC Enforcement Policy
 4. Information Notice 96-28 Excerpt

cc w/encls: N. Gantos, BCDLP
 R. Vandegrift, ODH
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**OFFICIAL RECORD COPY
NOTICE OF VIOLATION**

Battelle Memorial Institute
Battelle Columbus Laboratories Decommissioning Project
West Jefferson, OH

Docket No. 070000008
License No. SNM-00007
EA-02-194

During an NRC inspection conducted August 23 through September 11, 2002, five violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," (Enforcement Policy), the violations are listed below:

- A. License Condition 12.B of License No. SNM-00007 requires, in part, that the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in "Radiation Protection Program Plan" (RPP), Battelle Columbus Laboratories Decommissioning Project, Revision 3, dated August 8, 2000.

RPP Section 0.1, "Organization and Responsibilities," states, in part, that "The BCLDP Radiation Protection Responsibilities Matrix is depicted in Table 0.1." Further, RPP sections 0.1.1, 0.1.2, 0.1.3, and 0.1.4, identify the duties and responsibilities for four individuals specifically named in the Radiation Protection Responsibilities Matrix, which includes the Radiological Technical Support Manager (RTSM).

Contrary to the above, as of August 23, 2002, the individual specifically named in the licensee's RPP as the RTSM was no longer employed by the licensee. Specifically, the individual vacated the position in March, 2002.

This is a Severity Level IV violation (Supplement VI).

- B. License Condition 12.B of License No. SNM-00007 requires, in part, that the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in "Radiation Protection Program Plan" (RPP), Battelle Columbus Laboratories Decommissioning Project, Revision 3, dated August 8, 2000.

RPP Section 0.8., "Program Oversight," states, in part, that the Radiation Safety Officer, (RSO), conducts surveillances (limited-scope assessments) of program components on a quarterly basis. The following program components are required to be evaluated on an annual basis: training (radiation worker and radiation protection staff); documentation and records; exposure control; instrumentation; and surveillance.

Contrary to the above, during calendar years 2001 and 2002, the licensee (RSO) failed to conduct surveillances on a quarterly basis and failed to address all the program components. Specifically, the RSO conducted two surveillances in 2001, and one surveillance in 2002, and addressed only two of the five components.

This is a Severity Level IV violation (Supplement VI).

- C. License Condition 12.B of License No. SNM-00007 requires, in part, that the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the "Decommissioning Plan" (DP), Battelle Memorial Institute

Columbus Operations, DD-93-19, Revision 3, August 3, 2000, and in the "Radiation Protection Program Plan" (RPP), Battelle Columbus Laboratories Decommissioning Project, Revision 3, dated August 8, 2000. Section 3.3.11 of the DP states, in part, that "HP Procedures shall be implemented as requirements".

The licensee's RPP, Section 5.6.1, "General RWP Requirements", and Procedure HP-AP-1.0, "BCLDP Radiation Work Permit (RWP) Program", Revision 6, requires that workers shall be briefed on the provisions of the controlling RWP prior to commencing work. Procedure HP-AP-1.0 also states that the Health Physics Control Point shall verify that each worker has been authorized to sign in on their designated RWPs.

Contrary to the above, during April 2002, seven workers commenced work without being briefed on the controlling RWP, and the Health Physics Control Point failed to verify that the workers had been authorized to sign in on the RWPs.

This is a Severity Level IV violation (Supplement VI).

- D. License Condition 12.B of License No. SNM-00007 requires, in part, that the licensee shall conduct its program in accordance with the statements, representations and procedures contained in the "Decommissioning Plan" (DP), Battelle Memorial Institute Columbus Operations, DD-93-19, Revision 3, August 3, 2000. Section 2.3.1 of the DP requires that the training program meets the requirements outlined in TD-AP-2.0, "BCLDP Indoctrination, Training, and Qualification Procedure." Section 4.7.1 of the procedure states, in part, that "responsible managers shall ensure that employees' qualifications are current and renewed at the frequency specified."

Contrary to the above, on August 23, 2002, the following were examples where licensee staff did not complete initial or required refresher training within their individual time frames:

- A decontamination and decommissioning technician was not re-qualified on nine out of 13 required qualifications due in 2000;
- A manipulator operator was not re-qualified on a qualification due in 2001;
- An emergency management specialist and a radiological technical support technician did not complete two required courses due in 2001;
- An emergency management specialist and a radiological technical support technician did not complete a job critical course which expired in 1999;
- An ALARA (As-Low-As-Reasonably-Achievable) technician and a health physics, (HP) technician did not complete a required course due in 2000;
- A non-BCLDP employee did not complete two basic BCLDP orientation training courses required of all personnel prior to commencing work; and

- Two subcontractors did not complete two basic BCLDP orientation training courses required of all personnel prior to commencing work.

This is a Severity Level IV violation (Supplement VI).

- E. License Condition 12.B of License No. SNM-00007 requires, in part, that the licensee shall conduct its program in accordance with the statements, representations and procedures contained in the "Decommissioning Plan" (DP), Battelle Memorial Institute Columbus Operations, DD-93-19, Revision 3, August 3, 2000. The DP prescribes training requirements and references the Battelle Columbus Laboratories Decontamination and Decommissioning Training Program Plan (Program Plan) and Procedure TD-AP-5.0, "Radiation Protection Training."

Paragraph 1 of the Program Plan requires, in part, that a job description be developed that identifies the required qualifications and critical job functions for positions to be filled by sub-contractors. Before a candidate is hired, the site manager checks references and verifies the candidate's education, skills, and experience.

Section 5.5, "Credit for the Non-BCLDP Training Courses," of the Radiation Protection Training Procedure, states, in part, that credit may be given for training administered by organizations other than BCLDP. The Radiological Technical Support (RTS) manager shall review the training received and make the determination of equivalency. The evaluation and copies of the documents used should be placed in the individual's training record.

Contrary to the above:

As of August 23, 2002, the licensee failed to develop job descriptions that identified the required qualifications and critical job functions for positions to be filled by subcontractors.

As of August 23, 2002, the licensee (RTS manager) failed to review subcontractor training administered by other organizations and make the determination of equivalency, and to place the evaluation and copies of documents used in the individual's training record.

This is a Severity Level IV violation (Supplement VI).

Pursuant to the provisions of 10 CFR 2.201, Battelle Memorial Institute is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555, with a copy to the Regional Administrator, Region III, within 30 days of the date of the letter transmitting this Notice of Violation. This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further violations; and (4) the date when full

compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an Order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made 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), to the extent possible, it should not include any personal privacy, proprietary or safeguards information so that it can be made available to the public without redaction. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room). If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 12th day of October 2002

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No. 07000008
License No. SNM-00007

Report No. 07000008/2002-003(DNMS)

Licensee: Battelle Memorial Institute

Address: Battelle Columbus Laboratories Decommissioning Project
(BCLDP)
West Jefferson, Ohio

Inspection Dates: August 21-September 11, 2002

Exit Meeting: September 11, 2002 (via telephone)

Inspectors: George M. McCann, Senior Radiation Specialist
(Lead Inspector)

Magdalena R. Dziejczak, Nuclear Safety Intern
Eugenio A. Bonano, Radiation Specialist

Accompaniment: Eric Dennison, Health Physicist
Ohio Department of Health

Approved by: _____
Christopher G. Miller, Chief
Decommissioning Branch
Division of Nuclear Materials Safety

Executive Summary

Battelle Memorial Institute Inspection Report No. 07000008/2002-003(DNMS)

This routine inspection involved review of the licensee's "Battelle Columbus Laboratories Decommissioning Project (BCLDP)" decommissioning activities at its West Jefferson, Ohio site. The focus of the inspection was on the licensee's activities and programs to ensure compliance with regulatory and safety requirements in the areas of management oversight, maintaining radiation doses As-Low-As-Reasonably-Achievable (ALARA), in-house training, and radiation work permits. The inspectors also followed up on the licensee's report dated July 18, 2002, informing the NRC of the unexpected discovery of a nuclear fuel pin in a storage pool.

The licensee continued to make significant progress in facilities remediation. In general, the radiation program was providing good controls and was achieving good results, in compliance with the NRC rules and regulations. However, five administrative and procedural violations were identified, raising concerns about the effectiveness of the licensee's oversight, audit, and corrective action programs.

Management Control and Oversight

- Two violations were identified. One violation related to the failure to maintain critical staff positions as specified through License Condition 12. The other violation related to the failure to perform Radiation Safety Officer (RSO) surveillances of the required type and frequency and failure to document and report surveillance results in the specified manner. The violations indicate that problems were not being addressed in a timely manner. (Section 2.0)

Radiation Protection

As-Low-As-Reasonably-Achievable (ALARA) Program

- The licensee's implementation of the ALARA program met license requirements and BCLDP procedures, and the ALARA program was functioning well. All individual and cumulative doses were maintained ALARA and were uniform. Actual doses were lower than estimated as indicated by the licensee's annual ALARA goals. (Section 3.1)

Radiation Work Permit (RWP) Program

- One violation was identified pertaining to failure to provide RWP briefings and failure to verify RWP training for some employees before allowing them to work in radiation contamination, high radiation, and high contamination areas. (Section 3.2)

Training Program

- One violation was identified pertaining to the licensee's failure to ensure that a number of BCLDP employees, sub-contractors, and consultants completed required training or refresher training, as required by the licensee's NRC approved Decommissioning Plan (DP), the licensee's Training Program Plan, and associated training procedures. (Section 3.3)

- One violation was identified pertaining to failure to develop appropriate job descriptions that would identify the required qualifications and critical job functions for non-BCLDP employees and subcontractors. In addition, BCLDP management did not document assessments of non-BCLDP training prior to allowing work in restricted areas as required by the licensee's NRC approved DP, the licensee's Training Program Plan, and associated training procedures. (Section 3.3)

Radiation Posting, Labeling, Security and Access Control

- The licensee's programs for control of licensed materials, including security, posting and access restriction to radiological or contamination areas, were being effectively implemented. (Section 3.4)

Discovery of Nuclear Fuel Pin

One potential violation was identified regarding failure to comply with radioactive material possession limits. However, in consideration of factors such as: (1) the historical nature of the violation; (2) the radiological controls and physical security of the area containing the fuel pin during the entire period it was unknowingly possessed; (3) the NRC's realization that when the license was issued, the exact amount of radioactive material on site would not be known until certain phases of decommissioning were completed; (4) the licensee's sufficient qualifications to be able to properly handle significantly higher amounts of this type of radioactive material; and (5) the licensee's immediate and follow-up corrective actions, and consistent with the NRC's "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy); the NRC has decided to exercise enforcement discretion and not issue a violation. (Section 4.0)

Report Details¹

1.0 Program Scope and Inspection History

Historically, Battelle performed atomic energy research and development for the Department of Energy (DOE) and its predecessor agencies between 1943 and 1986 at its Columbus Laboratories sites. The nuclear research included fabrication of uranium and fuel elements; reactor development; submarine propulsion; fuel reprocessing; and safety studies of reactor vessels and piping as part of the government's fuel fabrication program.

A total of six buildings are located at the Battelle research campus (Nuclear Sciences Area) near West Jefferson, Ohio. The West Jefferson Site is located approximately 15 miles west of downtown Columbus, Ohio. The entire West Jefferson site comprises a 1,183 acre tract. The Nuclear Sciences Area occupies an 11 acre fenced enclosure in the northern portion of the West Jefferson site. This enclosed facility consists of four major buildings, a guardhouse, and several smaller structures on a bluff overlooking Darby Creek and Battelle Lake. Three of the major buildings and their support structures are the focus of the final phase of the decommissioning project. Outside the fenced area are several active and abandoned filter beds (part of the site's sanitary sewer system), which are also included in the Battelle Columbus Laboratories Decommissioning Project (BCLDP).

Three major buildings in the former nuclear sciences (north) area are presently being addressed. The site end state will be achieved by demolition of the 3 major buildings and support facilities, and removal of contaminated utilities.

- JN-1** This building contains hot cells that were used to provide research and technical assistance in areas of reactor fuel performance evaluations. Contaminants include activation and mixed fission products.
- JN-2** This building previously housed a vault used to store nuclear material, and currently houses the project's radioanalytical laboratory. Small areas of contamination are located in various parts of the building. Laboratory relocation will be required.
- JN-3** This building previously housed the Battelle research reactor, which was decommissioned in the 1970's. The reactor bioshield was removed and interior decontamination was completed in fiscal year (FY) 2001.
- Grounds** Subsurface characterization was completed in FY 2002. Filter bed remediation was initiated in FY 2002.

The BCLDP license currently requires that decommissioning be completed by December 31, 2005.

¹ A list of acronyms used in this report is provided at the end of the report

2.0 Management Control and Oversight

a. Inspection Scope

NRC inspectors interviewed the BCLDP and decommissioning staff to assess their understanding of, and compliance with, program oversight commitments made in the Decommissioning Plan and Radiation Program Plan currently required by the BCLDP license. The inspectors also examined the licensee's activities for performing internal reviews, including corrective action reviews and root cause evaluations.

b. Observations and Findings

1. License Amendment No. 23, Item 12.B.4, incorporated into the BCLDP license statements, representations, and procedures contained in the BCLDP's Radiation Protection Program (RPP) Plan. Section 0.1 of the RPP states, in part, "The BCLDP Radiation Protection Responsibilities Matrix is depicted in Table 0.1." and, "...the Battelle Chief Executive Officer (CEO)....delegates responsibility through both sides of the program; to the Radiation Safety Officer (RSO) who is responsible for the radiation protection program, as well as to the Decontamination and Decommissioning Operations Program Manager (DDO Program Manager) who is responsible for the technical and line or project managers of the project." Sections 0.1.1, 0.1.2, 0.1.3, and 0.1.4, identify the duties and responsibilities for the four individuals specifically named in the RPP and BCLDP Radiation Protection Responsibilities Matrix.

Section 0.1.1, "Program Manager," also states in part, "The DDO [Decontamination and Decommissioning Operations] Program Manager has direct responsibility for the overall project and ensures that the technical managers and project managers within the BCLDP provide the necessary support required for the successful implementation of the Radiation Protection Program." Additionally, Section 0.1.2 "Radiation Safety Officer" cites as one of the duties and responsibilities of the RSO: "Appointing the ALARA coordinator and the Associate Radiation Safety Officer (ARSO)."

During interviews with the inspectors, BCLDP managers and supervisors expressed concern about possible conflicts between radiation safety and operational assignments, and about having sufficient time to complete both job responsibilities satisfactorily. This concern had been expressed during previous NRC inspections; however, no noticeable impacts were noted during those inspections. The conflict may have been exacerbated by the departure of the Radiological Technical Support Manager (RTSM) early in 2002. In a BCLDP memo dated March 2, 2002, the DDO Program Manager informed the BCLDP staff of the departure of the individual who had held the positions of both RTSM (Section 1.1.4 of the RPP) and ARSO. The memorandum also informed the staff of the "Temporary Delegation of Routine RTS Manager Responsibilities" to five other BCLDP staff until BCLDP management appointed individuals to the positions of RTSM and ARSO and the license was amended.

Interviewees indicated that in-house candidates had been recommended to the DDO Program Manager as possible candidates for the RTSM and ARSO positions. As of this inspection, neither of the positions had been filled. However, after discussions

with the DDO Program Manager, an amendment request was provided to the NRC on August 23, 2002, addressing the appointment of a qualified BCLDP manager as the RTSM and ARSO.

Licensee management oversight requirements are prescribed through license Condition 12.B., which incorporates the licensee's RPP. The failure of the licensee to maintain staff assignments as specified in the RPP is considered a violation as described in the attached Notice of Violation. (VIO 07000008/2002-003-01)

2. Radiation Protection Plan, DD-90-02, "Program Oversight," Section 0.1.8, states in part that, "The RSO conducts surveillances (limited-scope assessments) of program components on a quarterly basis. All of the following program components are evaluated on an annual basis, with different components reviewed during each quarterly surveillance. The program components for RSO surveillances are: Training (radiation worker and radiation protection staff); Documentation and Records; Exposure Control; Instrumentation; Surveillance. These activities are performed, documented, and reported in accordance with the applicable portions of the BCLDP Quality Program relating to management self-assessment."

The inspectors reviewed the licensee's December 5, 2001, "Independent Activity Assessment (IAA) Report." A number of deficiencies were identified in the Report regarding required quarterly RSO surveillances. The licensee's report indicated, in part, that:

- (1) The RSO was requested to provide the most recent four surveillances performed (which would have been for calendar year 2001), but only two were provided;
- (2) The surveillances were not performed on a quarterly basis, that is, a period of over six months elapsed between the two assessments submitted for 2001;
- (3) The areas of Training and Instrumentation were not audited during the year, as required;
- (4) The RSO reports were not documented as required. Radiation Protection Plan, DD-90-02, Section 0.1.8, states, in part: "These activities [the RSO surveillances] are performed, documented, and reported in accordance with the applicable portions of the BCLDP Quality Program relating to management self-assessment."
- (5) The audit reports failed to address selected Program activities; and
- (6) The RSO was required to distribute the reports to the DDO Program Manager, Quality Manager, and Project Records, but the reports were not sent to any of these recipients.

The RSO was also required to identify root causes, specify due dates for corrective actions, and designate responsible individuals, but the RSO reports did not address these areas. In addition, the licensee's management oversight program also required follow-up actions, namely effectiveness of corrective actions and lessons learned. However, these areas were not audited.

The inspectors noted that the December 5, 2001, IAA Report and Finding had been entered into the licensee's "Open Corrective Action Item" tracking system. Open Action Items were reported to the DDO Program Manager and other BCLDP managers and supervisors on a monthly basis. The NRC inspectors determined after review of the licensee's August 5, 2002 "Open Corrective Action Item" memorandum, and discussion with BCLDP management, that some of the issues identified in the IAA Report had not been corrected by the date of this inspection.

The NRC inspectors also determined during subsequent telephone discussions with licensee management that RSO surveillances had not been performed quarterly during 2002. The licensee staff indicated that only one surveillance had been performed in 2002. As of the date of the inspection, the NRC inspectors noted that at least two RSO surveillances should have been performed during 2002.

The licensee's failure to conduct RSO surveillances at the required frequency, to audit specific program areas, and to report the audit findings to management as required, is considered a violation as described in the attached Notice of Violation (NOV). (VIO 07000008/2002-003-02)

3. Section 0.1.8, "Program Oversight," of the RPP also describes the BCLDP Radiological Awareness Report program as follows: "A Radiological Awareness Report (RAR) program has been established that is used to notify management of radiological deficiencies, incidents, or concerns relating to the radiation safety program. Using RARs, management is made aware of radiation-related issues. Identified concerns are documented, evaluated, resolved, and tracked. The RAR program allows participation of all staff (not just radiation protection staff) in the identification of potential problems, determination of causes, and the formulation of corrective actions, and serves as another means of program oversight." During calendar year 2002, as of the date of the NRC inspection, 16 RARS had been issued. The review of RAR No. 02-008 disclosed that the report failed to indicate the root cause, and did not fully describe the licensee's evaluation of the issue which necessitated the RAR. As a result, the licensee re-opened the RAR for further evaluation.

The inspectors also discussed a second RAR, No. 02-005, dated April 22, 2002, regarding potential issues arising from the departure of the RTSM. The report states, "Due to the resignation of the RTS manager effective 02/22/02, the RTS manager & ARSO positions remain open at this time. As a result the BCLDP has delegated key responsibilities to several staff members, however some of the job functions such as audits, corrective actions, proactive planning remain unaddressed." The licensee's Management Oversight Committee (MOC) July 22, 2002, Meeting Minutes also noted the licensee's failure to close the RAR action (See Section 3.2).

The inspectors also discussed with BCLDP managers and supervisors, the August 5, 2002, "Open Corrective Action Item" memorandum to the DDO Program Manager. This report was issued monthly and an "Open Corrective Action Items" table was attached which specified: Assessment Action Reports (AAR), date issued, date next response, brief description of item, and responsible individual. This report summarized the findings from the different audits and assessments performed by BCLDP oversight groups, such as the Quality Department, and Regulatory

Compliance & Environmental, Safety, and Health Oversight Department. The August 5, 2002 memorandum's attachment identified approximately 50 "Open Corrective Action Items", of which approximately 16 were 3 months past the "Next Response Date", and 11 were approximately 6 months past the "Next Response Date."

Section 0.1.7, "Management Oversight Committee," of the RPP, states, in part, that, "The MOC shall be responsible for the review of all elements of the BCLDP radiation protection program and for ensuring compliance with USNRC license requirements and other requirements per procedure.....MOC functions and responsibilities include:

- Review and comment with regard to BCLDP radiation protection program components (e.g., ALARA functions, training) and overall project input from a radiation protection/compliance standpoint, as requested by the DDO Program Manager;
- Maintaining an awareness of proposed, new, or changed regulations and license conditions, and their implications;
- Assist the RSC [Battelle Radiation Safety Committee] in the performance of an annual review of BCLDP radiation-related operations;"

The Battelle RSC's 2001 Annual Radiation Program Review, and the MOC Committee Minutes issued in 2002 were well written and comprehensive for the areas evaluated. However, the reports failed to discuss the significant number of Open Corrective Items, and the BCLDP staffing concerns.

c. Conclusions

Two violations were identified. One violation related to the failure to maintain critical staff positions as specified through License Condition 12. The other violation related to the failure to perform Radiation Safety Officer (RSO) surveillances of the required type and frequency and failure to document and report surveillance results in the specified manner. The violations indicate that problems were not being addressed in a timely manner.

3.0 RADIATION PROTECTION (83822)

3.1 As Low As Reasonably Achievable (ALARA) Program

a. Inspection Scope

The NRC inspectors used Inspection Procedure 83822, "Radiation Protection", the BCLDP Decommissioning Plan, and the BCLDP Radiation Protection Plan to assess the licensee's commitment and actions to maintain occupational doses and doses to members of the public ALARA. The NRC inspectors interviewed the ALARA Coordinator, ALARA Technician, and BCLDP decommissioning and sub-contractor personnel regarding their understanding of the BCLDP ALARA Program. The inspectors also examined the licensee's activities regarding ALARA reviews, weekly site tours, and documentation of ALARA audits. The inspectors accompanied the ALARA

technician on a site tour to observe work in progress and evaluate the licensee's implementation of the ALARA program.

b. Observations and Findings

Dose equalization was an on-going process to evenly distribute doses, which were being tracked meticulously on a daily basis. Workers and management appeared to have an excellent rapport and working relationship. Workers stated that they were confident and comfortable with management's commitment to ensuring their doses are kept ALARA.

Workers typically demonstrated knowledge and understanding of the ALARA concept as it applied to their jobs. The BCLDP and sub-contractor personnel demonstrated satisfactory understanding of the BCLDP ALARA Program as outlined in procedure HP-AP-8.0, "BCLDP ALARA Program" and Radiation Protection Program Manual DD-90-02, "Radiation Protection Program for the BCLDP."

The ALARA reviews were conducted and ALARA audit results were documented in accordance with license requirements and BCLDP procedures. All reports indicated continual commitment of BCLDP management in keeping occupational doses and doses to members of the public ALARA. Occupational doses were low, generally below ALARA goals, and they were uniformly distributed within like work activities. The weekly site tours performed by the ALARA Technician were effective in maintaining doses ALARA. Any discrepancies or poor ALARA work practices were immediately identified, and Radiation Assessment Reports were generated expeditiously.

During the site tour, the inspectors observed work being performed under two Radiation Work Permits (RWPs) for high radiation areas, and observed management of the control point in implementing ALARA considerations.

c. Conclusions

The licensee's implementation of the ALARA program met license requirements and BCLDP procedures, and the ALARA program was functioning well. All individual and cumulative doses were maintained ALARA and were uniform. Actual doses were lower than estimated as indicated by the licensee's annual ALARA goals.

3.2 Radiation Work Permit Program

a. Inspection Scope

The inspectors toured the various BCLDP buildings currently undergoing decommissioning. The inspectors reviewed the RWP procedures, observed work activities, and evaluated compliance with the RWPs during site tours, and interviewed BCLDP staff regarding the implementation of the BCLDP Radiation Work Permit (RWP) Program.

b. Observations and Findings

Procedure HP-AP-1.0, "BCLDP Radiation Work Permit (RWP) Program," Revision 6, states that the worker shall be briefed on the provisions of the planned work (Work Instructions), the radiological conditions and controls (RWP), and the ALARA

Considerations (DDO-115) in accordance with the provisions of HP-AP-8.0, "BCLDP ALARA Program," and Procedure HP-AP-1.0. Procedure HP-AP-1.0 further stated that "after the briefing, the worker shall sign DDO-118, 'RWP Authorization,' to indicate the worker has read the requirements of the RWP and has been briefed." Procedure HP-AP-1.0 went on to state, "the Health Physics [HP] Control Point shall verify that each worker has been authorized to sign in on their designated RWPs. The worker shall complete DDO-117, 'RWP Sign-In Sheet,' for each entry."

While observing work in the control point of building JN-1, the NRC inspectors were informed of a potential regulatory issue that occurred in April 2002. Specifically, seven workers signed in on DDO-117 without prior authorization. The licensee's staff determined that the workers had not completed the required briefing, and that the Health Physics Control Point had failed to verify that each individual was authorized to sign in on RWPs. Two of the seven workers signed in on RWPs that allowed work in High Radiation Areas. In response to this issue, the licensee created RAR No. 02-008 in May 2002.

The licensee's Radiological Field Operations Manager (RFOM), ALARA Coordinator, and the JN-1 HP Control Point Health Physics Supervisor discussed and implemented corrective actions for RAR No. 02-008 on May 7, 2002. The corrective action required that the HP Control Point verify that workers were authorized on DDO-118 prior to signing in on the DDO-117 for High Radiation Area RWP's (which was an existing procedural requirement). The NRC inspectors determined that the licensee was developing an access control program to manage the HP Control Point. Based on these corrective actions, the licensee closed RAR No. 02-008.

The inspectors determined the corrective action was not adequate to address the deficiencies documented in RAR No. 02-008. Specifically, the licensee's corrective action only addressed two of the seven workers and did not provide information on the other five. Further, the licensee's RAR assessment failed to evaluate a root cause, and the licensee's corrective actions failed to prevent the recurrence of subsequent failures to provide RWP briefings and verifications by the Control Point. As a result, the licensee opened RAR No. 02-017 on September 9, 2002 which identified ten more workers who signed in on DDO-117s without prior authorization. The licensee reopened RAR No. 02-008 to determine a more appropriate corrective action and address discrepancies with its report.

The failure to brief personnel prior to entering areas assigned an RWP, failure to document the RWP briefing, and the failure of BCLDP staff to verify completion of RWP briefings for personnel entering restricted radiological areas covered by an RWP is considered a violation as described in the attached NOV. (VIO 07000008/2002-003-03)

c. Conclusions

One violation was identified pertaining to failure to provide RWP briefings and failure to verify RWP training for some employees before allowing them to work in radiation contamination, high radiation, and high contamination areas.

3.3 Training Program

a. Inspection Scope

The inspectors reviewed training requirements and individual records in the Training Information Management System (TIMS) and the Project Records Management System (PRMS) and assessed implementation of the BCLDP training program plan requirements and procedures. Also, the inspectors interviewed the Training Coordinator, the Project Manager, and other BCLDP staff regarding the implementation of the BCLDP Training Program.

b. Observations and Findings

The inspectors determined that the Training Coordinator and the Project Manager had a thorough understanding of the training program.

The BCLDP training requirements were prescribed through license Condition 12 B and the Decommissioning Plan, Section 2.3.1; the Decontamination and Decommissioning Training Program Plan (DDTPP), Revision 4; and the training procedures, TD-AP-2.0, Revision 5, "Indoctrination, Training, and Qualification," and TD-AP-5.0, Revision 2, "Radiation Protection Training." In accordance with these documents, BCLDP management was required to create job titles for each BCLDP staff working in radiological areas. Licensee management used Form 358 to specify the minimum training requirements for each specific job. A separate BCLDP document was used to specify training renewal frequencies. The inspectors randomly selected and examined 25 employee training records out of approximately 125 BCLDP staff, consultants, and sub-contractors. The inspectors compared each individual's specific job description and required training against the specifications of the TIMS. The inspectors identified eight instances where the licensee did not comply with training program requirements. Specifically:

1. A decontamination and decommissioning technician did not complete a number of qualifications on surface decontamination and decommissioning techniques, the use of portable High Efficiency Particulate Air (HEPA) filters, barrier and barricade requirements, and the personal protective equipment program.
2. An emergency management specialist and Radiological Technical Support (RTS) technician did not meet the requirement of taking a course on hazardous waste operations and Cardiac Pulmonary Resuscitation training.
3. An emergency management specialist and an RTS technician did not renew a blood borne pathogens training. The previous training which the technician had taken had expired in 1999. The course was to be refreshed annually.
4. A manipulator operator did not complete a qualification on maintaining hot cell manipulators.
5. An ALARA technician and a health physics (HP) technician did not complete a required course due in 2000.

6. Three non-BCLDP employees including subcontractors did not receive all the necessary training that is required of all personnel. The training topics omitted related to BCLDP safety requirements and the Quality Assurance Program.

The licensee's failure to complete prescribed training for specified job categories, including initial and refresher training, is considered a violation as described in the attached NOV. (VIO 07000008/2002-003-04)

The DP, Section 2.4 and the DDTTP, Paragraph 1, discuss use of subcontractors, and management's responsibility for developing job descriptions, ensuring that the appropriate BCLDP training is provided, and for determining equivalency of non-BCLDP training. The licensee's training procedures TD-AP-2.0, Section 4.9, and TD-AP-5.0, Section 5.5 outline training exemptions and documentation requirements.

Based on observations, reviews of records, and discussions with management, the inspectors determined that selected training and documentation requirements were not being implemented. Specifically, a number of non-BCLDP employees completed the Radiation Worker Training, but failed to complete two other required courses (Environment, Safety, and Health Orientation, and Quality Orientation) listed in the training procedure, and the DDTTP. The licensee's management had authorized the workers to perform license activities based on managers' and supervisors' personal knowledge of the employees' previous training at other facilities. The licensee's management failed to develop written job descriptions and position titles, and did not specify necessary training requirements for non-BCLDP employees at the time of hire, nor did the licensee management document evaluations supporting exemptions from required licensee training courses.

The licensee's failure to develop job descriptions for sub-contractors and non-BCLDP employees and to document management's evaluations supporting exemptions from required licensee training courses is considered a violation as described in the attached NOV. (VIO 07000008/2002-003-05)

c. Conclusions

One violation was identified pertaining to the licensee's failure to ensure that a number of BCLDP employees, sub-contractors, and consultants completed required training or refresher training, as required by the licensee's NRC approved Decommissioning Plan (DP), the licensee's Training Program Plan, and associated training procedures.

One violation was identified pertaining to the licensee's failure to develop appropriate job descriptions that would identify the required qualifications and critical job functions for non-BCLDP employees and subcontractors. In addition, BCLDP management did not document assessments of non-BCLDP training prior to allowing work in restricted areas as required by the licensee's DP, Training Program Plan, and associated training procedures.

3.4 Radiation Posting, Labeling, Security and Access Control

a. Inspection Scope

NRC inspectors toured several BCLDP facilities currently undergoing decommissioning work to observe activities and evaluate compliance with regard to radiation posting, labeling, security and access control as outlined in 10 CFR Part 20 and BCLDP procedures.

b. Observations and Findings

Radiation posting, labeling, security and access control were observed to be in compliance with all applicable rules and regulations. BCLDP Health Physics staff and the ALARA technician periodically reviewed and monitored radiation posting, labeling, security and access control for compliance with all regulations and protection of workers.

c. Conclusions

The licensee's programs for control of licensed materials, including security, posting and access restriction to radiological or contamination areas were being effectively implemented.

4.0 Discovery of Nuclear Fuel Pin

a. Inspection Scope

The inspectors interviewed BCLDP management, supervisors, and BCLDP staff regarding actions taken after the discovery of a nuclear fuel pin, which was not part of the BCLDP inventory, and which resulted in the licensee exceeding its licensed radioactive material possession limits.

b. Observations and Findings

On July 18, 2002, the licensee transmitted to the NRC a "Written Preliminary Notification Report" pursuant to 10 CFR Part 20.2203, notifying the NRC that the licensee had "Possession of Materials in Excess of License Limits." License No. SNM-00007, Amendment 23, Item 9, issued August 25, 2000, limited the licensee's possession of materials to that indicated in a letter dated February 5, 1999, "Clarification of License Possession Limits." The NRC notification was initiated upon discovery of a mixed oxide fuel pin in the sediment layer under six feet of water in an unused and inaccessible BCLDP fuel pool in the JN-1 Building.

The licensee's letter dated February 5, 1999, specified quantities of plutonium currently possessed by Battelle at that time. The amount of plutonium specified by Item 8 of the license for possession is approximately 31.33 grams. On July 27, 2002, the licensee made a final determination that it possessed an additional 16 grams of plutonium, which had not been previously identified during the 1999 inventory assessment, putting the licensee's possession of plutonium greater than Item 8, which is contrary to its license limits.

The NRC inspectors determined that the safety and security consequences associated with possession of the fuel pin were low. The pin was located in an old spent fuel pool, which had a test cell installed above it. The test cell was used to destructively test shipping containers. Debris and relief gases were dropped and vented into the pool, respectively. The pin was under 6 feet of water, and access into the cell (High Radiation and Contamination Areas due to high levels of mixed fission products and Transuranics) was only by RWP authorization. Also, individuals could not physically access the pool until the upper test cell structure was removed in 2002. The pin was last used in 1973. The licensee started decontamination of the JN-1 Building (Hot Cell Facility) in the late 1990s. The licensee had been working from highest contamination source term to lowest. The sub-cell pool decontamination phase was part of the overall project. Access to the pool for characterization during this phase was primarily by remote TV. The pin was tentatively identified by a serial number etched on its surface.

The NRC inspectors determined that the licensee had performed research on reactor fuel from the former Saxton Research Reactor. The licensee had stored multiple radioactive sources underwater in the former spent fuel pool. During 1973, the fuel pin was intended to be part of a radioactive material shipment, and it was inadvertently missed when several fuel pins were shipped to the Savannah River site for either disposal or reprocessing. Battelle conducted a wide range of research on nuclear fuels in its specially designed hot cell facilities, including destructive testing of fuel bundles and pins and testing model shipping containers. This research created a high level of residual contamination in the cells. Due to the amount of destructed materials and contaminated materials and equipment in the cells, precise characterization was hindered.

Once the licensee identified the material and performed a records review, it identified the material as exceeding the license possession limits, and submitted a license amendment request dated August 18, 2002. License Amendment 24, was issued August 19, 2002, increasing the license possession limits.

The NRC inspectors were informed that BCLDP, in conjunction with the U.S. Department of Energy (DOE), Columbus Environmental Management Project Office, were in the process of notifying the DOE entity who received the past shipment which should have included the nuclear fuel pin. The licensee was in the process of rectifying its inventory and material balance records. The licensee will issue a corrected DOE/NRC Form 741 to the Nuclear Materials Management Safeguards System (NMMSS) to reflect the fact that the fuel pin was never shipped. The licensee also indicated that it was working with its DOE contact to rectify the recipient's records. The BCLDP RSO indicated that these activities would be completed by the end of October 2002.

c. Conclusions

One potential violation was identified regarding failure to comply with radioactive material possession limits. However, in consideration of factors such as: (1) the historical nature of the violation; (2) the radiological controls and physical security of the area containing the fuel pin during the entire period it was unknowingly possessed; (3) the NRC's realization that when the license was issued, the exact amount of radioactive material on site would not be known until certain phases of decommissioning were completed; (4) the licensee's sufficient qualifications to be able to properly handle

significantly higher amounts of this type of radioactive material; and (5) the licensee's immediate and follow-up corrective actions, and consistent with the NRC's "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy); the NRC has decided to exercise enforcement discretion and not issue a violation.

5.0 Exit Summary and Management Meeting

On August 23, 2002, at the completion of the onsite inspection, the inspectors provided a preliminary summary of the inspection findings to licensee representatives. The licensee did not identify, as proprietary in nature, any information reviewed during the inspection and discussed in this report. On September 11, 2002, the inspectors presented the final inspection results to members of licensee management.

List of Persons Contacted

- ** N. Gantos, BCLDP, Program Manager
- ** C. Jensen, BCLDP, Radiation Safety Officer
- * J. Halgren, BCLDP, Radiological Field Operations Manager
- * P. Weaver, BCLDP, Field Operations Manager
- * R. Friedman, BCLDP, Quality Manager
- ** R. Baruth, BCLDP, Training and Project Records Manager
- * D. Seifert, BCLDP, Remedial Action Manager
- * G. Sapp, BCLDP, Project Manger, Respiratory Protection
- * G. Roe, BCLDP, Emergency Management Manager
- * D. Winemiller, BCLDP, Safety Officer
- * M. Darnell, BCLDP, Project-Program Manager
- ** J. Poliziani, BCLDP, RAR and ALARA Coordinator, Characterization Manager
- * G. Farnung, BCLDP, Radio-Analytical Laboratory Manager
- * T. Baillieul, Director, DOE, Columbus Environmental Management Project
- * E. Denison, State of Ohio, Health Physicist
- *** F. Hood, BCO, Vice-President

* Denotes presence at the August 23, 2002, preliminary Exit Meeting only.

** Denotes presence at the August 23, 2002, and the September 11, 2002 NRC Telephone Exit Meeting.

*** Denotes presence at the September 11, 2002, Telephone Exit Meeting only.

Licensee Documents Reviewed

Documents reviewed during this inspection are identified in the report details.

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

| | |
|---------------------------|---|
| VIO 070-00008/2002-003-01 | Failure to maintain staff assignments as specified or to request a timely amendment |
| VIO 070-00008/2002-003-02 | Failure to conduct RSO surveillances of the type and frequency specified, and to document and report as specified |
| VIO 070-00008/2002-003-03 | Failure to brief personnel prior to entering areas assigned an RWP, to document the RWP briefing, and to verify completion of RWP briefings |
| VIO 070-00008/2002-003-04 | Failure to complete prescribed training for specified job categories |
| VIO 070-00008/2002-003-05 | Failure to develop job descriptions for sub-contractors, and to approve and document equivalent training |

Closed

None

Discussed

None

List of Acronyms Used

| | |
|-------|---|
| AAR | Activity Assessment Report |
| ADAMS | Agencywide Documents Access and Management System |
| ALARA | As-Low-As-Reasonably-Achievable |
| ARSO | Associate Radiation Safety Officer |
| BCLDP | Battelle Columbus Laboratory Decommissioning Project |
| CEO | Chief Executive Officer |
| DOE | Department of Energy |
| DP | Decommissioning Plan |
| DDO | Decontamination and Decommissioning Operations |
| DDTPP | Decontamination and Decommissioning Training Program Plan |
| FY | Fiscal Year |
| HEPA | High Efficiency Particulate Air |
| HP | Health Physicist |
| IAA | Independent Activity Assessment |
| MOC | Management Oversight Committee |
| NMMSS | Nuclear Materials Management Safeguards System |
| NOV | Notice of Violation |
| PARS | Publically Available Records System |
| PRMS | Project Records Management System |
| RAR | Radiological Awareness Report |
| RFOM | Radiological Field Operations Manager |
| RSC | Radiation Safety Committee |
| RSO | Radiation Safety Officer |
| RPP | Radiation Protection Plan |
| RTS | Radiological Technical Support |
| RTSM | Radiological Technical Support Manager |
| RWP | Radiation Work Permit |
| RAR | Radiation Awareness Report |
| TIMS | Training Information Management System |
| VIO | Violation |