



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
61 FORSYTH STREET SW SUITE 23T85  
ATLANTA, GEORGIA 30303-8931

[REDACTED]

February 1, 2006

Mr. W. D. Nash  
Vice President and General Manager  
BWX Technologies, Inc.  
Nuclear Products Division  
P. O. Box 785  
Lynchburg, VA 24505-0785

SUBJECT: NRC INSPECTION REPORT NO. 70-27/2006-001

Dear Mr. Nash:

This refers to the inspection conducted from December 11, 2005, through January 21, 2006, at the Nuclear Products Division facility. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. At the conclusion of the inspection, the findings were discussed with those members of your staff identified in the enclosed report.

Areas examined during the inspection included: Operations, Management Organization and Controls, and Radiation Protection. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress.

Within the scope of the inspection, violations or deviations were not identified.

[REDACTED]

Sincerely,

*/RA/*

David A. Ayres, Chief  
Fuel Facility Inspection Branch 1  
Division of Fuel Facility Inspection

[REDACTED]



BWXT

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Docket No. 70-27  
License No. SNM-42

Enclosure: NRC Inspection Report

cc w/encls:  
Leah R. Morrell  
Manager, Licensing and Safety Analysis  
BWX Technologies  
P. O. Box 785  
Lynchburg, VA 24505-0785





BWXT

Distribution w/encl:

- D. Ayres, RII
- B. Bonser, RII
- S. Caudill, RII
- G. Wertz, RII
- J. Olivier, NMSS
- B. Gleaves, NMSS
- N. Baker, NMSS
- B. Westreich, NSIR

**SISP REVIEW COMPLETE:** Initials: DAA     **SISP REVIEW PENDING\*:** Initials: \_\_\_\_\_    \*Non-Public until the review is complete

ADAMS:  Yes    **ACCESSION NUMBER:** \_\_\_\_\_

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 70-27

License No.: SNM-42

Report No.: 70-27/2006-001

Licensee: BWX Technologies, Inc.

Facility: Nuclear Products Division

Location: Lynchburg, Virginia

Dates: December 11, 2005 through January 21, 2006

Inspector: G. Wertz, Senior Resident Inspector

Approved by: David A. Ayres, Chief  
Fuel Facilities Inspection Branch 1  
Division of Fuel Facility Inspection

[REDACTED]

**NRC INSPECTION REPORT 70-27/2006-001**

**EXECUTIVE SUMMARY**

BWX Technologies, Inc., Nuclear Products Division

This inspection included periodic observations conducted by the Senior Resident Inspector during normal and off-normal shifts in the area of Plant Operations, Management Organization and Controls, and Radiation Protection.

**Plant Operations**

- The facility was operated safely in accordance with approved procedures and nuclear criticality safety postings (Paragraph 2.a).
- [REDACTED] was performed by properly trained and knowledgeable operators. Engineers provided effective operational oversight (Paragraph 2.b).
- A special nuclear material glovebox was installed and operated in accordance with the safety controls and requirements specified by the safety analysis (Paragraph 2.c)

**Management Organization and Controls**

- Events involving a spill of low-level radioactive solution and an Item Relied on For Safety failure during annual testing were captured in the Corrective Action Program, properly evaluated and corrected (Paragraph 3.a).
  - Three events [REDACTED] prompted a review of the effectiveness of the automatic and operator-based Items Relied on For Safety credited with ensuring that a criticality accident remained highly unlikely. After discussion [REDACTED] and review of a nuclear criticality safety evaluation, the inspector concluded that a criticality event remained highly unlikely (Paragraph 3.b).
  - A review of the licensee's facility and operation by their nuclear insurer did not identify any significant liability risks as a result of facility operations. Recommendations provided were captured in the licensee's Corrective Action Program as required by the License Application (Paragraph 3.c).
- [REDACTED]

Radiation Protection

- Radiation protection technicians ensured effective radiological work practices were conducted [REDACTED] by identifying and correcting minor discrepancies (Paragraph 4.a).
- Contaminated soil was removed from the [REDACTED] area. A below-grade vein of contaminated soil remained, [REDACTED] and posed no radiological risk. The licensee was planning to relocate contaminated soil not shipped offsite to a known contaminated area near the [REDACTED] [REDACTED] (Paragraph 4.b).

Attachment:

Partial Listing of Persons Contacted  
List of Items Opened, Closed and Discussed  
Inspection Procedures Used  
List of Acronyms

[REDACTED]

REPORT DETAILS

1. Summary of Plant Status

Routine Operations

[REDACTED]  
[REDACTED]  
Otherwise, routine fuel manufacturing operations were conducted in the [REDACTED] process areas, [REDACTED]. Uranium recovery, downblending and other routine operations and maintenance activities were conducted in the [REDACTED] facility.

2. Plant Operations (Temporary Instruction (TI) 2600/006)

a. Conduct of Operations - Routine Observations

(1) Inspection Scope and Observations

The inspector observed SNM operations and determined that the facility was operated safely and work was performed in accordance with approved operating procedures (OPs), nuclear criticality safety (NCS) postings, and radiation work permits (RWPs). The inspector observed that controls used to contain dispersable radioactive material in material access areas (MAA) were in proper working condition and that personal protective clothing and dosimetry were properly worn. Routine fire safety tours verified that fire safety systems were maintained and housekeeping was sufficient to minimize fire risk. The emergency operations center (EOC) was maintained in a ready state.

(2) Conclusions

Routine operations were performed in accordance with approved procedures and NCS postings.

b. Operation of the [REDACTED]

(1) Inspection Scope and Observations

The inspector observed the initial operation [REDACTED]. Process engineers performed "hands-on" training in accordance with approved operating procedures and operators questioned by the inspector were knowledgeable of required actions. The inspector observed effective engineering operational oversight. NCS limits and controls were properly maintained.

[REDACTED]

(2) Conclusions

Initial operation [REDACTED] was performed by properly trained and knowledgeable operators. Engineers provided effective operational oversight.

c. Installation and Operation of an SNM Glovebox

(1) Inspection Scope and Observations

The inspector observed operation of a newly installed SNM glovebox. The glovebox was installed following additional licensee review of SNM material handling practices. (Reference BWXT letter to the NRC, dated May 31, 2005, subject: "Request to Extend Due Date for Corrective Action to Violation 70-27/2005-01-01" for additional information.) The inspector compared the requirements of the implementing Safety Evaluation Report 05-058 and NCS Analysis 2005-225 and noted that NCS controls were installed, postings were displayed, and radiation protection (RP) was implemented as required.

(2) Conclusions

An SNM glovebox was installed and operated in accordance with the safety controls and requirements specified by the safety analysis.

3. Management Organization and Controls (TI 2600/006)

a. Corrective Action Review

(1) Inspection Scope and Observations

The inspector evaluated the licensee's assessment of two issues identified in the corrective action (CA) program. CA 2005-1023 documented a spill of low concentration SNM (raffinate waste) in UR when an operator failed to close an isolation valve. The spill was immediately identified, contained and cleaned in accordance with spill control and response procedures, no personnel were contaminated, and the operator was counseled.

The second issue, described in CA 2005-1264, involved an Item Relied on for Safety (IROFS) test failure. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The safety significance of this IROFS failure was low since two other IROFS, credited in Safety Analysis Report (SAR) 15.18, were available to prevent a fire.

(2) Conclusions

A spill involving low level radioactive solution and a failure of an IROFS during annual testing were captured in the CA system, properly evaluated and corrected.

b. [REDACTED] Items Relied on For Safety Review

(1) Inspection Scope and Observations

The inspector noted from an NCS audit three occurrences [REDACTED]. Two of the three occurrences involved SNM [REDACTED] and were captured in CAs 2005-864 and 884. The licensee's evaluation concluded that the common causal factor for the three events was "operator inattention to detail." The inspector reviewed the IROFS listed in SAR 15.27 and noted that, other than the [REDACTED] system, the remaining IROFS depended on proper operator action. The inspector noted that the licensee evaluated the [REDACTED] scenario for potential criticality conditions.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The inspector also concluded that a criticality condition remained highly unlikely.

(2) Conclusions

Three events [REDACTED] prompted a review of the effectiveness of the automatic and operator-based IROFS credited with ensuring that a criticality accident remained highly unlikely. After discussion with [REDACTED] operators and review of an NCS evaluation, the inspector concluded that a criticality event remained highly unlikely.

[REDACTED]

c. Third Part Audit Review

(1) Inspection Scope and Observations

The inspector reviewed the American Nuclear Insurers inspection report dated November 30, 2005. The audit evaluated both the onsite and offsite risk consequences of current and proposed facility operations. No significant insurance liability risks were identified. Audit recommendations were captured in the CA program as required by License Application 2.8.3.4.

(2) Conclusions

A review of the licensee's facility and operation by their nuclear insurer did not identify any significant liability risks as a result of facility operations. Recommendations provided were captured in the licensee's CA program as required by the License Application.

4. Radiation Protection (TI 2600/006)

a. Routine Tours and Daily Reports

(1) Inspection Scope and Observations

The inspector toured radiological controlled areas and reviewed the RP technicians' daily reports. Two minor items identified by RP technicians were promptly corrected by the responsible area supervisor. No significant radiological concerns were noted.

(2) Conclusions

RP technicians ensured effective radiological work practices were conducted in controlled areas by identifying and correcting minor discrepancies.

b. Remediation of Contaminated [REDACTED]

(1) Inspection Scope and Observations

The inspector reviewed final radiological soil survey results following removal of contaminated soil [REDACTED]. A Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) (NUREG-1575/EPA 402-R-97-016) survey map was established and locations with soil survey results above 30 picocuries per gram (pCi/gm) were remediated by excavation and re-surveyed. Although a vein of contaminated soil remained, the material posed no

[REDACTED]

radiological risk as it was located [REDACTED]. Most excavated soil was shipped offsite for disposal. However, some soil, that was below 30 pCi/gm following drying, was to be relocated to a previously known contaminated site [REDACTED] at a later date. The cognizant RP specialist planned to document all survey information in a technical work record for inclusion in the site decommissioning file.

(2) Conclusions

Contaminated soil was removed from the [REDACTED] area. A below-grade vein of contaminated soil remained, [REDACTED] and posed no radiological risk. The licensee was planning to relocate contaminated soil not shipped offsite to a known contaminated area [REDACTED]

5. Exit Meeting

The inspection scope and results were summarized on January 27, 2006, with W. Nash, Vice President and General Manager, and other members of the licensee's staff. Proprietary documents and processes were reviewed during this inspection. No dissenting comments were received from the licensee.

[REDACTED]

[REDACTED]

ATTACHMENT

1. **LIST OF PERSONS CONTACTED**

Licensee

J. Creasey, Manager, Uranium Processing  
L. Duncan, Manager, Nuclear Criticality Safety  
L. Morrell, Manager, Licensing & Safety Analysis  
W. Nash, Vice President and General Manager  
T. Nicks, Manager, Security  
J. Noel, Manager, NRC Security  
S. Schilthelm, Manager, Safety and Licensing  
D. Spangler, Manager, Radiation Protection  
M. Suwala, Manager, Nuclear Materials Control  
D. Ward, Manager, Environment, Safety, Health and Safeguards

Other licensee employees contacted included engineers, technicians, production staff, security, and office personnel.

2. **LIST OF ITEMS OPENED AND CLOSED**

None

3. **INSPECTION PROCEDURES USED**

TI 2600/006 Resident Inspection Program for Category I Fuel Cycle Facilities

[REDACTED]