UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

[redacted]

November 18, 2005

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

SUBJECT: NRC INSPECTION REPORT NO. 70-27/2005-008

Dear Mr. Nash:

This refers to the inspection conducted from September 18 through October 29, 2005, 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, Maintenance and Surveillance, Radiation Protection, Material Control and Accounting, and Physical Protection. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress.

Based on the results of this inspection, no violations were identified.

[redacted]

[redacted]

[redacted]

[redacted] Should you have any questions concerning this letter, please contact us.

Sincerely,

/RA by Stephen Caudill for/

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

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

[redacted]

[redacted]

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	70-27
License No.:	SNM-42
Report No.:	70-27/2005-008
Licensee:	BWX Technologies, Inc.
Facility:	Nuclear Products Division
Location:	Lynchburg, Virginia
Dates:	September 18 through October 29, 2005
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 70-27/2005-008

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, Maintenance and Surveillance, Radiation Protection, Material Control and Accounting, and Physical Protection.

Plant Operations

- The facility was operated safely. The Emergency Operations Center and associated equipment were maintained in a state of readiness. Maintenance work was performed in accordance with radiation work permit requirements. Housekeeping was adequate to ensure routes of egress were clear in case of an emergency (Paragraph 2.a).

- Nuclear criticality safety control devices and measures were properly implemented (Paragraph 2.b).

- [redacted] (Paragraph 2.c).

Management Organization and Controls

- The Lynchburg Technology Center fire mitigation systems [redacted] were tested as described in the Integrated Safety Analysis (Paragraph 3.a).

- Nuclear Criticality Safety controls were maintained [redacted] as described in the Integrated Safety Analysis Summary (Paragraph 3.b).

- [redacted] handling discrepancy was accurately captured in the corrective action program. The safety significance was low and the licensee's corrective actions were appropriate (Paragraph 3.c).

Maintenance and Surveillance

- Modification to a differential pressure gauge was performed correctly such that the associated Item Relied on For Safety setpoint could be properly tested (Paragraph 4).

[redacted]

[redacted]

Radiation Protection

- Radiation protection personnel properly identified and documented a contamination event in the Downblending area in the Radiation Safety Incident Notification program. Prompt corrective action by the area manager and RP personnel minimized the potential for unnecessary radiation exposure to the workers (Paragraph 5.a).

- Gaseous effluent exhaust stack flow measurements and calculations were performed accurately and in accordance with the procedure by radiation protection personnel (Paragraph 5.b).

Material Control and Accounting

- [redacted]

Physical Protection

- [redacted]

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

[redacted]

[redacted]

REPORT DETAILS

1. **Summary of Plant Status**

a. Routine Operations

Routine fuel manufacturing operations and maintenance activities were conducted in [redacted] areas, and in the [redacted] facility. 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 various operational activities to determine if the facility was operated safely and in accordance with license and regulatory requirements. The inspector verified that the Emergency Operations Center (EOC) was maintained in a state of readiness. The inspector reviewed various operational procedures and records, radiation work permits (RWPs), and nuclear criticality safety (NCS) postings and observed that specific operations were performed safely and in accordance with approved plant procedures and postings. Outside areas were toured and no conditions that could create an undesirable situation or hazard in the event of adverse weather (high winds, cold weather, or flooding), or blocked evacuation pathways were observed. The inspector observed that equipment and devices used to contain radioactive contamination and airborne radioactivity in fuel processing, UR, and other material access areas (MAAs) were in proper working condition, and that personal protective clothing and dosimetry were issued and properly worn. The inspector noted that emergency egress routes were adequately clear of debris. Housekeeping was sufficient that no significant hazards were identified. A routine fire safety tour verified that fire hazards were minimized especially in locations containing hazardous chemicals or [redacted] special nuclear material (SNM).

(2) Conclusions

The facility was operated safely. The EOC and associated equipment were maintained in a state of readiness. Maintenance work was performed in accordance with radiation work permit requirements. Housekeeping was adequate to ensure routes of egress were clear in case of an emergency.

[redacted]

b. Implementation of Process Safety Controls

(1) Inspection Scope and Observations

The inspector reviewed nuclear criticality control devices and measures in effect during the inspection period in order to assess the effectiveness of the licensee's program for prevention of an inadvertent criticality. The inspector toured fuel processing, storage, and recovery areas and observed that personnel complied with approved, written NCS limits and controls, especially in areas where the licensee was using administrative controls rather than passive or active engineering controls. The inspector verified NCS limits were posted and available to the operators. During tours of [redacted] areas of the facility, the inspector observed proper spacing practices and controls, use of storage locations, and identification of SNM.

(2) Conclusions

NCS control devices and measures were properly implemented.

c. [redacted] Event

(1) Inspection Scope and Observations

On Saturday, October 1, at approximately 3:21 pm, the facility [redacted] and restored [redacted] at approximately 5:27 pm. The cause [redacted] The inspector reviewed the event with [redacted] radiation protection and maintenance personnel. [redacted] worked properly [redacted]

(2) Conclusions

[redacted]

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

a. Lynchburg Technology Center Fire Mitigation System Review

(1) Inspection Scope and Observations

The inspector reviewed fire mitigation system maintenance requirements listed in the Integrated Safety Analysis (ISA) for the Lynchburg Technology Center (LTC). The inspector observed: the monthly sprinkler system inspection, performed in accordance

with procedure HS-FP-008; the [redacted] and [redacted], performed in accordance with procedure [redacted], performed with a fire system vendor. The inspector also reviewed the results of the last two semi-annual smoke detector tests. All fire mitigation testing reviewed was completed in accordance with the requirements described in the ISA.

(2) Conclusions

The LTC fire mitigation systems [redacted] were tested as described in the ISA.

b. [redacted] Criticality Control Review

(1) Inspection Scope and Observations

The inspector reviewed the NCS controls listed in the ISA Summary [redacted] and toured the area with NCS engineers. Passive engineered controls were maintained as described in the ISA [redacted]. NCS postings reflected the description in the ISA.

(2) Conclusions

NCS controls were maintained [redacted] as described in the ISA Summary.

c. Corrective Action Program Review

(1) Inspection Scope and Observations

The inspector reviewed a component handling discrepancy described in corrective action (CA) 2005-861 focusing on the safety significance and the licensee's actions to preclude recurrence. The inspector, along with NRC Headquarters inspectors, determined that the safety significance was very low and that double contingency remained effective to preclude an inadvertent criticality event. The licensee's commitment to remove all non-universal [redacted] over the next year was considered effective.

(2) Conclusions

[redacted] handling discrepancy was accurately captured in the corrective action program. The safety significance was low and the licensee's CA's were appropriate.

4. **Maintenance and Surveillance (TI 2600/006)**

a. Inspection Scope and Observations

The inspector reviewed Change Request (CR) 1021609 which modified the differential pressure gauge used to verify the exhaust flow from an enclosure [redacted] The pressure gauge was listed in the ISA as an Item Relied on For Safety (IROFS) and was used [redacted]. The CR added needle valves to allow testing to verify that the gauge alarmed at the proper flow rate. The inspector observed the area foreman perform the test and noted that the flow rate exceeded the minimum requirement listed in the ISA. The inspector review the technical manual and verified the setpoint calculations were accurate.

b. Conclusions

A modification to a differential pressure gauge was done correctly such that the IROFS setpoint could be properly tested.

5. **Radiation Protection (TI 2600/006)**

a. Radiation Safety Incident Notice Review

(1) Inspection Scope and Observations

The inspector reviewed Radiation Safety Incident Notices (RSIN) and noted RSIN 05-052 identified an area in Downblending in which a routine smear indicated contamination on the floor in excess of the controlled area limit of 5000 disintegrations per minute per 100 centimeters (DPM/100cm). The area manager was promptly notified, immediately toured the area, alerted operators to the condition, and initiated decontamination activities. Radiation protection (RP) investigated the event and suspected the cause was due to a leaking valve which was replaced. The inspector reviewed breathing zone exposure data for the period noting no adverse indications and toured the area with the RP specialist. The inspector concluded that the licensee had effectively implemented the contamination control requirements of License Application, section 3.3.5, and that prompt corrective action had minimized the potential radiation exposure to the workers.

(2) Conclusions

RP personnel properly identified and documented a contamination event from the Downblending area in the RSIN program. Prompt corrective action by the area manager and RP personnel minimized the potential radiation exposure to the workers.

[redacted]

b. Gaseous Effluent Exhaust Stack Flow Measurement

(1) Inspection Scope and Observations

Gaseous effluent exhaust stack flows were measured and calculated by RP personnel in accordance with procedure RP-08-04. The inspector observed RP personnel obtain the flow measurement data and verified flow calculations performed were accurate.

(2) Conclusions

Gaseous effluent exhaust stack flow measurements and calculations were performed accurately and in accordance with the procedure.

6. **Material Control and Accounting (TI 2600/006)**

[redacted]

7. **Physical Protection (TI 2600/006)**

[redacted]

[redacted]

8. **Followup on Previously Identified Issue**

a. Corrective Action Review for Improper Storage of SNM Violation

The inspector reviewed the CA's for Violation (VIO) 70-27/2005-01-01 involving improper storage of [redacted]. The CA's were described in CA 2004-869 and included enhancements to the operating procedure (OP) and NCS posting. The inspector reviewed and discussed the changes with the responsible area manager and material operators who were cognizant of the material handling requirements. Training records reviewed were complete. On several occasions, the inspector observed material processing and noted procedure and NCS posting compliance. The licensee further re-evaluated the material process and concluded that additional engineered changes were appropriate to minimize the potential for SNM accumulation in the [redacted] process. The inspector reviewed the planned modification with the NCS manager and responsible engineer noting that implementation was scheduled for completion by December 31, 2005. The completed CA's were appropriate and VIO 70-27/2005-01-01 was closed.

b. Corrective Action Review for Inadequate Facility Change Review Violation

The inspector reviewed the CA's for VIO 70-27/2005-03-02 involving an inadequate facility change review in that neither the Safety Analysis Report (SAR) process description nor applicable OP was revised following the modification. Additionally, operators continued to use the outdated OP. The CA's were described in CA 2005-231 and included the following:

[redacted]

[redacted]

For the Inadequate Design Review:

1) The OP and SAR were corrected.

2) UR and Safety and Licensing personnel were retrained on change review requirements.

3) An extent of condition review of facility changes performed in the past year was performed. No issues were identified.

For Use of the Outdated Procedure:

1) The outdated OP form was revised.

2) An extent of condition review was performed to review other UR forms to ensure that the forms contain a proper a description of the equipment used and can be completed as written. Five additional changes were identified and completed.

3) A training plan describing management expectations for procedure adherence is under development. All UR and Downblend operators will be trained to understand the management expectations.

The inspector discussed the CA's with the Uranium Processing Operations Manager, supervisors, engineer and operators. The completed and planned CA's appeared appropriate and VIO 70-27/2005-03-02 was closed.

c. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

9. **Exit Meeting**

The inspection scope and results were summarized on November 3, 2005, 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 and this report has been appropriately marked as such.

[redacted]

[redacted]

ATTACHMENT

1. **LIST OF PERSONS CONTACTED**

Licensee

R. Cochrane, Manager, Operations
J. Compher, Manager, Industrial Engineering
J. Creasey, Manager, Uranium Processing
L. Duncan, Manager, Nuclear Criticality Safety
R. Hogg, Manager, Manager - Acting, Uranium Processing
F. Metz, Manager, RTRT Operations
L. Morrell, Manager, Licensing & Safety Analysis
W. Nash, Vice President and General Manager
T. Nicks, Manager, Security
J. Noel, Manager, NRC Security
S. Peters, Manager, Recovery Operations
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**

Item Number	Status	Description
70-27/2005-01-01	Closed	VIO - Failure to Adhere to Procedure Requirements for Storage of Special Nuclear Material (Paragraph 8.a)
70-27/2005-03-02	Closed	VIO - Failure to Conduct Activities Involving Licensed Materials in Accordance with Procedural Requirements Which Resulted in an Inadequate Facility Change Review (Paragraph 8.b)
70-27/2005-03-04	Closed	VIO [redacted]

[redacted]

[redacted]

70-27/2005-03-05 Closed IFI [redacted]

3. **INSPECTION PROCEDURES USED**

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