#### UNITED STATES



NUCLEAR REGULATORY COMMISSION

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

October 30, 2006

Mr. R. P. Cochrane, General Manager BWX Technologies, Inc. Nuclear Products Division P. O. Box 785 Lynchburg, VA 24505-0785

SUBJECT: NRC INSPECTION REPORT NO. 70-27/2006-007

Dear Mr. Cochrane:

This refers to the inspection conducted from August 20 through September 30, 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: Plant Operations, Management Organization and Controls, Maintenance and Surveillance, 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, no violations or deviations were identified.

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

Sincerely,

/RA/

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

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

Enclosure: (See page 2)

## R. P. Cochrane

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Enclosure: NRC Inspection Report

cc w/encl:

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

Leslie P. Foldesi, Director Bureau of Radiological Health Division of Health Hazards Control Department of Health 1500 East Main Street, Room 240 Richmond, VA 23219

## Distribution w/encl:

D. Ayres, RII A. Gooden, RII G. Wertz, RII M. Galloway, NMSS B. Gleaves, NMSS N. Baker, NMSS

## \*see previous concurrence

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NAME	G Wertz:*	A. Gooden*				
DATE	10/24/2006	10/24/2006	May 18, 2008	May 18, 2008	May 18, 2008	May 18, 2008
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# U. S. NUCLEAR REGULATORY COMMISSION

**REGION II** 

Docket No.:

70-27

License No.:

SNM-42

Report No .:

70-27/2006-007

Licensee:

Facility:

Location:

Lynchburg, Virginia

BWX Technologies, Inc.

**Nuclear Products Division** 

Dates:

Inspector:

August 20 through September 30, 2006

G. Wertz, Senior Resident Inspector

Approved by:

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

Enclosure

## EXECUTIVE SUMMARY

## BWX Technologies, Inc., Nuclear Products Division NRC INSPECTION REPORT 70-27/2006-007

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

## Plant Operations

• The facility was operated safely in accordance with approved procedures and nuclear criticality safety postings (Paragraph 2.a).

#### Management Organization and Controls

- A nuclear criticality safety engineer performed a weekly nuclear criticality safety audit of Uranium Recovery in accordance with the applicable procedure and verified that the Integrated Safety Analysis-credited controls had been maintained (Paragraph 3.a).
- The change management requirements of the License Application, Section 11.1.3, were properly implemented in Quality Work Instruction 5.1.12 (Paragraph 3.b).
- Although an investigation team correctly identified and corrected the cause of the elevated scrubber samples, the inspector determined that investigation team recommendations had not been captured in the commitment tracking system. A corrective action was initiated to ensure appropriate design information control and retention (Paragraph 3.c).

## Maintenance and Surveillance

Maintenance work observed in the accordance with procedural requirements (Paragraph 4).

## Radiation Protection

• The Semi-Annual Effluent Monitoring report indicated that the overall exposure to the public remained well below 10 CFR 20 requirements. The report included elevated liquid effluent dose due to Technetium-99 contaminated material processed at the facility (Paragraph 5).

#### Attachments:

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

## **REPORT DETAILS**

## 1. Summary of Plant Status

Routine fuel manufacturing operations and maintenance activities were conducted in the fuel process areas and in the **second second sec** 

Effective September 18, 2006, Bruce Stratton was promoted to Radiation Control Supervisor.

## 2. <u>Plant Operations (Temporary Instruction (TI) 2600/006, Inspection Procedure (IP)</u> 88135)

### a. <u>Routine Observations</u>

The inspector observed special nuclear material (SNM) operations and determined that the facility was operated safely. The inspector observed that 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 state of readiness.

#### b. Conclusions

The facility was operated safely in accordance with procedures and NCS postings.

## 3. Management Organization and Controls (TI 2600/006, IP 88135)

a. <u>Nuclear Criticality Safety Audit Review</u>

## (1) Inspection Scope and Observations

The inspector reviewed the NCS Audit program described in Procedure NCS Engineering (NCSE) -03 and accompanied an NCS engineer during the performance of a weekly NCS audit of UR. The NCS engineer verified NCS controls were installed and operated as described in the Integrated Safety Analysis (ISA) and properly documented the audit review.

## (2) <u>Conclusions</u>

An NCS engineer performed a weekly NCS audit of UR in accordance with the applicable procedure and verified that the ISA-credited controls were maintained.

#### b. <u>Change Management Program</u>

### (1) Inspection Scope and Observations

The inspector reviewed the change management process described in License Application (LA) Section 11.1.3 and implemented in accordance with Quality Work Instruction (QWI) 5.1.12. The QWI included the LA requirements to perform a multidiscipline technical and safety review of the proposed change. In addition, the QWI required Form N–517 which provided guidance on whether NRC pre-approval of the change was required (in accordance with 10 CFR 70.72), and provided modification requirements for Items Relied On For Safety (IROFS). "Like-Kind" replacement involving IROFS required safety management review. The inspector discussed the change management process with the responsible manager and reviewed the training process.

## (2) <u>Conclusions</u>

The change management requirements of LA Section 11.1.3 were properly implemented in QWI 5.1.12.

### c. <u>Uranium Recovery Scrubber Investigation Review</u>

#### (1) <u>Inspection Scope and Observations</u>

The inspector reviewed the UR scrubber team investigation report (reference NRC Inspection Report 70-27/2006-006). The investigation was comprehensive, correctly identified the physical cause of elevated scrubber samples, and recommended that design information be captured and referenced in the Safety Analysis Report to preclude recurrence. However, the inspector identified that the recommendations had not been entered into the corrective action (CA) commitment tracking system. This was discussed with the Safety and Licensing Manager who initiated CA 2011508 to ensure appropriate design information control and retention.

## (2) <u>Conclusions</u>

Although an investigation team accurately identified and corrected the cause of the UR scrubber elevated samples, the inspector determined that recommendations from the investigation report had not been captured in the CA commitment tracking system. A corrective action was initiated to ensure appropriate design information control and retention.

## 4. Maintenance and Surveillance (TI 2600/006, IP 88135)

### a. <u>Inspection Scope and Observations</u>

The inspector observed maintenance done to clean and remove SNM from a processing system **Sector observed maintenance done** on September 25. The work activity was done as described in OP-1015277 which included specific radiation protection (RP), contamination control, lock-out/tag-out, and confined space requirements. The inspector observed the work which was done safely and in accordance with the OP requirements.

#### b. <u>Conclusions</u>

Maintenance work performed was done safely and in accordance with OP requirements.

## 5. Radiation Protection (TI 2600/006, IP 88135)

### a. Inspection Scope and Observations

The inspector reviewed the results of the Semi-Annual Effluent Monitoring report, dated August 29, 2006, covering the period from January 1 to July 2, 2006. The gaseous effluent was 0.059 milli-Roentgen Equivalent Man (mrem) which was consistent with the previous period (July 4, 2005 through January 1, 2006) exposure of 0.024 mrem. However, the liquid effluent result of 0.238 mrem had increased significantly above the previous report value of 0.0539 mrem. This was due to Cesium-137 and Technetium-99 associated with the processing of contaminated material (reference NRC Inspection Report 70-27/2006-006, paragraph 3.b, and BWXT memorandum, "Notification of Tc-99 Contamination in Groundwater Monitoring Wells," dated August 14, 2006). Overall, the total dose for the six-month period was 0.297 mrem and remained well below 10 CFR 20 requirements.

### b. <u>Conclusions</u>

The Semi-Annual Effluent Monitoring report indicated that the overall exposure to the public remained well below 10 CFR 20 requirements. The report included elevated liquid effluent dose due to Technetium-99 contaminated material processed at the facility.

## 6. Followup of Previously Identified Issue (TI 2600/006, IP 88135)

The inspector reviewed the completed CAs for non-cited violation (NCV) 70-27/2006-04-01, Inappropriate Maintenance Resulted in the Failure to Maintain an Item Relied On For Safety Available. The CAs included enhancing the maintenance process to ensure that the latest maintenance documents (procedures, QWIs, drawings, etc.) were used to plan and execute the maintenance work. In addition, the maintenance procedure was revised to ensure that the replaced component (sensor) was returned to service before the work activity was designated as completed. Operations revised OP-1001828 to visually enhance the system status when a sensor is out of service and strengthen the steps for system operation following sensor replacement. The inspector concluded the CAs were sufficient and NCV 70-27/2006-04-01 was closed.

## 7. Exit Meeting

The inspection scope and results were summarized on October 5, 2006, with R. Cochrane, 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. No dissenting comments were received from the licensee.

### **ATTACHMENT**

## 1. LIST OF PERSONS CONTACTED

- J. Burch, Manager, Operations
- R. Cochrane, Manager, General Manager
- J. Creasey, Manager, Uranium Processing
- R. Hogg, Acting Manager, Nuclear Criticality Safety
- L. Morrell, Manager, Licensing & Safety Analysis
- T. Nicks, Manager, 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. <u>LIST OF ITEMS OPENED AND CLOSED</u>

Item Number Status

<u>Description</u>

70-27/2006-04-01 Closed

NCV - Inappropriate Maintenance Resulted in the Failure to Maintain an Item Relied O For Safety Available (Paragraph 6).

#### 3. **INSPECTION PROCEDURES USED**

TI 2600/006 Resident Inspection Program for Category I Fuel Cycle Facilities IP 88135 Resident Inspection Program for Category I Fuel Cycle Facilities (effective September 25, 2006)