



UNITED STATES
NUCLEAR REGULATORY COMMISSION

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

[REDACTED]
September 2, 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. 70-27/2005-006

Dear Mr. Nash:

This refers to the inspection conducted from June 26 through August 6, 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.

No violations were identified during the inspection.

[REDACTED]

[REDACTED]

[REDACTED]

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2

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

Sincerely,

Douglas M. Collins for */RA/*

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

BWXT



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*see previous concurrence

X **SISP REVIEW COMPLETE:** Initials: DMC **SISP REVIEW PENDING*:** Initials: _____ *Non-Public until the review is complete

ADAMS: X Yes **ACCESSION NUMBER:** _____

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|--------------|------------|------------|----------|--------------|--------------|--------------|--------------|
| OFFICE | RII:DFFI | RII:DFFI | RII:DFFI | | | | |
| SIGNATURE | | | DMC | | | | |
| NAME | GWertz* | SCaudill* | _____ | | | | |
| DATE | 08/30/2005 | 08/30/2005 | 09/02/05 | 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.: 70-27/2005-006

Licensee: BWX Technologies, Inc.

Facility: Nuclear Products Division

Location: Lynchburg, Virginia

Dates: June 26 through August 6, 2005

Inspector: G. Wertz, Senior Resident Inspector
C. Taylor, Fuel Facility Inspector

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

Enclosure

[REDACTED]

[REDACTED]

NRC INSPECTION REPORT 70-27/2005-006

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 areas of Plant Operations, Management Organization and Controls, Maintenance and Surveillance, Radiation Protection, Material Control and Accounting, and Physical Protection. A specialized inspection was conducted by a regional inspector in the area of Radiation Protection (July 18 through 21, 2005).

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).
 - On April 25, debris in the [REDACTED] drain system caused the [REDACTED] in-line monitors to isolate flow. The licensee responded safely and effectively by installing and operating a temporary filtration system in accordance with an approved radiation work permit. The post-event investigation team appropriately identified the root cause and provided recommendations to preclude future drain line clogging. The Safety Analysis Report indicated that the drain system consisted of favorable geometry components and no nuclear criticality safety concerns were identified (Paragraph 2.c).
 - Radiation protection staff responded properly to Criticality Monitoring System alarm indications on July 13 and activated the audible evacuation alarm. Workers evacuated the facility and were safely sheltered. Emergency Operations Center staff promptly responded to the site and activated the Emergency Operations Center. The Emergency Operations Center determined that the Criticality Monitoring System alarms were due to an electrical storm. Failure analysis of the detectors indicated that the damage was consistent with an electrical surge. The Emergency Operations Center staff properly classified the event in accordance with the Emergency Plan and provided prompt and accurate NRC notifications. A review team was formed to evaluate the event and the licensee's response (Paragraph 2.d).
- [REDACTED]

- Fire Detection Alarm System communications were lost from the Lynchburg Technology Center to the Alarm Stations on July 5 and 14, 2005. The fire safety risk remained low since the automatic fire suppression system remained operational. No Items Relied on For Safety were involved. The corrective actions include the installation of an upgraded Fire Detection System [REDACTED] (Paragraph 2.e).

Management Organization and Controls

- [REDACTED]

Maintenance and Surveillance

- A weekly functional test of the [REDACTED] in-line radiation monitors was performed correctly and in accordance with the procedure (Paragraph 4.a).
- A [REDACTED] process in Uranium Recovery required the installation of a temporary hose which was installed and controlled properly and in accordance with procedure requirements (Paragraph 4.b).

Radiation Protection

- Radiological controls implemented during plant shutdown maintenance activities were effective to prevent personnel contaminations and unnecessary internal exposure. Workers were observed compliant to the radiation work permit and radiological posting requirements (Paragraph 5.a).
- Ground water samples from Lynchburg Technology Center wells were collected and analyzed in accordance with License Condition 5.4.6. [REDACTED] exceeded the license condition radioactivity action level, but an isotopic analysis indicated that the activity resulted from an accumulation of naturally occurring uranium (Paragraph 5.b).
- The Lynchburg Technology Center [REDACTED] radioactivity concentration and [REDACTED] were monitored in accordance with the License Conditions 5.4.7, 5.4.8 and 5.4.9. The radioactivity and water level data indicated normal [REDACTED] operation (Paragraph 5.c).
- Workers replacing contaminated glovebox components were observed working in accordance with the radiological protection requirements specified in the radiation work permit (Paragraph 5.d).

[REDACTED]

- Instrumentation and equipment were operational and had proper alarm settings in accordance with the license application and licensee procedures. The inspector determined that a preventive maintenance system was in place to track and identify instruments needing calibration, repair, and functional testing (Paragraph 5.e).
- The External and Internal Exposure Monitoring Program was implemented in a manner to maintain doses As Low As Reasonably Achievable. Exposures were less than the occupational limits in 10 CFR 20.1201 (Paragraph 5.f).
- Radiological safety postings, labeling and radiation work permits were properly used to communicate potential hazards and protective equipment requirements to workers. Minor housekeeping problems in the [REDACTED] at the Lynchburg Technology Center were observed (Paragraph 5.g).
- The radiation and contamination survey programs were appropriately implemented to protect workers and identify potential radiation hazard areas. The licensee's staff was cognizant of the active radiation work permits and current survey maps were available (Paragraph 5.h).
- Based on licensee performance, interviews, and documentation, the inspector determined that notification and reporting was performed in accordance with the regulations and the requirements in the license (Paragraph 5.i).
- The As Low As Reasonably Achievable program was properly implemented (Paragraph 5.j).

Material Control and Accounting

- [REDACTED]
- [REDACTED]

Physical Protection

- [REDACTED]

Attachment:

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

[REDACTED]

REPORT DETAILS

1. **Summary of Plant Status**

Routine Operations

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

On July 8, 2005, NRC Commissioner Gregory Jaczko; Region II Division of Fuel Facility Inspection Director, Douglas Collins; Commissioner Jaczko's Senior Assistant for Materials, Gregory Hatchett; and the Senior Resident Inspector, Geoff Wertz, toured the facility.

Normal facility operations, including special nuclear material processing, ceased for planned maintenance activities on June 26 and resumed on July 6, 2005.

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).

[REDACTED]

(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.

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. Retention Tank In-line Monitor Actuation Event Review

(1) Inspection Scope and Observations

On April 25, the [REDACTED] liquid waste [REDACTED] in-line radiation monitors actuated. These monitors detect the presence of unacceptable levels of radioactivity in the [REDACTED] liquid waste streams and isolate flow prior to the liquid entering the unfavorable geometry [REDACTED]. The in-line monitor actuation event actually began several days before when waste water backed up in the laundry drain and maintenance personnel attempted to clean the line with a mechanical snake. An off-site vendor was contacted and continued cleaning operations with a water cutting device. Neither attempts were successful and the licensee eventually disassembled the in-line monitor piping and identified that debris was clogging the drain lines (pens, skullcaps, gloves, etc.). A temporary filtration system was installed in accordance with RWP 05-065 which eventually became permanent in accordance with Safety Evaluation Request 05-037.

The inspector observed the installation and operation of the temporary filtration system and reviewed the risk significance of the event and the results of the licensee's investigation team report. The temporary filtration system was installed and operated in

accordance with the RWP. NCS controls remained effective during manual waste water drumming operations at the laundry facility. The root cause determination that debris caused the clogging, and the resultant corrective action (CA) to install a filtration system was effective to remedy the immediate problem. The investigation team review provided additional recommendations to preclude recurrence. These included a verification that protective screens were installed on all [REDACTED] drains to prevent debris from entering the system. In addition, the feasibility of performing periodic drain line cleaning as well as better identification and documentation of the [REDACTED] drain sources were also recommended. [REDACTED]

(2) Conclusions

On April 25, debris in the [REDACTED] drain caused the [REDACTED] in-line monitors to isolate drain flow. The licensee responded effectively and safely by installing and operating a temporary filtration system in accordance with an approved RWP. The investigation team adequately identified the root cause and provided recommendations to preclude future [REDACTED] drain line clogging. The SAR indicated that the [REDACTED] drain system consisted of favorable geometry components and no NCS concerns were identified.

d. Unplanned Activation of the Criticality Monitoring System (CMS) Audible Alarm

(1) Inspection Scope and Observations

On July 13, around 10:09 p.m., the CMS audible alarm was actuated when four CMS detectors in a low enriched uranium (LEU) [REDACTED] and one CMS detector in the Waste Treatment (WT) [REDACTED] alarmed high and would not reset. The facility had entered the "storm watch" provisions of the CMS at 9:40 p.m., due to a local severe electrical storm. The facility was evacuated and the EOC was activated. The Senior Resident Inspector responded to the EOC and observed the EOC members evaluate and respond to the situation.

An ALERT was declared at 10:45 p.m., based on the CMS activation. The NRC was notified at 10:59 p.m. The EOC sent the emergency team to survey the LEU storage and WT [REDACTED] with hand-held radiation meters. No unusual radiation levels were identified. The EOC concluded that the CMS detectors alarmed due to a lightning strike. The EOC exited the ALERT condition at 11:26 p.m., and the plant was released to resume normal operations at 11:49 p.m. The electrical storm also resulted in a brief power outage for the entire facility and sporadic outages [REDACTED]. However, no other safety systems were affected. The International Atomic Energy Agency monitoring equipment remained operational as alarm status lights were not activated. A Plant Incident Review Team was chartered to critique the event.

[REDACTED]

The inspector concluded that the EOC operations were effective to protect the workers and safeguard the facility. Employees were safely sheltered following the evacuation alarm. Only EOC members were allowed to enter the facility. [REDACTED] were cleared before operations could resume. The inspector discussed the CMS detector failures with the responsible technician. The detector failures were diagnosed and were consistent with an electrical surge and the alarm indications. NRC notifications (Event Notification (EN) 41841) were performed promptly. The ALERT declaration was made correctly in accordance with the Emergency Plan and was retracted on July 15 based on the determination that the cause of the CMS alarm was due to the electrical storm.

(2) Conclusions

Radiation Protection (RP) personnel responded properly to CMS alarm indications on July 13 and activated the audible evacuation alarm. Workers evacuated the facility and were safely sheltered. EOC members promptly responded to the site and activated the EOC. The EOC determined that the CMS alarms were due to an electrical storm. Failure analysis of the CMS detectors indicated that the damage was consistent with an electrical surge. The EOC properly classified the event in accordance with the Emergency Plan and provided prompt and accurate NRC notifications. A review team was formed to evaluate the event and the licensee's response.

e. Lynchburg Technology Center (LTC) Fire Detection System [REDACTED]
[REDACTED]

(1) Inspection Scope and Observations

On July 5, a functional test performed on the LTC alarm panel, following a storm watch, indicated that alarms were not being received by the monitors in the alarm station. The licensee immediately implemented compensatory measures to provide manual coverage and communication of the LTC alarm panel until repairs corrected the condition on July 6, around 2:30 p.m.. The event was reported to the NRC in EN 41822 on July 6 and was captured as CA 2005-00571.

On July 14, a functional test, following a severe electrical storm, [REDACTED]
[REDACTED]

Compensatory measures were invoked and the condition corrected. The cause of the failure was due to a power surge. The issue was properly reported to the NRC in EN 41843 and captured in CA 2005-00596. The CA included installation [REDACTED]
[REDACTED]

[REDACTED]

[REDACTED]

The inspector evaluated the risk associated with the loss of the Fire Detection System and determined that it was low. Fire safety hazard scenarios were evaluated in SAR 15.40 and no high or intermediate consequence events, nor Items Relied On For Safety, were identified. The licensee also concluded that a fire at the LTC would not result in radiation exposure above NRC limits. The LTC automatic fire suppression system remained operational [REDACTED]

The cause of the July 5 communication failure could not be ascertained. Maintenance was performed on another part of the alarm's communication system on July 2 which probably contributed to an alarm which had been received on the event log. However, the event log is not actively monitored and all other communication status indications were normal. The CAs included installation of an upgraded alarm communication system and implementation of a post maintenance checklist to verify communications. [REDACTED]

The cause of the July 14 event was due to a lightning strike. The licensee replaced the failed surge protector and implemented a daily communication check of the LTC alarm system. Installation of the upgraded Fire Detection System continues and is scheduled for completion by November 30. The new system should improve communication reliability since it will have redundant communication capability. The inspector reviewed both issues with industrial engineers and RP management and determined that the CAs were appropriate.

(2) Conclusions

Fire Detection Alarm System communications were lost from the LTC to the alarm stations on July 5 and 14. The fire safety risk remained low since the automatic fire suppression system remained operational. No Items Relied on For Safety were involved. The CAs include installation of an upgraded Fire Detection System [REDACTED]

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

a. Inspection Scope and Observations

The inspector reviewed the results of the [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

b. Conclusions

4. Maintenance and Surveillance (TI 2600/006)

a. In-line Radiation Monitor Functional Check

(1) Inspection Scope and Observations

The inspector observed radiation instrumentation technicians perform a weekly functional check of the in-line monitors in accordance with procedure RP 08-15. No discrepancies were observed.

(2) Conclusions

A weekly functional test of the inline Radiation Monitors was performed correctly and in accordance with the procedure.

b. Configuration Control of Temporary Raffinate Process

(1) Inspection Scope and Observations

The inspector observed UR operators processing raffinate solution from the for disposal to WT. High levels of entrained SNM required temporary transfer of the raffinate solution. A temporary hose was installed and controlled in accordance with the waste processing procedure. The inspector verified that the configuration control form was current and that the UR operators were cognizant of the restoration requirements.

(2) Conclusions

A raffinate process in UR required the installation of a temporary hose which was installed and controlled properly and in accordance with procedural requirements.

5. Radiation Protection (TI 2600/006 and Inspection Procedure (IP) 83822)

a. Facility Shutdown Maintenance

(1) Inspection Scope and Observations

The inspector observed maintenance activities during the facility shutdown period focusing on RP controls which included proper postings for contamination and airborne radiological hazards. Workers were observed in protective equipment as specified by

[REDACTED]

the posting. The inspector reviewed RWP 05-106 written to provide requirements for replacement of air filters in controlled areas and observed maintenance workers replace air filters in [REDACTED]. The inspector reviewed personnel contamination and breathing zone exposure records for the shutdown period. No discrepancies were observed.

(2) Conclusions

Radiological controls implemented during plant shutdown maintenance activities were effective to prevent personnel contaminations and unnecessary internal exposure. Observed operations were compliant with RWP requirements and radiological postings.

b. LTC Ground Water Monitoring

(1) Inspection Scope and Observations

Ground water samples of LTC monitoring wells [REDACTED] were obtained and analyzed in accordance with license condition (LC) 5.4.6. The well water samples were within the radioactivity limits of the LC except for [REDACTED]. The alpha activity for [REDACTED] was 41 pico-Curies per liter (pCi/l) which exceeded the LC action level of 15 pCi/l. An isotopic analysis was performed which indicated that the alpha activity was due to a natural accumulation of the U isotopes U-234 and U-238. The U-234/U-238 ratio was consistent with ground water studies and indicated an absence of licensed material. The gamma spectroscopic data identified that the beta activity was due to a natural source (potassium-40). The inspector concurred with the licensee's assessment that the radioactivity in [REDACTED] was due to natural material not associated with licensed activities.

(2) Conclusions

Ground water samples of LTC wells were obtained and analyzed in accordance with the LC 5.4.6. [REDACTED] exceeded the license condition radioactivity action level, but an isotopic analysis indicated that the activity resulted from an accumulation of naturally occurring U.

c. LTC [REDACTED] Surveillance Requirements

(1) Inspection Scope and Observations

LCs 5.4.7 through 5.4.9 required surveillance of the LTC [REDACTED] [REDACTED] for radioactivity [REDACTED]. The inspector reviewed the licensee's records for these LCs. Monthly gross alpha and beta activity levels were below the action levels of LC 5.4.7. Daily [REDACTED] level monitoring data was obtained by the licensee in accordance with LC 5.4.8. [REDACTED] level had been maintained in accordance with LC 5.4.9. No discrepancies were identified.

[REDACTED]

(2) Conclusions

The LTC [REDACTED] radioactivity and level were monitored in accordance with LCs 5.4.7, 5.4.8 and 5.4.9. The radioactivity [REDACTED] data indicated normal [REDACTED] operation.

d. RWP Review

(1) Inspection Scope and Observations

The inspector reviewed RWP 05-112 which described the radiological protection requirements for workers replacing glovebox components. The protective requirements included appropriate dress and respiratory protection. The inspector observed the area workers working in accordance with the RWP requirements. No discrepancies were observed.

(2) Conclusions

Workers replacing contaminated glovebox components were working in accordance with the radiological protection requirements specified in the RWP.

e. RP Program Equipment (R1.03)

(1) Inspection Scope and Observations

Equipment used to identify the presence of radioactive materials on smears, air samples, and personnel was examined to determine if the selected equipment was adequately maintained and reliable to perform the intended safety function. The inspector interviewed personnel performing operability checks on laboratory analytical equipment and survey meters. The documentation for selected equipment routine checks, calibrations and functional testing was also reviewed and cross-checked against the licensee's preventive maintenance program and procedures RP-07-57, "General Calibrations," and RP-07-49, "Out of Calibration Instruments." Based on interviews and a review of documentation for the period January 2004 to June 2005, the selected equipment was properly maintained, and results from the operability checks and calibrations indicated that the equipment provided reliable results.

(2) Conclusions

The licensee had instruments and equipment that were operational and had proper alarm settings in accordance with the license and procedures. An adequate preventive maintenance system was in place to track and identify instruments needing calibration, repair and functional testing.

f. External and Internal Exposure Control (R1.04 and R.1.05)

(1) Scope and Observations

The inspector interviewed licensee representatives, reviewed RP procedures, and reviewed personnel exposure data, to determine if exposures were in compliance with 10 CFR Part 20.1201 limits, and if administrative and physical controls were in place to maintain occupational doses' As Low As Reasonably Achievable (ALARA).

Based on interviews, procedural reviews, and observations of plant personnel inside radiation control areas, the licensee's monitoring program for external and internal exposure was consistent with the requirements in 10 CFR Part 20. The licensee's dosimetry provider was certified by the National Voluntary Laboratory Accreditation Program. Table 1 below displays the maximum assigned exposure data for calendar year (CY) 2004 and the first and second Quarters of 2005.

The inspector reviewed the licensee's program for monitoring external and internal exposures and determined that the program was adequately based on the type of operations and work activity taking place at the site. The inspector reviewed the methodology by which workers were selected to participate in the bioassay program. During the review, the inspector determined that the licensee had validated bioassay software known as "IMBA." The software was used to assign internal dose based on the International Council on Radiological Protection (ICRP) methodology as published in ICRP 68. The inspector found no problems with the validation results. Additional procedures reviewed included RP-03-01, "Dosimetry Issuance and Exchange" and RP-04-02, "Internal Dose Assessment Program."

The inspector reviewed personnel dosimeter results for individuals working in the [REDACTED] at the LTC to determine the exposure levels during CY 2004 and first and second Quarters of 2005. Based on documentation reviews and interviews with LTC operators in the area, all exposure levels were well below the regulatory limits established in 10 CFR 20. In addition, the operators when questioned were knowledgeable about the radiological hazards and principals of time, distance, and shielding techniques used in the area. The following procedure was reviewed at the LTC, RP-03-13, "LTC Dosimetry Procedures."

Based on the current site activity, the licensee's personnel monitoring program for external and internal exposures was properly implemented. No regulatory or license limits were exceeded.

Table 1. Maximum Annual Dose Data

| Year/ Facility Location | Deep Dose Equivalent (DDE) - rem | Shallow Dose Extremity (SDE) - rem | Total Effective Dose Equivalent (TEDE) - rem | Collective TEDE (person- rem) | Committed Effective Dose Equivalent (CEDE) - rem | |
|-------------------------------|---|---|--|--|--|-------|
| 2004 | NPD | 0.099 | 0.000 | 0.513 | 24.6 | 0.513 |
| | LTC | 0.775 | 2.155 | 0.775 | 5.299 | 0.000 |
| *2005 | NPD | 0.093 | 0.088 | 0.236 | 11.076 | 0.236 |
| | LTC | 0.614 | 1.36 | 0.614 | 2.665 | 0.012 |

*The 2005 data for NPD and LTC is interim data for monitoring period January 2005 through July 27, 2005.

(2) Conclusions

The External and Internal Exposure Monitoring Program was adequately implemented to facilitate ALARA goals. Exposures were less than the occupational limits in 10 CFR 20.1201.

g. Postings, Labeling, Control and Surveys (R1.07)

(1) Scope and Observations

The inspector reviewed the licensee's program for posting as required by 10 CFR 19.11 and determined that bulletin boards located in designated areas were posted such that workers could observe documents or obtain details as to where documents could be examined. Several work locations were examined to determine if radioactive containers were properly labeled and to assess the adequacy of the licensee's compliance with 10 CFR 20.1902, "Posting Requirements." RWP's were reviewed to determine the adequacy of the requirements posted for worker protection.

The inspector observed that work areas involving radioactive material or potentially contaminated materials were properly posted and containers labeled. The inspector observed and discussed with operators the labeling and control of [REDACTED] containers used in the [REDACTED] of the LTC. In this area, the inspector observed a considerable amount of radioactive trash in drum liners awaiting disposal into Sea-Land containers on the back wall of the [REDACTED]. From discussions with the licensee's representatives, the inspector determined that trash had been allowed to accumulate since the beginning of July. The radiation staff was aware of the trash and had surveyed the trash daily. The highest reading showed 70 millirem per hour on one of the bags. The inspector determined that the operators were responsible for waste containers in the area and a

request had to be filed with the radiation staff for surveying and disposal support. In addition, the inspector determined that the area was not as fully staffed as the Nuclear Products Division (NPD). The inspector discussed the housekeeping issue with management and the area was eventually cleaned.

(2) Conclusions

Radiological safety postings and RWPs were properly used to communicate potential hazards and protective equipment requirements to workers. Inspector-identified housekeeping problems in the [REDACTED] were adequately corrected by plant staff.

h. Surveys (R1.08)

(1) Scope and Observations

The radiation survey program was reviewed to assess the effectiveness of surveys to identify radiation and contamination. During tours of the plant, the inspector observed a RP technician perform radiation and daily contamination surveys in the [REDACTED] areas. The contamination surveys were collected and analyzed in the RP laboratory in accordance with procedures. No problems were noted during the inspectors tours, and the sample collection and analysis activities were adequate.

(2) Conclusions

The radiation and contamination survey program were appropriately implemented to protect workers and identify potential radiation hazard areas.

i. Notifications and Reports (R1.09)

(1) Scope and Observations

The inspector reviewed the licensee's Radiation Safety Incident Notices (RSINs) and CA and commitment tracking system. The RSINs were internally tracked by the RP staff and those incidents requiring entry into the CA and commitments were tracked via the CA system. In addition, the inspector reviewed the adequacy of the licensee's review and evaluation to determine if any events met the requirements for reportability to NRC, and found that none were reportable. The licensee's review and evaluation of the incident were prompt and actions to prevent a recurrence were timely.

Randomly selected workers were questioned regarding the availability and/or provision to provide exposure data by the licensee. In every interview, the workers indicated that at least annually the exposure information was provided. In addition, the inspector confirmed the licensee's reporting of exposures via NRC Form 5 data were provided to the NRC in a timely manner.

[REDACTED]

(2) Conclusions

The RP notification and reporting program was in compliance with applicable requirements.

j. Implementation of ALARA Program (R1.10)

(1) Scope and Observations

The ALARA program was reviewed to determine if the program and ALARA goals were developed and implemented in accordance with the license. In addition, the program for reinforcing the ALARA concept among employees was assessed. Managers, operators and RP technicians were interviewed regarding ALARA and demonstrated an adequate knowledge of the ALARA concepts. The inspector determined that the 2004 ALARA annual report was reviewed by management, and included detailed ALARA goals and exposure summaries to identify undesirable trends. The inspector reviewed the triennial audit conducted in 2003 by an outside consultant and reviewed the status of selected items the consultant identified in the report that could be improved upon. The inspector determined through interviews with management and documentation review that all areas identified in the audit for improvement were discussed by the radiation safety council and brought to the attention of management. These areas were assessed and projects are on going or have been completed.

The following procedures were reviewed: RP-10-01, "Technician Training" and RP-01-04, "ALARA Safety Evaluation Process."

(2) Conclusions

The ALARA program was adequately implemented.

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

■ [REDACTED]

■ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[Redacted]

[Redacted]

[Redacted]

■ [Redacted]

[Redacted]

■ [Redacted]

■ [Redacted]

[Redacted]

■ [Redacted]

[Redacted]

[Redacted]

[REDACTED]

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

■ [REDACTED]

[REDACTED]

■ [REDACTED]

[REDACTED]

8. **Exit Meeting**

The inspection scope and results were summarized on July 21 with Mr. B. Morcom, Acting Vice President and General Manager, and on August 12 with Mr. 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

- T. Brown, Manager, Engineering
- R. Coats, Manager, Environmental Protection
- R. Cochrane, Manager, Operations
- J. Compher, Manager, Industrial Engineering
- J. Creasey, Manager, Uranium Processing
- L. Duncan, Manager, Nuclear Criticality Safety
- F. Metz, Manager, RTRT Operations
- B. Morcom, Section Manager, Assembly Manufacturing Operations
- W. Nash, Vice President and General Manager
- T. Nicks, Manager, Security
- C. Reed, Manager, Uranium Processing
- 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

2. **INSPECTION PROCEDURES USED**

- TI 2600/006 Resident Inspection Program for Category 1 Fuel Cycle Facilities
- IP 83822 Radiation Protection

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

| <u>Item Number</u> | <u>Status</u> | <u>Description</u> |
|--------------------|---------------|--------------------|
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| 70-27/2005-06-01 | Opened |
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| URI [REDACTED] |
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[REDACTED]