



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

[REDACTED]

December 13, 2004

Nuclear Fuel Services, Inc.
ATTN: Mr. Kerry Schutt
President, General Manager
P. O. Box 337, MS 123
Erwin, TN 37650

SUBJECT: NRC INSPECTION REPORT NO. 70-143/2004-10 AND NOTICE OF VIOLATION

Dear Mr. Schutt:

This refers to the inspection conducted from October 3, 2004, through November 13, 2004, at your Erwin facility. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements.

Areas examined during the inspection included Plant Operations, Fire Protection, Radiation Protection, Chemical Safety, and Physical Protection. Within these areas, the inspection consisted of selective examination of procedures and representative records, interviews with personnel, and observation of activities in progress.

Based on the results of this inspection, the NRC has determined that violations of NRC requirements occurred. Two violations are cited in enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. Violations were noted in the area of nuclear criticality safety and configuration control.

[REDACTED]

[REDACTED]

[REDACTED]

Another violation is being treated as a non-cited violation (NCV), consistent with Section VI.A.8 of the Enforcement Policy and is described in Part 1 of the subject inspection report. If you contest the violation or significance of this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region II, and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001, and the NRC Resident Inspector at your facility.

[REDACTED]

[REDACTED] 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. 70-143
License No. SNM-124

Enclosures: Notice of Violation
NRC Inspection Report (Part 1)
NRC Inspection Report (Part 2)

cc w/encls:
B. Marie Moore
Vice President
Safety and Regulatory Management
Nuclear Fuel Services, Inc.
P. O. Box 337, MS 123
Erwin, TN 37650

[REDACTED]

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NOTICE OF VIOLATION

Nuclear Fuel Services, Inc.
Erwin, Tennessee

Docket No. 70-143
License No. SNM-124

During an NRC inspection conducted from October 3, 2004, through November 13, 2004, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions - May 1, 2000," NUREG-1600, the violation is listed below:

- A. Safety Condition S-1 of Special Nuclear Materials License No. SNM-124 authorizes the use of licensed materials in accordance with the statements, representations, and conditions in the License Application and Supplements.

Section 2.7 of the License Application, Procedures, states "SNM operations and safety function activities are conducted in accordance with written procedures as defined in Section 1.7.4 and 1.7.5."

Procedure NFS-HS-CL-26, states unfavorable geometry bags [REDACTED] may be opened [REDACTED] for the uses specified, and states the bags shall otherwise be kept flat, closed (by hand), sealed (e.g. taped or heat sealed), or have the bottom corners cut out leaving openings in the bag [REDACTED].

Contrary to the above, on October 27, 2004, a bag [REDACTED] was open [REDACTED] and was not being used for one of the specified uses. The bag was not kept flat, not sealed, and the bottom corners were not cut out.

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

- B. Safety Condition S-1 of Special Nuclear Materials License No. SNM-124 authorizes the use of licensed materials in accordance with the statements, representations, and conditions in the License Application and Supplements.

Safety Condition S-15 of Special Nuclear Materials License No. SNM-124 states that "Active and administrative controls for flammable liquids and gases must be operable in the fire area where flammable liquids and gases are present [REDACTED]."

[REDACTED]

[REDACTED]

Section 2.7 of the License Application, Procedures, states "SNM operations and safety function activities are conducted in accordance with written procedures as defined in Section 1.7.4 and 1.7.5."

Contrary to the above, the licensee failed to conduct safety function activities in accordance with written procedures as described in the following examples involving flammable gases present [REDACTED]:

1. Section 5.20 of Standard Operating Procedure (SOP) 392, "Work Request," Revision 9; dated December 2, 2002, states "During installation, the initiator will note changes that deviate from the approved work request."

Prior to July 27, 2004, the licensee failed to note changes that deviated from the approved work request for the installation [REDACTED]. A temporary manifold had been installed [REDACTED] and not noted in any of the approved process drawings. Following the introduction of the bulk gases [REDACTED], a fire resulted [REDACTED] due to the temporary manifold mixing the flammable gases into the inert gas line.

2. Letter of Authorization (LOA)-1903J-083, states "You are authorized to use process gases and chemicals [REDACTED] while operating according to existing procedures. NOTE: Gas sampling valves [REDACTED] should remain closed unless required to connect test gas source."

Prior to July 27, 2004, the licensee failed to close gas sampling valves [REDACTED] during use of process gases and chemicals in [REDACTED]. This failure allowed the explosive gases to mix into the inert gas line through the temporary manifold and resulted in the fire [REDACTED].

The above two examples constitute a Severity Level IV violation (Supplement VI).

Pursuant to the provisions of 10.CFR 2.201, Nuclear Fuel Services, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region II, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). 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

[REDACTED]

[REDACTED]

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 to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001.

[REDACTED]

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

Dated this 13th day of December, 2004.

[REDACTED]

[REDACTED]

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 70-143

License No.: SNM-124

Report No.: 70-143/2004-10

Licensee: Nuclear Fuel Services, Inc.

Facility: Erwin Facility

Location: Erwin, TN 37650

Dates: October 3, 2004 - November 13, 2004

Inspectors: D. Rich, Senior Resident Inspector
M. Crespo, Fuel Facility Inspector
I. Hall, Physical Security Inspector
J. Jimenez, Fuel Facility Inspector
O. Lopez, Fuel Facility Inspector

Approved by: D. Ayres, Chief
Fuel Facility Inspection Branch 1
Division of Fuel Facility Inspection

[REDACTED]



EXECUTIVE SUMMARY

Nuclear Fuel Services, Inc.
NRC Inspection Report 70-143/2004-10 (Part 1)

This inspection included activities conducted by the senior resident inspector and regional inspectors during normal and off normal shifts in the areas of Blended Low Enriched Uranium (BLEU) project facility operations, fire protection, and radiological protection, and chemical safety.

Plant Operations

- The licensee temporarily shutdown HEU operations in the BPF due to violations of operations and safety procedures in order to develop and implement performance improvement measures. The inspector subsequently noted operations were generally conducted safely and in accordance with the license (Paragraph 2.a).
- The safety analysis for process areas reviewed identified safety controls and provided for double contingency. Selected safety related equipment was maintained in accordance with licensee procedures (Paragraph 2.b).
- The plant activities reviewed were performed safely by knowledgeable operators and in accordance with license requirements. Housekeeping was generally adequate although some deficiencies were noted (Paragraph 2.c).
- The criticality alarm monitoring system was adequately tested to ensure reliability and operability (Paragraph 2.d).
- Nuclear Criticality Safety quarterly audits were performed in accordance with license requirements and procedures (Paragraph 2.e).

Fire Protection

- Fire protection and detection equipment was adequately maintained. Fire hazards were minimized by appropriate housekeeping (Paragraph 3a).

Radiation Protection

- Radiological control practices met regulatory requirements (Paragraph 4a).
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Chemical Safety

- Operators were generally knowledgeable of the chemical hazards present in their areas (Paragraph 5.a).
- One violation was noted for the failure to verify the availability of a fire safety item relied on for safety. (Paragraph 5.b).
- The oxide conversion building, effluent processing building, and uranyl nitrate  building were operated in accordance with the chemical safety requirements (Paragraph 5.c).
- The safety training provided and the procedures available to the employees were found to be adequate in addressing and informing the employees of possible chemical hazards; with emphasis on upset conditions and emergencies (Paragraph 5.d).
- The maintenance and incident investigation program in the BLEU Complex were effective and emphasized safety. Inspection, testing and maintenance of key chemical safety protection components for existing areas were adequately implemented to ensure availability and reliability (Paragraph 5.e).

Attachment:

Partial List of Persons Contacted

Inspection Procedures Used

List of Items Opened, Closed, and Discussed

List of Acronyms


[REDACTED]

REPORT DETAILS

1. Summary of Plant Status

Operations at the blended low enriched uranium (BLEU) preparation facility (BPF) continued with outages for operational safety improvements, modifications, and inventory. Operations continued at the BLEU Complex, including the uranyl nitrate [REDACTED] building (UNB) and the oxide conversion building (OCB).

2. Plant Operations (Temporary Instruction (TI) 2600/006 Inspection Procedure (IP) 88020)

a. Routine Observations

(1) Scope and Observations

The inspector reviewed BLEU plant operations in progress during normal and off-normal operating shifts to evaluate plant safety and compliance with the license. The inspector made routine tours of the plant operating areas and determined that equipment and systems were generally operated safely and in compliance with the license.

The licensee made preparations during the inspection period to temporarily convert the [REDACTED] to the process. The inspector reviewed NFS standard operating procedure (SOP) 409 Section 26, interviewed process and safety engineers, and also reviewed the [REDACTED] nuclear criticality safety evaluation (NCSE). The inspector noted the NCSE supported [REDACTED] operation, [REDACTED]. The inspector noted the NCSE demonstrated license limits for subcriticality would be maintained [REDACTED]. The inspector observed this new mode of process operation and noted operations were performed in accordance with procedure. No significant issues were identified.

The inspector noted that on October 26, the licensee shut down high enriched uranium operations in the BPF due to an unfavorable trend in operational events. These events included an item relied on for safety (IROFS) out of service due to operational errors (see paragraph 5.b of this report), procedural requirements not followed for temporary equipment (see NRC report 70-143/2004-206), and failure to follow criticality safety requirements for discard of waste containing [REDACTED] material (see NRC report 70-143/2004-206). The inspector followed licensee investigations and self-assessment and corrective actions during this period which included oversight by a special board comprised of NFS management and non-NFS consultants. The senior BPF project and operations management team had been changed on October 4, and the new team prepared a plan to address operational issues, training, housekeeping, supervision, and review and improvement of procedures. The oversight board reviewed and approved the written plan for restart and operations improvements and committed to individually

[REDACTED]

[REDACTED]

review the start of each HEU process operation. Since inventory was in process with a list date of November 5, specific instructions were provided for a safe and orderly completion in accordance with approved procedures. Additional supervisory and safety personnel were to cover each shift during the recovery period. The NFS President and the BPF senior project manager conducted safety shutdown meetings with employees, and additional seminars were conducted on nuclear criticality safety. Additional on-the-job (OJT) training requirements were imposed, and management conducted individual interviews and training sessions with the BPF supervisors. By interviews and personal observations, the inspector verified each of these corrective actions were carried out. The inspector also attended training and briefing sessions and daily project planning meetings.

On October 27, the inspector identified an open, intact, plastic bag in a columns area in the BPF [REDACTED]. The bag appeared to have been previously used to contain equipment, but was empty when identified. NFS procedure NFS-HS-CL-26 stated unfavorable geometry bags [REDACTED] may be opened [REDACTED] for the uses specified, and stated the bags shall otherwise be kept flat, closed (by hand), sealed (e.g. taped or heat sealed), or have the bottom corners cut out leaving openings in the bag [REDACTED]. Failure to maintain this intact bag in a flat or closed condition was a violation of NRC requirements (VIO) 70-143/2004-010-01, Uncontrolled Unfavorable Geometry Container [REDACTED].

(2) Conclusions

The licensee temporarily shutdown HEU operations in the BPF due to violations of operations and safety procedures in order to develop and implement performance improvement measures. The inspector subsequently noted operations were generally conducted safely and in accordance with the license.

b. Nuclear Criticality Safety (NCS) Functions (O3.02)
Maintenance of NCS (O3.07)

(1) Scope and Observations

The inspector verified that NCS controls in the BLEU preparation facility (BPF) were identified and adequately maintained through tours of the areas, reviews of the safety analyses, and discussions with the licensee staff. The inspector also verified that the safety analyses provided for double contingency. The inspector concluded that the safety analyses adequately addressed double contingency and specified parameters for use in the processes. The inspectors verified that administrative controls and engineered controls that were referenced in the safety analyses were present and adequately implemented. No safety issues were identified.

The inspector reviewed safety related equipment (SRE) test records to verify that SRE were maintained and calibrated appropriately. The inspector determined that reviewed SRE were tested at the required frequency and that the procedures used to perform the

[REDACTED]

[REDACTED]

tests contained adequate detail. The inspector also noted that when maintenance work was performed on SRE, a functional test was performed to verify that the SRE was in operating condition.

(2) Conclusions

The inspector determined that the safety analyses for process areas reviewed identified safety controls and provided for double contingency. The inspector also determined that selected SRE were maintained in accordance with licensee procedures.

c. Plant Activities (O3.03)

(1) Scope and Observations

The inspector observed activities and housekeeping in the BPF in order to assess that they were performed safely and in accordance with license requirements. The inspector noted that criticality postings, radiological signs, and procedures were properly posted or available to the operators. Although the inspector did not observe any issue where housekeeping could affect emergency egress of the facility, on one occasion the inspector noted excessive accumulation of potentially contaminated trash, in that favorable geometry trash containers were overflowing onto the floor. The inspector found the licensee did not have an approved process for the disposal of more than minor amounts of radioactive trash, and during an intense maintenance period, was initially unable to package and remove radiologically contaminated trash at the rate it was generated. Licensee management subsequently approved procedures addressing trash removal which resolved this issue. The inspector observed that plant personnel working in radiological control areas wore dosimetry and the proper personal protective equipment. The inspector also observed proper spacing practices and controls in storage locations. The inspector interviewed operators throughout the facility. The operators demonstrated detailed knowledge of the safety systems involved in their work area. The inspector noted that operators complied with NCS requirements.

(2) Conclusions

The plant activities reviewed were performed safely by knowledgeable operators and in accordance with license requirements. Housekeeping was generally adequate although some deficiencies were noted.

d. Criticality Alarm System

(1) Scope and Observations

The inspector reviewed maintenance records to verify that the criticality alarm monitoring system was tested to confirm reliability and operability. The inspector also verified the licensee's system of dual detector coverage for several areas of the facility through discussions with licensee personnel and walkdowns of several detectors throughout the facility. No problems were identified.

[REDACTED]

(2) Conclusions

The criticality alarm monitoring system was adequately tested to ensure reliability and operability.

e. NCS Audits

(1) Scope and Observations

The inspector reviewed quarterly NCS audits results for 2004 in order to verify compliance with license application requirements. The inspector noted that the audits were detailed and comprehensive. The inspector confirmed that the corrective actions identified were tracked using the licensee's corrective actions program. No problems were identified.

(2) Conclusions

NCS quarterly audits were performed in accordance with license requirements and procedures.

3. Fire Protection (TI 2600/06)

a. Scope and Observations

The inspector reviewed fire detection and protection systems in the BPF to verify compliance with the license and additional licensee commitments. The inspector determined that fire protection and detection equipment was adequately maintained. Portable fire extinguishers were charged to the normal operating zones and no visible damage was noted. Fire hazards were minimized by appropriate housekeeping.

b. Conclusions

Fire protection and detection equipment was adequately maintained. Fire hazards were minimized by appropriate housekeeping.

4. Radiation Protection (TI 2600/006)

a. Scope and Observations

The inspector reviewed radiation work permits, radiological surveys, radiological precautions, and general work practices in the BPF areas to verify that work was conducted safely and in compliance with the license. During tours of the facility, the inspector noted that radiological signs, postings, and procedures were properly posted or readily available. The inspector determined that equipment and devices used to confine and contain radioactive contamination and airborne radioactivity were in proper working condition and that proper personal protective clothing and dosimetry were issued and properly worn. Radiological controls in the BPF areas were adequate.

[REDACTED]

During process area tours, the inspector noted that housekeeping was adequate and emergency egress routes were sufficiently clear of debris. The inspector observed response to off-normal events and noted the use of conservative radiological controls practices to confine contamination and to prevent unnecessary personnel exposure.

b. Conclusions

Radiological control practices met regulatory requirements.

5. Chemical Operations (IP 88056-88066)

a. Chemical Safety Training (IP 88061)

(1) Inspection Scope and Observations

The inspector reviewed the lesson plans and qualification records for the BPF. The inspector noted adequate detail of the area's safety systems in the lesson plans. The inspector verified that operators on shift were qualified to perform their positions by reviewing the licensee's qualification and training records. No issues were noted.

The inspector also interviewed operators to verify that they were aware of the safety controls for their equipment. The inspector found most of the operators were knowledgeable of the safety controls and systems for their areas. However, the inspector discovered an operator in the [REDACTED] area of the BPF that did not demonstrate an adequate familiarity of the nitrogen purge system, an item relied on for safety (IROFS) that protects against [REDACTED] accumulations. The inspector discussed this observation with the licensee.

(2) Conclusions

Operators were generally knowledgeable of the chemical hazards present in their areas.

b. Maintenance of Change (IP 88063); Incident Investigation (IP 88065); Standard Operating Procedures (IP 88058); Hazard Identification and Assessment (IP 88057)

(1) Inspection Scope and Observations

The inspector reviewed a major work order involving a line modification for the BPF [REDACTED] system to verify that the work was properly approved and reviewed prior to making the modifications. The inspector noted that the work order had the appropriate approvals and reviews for the modifications. The inspector also noted that the appropriate re-calibration of instruments was performed prior to bringing the system online. The inspector also reviewed the major work request to modify the nitric acid lines and respective supports. This modification affected IROFS [REDACTED], therefore the safety department conducted their required reviews and verifications of the material of construction and line positions as part of the functional check prior to

[REDACTED]

[REDACTED]

operation of the lines. The inspector reviewed the modifications of the above work requests and noted no issues.

The inspector reviewed the circumstances involving the reportable fire safety event that the licensee reported on October 6, 2004 (NRC Event Number 41097). The [REDACTED] system had two fire safety IROFS systems to prevent a [REDACTED] accumulation in the [REDACTED] enclosures. During operations on October 6, 2004, an engineer identified that one of the fire safety IROFS systems was inoperable (IROFS [REDACTED]). The needle valves for the rotameters [REDACTED] were found to be shut, which prevented the system from being able to perform the [REDACTED] nitrogen purge of the system upon detection [REDACTED]. The second fire safety IROFS system was the trickle-nitrogen flow, which performed a [REDACTED] change out [REDACTED]. No accumulation of [REDACTED] had occurred and the trickle-nitrogen purge was still operational, therefore, the safety significance of the event was low. However, according to the [REDACTED] operating procedure, the rotameter valves [REDACTED] were to be verified to allow at least [REDACTED] of nitrogen flow prior to initiating operations. The failure to verify that the rotameter valves were open prior to operations was a violation of NRC requirements. This non-repetitive, licensee-identified and corrected violation is being treated as a non-cited violation (NCV), consistent with Section VI.A.8 of the NRC Enforcement Policy (NCV 70-143/2004-10-02). Additionally, during the review of the [REDACTED] procedure, the inspector noted that the procedure did not have a good method for operators to verify the valve positions of the rotameters. The rotameters could only be verified to have flow during a nitrogen purge. This condition was not stated in the procedure. The licensee acknowledged this and corrected the procedure. The inspector also identified to the licensee that no method existed to allow the system lineup to be verified during system operation. The licensee planned to review this deficiency.

The inspector reviewed operations in BPF following the reportable event. The inspector noted that the [REDACTED] system was not in stand-by mode as defined in the procedure. The procedure stated that to enter stand-by mode, [REDACTED] must be shutdown. The inspector noted that the [REDACTED] were still operating, but no solutions or chemicals were being added to the [REDACTED] (material was present [REDACTED] however). The licensee had kept [REDACTED] to avoid excessive wear and tear [REDACTED]. However, the inspector noted that the current status of the [REDACTED] system was not clearly described in the procedure. The inspector informed the area supervisor that the lack of guidance on the operational status of [REDACTED] could confuse operators since the area procedure lacked this guidance. The licensee acknowledged the inspector's concerns regarding the lack of guidance on the operational status of the [REDACTED] in the procedure.

(2) Conclusions

One violation was noted for the failure to verify the availability of a fire safety IROFS.

[REDACTED]

c. Process Safety Information. (O2.01). Hazard Identification and Assessment. (O2.02)

(1) Scope and Observations

The inspector reviewed operations in the oxide conversion building (OCB), effluent processing building (EPB), and the uranyl nitrate building (UNB) to verify compliance with chemical safety requirements. The inspector reviewed the licensee's facilities to verify that chemical hazards were identified and included in safety information and accident prevention planning and that sufficient information was provided to the workers to prevent and/or mitigate the analyzed accident scenarios.

The inspector toured the three facilities and verified that safety information was readily available through the use of postings, procedures, material safety data sheets (MSDS) and the use of any other means that would alert the workers of possible hazards in the area. The safety information available was adequate, accessible and clear. The inspector verified through document review and interviews with management that the process safety information was current and updated according to procedure.

The inspector reviewed the licensee's inventory list (derived from their MSDS list of chemicals) and documents with chemical information, location and actions to take in case of an unusual event to verify they were in agreement with the site emergency plan. The documents contained the chemicals used by the licensee and their correct location through out the facilities. The hazard analysis pertaining to OCB, EPB and UNB was adequate. The analysis addressed the chemicals available and what operations with special nuclear material (SNM) could be affected by them. The inspector verified that the hazard analysis used to develop the Integrated Safety Analysis (ISA) was also used whenever a significant change to operations (equipment or material) was performed. The procedure used to implement significant changes was adequate. The inspector conducted a walkdown of the different processes and verified that the current hazard analysis was up to date with operations and that the designated chemical safety IROFS were in place and in good condition.

(2) Conclusion

The oxide conversion building, effluent processing building, and uranyl nitrate storage building were operated in accordance with the chemical safety requirements.

d. Standard Operating Procedures. (O2.03), Site-Wide Safety Procedures. (O2.04), Chemical Safety Training. (O2.06), Emergency Response Procedures. (O.09)

(1) Scope and Observations

The inspector reviewed the licensee's chemical safety training and procedures to verify that chemical hazards were adequately addressed and that workers have a good understanding of safe handling of chemicals present in the processes. The inspector interviewed operators to determine the extent of their knowledge in the area of chemical safety. The operators interviewed by the inspector demonstrated they had adequate

[REDACTED]

knowledge of the chemical hazards in their work areas. The operators also demonstrated they were knowledgeable of the procedures, IROFS, and appropriate emergency response actions.

The inspector verified that the procedures available to the workers were clearly written and that they addressed chemical hazards for that particular work area. The inspector reviewed the licensee's procedure change process and found changes required formal review and approval by the SSRC and that approved changes were promulgated in controlled changes and revisions. The procedures included instructions for different normal and abnormal conditions; which the operators were able to adequately address through the inspector's interview. The contractors interviewed and observed by the inspector demonstrated they were adequately trained. The contractors present at the site provided support mostly to the maintenance department. The inspector's observation of their work during the dryer/calcliner troubleshooting showed they were knowledgeable in following ALARA requirements, following procedure and the correct use of personal protective equipment.

The inspector reviewed the training program and noted the program was kept current and was an accurate reflection of the processes at the facilities and that the training program itself provided the workers with the necessary tools for the safe operation of the facilities. The inspector also made sure that the training plans addressed process and facility safety controls, normal operations, and upset conditions. The inspector did not have any findings for these areas. The inspector also reviewed some of the workers' and contractors' training qualifications and determined they were qualified on tasks being performed.

(2) Conclusion

The safety training provided and the procedures available to the employees were found to be adequate in addressing and informing the employees of possible chemical hazards; with emphasis on upset conditions and emergencies.

e. Maintenance and Inspection. (O2.07), Maintenance of Change. (O2.08), Incident Investigation. (O2.10), Detection and Monitoring. (O2.05).

(1) Scope and Observations

The inspector reviewed the licensee's maintenance program and their incident investigation process in the BLEU Complex to verify that these operations were performed in accordance with the license and that their incident investigations yielded results that enhanced safety. The inspector assessed the licensee's maintenance and incident investigation programs by reviewing the actions taken to address the dryer/calcliner operation difficulties. During the maintenance work on the dryer the inspector was able to verify that the workers were following the radiation work permit written for the job (Personal Protective Equipment, ALARA and procedures). Management involvement with the performance of the work was adequate. Preliminary results showed the licensee was adequately assessing the situation as they were

[REDACTED]

[REDACTED]

waiting for more conclusive data. The solutions presented for the problem were reasonable. The inspector verified that safety was a primary consideration when a course of action was planned to resolve the issue.

The inspector reviewed the licensee's chemical detection and monitoring program for OCB, EPB, and UNB. The IROFS reviewed by the inspector in the chemical detection and monitoring program were found to be operational and adequately maintained. The inspector verified that the administrative controls established were followed by the operators. The operators interviewed were knowledgeable of indications of process upsets.

(2) Conclusion

The licensee's maintenance and incident investigation program in the BLEU Complex were effective and emphasized safety. Inspection, testing and maintenance of key chemical safety protection components for existing areas were adequately implemented to ensure availability and reliability.

5. Exit Interview

The inspection scope and results were presented to members of the licensee management at various meetings throughout the inspection period and were summarized on November 12, 2004. No dissenting comments were received from the licensee.

[REDACTED]

[REDACTED]

ATTACHMENT

1. PARTIAL LIST OF PERSONS CONTACTED

Licensee

S. Barron, Emergency Preparedness
B. Drane, Engineering Director
R. Droke, Licensing Director
J. Flaherty, BLEU Plant Manager
J. Greene, Environmental Safety
F. Guinn, Vice President, Principle Scientist
D. Hopson, Manager, Safety and Regulatory BLUE
N. Kenner, Training Manager
M. Lance, Manager, Maintenance
A. Maxin, Safety Director
M. Moore, Vice President of Safety and Regulatory
J. Parker, Industrial Safety Manager
G. Tapp, Industrial Facility
W. Telson, Quality Assurance
M. Tester, Senior Manager of Radiation Control
K. Thompson, Plant Facilities
G. Tipton, Director, Plant Facilities
K. Weir, Security Operations Manager
C. Woodhall, Vice President

2. INSPECTION PROCEDURES USED

TI 2600/006	Safety Operations, Safeguards, Radiological Controls & Facility Support
IP 88020	Regional Nuclear Criticality Safety Inspection Program
IP 88056	Process Safety Information
IP 88057	Hazard Identification and Assessment
IP 88058	Standard Operating Procedures
IP 88059	Site-wide Safety Procedures
IP 88060	Detection and Monitoring
IP 88061	Chemical Safety Training
IP 88062	Maintenance and Inspection
IP 88063	Maintenance of Change
IP 88064	Emergency Response Procedures
IP 88065	Incident Investigation
IP 88066	Audits and Inspection

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

<u>Item Number</u>	<u>Status</u>	<u>Type</u>	<u>Description</u>
70-143/2004-10-01	Open	VIO	Uncontrolled Unfavorable Geometry Container in the BPF.
70-143/2004-10-02	Closed	NCV	Failure to follow operations procedure that lead to a compromised fire safety IROFS

4. **LIST OF ACRONYMS USED**

ALARA	As Low As Reasonable Achievable
BLEU	Blended Low Enriched Uranium
BPF	BLEU Prep Facility
█	█
IAC	Internally Authorized Change
IFI	Inspector Follow-up Item
IP	Inspection Procedure
IROFS	Item Relied On For Safety
ISA	Integrated Safety Analysis
LOA	Letter of Authorization
MSDS	Material Safety Data Sheets
NCS	Nuclear Criticality Safety
NFS	Nuclear Fuel Services, Inc.
NCS	Nuclear Criticality Safety
SRE	Safety Related Equipment
SCFM	Standard Cubic Feet per Minute
SOP	Standard Operating Procedure
SSRC	Safety and Safeguards Review Committee
█	█
URI	Unresolved Inspector Item
VIO	Violation



EXECUTIVE SUMMARY

Nuclear Fuel Services, Inc.
NRC Inspection Report 70-143/2004-10 (Part 2)

This inspection included activities conducted by the senior resident inspector and regional inspectors during normal and off normal shifts in the areas of facility operations, fire protection, and radiological protection.

Plant Operations

- The plant was operated safely and in accordance with the license (Paragraph 2.a).
- Safety concerns were effectively identified and communicated to managers, and adequately resolved. (Paragraph 2.b).
- Safety analyses for process areas reviewed identified safety controls and provided for double contingency. The inspector also determined that selected SRE were maintained in accordance with licensee procedures (Paragraph 2.c).
- The reviewed plant activities reviewed were performed safely and in accordance with license requirements. Housekeeping was adequate to not adversely affect the radiological safety or the facility emergency egress (Paragraph 2.d).
- The licensee's configuration control system adequately controlled and tested the modification of the Waste Discards (WD) tanks (Paragraph 2.e).
- Operational areas reviewed were conducted with appropriate operating procedures and operators were qualified to perform their work (Paragraph 2.f).
- Nuclear Criticality Safety quarterly audits and daily inspections were performed in accordance with license requirements and procedures (Paragraph 2.g).
- The criticality alarm monitoring system was adequately tested to ensure reliability and operability (Paragraph 2.h).

Fire Protection

- Fire protection and detection equipment was adequately maintained. Fire hazards were minimized by appropriate housekeeping (Paragraph 3a).

Radiation Protection

- Radiological control practices met regulatory requirements (Paragraph 4a).
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[REDACTED]

Chemical Operations

- The licensee adequately implemented inspections of the [REDACTED] chemical [REDACTED] through use of proper operating procedures detailing safety concerns of chemicals. Emergency response materials for the [REDACTED] chemicals were properly maintained (Paragraph 5.a).
- Operators were knowledgeable of the chemical hazards present in their areas (Paragraph 5.b).
- One violation was identified for the failure to properly implement the work request procedure for an internally authorized change (IAC). A weakness was noted in the licensee's procedure for implementing configuration control in IACs (Paragraph 5.c).

Physical Protection

- [REDACTED]
- [REDACTED]

Attachment:

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

[REDACTED]

[REDACTED]

REPORT DETAILS

1. Summary of Plant Status

The fuel manufacturing and scrap recovery processes operated throughout the reporting period, with short term outages for inventory. Efforts continued in decommissioning older facilities on site. The processing, analysis, packaging, and shipments of contaminated soils and debris from the burial grounds continued and construction continued in several areas.

2. Plant Operations (Temporary Instruction (TI) 2600/006, Inspection Procedure (IP) 88020)

a. Routine Observations

(1) Scope and Observations

The inspector reviewed plant operations in progress during normal and off-normal operating shifts to evaluate plant safety and compliance with the license. The inspector made routine tours of the plant operating areas and determined that equipment and systems were operated safely and in compliance with the license. Some daily operational meetings were observed where production status and issues were discussed. The inspector verified the Emergency Control Center (ECC) and associated equipment were maintained in a state of readiness. The inspector reviewed selected licensee identified events and corrective actions for previously identified events and found no significant deficiencies in the items reviewed.

The inspector reviewed the August 3, 2004, RCRA Facility Investigation (RFI) and Interim Measures (IM) Progress Report and interviewed the Environmental Manager. No adverse trends were noted either off-site or on-site.

(2) Conclusions

Plant operations were conducted safely and in accordance with the license.

b. Management and Administrative Practices (O3.01)

(1) Scope and Observations

The inspector observed daily operations meetings. The inspector also reviewed several licensee identified events to verify that safety problems were identified, effectively communicated to management, and resolved in a timely manner. The inspector noted that safety personnel participated in the daily operations meetings and that any safety significant event was discussed at the meeting. The inspector noted that the licensee adequately documented self-identified events in their corrective action program, which

[REDACTED]

[REDACTED]

tracked the corrective actions to completion. The inspector also interviewed plant personnel to verify that feedback was provided to operators on safety concerns. No problems were identified.

(2) Conclusions

Safety concerns were effectively identified and communicated to managers, and adequately resolved.

c. Nuclear Criticality Safety (NCS) Functions (O3.02)
Maintenance of NCS (O3.07)

(1) Scope and Observations

The inspector verified that nuclear criticality safety (NCS) controls in areas [REDACTED] were identified and adequately maintained through tours of the areas, reviews of the safety analyses, and discussions with the licensee staff. The inspector also verified that the safety analyses provided for double contingency. The inspector concluded that the safety analyses adequately addressed double contingency and specified parameters for use in the processes. The inspector verified that administrative controls and engineered controls that were referenced in the safety analysis were present and adequately implemented. No safety issues were identified.

The inspector reviewed safety related equipment (SRE) test records for the Waste Tanks to verify that SRE were maintained and calibrated appropriately. The inspector determined that reviewed SRE for the Waste Tanks were tested at the required frequency and that the procedures used to perform the tests contained adequate detail. The inspector also noted that when maintenance work was performed on an SRE, a functional test was performed to verify that the SRE was in operating condition.

(2) Conclusions

The inspector determined that the safety analyses for process areas reviewed identified safety controls and provided for double contingency. The inspector also determined that selected SRE were maintained in accordance with licensee procedures.

d. Plant Activities (O3.03)

(1) Scope and Observations

The inspector observed activities and housekeeping in the fuel process area in order to assess that they were performed safely and in accordance with license requirements. The inspector noted that criticality postings, radiological signs, and procedures were properly posted or available to the operators. The inspector did not observe any issue

[REDACTED]

[REDACTED]

where the housekeeping could affect the radiological safety or emergency egress of the facility. The inspector observed that plant personnel working in radiological control areas wore dosimetry and the proper personal protective equipment. The inspector also observed proper spacing practices and controls in storage locations. The inspector interviewed operators throughout the facility. The operators demonstrated detailed knowledge of the safety systems involved in their work area. The inspector noted that operators complied with NCS requirements.

(2) Conclusions

The plant activities reviewed were performed safely by knowledgeable operators and in accordance with license requirements. Housekeeping was adequate to not adversely affect the radiological safety or the facility emergency egress.

e. Configuration Control (O3.04)
NCS Change Control (O3.05)

(1) Scope and Observations

The inspector reviewed the licensee's change control system for recent facility modifications to verify that safety significant modifications were reviewed, approved, and documented in accordance with their procedures. The inspector discussed and reviewed with plant personnel the work request related to the modification of an SRE item in the WD tanks area. The inspector verified that the changes were incorporated in the operating procedure and that operators were aware of the changes. The inspector also verified that the safety controls were tested before they were put in use. The inspector confirmed that modifications to safety systems were adequately controlled, and sufficient reviews were performed before and after installation. The work request records adequately detailed the extent of the modifications.

(2) Conclusions

The licensee's configuration control system adequately controlled and tested the modification of the WD tanks.

f. Operating Procedures (O3.06)
NCS Training (O3.08)

(1) Scope and Observations

The inspector observed operations and reviewed operating procedures for areas [REDACTED] and for the WD tanks area to verify that appropriate procedures were being used. The inspector interviewed select operators and determined that they were knowledgeable of their procedures, safety precautions and

[REDACTED]

[REDACTED]

safety controls of their area. The inspector also noted that reviewed procedures adequately identified SRE, NCS requirements, and addressed process parameters and steps to mitigate unusual events. The inspector confirmed that reviewed procedures were the most current copy and were approved by the required safety disciplines.

The inspector reviewed lesson plans for [REDACTED] and for the WD tanks area. The inspector observed that the lesson plans were detailed and focused on safety areas such as criticality and radiological controls, and safe system shutdown. The lesson plan also detailed how to recognize and report unsafe conditions as well as respond to process upset conditions.

The inspector observed that the licensee was in the process of training the staff regarding Item Relied On For Safety (IROFS) and the integrated safety analysis (ISA) process. The inspector interviewed several operators and noted that they were knowledgeable of the IROFS in their work area.

(2) Conclusions

The reviewed operations were conducted with appropriate operating procedures and operators were qualified to perform their work.

g. NCS Audits

(1) Scope and Observations

The inspector reviewed quarterly NCS audits results for 2004 in order to verify compliance with license application requirements. The inspector noted that the audits were detailed oriented and identified good findings/observations. The inspector confirmed that the corrective actions were tracked using the licensee's corrective actions program. No problems were identified.

The inspector reviewed records for daily NCS inspections and interviewed fuel process supervisors regarding the inspections. The inspector confirmed that the NCS daily inspections were performed in accordance with licensee procedures.

(2) Conclusions

NCS quarterly audits and daily inspections were performed in accordance with license requirements and procedures.

[REDACTED]

h. Criticality Alarm System

(1) Scope and Observations

The inspector reviewed maintenance records to verify that the criticality alarm monitoring system was tested to confirm reliability and operability. The inspector also verified the licensee's system of dual detector coverage for several areas of the facility through discussions with licensee personnel and walkdowns of several detectors throughout the facility. No problems were identified.

(2) Conclusions

The criticality alarm monitoring system was adequately tested to ensure reliability and operability.

g. Follow up on Previously Identified Issues and Events (O3.12)

(Closed) VIO 70-143/2003-09-01: Failure to meet nuclear criticality safety limits for a transfer of liquid process waste. This issue concerned a failure to meet the nuclear criticality safety limits specified in standard operating procedure (SOP) 401 in that the contents of waste tank [REDACTED], having independent sample results greater than the value specified in SOP 401, were discharged to the Waste Water Treatment Facility (WWTF). To prevent future recurrence, a toolbox training session was given to operations personnel to emphasize the discharge limits. Also, to aid the operators and supervisors, the discharge limits were included on the run sheets associated with the discharge of solution to the WWTF and the waste tanks. Also, SOP 401 was revised to clarify the supervisor's responsibility to verify that the sample results were less than or equal to the discharge limits prior to authorizing the discharge to the WWTF. Based on documentation review and interviews, the inspector determined that the corrective actions were appropriate. This item is closed.

3. Fire Protection (TI 2600/06)

a. Routine Observations

(1) Scope and Observations

The inspector reviewed fire detection and protection systems in accordance with the license and additional licensee commitments. The inspector determined that fire protection and detection equipment was adequately maintained. Portable fire extinguishers were charged to the normal operating zones and no visible damage was noted. Fire hazards were minimized by appropriate housekeeping.

[REDACTED]

(2) Conclusions

Fire protection and detection equipment was adequately maintained. Fire hazards were minimized by appropriate housekeeping.

4. **Radiation Protection (TI 2600/006, IP 83822)**

a. Routine Observations

(1) Scope and Observations

The inspector reviewed radiation work permits, radiological surveys, radiological precautions, and general work practices in the process area and in decommissioning and construction areas to verify that work was conducted safely and in compliance with the license. During tours of the facility, the inspector noted that radiological signs, postings, and procedures were properly posted or readily available. The inspector determined that equipment and devices used to confine and contain radioactive contamination and airborne radioactivity were in proper working condition and that proper personal protective clothing and dosimetry were issued and properly worn. Radiological controls in process and decommissioning areas were adequate. During process area tours, the inspector noted that housekeeping was adequate and emergency egress routes were sufficiently clear of debris. The inspector observed response to off-normal events and noted the use of conservative radiological controls practices to confine contamination and to prevent unnecessary personnel exposure.

(2) Conclusions

Radiological control practices met regulatory requirements.

5. **Chemical Operations (IP 88056-88066)**

a. Site-wide Safety Procedures (IP 88059); Detection and Monitoring (IP 88060); Maintenance and Inspection (IP 88062); Emergency Response Procedures (IP 88064); Process Safety Information (IP 88056); Audits and Inspection (IP 88066)

(1) Inspection Scope and Observations

The inspector reviewed the routine (daily, monthly, and yearly) inspection results of the [REDACTED] chemical [REDACTED] that were required by license condition S-22. The inspector also reviewed the procedure for conducting these inspections and for operations in the [REDACTED] chemical [REDACTED] (Standard Operating Procedure (SOP) 355, "Handling of [REDACTED] Chemicals" and NFS GH - 33, "Inspection of Hazardous Material [REDACTED] areas and Loading and Unloading of [REDACTED] Chemicals"). The inspector noted that the procedures possessed adequate detail concerning the hazards posed by

[REDACTED]

[REDACTED]

the chemicals to safely perform operations and inspections. The inspector noted the results of the inspections were adequate.

The inspector reviewed the condition of the chemical emergency response materials (foam fire extinguishers and chemical spill pads). The response materials were properly organized and appeared in good condition. The inspector noted that SOPs and material safety data sheets (MSDS) were readily available to operators and emergency responders. The inspector also noted that the licensee was adequately tracking the hazardous chemical inventory.

(2) Conclusions

The licensee adequately implemented inspections of the [REDACTED] chemical [REDACTED] through use of proper operating procedures detailing safety concerns of chemicals. Emergency response materials for the [REDACTED] chemicals were properly maintained.

b. Chemical Safety Training (IP 88061)

(1) Inspection Scope and Observations

The inspector reviewed the lesson plans and qualification records [REDACTED] [REDACTED]. The inspector noted adequate detail of the area's safety systems in the lesson plans. The inspector verified that operators on shift in the areas were qualified to perform their positions according to the licensee's system by reviewing the qualification and training records. No issues were noted.

The inspector also interviewed operators from the above areas to verify that they were aware of the safety controls for their equipment. The inspector found the operators were knowledgeable of the safety controls and systems for their areas.

(2) Conclusions

Operators were knowledgeable of the chemical hazards present in their areas.

c. Maintenance of Change (IP 88063); Incident Investigation (IP 88065); Standard Operating Procedures (IP 88058); Hazard Identification and Assessment (IP 88057)

(1) Inspection Scope and Observations

The inspector followed-up on unresolved item (URI) 70-143/2004-08-03 [REDACTED] [REDACTED] by reviewing the licensee's completed investigation that was performed for the fire that occurred on July 27, 2004 (NRC event number 40901). The licensee's investigation determined that prior to beginning operations, a temporary manifold was installed for calibration purposes [REDACTED]. Due to delays in performing the calibration,

[REDACTED]

[REDACTED]

the manifold was unknowingly left on the equipment after the work request for the installation of the system was completed. By that time, operations were authorized to begin introducing chemicals into the [REDACTED]. Shortly after the introduction of chemicals, a fire occurred in the [REDACTED] due to the explosive gases traveling through the temporary manifold into the inert gas lines. According to Section 5.20 of SOP 392, "Work Request," during the installation of equipment, the initiator should have noted changes that deviated from the approved installation work request. The inclusion of the temporary manifold into the system without either a work request authorizing its installation, or the modification of the installation process drawings approved by the Safety and Safeguards Review Committee (SSRC), constituted a failure to note changes that deviated from the approved installation. The licensee's investigation also noted that the licensee had not closed the gas sampling valves that the temporary manifold was connecting, which allowed the explosive gas to mix into the inert gas line, resulting in the fire. The Letter of Authorization (LOA) that authorized the operation of the new units (LOA-1903J-083) indicated that the gas sampling valves were to remain closed during operations. Prior to July 27, 2004, the licensee failed to close the gas sampling valves during operations. These two examples of failure to follow procedures constituted a violation of NRC requirements (VIO 70-143/2004-010-03). URI 70-143/2004-08-03, Fire [REDACTED] is closed.

The inspector noted the implementation of configuration control following the completion of [REDACTED] project was not clearly defined in the Internally Authorized Change (IAC) procedure. Based on interviews conducted with licensee personnel, the understanding was that once drawings for the system were given approval by the SSRC, the drawings (which should be as-built) and system were placed under configuration control. The inspector informed the licensee that the lack of guidance for defining when a system is placed under configuration control was a weakness. The licensee stated that the procedure would be reviewed to address the issue.

(2) Conclusions

One violation was identified for the failure to properly implement the work request procedure for an IAC. A weakness was noted in the licensee's procedure for implementing configuration control in IACs.

d. Follow up On Previously Identified Issues

(Discussed) Inspection Followup Item (IFI) 70-143/2004-08-05: Removal of lamps which are a fire hazard. This issue concerned metal halide lamps in the facility which have the potential to ignite the lighting fixture upon failure. The inspector discussed with the licensee the corrective actions available to address the potential fire hazard posed by the lamp bulbs currently installed at the plant. The licensee had yet to decide on a course of action with regard to the replacement of the lamp bulbs, if any were going to be replaced. This item remained open.

[REDACTED]

[REDACTED]

6. **Physical Protection (Temporary Instruction 2600/006)**

a. [REDACTED]

(1) **Scope and Observations**

[REDACTED]

(2) **Conclusions**

[REDACTED]

b. [REDACTED]

(1) **Scope and Observations**

[REDACTED]

(2) **Conclusions**

[REDACTED]

7. **Exit Interview**

The inspection scope and results were presented to members of the licensee management at various meetings throughout the inspection period and were summarized on November 12, 2004. No dissenting comments were received from the licensee.

[REDACTED]

[REDACTED]

ATTACHMENT

1. PERSONS CONTACTED

Partial List of Licensee's Persons Contacted

K. Crutcher, Analytical Services Manager
B. Drane, Director, Engineering
R. Droke, NFS Licensing & Compliance Director
B. Griffith, Quality Assurance Manager
N. Kenner, Training Manager
A. Maxin, Safety Director
M. Moore, Vice President, Safety and Regulatory
J. Parker, Industrial Safety Manager
J. Pugh, Transportation and Waste Manager
K. Schutt, Vice President, Operations
R. Shackelford, Nuclear Criticality Safety Manager
M. Shope, Quality Engineering Supervisor
J. Stout, Safeguards and Security Director
M. Tester, Sr. Manager, Radiation Control
G. Tipton, Director, Plant Facilities
A. Vaughn, Director, Fuel Production
K. Weir, Security Operations Manager

2. INSPECTION PROCEDURES USED

TI 2600/006	Safety Operations, Safeguards, Radiological Controls & Facility Support
IP 88020	Regional Nuclear Criticality Safety Inspection Program
IP 88056	Process Safety Information
IP 88057	Hazard Identification and Assessment
IP 88058	Standard Operating Procedures
IP 88059	Site-wide Safety Procedures
IP 88060	Detection and Monitoring
IP 88061	Chemical Safety Training
IP 88062	Maintenance and Inspection
IP 88063	Maintenance of Change
IP 88064	Emergency Response Procedures
IP 88065	Incident Investigation
IP 88066	Audits and Inspection

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

<u>Item Number</u>	<u>Status</u>	<u>Type</u>	<u>Description</u>
70-143/2003-09-01	Closed	VIO	Failure to meet nuclear criticality safety limits for a transfer of liquid process waste.
70-143/2004-010-03	Open	VIO	Failure to maintain configuration control of temporary equipment.
70-143/2004-08-03	Closed	URI	[REDACTED]
70-143/2004-08-05	Discussed	IFI	Removal of lamps which are a fire hazard.

4. **LIST OF ACRONYMS USED**

ADAMS	Agencywide Documents Access and Management Systems
ALARA	As Low As Reasonably Achievable
BLEU	Blended Low Enriched Uranium
BPF	BLEU Prep Facility
[REDACTED]	[REDACTED]
CFR	Code of Federal Regulations
dpm	disintegrations per minute
ECC	Emergency Control Center
IAC	Internally Authorized Change CAMS
IFI	Inspection Followup Item
IP	Inspection Procedures
IR	Inspection Report
IROFS	Item Relied On For Safety
ISA	Integrated Safety Analysis
kg	kilogram
LEL	Lower Explosive Unit
MSA	Mine Safety Appliance
LOA	Letter of Authorization
MSDS	Material Safety Data Sheets
NCS	Nuclear Criticality Safety
NFS	Nuclear Fuels Services
NRC	Nuclear Regulatory Commission
P&IDs	Process and Instrumentation Diagram
PARS	Publicly Available Records
PIRCS	Problem Identification, Resolution and Corrective Action System



QA	Quality Assurance
Pu	Plutonium
RWP	Radiation Work Permit
RT	Radiological Controls Technician
scfm	Standard Cubic Feet per Minute
SOP	Standard Operating Procedure
SNM	Special Nuclear Material
SRE	Safety Related Equipment
SSRC	Safety and Safeguards Review Council
TEDE	Total Effective Dose Equivalent
TI	Temporary Instruction
	
U-235	Uranium-235
	
UNB	Uranyl Nitrate Building
URI	Unresolved Item
VAGAS	Versatile Automated Gamma Assay System
VIO	Violation
WWTF	Waste Water Treatment Facility

