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

[redacted]

May 17, 2004

EA-03-178

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

SUBJECT: NRC INSPECTION REPORT NO. 70-143/2004-03 AND NOTICE OF VIOLATION

Dear Mr. Schutt:

This refers to the inspection conducted from March 7, 2004, through April 17, 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 are identified in the report. 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. The violations are cited in the enclosed Notice of Violation (the Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The violations were noted in the areas of nuclear criticality safety and fire safety.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and Enclosures 1 and 2 will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room). [redacted]

[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: 1. Notice of Violation
2. NRC Inspection Report (Part 1)
[redacted]

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NOTICE OF VIOLATION

Nuclear Fuel Services, INC.
Erwin, TN

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

During an NRC inspection conducted March 7 through April 17, 2004, violations of NRC requirements were identified. In accordance with NUREG-1600, "General Statement of Policy and Procedure for NRC Enforcement Actions," the violations are 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 4.1.2 of the License Application, Responsibilities for Nuclear Safety, states that each proposed change to existing equipment or addition of new equipment used in the processing or storage of licensed material, and any procedure changes resulting there from, will receive a nuclear safety review. Section 4.1.2 further states that all changes, modifications, or additions will receive a detailed criticality safety analysis as outlined in Section 4.3, unless the following criteria are met: less than a safe mass, as defined in Section 4.2.1.3, exists and there is no possibility of double batching material.

Contrary to the above, from September 9, 2002 through January 12, 2003, operations which involved more than a safe mass of licensed material where double batching was possible were performed under temporary procedures which involved changes to existing equipment, without performing a detailed criticality safety analysis.

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.

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 Sections 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:

1. Standard Operating Procedure - 392, Work Request, Revision 9 dated December 2, 2002, states the following:

   a. Section 4.1 states, in part, that the initiator is responsible for obtaining initial permits as specified on the Work Request Form and also has the

[redacted]

responsibility for determining the requirements as identified in Safety Considerations, Special or Other Safety Considerations, and Permits/Other. For all items, the initiator is responsible when the work request approval is complete, to insure all yes/no fields are checked.

b. Section 5.16 states, in part, that work that involves penetrating a firewall should be indicated and must be coordinated with Industrial Safety. In addition, Industrial Safety should be contacted if there is uncertainty whether the wall is considered a firewall.

c. Section 5.13 requires "A detailed description of the work to be performed or the problem encountered on the piece of the equipment" when completing a work request form.

On February 24, 2004, NFS work request 80896 was approved to replace an emergency light [redacted]. The initiator failed to follow SOP-392 requirements as identified in "Safety Considerations", "Special or Other Safety Considerations", and "Permits/Other" in the work request form and insure all "yes/no" fields were checked. Also, the initiator failed to indicate or coordinate with Industrial Safety that the work involved penetrating a firewall. In addition, the initiator failed to provide a detailed description of the work to be performed. These failures led to a penetration in a firewall that went undetected for several days, therefore having inadequate compensatory measures in place to ensure the integrity of the firewall.

2. Procedure NFS-HS-GH-25, "Hot Work Procedure, Revision 2" dated April 1, 1999, Section 5.5.6 and 5.7.5 state, in part, that "Firewatches will maintain visual observation of the hot work activity at all times. Where a fire watch is deemed necessary, it will be maintained during operations, during unattended times until operation is complete, and for at least 30 minutes after completion of welding or cutting operations to detect and extinguish possible smoldering fires."

On March 16, 2004, a fire watch failed to maintain visual observation of the hot work activity at all times.

3. Procedure NFS-HS-A-71, "Pre-Fire Plan Administration, Revision 0," dated September 15, 2002, Section 4.1.1 states, that "The Industrial Safety Specialist/Fire Protection will receive notification via the Engineering Project Definition or the Internally Authorized Change process when a new facility or project is being designed so that a Pre-Fire Plan is developed for use as needed during construction and subsequent operations."

[redacted]

Prior to March 19, 2004, new projects [redacted] had been in operation for approximately twelve months and six months, respectively. The licensee failed to incorporate these projects in the Pre-Fire Plan.

The above three 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 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.

Because your response will be made publically available, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made publically available without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld, and provide in detail the basis for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

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

Dated this day of May, 2004.

[redacted]

[redacted]

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	70-143
License No.:	SNM-124
Report No.:	70-143/2004-03
Licensee:	Nuclear Fuel Services, Inc.
Facility:	Erwin Facility
Location:	Erwin, TN 37650
Dates:	March 7, 2004 - April 17, 2004
Inspectors:	D. Rich, Senior Resident Inspector O. Lopez, Fuel Facility Inspector N. Rivera, Fuel Facility Inspector
Approved by:	D. Ayres, Chief Fuel Facility Inspection Branch 1 Division of Fuel Facility Inspection

Enclosure 2

[redacted]

[redacted]

EXECUTIVE SUMMARY

Nuclear Fuel Services, Inc.
NRC Inspection Report 70-143/2004-03 (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 facility operations, fire protection, and radiological protection.

Plant Operations

- Operators were able to communicate safety concerns to their supervisors and management. Operating procedures included process safety requirements (Paragraph 2.a).

- The nuclear criticality safety (NCS) function adequately identified safety controls, and procedures and safety postings were in place (Paragraph 2.b).

- The plant production systems were operated safely and in accordance with the license. Not all problems identified by the licensee were entered into the corrective action program. The licensee's change control system for facility modifications ensured that safety significant modifications were reviewed, approved and documented (Paragraph 2.c).

- Operators were trained on new procedures prior to their use and that current written procedures existed and were accessible to operators (Paragraph 2.d).

- Active and passive engineering controls were in an acceptable condition. The criticality alarm monitoring system was adequately tested (Paragraph 2.e).

- Facility inspections and audits were properly performed and corrective actions were appropriately captured in the tracking system (Paragraph 2.f).

- The licensee's staff appeared knowledgeable on emergency response evacuation procedures and NCS precautions (Paragraph 2.g).

- Review of an issue identified in January, 2003, resulted in identification of a violation for failure to conduct a detailed criticality safety analysis (Paragraph 2.h).

[redacted]

Fire Protection

- The [redacted] detection systems were adequately maintained (Paragraph 3.a).
- Inspection, testing, and maintenance for key fire protection components for new and existing areas were adequately implemented to ensure the availability and reliability for performance of their intended safety functions (Paragraph 3.b).
- A violation was identified with three examples, for failure to follow procedures impacting fire safety (Paragraph 3.a, b, & c).
- The licensee adequately implemented the fire brigade training program (Paragraph 3.d).

Radiation Protection

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

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

The fuel manufacturing and scrap recovery processes operated throughout the reporting period. Operations continued at the uranyl nitrate [redacted] building and construction of the other blended low-enriched uranium facilities continued. 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. Management and Administrative Practices (03.01)

(1) Inspection Scope

The inspector interviewed fuel process supervisors to verify that safety problems were identified, reported, and resolved. The inspector reviewed procedures for selected process areas to verify that nuclear criticality safety (NCS) requirements were included.

(2) Observations and Findings

The inspector attended production meetings where safety concerns were communicated between management and staff. The licensee's production meetings encouraged the identification and communication of safety concerns, which in turn were passed on to the operators. The inspector verified that feedback was provided to operators on safety concerns. No significant problems were observed. Also, the inspector observed that operators' safety concerns were posted on a safety message board that was located in the process area. The safety concerns were tracked, and had the status of the concern and the final resolution for the concerns that were closed. No problems were observed.

The inspector noted that reviewed procedures adequately identified Safety Related Equipment (SRE) and NCS requirements. In addition, the procedures were the most current revisions and were approved by the appropriate safety manager. The inspector observed fuel process operations to verify that they were performed in accordance with operating procedures. No discrepancies were identified.

(3) Conclusions

Operators were able to communicate safety concerns to their supervisors and management. Operating procedures included process safety requirements.

[redacted]

b. Nuclear Criticality Safety Function (O3.02)

(1) Inspection Scope

NCS evaluations were reviewed for selected process areas to verify that they identified safety controls.

(2) Observations and Findings

The inspector toured the fuel process [redacted] area. During the plant tours, the inspector noted that radiological signs, criticality postings, and procedures were properly posted or available to the operators. No significant deficiencies were observed.

[redacted], the inspector reviewed selected SRE. The SRE were in the Computerized Maintenance Management System (CMMS). The inspector noted that periodic functional tests for SRE were scheduled within the specified frequency in the licensee's CMMS. The inspector reviewed the SRE documents from the CMMS, and observed that the SRE were tested at the required frequencies, whenever maintenance occurred and when equipment was changed or replaced. No discrepancies were identified. Also, the inspector verified that selected piping and instrumentation diagrams (P&IDs) identified SRE equipment. The inspector verified that administrative controls were adequately identified in the expansion areas. No safety issues were identified.

(3) Conclusions

The NCS function adequately identified safety controls, and procedures and safety postings were in place.

c. Routine Observations
Plant Activities (03.03)
Configuration Control (O3.04)
Nuclear Criticality Safety Change Control (O3.05)

(1) Inspection Scope

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 verified that recent safety significant modifications at the facility were reviewed, approved, and documented in accordance with procedures.

[redacted]

(2) Observations and Findings

The inspector made routine tours of the plant operating areas and determined that production 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. Procedures were readily available to operators. The inspector reviewed radiological work permit (RWP) requirements and observed the work activities noting that the workers were wearing the required protective equipment. No significant issues were identified.

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. Part two of this report documented a deficiency identified and tracked for over a year by the licensee which had not been entered into the corrective action program.

The inspector performed walk-downs of the safety systems and compared portions of the P&IDs with the installed systems [redacted]. The inspector found that there were no discrepancies on the inspected portions of the P&IDs. The inspector confirmed that modifications and installation of safety systems were adequately controlled and sufficient reviews were performed prior to installation and operation. No problems were noted.

(3) Conclusions

The plant production systems were operated safely and in accordance with the license. Not all problems identified by the licensee were entered into the corrective action program. The licensee's change control system for facility modifications ensured that safety significant modifications were reviewed, approved, and documented.

d. Operating Procedures (03.06)
Nuclear Criticality Safety Training (O3.08)

(1) Inspection Scope

Selected operating procedures were reviewed to determine if: (1) written procedures, including NCS considerations, existed and were accessible to the operators; (2) the operating procedures were up-to-date; and (3) the operators were trained in the NCS program. The inspector also reviewed and discussed, with a cognizant engineer and operators, the NCS controls in the fuel manufacturing area in order to determine that controls were maintained as required.

[redacted]

(2) Observations and Findings

The inspector verified that the procedures accessible to the operators were current and included NCS considerations. The written procedures provided for special nuclear material safety controls and specified NCS limits for controlled parameters. The inspector interviewed operators and reviewed the training records for two operators that were on their three year re-qualification training and the training records for three new operators. Also, the inspector observed the operators receive training on specific portions of the fuel manufacturing process. No problems were noted. The inspector reviewed selected portions of operating procedures in the fuel process area and verified that the operators complied with their procedures. The inspector also confirmed by observation, discussion, and document review, that operating procedures were reviewed by NCS engineering to ensure that limits for controlled parameters and NCS control requirements were correctly transcribed.

(3) Conclusions

Based on interviews and documentation review, the inspector determined that the operators were trained on new procedures prior to their use and that current written procedures existed and were accessible to operators.

e. Maintenance of Nuclear Criticality Safety Control Systems (03.07)
Criticality Alarm Monitoring System (O3.10)

(1) Inspection Scope

Several SRE maintenance documents were reviewed. Also, the inspector observed criticality alarm system testing to confirm reliability and operability.

(2) Observations and Findings

During the inspection, the inspector reviewed selected SRE and found that the SRE were currently calibrated and in good condition. The inspector also verified that active and passive engineering controls were not in a degraded condition. Also, the inspector interviewed licensee personnel and reviewed functional test records concerning the calibration of the criticality alarm monitoring systems. No problems were identified.

The inspector observed the monthly criticality alarm system test which included the internal check source test. The radiation technicians followed procedure NFS-H-A-21, "Operation and Testing of the Criticality, Fire, and [redacted] Alarm Systems", Revision 22, dated November 14, 2003. No problems were noted.

(3) Conclusions

Active and passive engineering controls were in an acceptable condition. The criticality alarm monitoring system was adequately tested.

f. Nuclear Criticality Safety Inspections, Audits, and Investigation (O3.09)

(1) Inspection Scope

The inspector reviewed selected quarterly audits and inspections pertaining to nuclear criticality safety, and quality assurance audits related to the calibration, maintenance, and testing of SRE from 2003 through February 2004.

(2) Observations and Findings

The inspector determined that the licensee was conducting inspections and audits of the different areas of the facility at the required frequency. The audits were conducted in accordance with appropriate procedures and checklists. The inspector noted the audits reviewed were thorough and in depth. Also, investigations were conducted when safety issues were identified. The inspector verified that the audit findings were captured in the tracking system, and corrective actions were adequate and completed. No discrepancies were identified.

(3) Conclusions

Facility inspections and audits were properly performed and corrective actions were appropriately captured in the tracking system.

g. Emergency Response (O3.11)

(1) Inspection Scope

The inspector verified that procedures covered NCS precautions for firefighting in order to assess the licensee staff's knowledge of evacuation and emergency procedures.

(2) Observations and Findings

The inspector interviewed licensee personnel from different areas on emergency response procedures. The inspector determined that the operators appeared knowledgeable on evacuation procedures. The inspector also verified that the procedures included NCS precautions. No discrepancies were identified.

[redacted]

(3) Conclusions

The licensee's staff appeared knowledgeable on emergency response evacuation procedures and NCS precautions.

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

(1) (Closed) Violation (VIO) 70-143/2002-05-01: Failure to take required measures to [redacted]. The inspector verified that the corrective actions described in the licensee's response letter dated August 29, 2002 were reasonable, complete and included revision of standard operating procedure (SOP) 401 Section A. The inspector verified that training was completed for all fuel operators and yard personnel. No similar problems were identified. This item is closed.

(2) (Closed) Violation 70-143/2002-07-01: Failure to follow criticality safety posting. This issue concerned the operations of the process area where a criticality safety posting was not followed on August 21, 2002. The licensee's corrective actions included the revision of the criticality posting of the enclosure; revision of SOP 401 Section 9A; and a staff meeting with operations personnel to review the operational NCS requirements. The inspector verified the corrective actions described in the licensee's response letter, dated November 14, 2002, to be reasonable and complete. No similar problems were identified. This item is closed.

(3) (Closed) Apparent Violation (AV) 70-143/2004-01-02: Failure to perform required reviews and verifications. This issue concerns procedural violations which occurred on January 12, 2003. The issue was originally identified as unresolved item 70-143/2002-11-01 and was identified as an AV in an NRC letter to NFS (ADAMS ML040200551), dated January 16, 2004, (EA-03-178). The issue was identified as a severity level three violation in an NRC letter to NFS dated March 29, 2004, (ADAMS ML040900066). The violation is assigned a number (VIO 70-143/2004-03-01) here for administrative tracking purposes only. Adequate corrective actions regarding this item have already been taken and were documented in the March 29 letter. No further response was required from the licensee. Therefore, AV 70-143/2004-01-02 and VIO 70-143/2004-03-01 are closed.

(4) (Closed) Apparent Violation 70-143/2004-01-03: Failure to perform a detailed criticality safety evaluation. The problem was initially documented as unresolved item (URI) 70-143/ 2002-11-01. The AV was issued in NRC letter to NFS, (ADAMS ML040200551), dated January 16, 2004, (EA-03-178), and is closed by the issuance of the following violation. The issue concerned the failure to conduct a detailed criticality safety evaluation for numerous transfers of fissile material in the 230 complex scrap building which occurred between September 9, 2002, through January 12, 2003. This operation necessitated modification of an existing system and generation of temporary procedures to control the operation. The NRC conveyed concerns regarding this issue to NFS in a

[redacted]

letter dated October 6, 2003 (ADAMS ML032801322). During a December 19, 2003, public meeting, NFS described its methods of compliance with the various license requirements involved, and concluded that no violation of licensee requirements or conditions had occurred. The staff attended the public meeting, questioned the presenters, and carefully reviewed the material provided by NFS.

Section 4.1.2 of the license application states that all changes, modifications, or additions will receive a detailed criticality safety analysis as outlined in Section 4.3, unless the following criteria are met: less than a safe mass, as defined in Section 4.2.1.3, exists and there is no possibility of double batching material. The staff concluded that more than a safe mass existed and double batching of material was possible. The staff recognized that the licensee had implemented various controls for the operation. However, the staff noted that the licensee's documented safety basis lacked the detail necessary to identify the credible accident sequences resulting from unforseen common mode failures. The staff determined that such common mode failures could create an unmitigated potential for accumulations in excess of a safe mass in the unfavorable geometry tanks. Therefore, the staff concluded that contrary to the requirements of license application section 4.1.2, for operations conducted between September 9, 2002 to January 12, 2003, the licensee failed to conduct a detailed criticality safety analysis, (VIO 70-143/2004-03-02).

3. Fire Protection (IP 88055)

a. Review of Documentation Related to the Fire Protection Program, Insurer's Audit and Safety Committee (O4.02)
Fire Safety of Process, Equipment, and Storage Areas (O4.04)

(1) Inspection Scope

The fuel processes, equipment, and material storage areas were reviewed to verify they were being operated in accordance with fire safety requirements. The [redacted] detection systems were reviewed to determine if they were adequately maintained. The inspector reviewed hot work activities to verify they were being performed in accordance with hot work permits. The inspector reviewed fuel processing area safety monthly/quarterly inspections. The inspector also verified that managers reviewed findings and observations and that corrective actions were tracked until completion.

(2) Observations and Findings

The inspector verified that flammable liquids were properly stored in designated cabinets. Transient combustibles in the operating process areas were adequately controlled to levels below that which could result in a significant fire. The inspector performed a walk down of plant areas [redacted]. The inspector noted that the areas surrounding the fuel process [redacted] were kept free of significant amount of transient combustibles large enough to be a fire exposure hazard.

[redacted]

[redacted]

The inspector reviewed the fire safety systems and process equipment [redacted] and noted they were operating and properly positioned. The inspector observed the [redacted] detector weekly test and reviewed functional test records for the [redacted] detection systems. No safety concerns were identified.

On March 16, 2004, the inspector reviewed hot work activities [redacted]. The inspector observed that hot work [redacted] was being performed without a fire watch. The inspector reviewed the pertinent hot work permit and observed the necessary approvals, including the required fire watch, were documented. In response to the inspector's questions, one of the personnel present stationed himself as a fire watch. The inspector subsequently verified that the individual was qualified to perform this function. The inspector then reviewed the safety audits for the preceding 12 months and noted that the licensee identified three incidents in which hot work was performed without a fire watch being present. The inspector concluded that this was an on going problem and corrective actions taken by the licensee had not been effective. Procedure NFS-HS-GH-25, Hot Work Procedure, Revision 2, Section 5.5.6 and 5.5.7 required that "fire-watches will maintain visual observation of the hot work activity at all times. Where a fire-watch is deemed necessary, it will be maintained during operations, during unattended times until operation is complete, and for at least 30 minutes after completion of welding or cutting operations to detect and extinguish possible smoldering fires." Failure to maintain visual observation of hot work activities at all times was identified as one example of VIO 70-143/2004-03-03, Failure to Comply with Written Procedures Impacting Fire Safety.

(3) Conclusions

The fuel processes, equipment, [redacted] were operated in accordance with fire safety requirements. The [redacted] detection systems were adequately maintained. An example of violation VIO 70-143/2004-03-03 for failure to comply with written procedures impacting fire safety was identified in that the licensee failed to station a fire watch during hot work activities.

b. Building Design, Construction, and Ventilation System (O4.03)
Fire Protection Systems (O4.05)
Fire Hazard Analysis (O4.06)

(1) Inspection Scope

The inspector walked down fire protection systems in the fuel process and reviewed fire safety features and the fire hazard analysis (FHA) for projects [redacted].

(2) Observations and Findings

The inspector reviewed the FHA analysis [redacted] The inspector observed a selection of fire safety features that were described in the FHAs including

[redacted]

[redacted]

but not limited to: [redacted]. The inspector confirmed that these safety features were adequately maintained.

The fire protection engineer stated that recommendations from the FHA [redacted] were prioritized by risk and impact; as a result nine different projects were created. The licensee planned to complete the most risk significant project first and then continue with the less risk significant projects.

The inspector reviewed licensee actions to reduce trouble alarms on the fire alarm system. [redacted] The licensee planned to test each zone individually prior to switching to the new cables. The inspector did not identify any issues.

The inspector observed portable extinguishers through the plant site. Portable fire extinguishers were charged to the normal operating zones and no visible damage was noted. The inspector also observed fire doors throughout the facility and found them clear of debris and in proper working condition. The inspector noted that housekeeping was adequate to ensure emergency egress pathways were clear of debris. Also the inspector observed a visual inspection of the [redacted] sprinkler system. The discharge nozzles were also inspected to verify that they were not obstructed and that there were no leaks that could adversely affect heat detectors lines. No safety problems were identified.

The inspector reviewed selected fire protection inspection, testing, and maintenance records including but not limited to: [redacted]. No problems were identified.

On May 15, 2004, during a walk down [redacted], the inspector noted that a firewall penetration was not sealed. The inspector brought the issue to the licensee's attention and noted that the licensee was not aware of the degradation in the firewall. Further review revealed that the penetration was the result of a work request form to replace an old emergency light with a new model. The new model did not require connections to a power distribution box, therefore, the connections and conduits running through the firewall were removed (as well as the distribution box) leaving the penetration in the fire wall. The inspector noted that the work request form was not properly completed. The initiator failed to determine the safety considerations and required permits as identified in SOP-392, Work Request, Revision 9, dated December 2, 2002. Also, the inspector noted that the work request did not indicate that the work involved a firewall and was not coordinated with Industrial Safety as required by SOP-392, Work Request, Revision 9, dated December 2, 2002. The inspector also noted that the work request form did not include a detailed description of the work to be performed as required by SOP-392.

[redacted]

[redacted]

These failures led to a penetration in a firewall that was undetected for several days without the necessary compensatory measures to ensure the integrity of the fire wall. Failure to follow SOP-392, "Work Request, Revision 9" dated December 2, 2002, was identified as a second example of VIO 70-143/2004-03-03, Failure to Comply with Written Procedures Impacting Fire Safety.

(3) Conclusions

Inspection, testing, and maintenance for key fire protection components for new and existing areas were adequately implemented to ensure the availability and reliability for performance of their intended safety functions.

A second example of violation VIO 70-143/2004-03-03 for failure to comply with written procedures impacting fire safety was identified in that a firewall penetration existed without compensatory measures.

c. Pre-Fire Plan (O4.07)

(1) Inspection Scope

The inspector reviewed the licensee's Pre-Fire Plan to determine that recent changes were included in the Pre-Fire Plan.

(2) Observations and Findings

The plan identified the location of fire fighting equipment [redacted]. Also, the plan included a description of the site areas and lists the hazardous chemical, combustible materials, and fire hazards in each area.

The inspector observed that operations involving special nuclear material had been in progress [redacted] for over a year, and additional projects were under construction. However, the inspector noted that the Pre-Fire plan described [redacted] as an inactive area. Additionally, the plan did not include any description of [redacted], where a process had been in operation for approximately six months. Procedure NFS-HS-A-71, Pre-Fire Plan Administration, Revision 0, dated September 15, 2002, Section 4.1.1 stated, that the Industrial Safety/Fire Protection Specialist will receive notification via the Engineering Project Definition or the Internally Authorized Change process when a new facility or project is being designed so that a Pre-Fire Plan is developed for use as needed during construction and subsequent operations. Failure to develop a Pre-Fire Plan when two new projects were being designed, constructed and subsequently operated was identified as a third example of VIO 70-143/2004-03-03, Failure to Comply with Written Procedures Impacting Fire Safety.

[redacted]

(3) Conclusions

A third example of VIO 70-143/2004-03-03 for failure to comply with written procedures impacting fire safety was identified for failure to develop a Pre-Fire Plan when two new projects were being designed, constructed and subsequently operated.

d. Fire Brigade Training (O4.08)

(1) Inspection Scope

The inspector examined the fire brigade training program for adequacy and reviewed documentation to determine its proper implementation.

(2) Observations and Findings

The inspector examined the lesson plan and observed part of the 2004 first quarter Fire Brigade and Fire Support Response Training. The inspector noted that all the training requirements were addressed in the lesson plan. The inspector also noted that fire brigade members had been trained on the new BLEU Preparation Facility including familiarization with facility layout and fire safety features. The inspector reviewed training records for selected fire brigade members, fire brigade leaders, and fire support response team. The inspector noted that fire brigade members and leaders that missed quarterly training session were removed from the fire brigade until they took the next session or make-up session.

(3) Conclusions

The licensee adequately implemented the fire brigade training program.

[redacted]

4. Radiation Protection (TI 2600/006)

a. Inspection Scope

The inspector reviewed RWPs, 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.

b. Observations and Findings

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.

c. Conclusions

Radiological control practices met regulatory requirements.

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 April 22, 2004. Although proprietary documents and processes were occasionally reviewed during this inspection, the proprietary nature of these documents or processes has been deleted from part one of this report. 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, Engineering Director
R. Droke, Licensing Director
B. Faidley, Maintenance Manager
N. Jacob, Director Tech. Dev. & Comm.
N. Kenner, Training Manager
A. Maxim, Safety Director
M. Moore, Vice President, Safety & Regulatory
J. Parker, Plant Facilities Director
J. Pugh, Transportation & Waste Manager
R. Shackleford, Nuclear Criticality Safety Manager
M. Shope, Quality Assurance Manager
M. Tester, Senior Manager, Radiation Control

2. INSPECTION PROCEDURES USED

IP 88020	Regional Nuclear Criticality Safety Inspection Program
IP 88055	Fire Protection
TI 2600/006	Safety Operations, Safeguards, Radiological Controls & Facility Support

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Status	Type	Description
70-143/2002-05-01	Closed	VIO	Failure to Take Required Measures [redacted]
70-143/2002-07-01	Closed	VIO	Failure to Follow Criticality Safety Posting
70-143/2004-01-02	Closed	AV	Failure to Perform Required Reviews and Verifications.
70-143/2004-01-03	Closed	AV	Failure to Perform a Detailed Criticality Safety Evaluation.
70-143/2004-03-01	Closed	VIO	Failure to Perform Required Reviews and Verifications

[redacted]

70-143/2004-03-02	Opened	VIO	Failure to Conduct a Detailed Criticality Safety Analysis
70-143/2004-03-03	Opened	VIO	Failure to Comply with Written Procedures Impacting Fire Safety

4. LIST OF ACRONYMS USED

ADAMS	Agency-wide Documents Access and Management Systems
AV	Apparent Violation
BLEU	Blended Low Enriched Uranium
CFR	Code of Federal Regulation
CMMS	Computerized Maintenance Management System
CO_2	carbon dioxide
EA	Enforcement Action
ECC	Emergency Control Center
FHA	Fire Hazards Analysis
IP	Inspection Procedures
NCS	Nuclear Criticality Safety
NFS	Nuclear Fuels Services
NRC	Nuclear Regulatory Commission
P&IDs	Piping and Instrumentation Diagram
PARS	Publicly Available Records
RWP	Radiation Work Permit
SNM	Special Nuclear Material
SOP	Standard Operating Procedure
SRE	Safety Related Equipment
TI	Temporary Instruction
URI	Unresolved Item
VIO	Violation