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

[redacted]

February 18, 2005

EA-05-032
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. 70-143/2004-12 AND NOTICE OF VIOLATION

Dear Mr. Schutt:

This refers to the inspection conducted from November 14, 2004, through January 22, 2005, 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 the following: Plant Operations, Fire Protection, Radiation Protection, Nuclear Criticality Safety, and Physical Protection. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress.

Based on the results of this inspection, the NRC has determined that violations of NRC requirements occurred. One violation is cited in enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation was noted in the area of implementation of changes to procedures. One apparent violation was identified and three additional violations were identified and are being treated as

[redacted]

[redacted]

[redacted]

non-cited violations (NCV), consistent with Section VI.A.8 of the Enforcement Policy. If you contest the violation or significance of these NCVS, 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.

The apparent violation is being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions" (Enforcement Policy) NUREG-1600. The apparent violation concerns information pertaining to the degredation of the safety function of the safety related equipment process logic controller. The issue is documented in Section 2.C. of the attached inspection report. The significance of the apparent violation is still under NRC review and you will be notified at a later date of the outcome of our review. At this time, no action is required on your part with regard to this issue.

By letters dated January 10 and January 12, 2004, we received your replies to our Notice of Violation which was issued on December 13, 2004. The replies met the requirements of 10 CFR 2.201 and your corrective actions will be reviewed during a future inspection.

[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

Enclosure: 1. Notice of Violation
2. NRC Inspection Report

cc w/encl: (See page 3)

[redacted]

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

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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 November 14, 2004, through January 22, 2005, 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:

> 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 2.7.2 of the License Application, Procedures, states, in part, modified or amended procedures are prepared by the appropriate discipline manager and reviewed and approved by the safety review committee. The safety analyses, required reviews and testing, required training, and distribution of procedure revisions will be completed before procedural changes are implemented.
>
> Contrary to the above, on December 21, 2004, the licensee implemented letter of authorization 1953K-006, which specified changes to standard operating procedure 401, without required training being completed.

This is 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.

Enclosure 1

[redacted]

[redacted]

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 18th day of February, 2005.

[redacted]

[redacted]

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	70-143
License No.:	SNM-124
Report No.:	70-143/2004-12
Licensee:	Nuclear Fuel Services, Inc.
Facility:	Erwin Facility
Location:	Erwin, TN 37650
Dates:	November 14, 2004 - January 22, 2005
Inspectors:	D. Rich, Senior Resident Inspector L. Berg, Criticality Safety Inspector M. Crespo, Fuel Facilities Inspector J. Jimenez, Fuel Facilities 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 70-143/2004-12

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

Plant Operations

- The plant was operated safely and in accordance with the license with two exceptions. A non-cited violation was noted for failure to comply with posted criticality safety instructions and a second violation was noted for failure to complete required training (Paragraph 2.a).

- Maintenance activities in the Blended Low Enriched Preparation Facility facility were performed in accordance with the safety requirements established in the license (Paragraph 2.b).

- The [redacted] instrument system was subject to various design and operational problems, and was removed from performing a safety related equipment (SRE) function. Inspectors identified an apparent violation in that the criticality safety function of the [redacted] process logic controller (PLC) was degraded. The inspectors also identified a potential problem [redacted] (Paragraph 2.c).

- Although several equipment problems were apparent, the first downblend operation was completed safely and in accordance with procedure. However, an unresolved item was opened to review issues involving mixing and sampling tests. (Paragraph 2.d).

- Potentially defective Hunt valves were not in use by the licensee (Paragraph 2.e).

Oxide Conversion Building Scrap Dissolver

- The licensee adequately identified credible accident scenarios in the oxide conversion building and had provided adequate protection against an inadvertent criticality for the scrap uranium dissolver (Paragraph 3.a).

- SRE tests generally showed items relied on for safety (IROFS) fulfilled the design safety function. One SRE test was revised to adequately test the value determined in the setpoint calculation. Configuration control was adequate in that process equipment was installed in accordance with approved drawings and was adequately documented and labeled. The procedures for the process contained adequate descriptions of the IROFS and provided adequate guidance to workers for system operation (Paragraph 3.b).

[redacted]

[redacted]

Fire Protection

- Fire protection and detection equipment was adequately maintained. Fire hazards were minimized by appropriate housekeeping (Paragraph 4.a).

Radiation Protection

- Radiological control practices generally met regulatory requirements but an issue was noted with control of contamination [redacted]. Additionally, a non-cited violation was identified for failure to perform required surveys (Paragraph 5.a).

Physical Protection

- [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. Blended low-enriched uranium (BLEU) operations 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 Instructions (TI) 2600/006, 2600/011, 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 inspectors made routine tours of the plant operating areas to determine if 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 with one exception, found no significant deficiencies in the items reviewed.

On October 8, five sample bottles exceeded the mass limit specified on the criticality safety posting for individual bottles. Additionally, when received into the lab, the samples were not weighed as required by the criticality safety posting. The licensee's investigation found that the total mass limit for the lab stations were not exceeded. The licensee reviewed applicable job requirements with technicians responsible for both the sample loading and the sample receiving operations. In addition, the licensee properly documented the problem in their corrective action system. Failure to follow the posted criticality safety instruction 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 70-143/2004-12-01, Failure to Follow Posted Criticality Safety Instructions.)

The inspector reviewed the licensee's training system in regard to issuing procedural changes in the form of letters of authorization (LOAs). The inspector found that LOA 1953K-006 was issued to improve a safety measure[redacted], and was effective on December 21, 2004. On January 5, 2005, the inspector found that the information

[redacted]

tags required by the LOA were installed as required, but that training for all supervisors and operators had not been completed. Further review revealed that the LOA had not been entered properly into the training and qualification (T&Q) system as a job requirement. After the corrected entry in the T&Q system was made, the inspector found that some operators were still assigned without having completed the required training. In review of this item, the inspector noted new procedures or changes are put into the T&Q system and the system puts qualified operators in a "disqualified" status until training is completed. Normal shift job assignments then cannot be made for those operators since they are in a disqualified status. This routine occurrence is dealt with by supervisors making the job assignments in a "training" status, until the operator completes required training. This practice appears to diminish the effectiveness of the formal qualification system in place, in that no strict control is in place to require operational and safety significant changes to be promptly reviewed. License Application section 2.7.2, Operating Procedure Changes, required analyses, reviews, testing, and training to be completed before procedural changes were implemented. Failure to complete training on LOA 1953K-006 prior to implementation was a violation of NRC requirements (VIO 70-143/2004-12-02).

(2) Conclusions

The plant was operated safely and in accordance with the license with two exceptions. A non-cited violation was noted for failure to comply with posted criticality safety instructions and a second violation was noted for failure to complete required training.

b. BPF Plant Activities (O3.03), Maintenance of NCS Control Systems (O3.07)

(1) Scope and Observations

The BLEU Processing Facility (BPF) was reviewed to verify that activities being conducted for the re-start of operations were done in accordance with the facility's safety requirements. The inspector reviewed the licensee's proposed maintenance work to verify that operational hazards were identified and included in the work orders and that sufficient information was provided to the employees to prevent and/or mitigate any accident scenarios.

(2) Conclusions

Maintenance activities in the BPF facility were performed in accordance with the safety requirements established in the license.

[redacted]

c. BPF Safety Controls [redacted]

(1) Scope and Observations

The inspectors reviewed the different mass control systems utilized by the licensee as criticality safety controls for the [redacted] processes. The NFS [redacted] system in the BPF area were designed with an engineered criticality safety control system designed to prevent exceeding the allowable mass limit of uranium when loading. This control was known as the safety related equipment process logic controller (SRE PLC). Additional safety controls on control of mass were utilized for the [redacted] process, depending on the type of feed material. During [redacted] operations, other items relied on for safety (IROFS) on the system included administrative measures and inspections to limit mass and holdup and a physical barrier to prevent [redacted] from [redacted]. During oxide operations, although there were defense-in-depth measures including procedural guidance and posted instructions, only two IROFS were required: the SER PLC and an administrative prohibition on adding [redacted] to the system.

The SRE PLC system worked on the principal of measuring input and output in order to calculate a mass balance on the [redacted] process. The input of the system was a direct scale measurement of [redacted] material being added to the system. The process output was determined by a [redacted] instrument system, which determined [redacted] density, volume, and total grams [redacted]

Operational difficulties and system inaccuracies were apparent in the [redacted] system as the [redacted] system went through initial operation beginning in June, 2004. The licensee addressed one issue of clogged instrument lines by making the instrument taps larger and of a different configuration. The licensee addressed other system problems and published a detailed Error Analysis, which the inspectors reviewed. The analysis documented the errors and inaccuracies in the measurement system arising from the following areas: variability of free acid in the solution; temperature effects and lack of temperature compensation; excessively long runs of instrumentation piping; lack of fine control on nitrogen purge flow; electrical errors including analog to digital signal conversion; an inaccurate SRE PLC software formula; and intrinsic instrument error. The SRE PLC software formula was corrected promptly. Recommendations to address the remaining issues were included in the error analysis. While still evaluating some of the recommendations for implementation, the licensee decided to substitute an administrative control for the safety function performed by the [redacted] system, and removed the [redacted] system as an input to the SRE PLC. The resulting system utilized the SRE PLC as an enhanced administrative control that relied on operator

action for some measurements and data entry. This modification to the safety controls of the [redacted] system will be tracked for further NRC review as Inspection Follow-up Item (IFI) 70-143/2004-012-03.

Due to the operational difficulties experienced by the licensee, the inspectors reviewed [redacted] process operation. On January 7th, the inspector identified that the SRE PLC was carrying a negative holdup value [redacted]. Additionally, the inspector noted that in December, 2004, the negative balance had been as high as [redacted]. The licensee reviewed the PLC program and determined that a negative balance would be added to the normal operational limit, and therefore the system would not control or limit the mass in the enclosure to specified values. The criticality safety mass limits were [redacted]. The [redacted] system was operating in the [redacted] mode when this issue was identified. The process was shut down until the compensatory measures were implemented, which included visual inspections and zeroing the SRE PLC prior to each batch. The inspector reviewed the compensatory measures, prescribed in an LOA, to operate the system and found no issues. Degradation of the safety function of the SRE PLC was an apparent violation of NRC regulations, which will be tracked as AV 70-143/2004-12-04, pending further NRC review.

The [redacted] process had been shut down for modification prior to the inspection period, but the inspectors reviewed the mass control system associated with [redacted] to determine if the system was subject to a similar problem [redacted]. The [redacted] system utilized a separate program in the same SRE PLC [redacted]. The [redacted] system monitored total mass in the process enclosure and [redacted] by direct weight measurement of the entire enclosure and [redacted] using load cells. The inspectors found the system appeared to function properly, but found that if the load cells signaled less than the initial empty weight of the enclosure, the software would simply zero the weight. This appeared to be a potential problem with the safety function, in that if the enclosure or connecting piping were modified such that the enclosure actually weighed less, it would be possible for the system to mask holdup of [redacted] material. Since the system had been shut down for an extended outage, no information was available indicating the system was degraded during the last operations conducted. The licensee contended that an uncompensated change of weight to an enclosure which could mask holdup was unlikely due to configuration controls on the process enclosure. However, the licensee implemented measures to ensure this scenario could not occur by performing a check of the load cell system and enclosure weights prior to each loading operation. The inspector observed the licensee perform calibrations on the [redacted] load cells, and noted the calibrations were conducted according to the procedure and verified the adequate performance of the system. The inspector noted that prior to restart of the area, the licensee had approved a Letter of Authorization (LOA), which stipulated the special requirements for operating the system, including checks on the load cell system. The inspector also verified that the LOA was reviewed by the safety department and did not adversely affect other safety systems.

[redacted]

(2) Conclusions

The [redacted] instrument system was subject to various design and operational problems, and was removed from performing an SRE function. Inspectors identified an apparent violation in that the criticality safety function of the [redacted] SRE PLC was degraded. The inspectors also identified a potential problem with the [redacted] SRE PLC.

d. Down-blending

(1) Scope and Observations

During the week of December 13, 2004, the inspectors observed preparations and system operation for the first down-blend operation of the BLEU project. The inspector reviewed sample results from the prepared high enriched blendstock, and verified enrichment and density were less than the specified limits [redacted]. The inspector reviewed SRE test results for the following SRE items and verified testing was completed satisfactorily and within specified periodicity [redacted]

Inspection revealed no external evidence of degradation of SRE items. The blend operation was conducted by operators in an on-the-job training status, supervised by qualified trainers and shift supervision. Operators conducted the blend in accordance with procedure. Several equipment difficulties were encountered which interrupted the operation. Flow restrictions were evident in the HEU piping, which were found to be caused by foreign material. The blend operation had to be stopped to allow piping and valves to be disassembled and cleaned out. After completing less than one fourth of the blend, it became evident that the HEU mass flow meter, [redacted], was indicating significantly more volume than was actually being transferred. This component was part of IROFS [redacted], the function of which was to prevent over-batching and adding excessive HEU to the blend tank. The licensee implemented compensatory measures for this degraded IROFS, and also immediately began work to restore it to service. Compensatory measures for IROFS [redacted] were authorized by LOA-1877I-032 in accordance with NFS procedure HS-A-79, and included verification of HEU blend-stock volume, and lock-out of valves and pumps to prevent addition to this volume. The inspector verified the correct components were locked out during the remainder of the blend, and the blend was eventually completed.

The inspector noted that some mixing and sampling tests for BPF equipment, required by 10 CFR 74.59, had not been completed satisfactorily at the time of this inspection. Acceptable results for the blend tank mixing and sampling test had been obtained even though two downblend batches had been completed. Additionally, mixing and sampling tests on the [redacted] caustic waste storage columns had not been performed even though the system had been in use for the last six months. This issue will be tracked as unresolved item (URI) 70-143/2004-12-05.

[redacted]

(2) Conclusions

Although several equipment problems were apparent, the first downblend operation was completed safely and in accordance with procedure. However, a URI was opened to review issues involving mixing and sampling tests.

e. UF6 Cylinder Valves, (TI 2600/011)

(1) Scope and Observations

This issue concerned potentially defective 1-inch Hunt valves designed for use on 30-inch and 48-inch uranium hexaflouride (UF6) cylinders, as described in NRC Bulletin 2003-03. The bulletin required the licensee to assess if cylinders with Hunt valves were in use on site, either in operations or in storage, and provide the results of the assessment to the NRC. The licensee's response indicated cylinders with the valves described were not on site, were not processed by any current operation at the site, and therefore, none of the additional actions specified in the bulletin were applicable. The inspector interviewed the manager responsible and confirmed that although small containers of UF6 were being stored on site, the cylinder models specified in NRC Bulletin 2003-03 were not in use or present at the NFS Erwin, TN, site. Therefore, the inspections specified in TI 2600/011 did not apply to the licensee.

(2) Conclusion

Potentially defective Hunt valves were not in use by the licensee.

f. Follow-up on Previously Identified Issues

(1) (Closed) URI 70-143/2004-08-02: Improper Actions During Criticality Alarm. This issue concerned the operation of the criticality accident alarm system (CAAS) speaker amplifiers during maintenance operations. The licensee identified that on August 2, at approximately 12:15 pm, troubleshooting was in progress with the speaker amplifiers off in accordance with procedure NFS-HS-A-21. A system alarm occurred due to a inadvertent spike on a detector pair. The personnel monitoring the system analyzed criticality meter readings, concluded no criticality had occurred, and did not energize the speaker amplifiers to sound an evacuation alarm. This action was contrary to NFS procedure HS-A-21, Section 5.8, which required a system alarm condition to be either annunciated on system alarm speakers or announced on the public address system. Failure to annunciate or announce a CAAS alarm 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 70-143/2004-12-06, Failure to annunciate a CAAS alarm.) URI 70-143/2004-08-02 is closed.

[redacted]

3. OCB Scrap Dissolver (IP 88015, 88020)

a. Nuclear Criticality Safety (NCS)

(1) Scope and Observations

The inspector reviewed the NCS evaluations for the Oxide Conversion Building (OCB) Portable HEPA Filter Unit, and the OCB Natural U and Scrap U Dissolution system to determine that criticality safety of risk significant operations was assured through engineered features and human performance (controls) with adequate safety margin/certainty, preparation and review by capable staff. The inspector reviewed selected aspects of the following documents:

- [redacted]
- [redacted]
- [redacted]

The inspector determined that analyses were performed by capable NCS engineers, that independent reviews were completed for the evaluations by other qualified NCS engineers, that subcriticality of the systems and operations was assured through appropriate limits on controlled parameters, and that double contingency was assured for each credible accident sequence leading to inadvertent criticality. The inspector determined that NCS controls for equipment and processes assured the safety of the operations.

During inspection 70-143/2004-207, the inspectors noted that double contingency for Scenario 1.1.2 of the NCSE for the Oxide Conversion Building Scrap Dissolver had not been adequately established. IFI 70-143/2004-207-04 was opened to track the licensee's actions to revise the NCSE for the Scrap Dissolver operation.

The inspectors observed that double contingency protection for Scenario 1.1.2 (now renumbered as 4.1.5) was provided by two administrative controls: (1) the prohibition on transfer of containers from the enriched uranium process areas to the natural uranium process area; and (2) supervisory verification that the volume of solution being transferred [redacted]. The inspectors noted that the [redacted] limit was based on calculations demonstrating [redacted] enriched solution transferred to the unfavorable geometry dissolver tank was necessary to exceed the [redacted] limit.

[redacted]

The inspectors determined that double contingency protection for Scenario 4.1.5 had, therefore, been established. IFI 70-143/2004-207-04 is closed.

(2) Conclusions

The licensee adequately identified credible accident scenarios leading to a potential criticality in the OCB and had provided adequate protection against an inadvertent criticality for the Scrap Uranium Dissolver.

b. Operations Review

(1) Scope and Observations

The inspector reviewed the SRE tests for the IROFS for the OCB Scrap Dissolution system to verify that they fulfilled their designed safety function. The inspector noted that one of the SRE tests did not test to the value determined in the setpoint calculation. Once this was brought to the attention of the licensee, the test was modified to match the values in the setpoint calculation and the test was re-performed. No other issues were noted with the SRE tests. The inspector also reviewed the setpoint calculations to verify that conservative engineering analyses and values were used in their determination. No issues were noted with the documentation.

The inspector also reviewed the configuration of the system through the use of properly approved process information diagrams. The inspector noted the appropriate labeling and designation of IROFS on the system. No issues were identified with the configuration or the labeling of the system.

The inspector also reviewed the procedure for the operation of the system and noted adequate annotation of IROFS in the system. The inspector also noted adequate guidance for the workers to operate the system.

(2) Conclusion

SRE tests generally showed IROFS fulfilled the design safety function. One SRE test was revised to adequately test the value determined in the setpoint calculation. Configuration control was adequate in that process equipment was installed in accordance with approved drawings and was adequately documented and labeled. The procedures for the process contained adequate descriptions of the IROFS and provided adequate guidance to workers for system operation.

[redacted]

4. 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.

(2) Conclusions

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

5. 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.

The inspector observed the licensee's actions to address elevated radiation levels measured in the [redacted] area of BPF. The source of the elevated levels was believed to have been contaminants in the BLEU material in process in the building, as well as storage [redacted]. Measured radiation levels varied from 0.4 to 12 milli-Rem/hour (mR/hr), with most areas measuring between 0.5 and 1.0 mR/hr. The licensee had posted a map of radiation levels at the entrance to the space, trained

[redacted]

[redacted]

individuals to minimize time in the area, and was monitoring individual dose on a daily basis with digital alarming dosimetry. The inspector noted the elevated readings could cause some operators to reach their administrative limits sooner than the licensee had anticipated. The licensee planned to explore other alternatives, such as temporary or permanent shielding.

The inspector noted the licensee had experienced several occurrences of contaminated shoes of personnel [redacted], and also had identified elevated contamination levels, slightly above the 500 disintegrations per minute (dpm) limit, [redacted] on several occasions. The inspector noted the licensee performed detailed surveys, improved cleaning practices in the area, and also reviewed and improved some work practices in an effort to reduce contamination levels. These efforts reduced instances of excessive contamination but did not eliminate the problem. This issue will be tracked for further NRC review as inspection followup item (IFI) 70-143/2004-12-07.

On November 10, the licensee, removed contaminated trash [redacted] without a contamination survey and without other controls such as enclosing the trash bag in a second, clean, plastic bag. The licensee properly documented the problem and the planned corrective actions in PIRCS. NFS procedure GH-01 required items being removed from a controlled area to be surveyed before release. Failure to survey items removed from a controlled area 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 70-143/2004-12-08, Failure to perform contamination survey.)

(2) Conclusions

Radiological control practices generally met regulatory requirements but an issue was noted with control of contamination [redacted]. Additionally, a violation was noted for failure to perform required surveys.

6. Physical Protection (Temporary Instruction 2600/006)

[redacted]

[redacted]

[redacted]

[redacted]

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 January 25, 2005. 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]

ATTACHMENT

1. PERSONS CONTACTED

Partial List of Licensee's Persons Contacted

C. Brown, Materials Manager
K. Crutcher, Analytical Services Manager
B. Drane, Director, Site Services
J. Eidens, [redacted] Resident
K. Guinn, Vice President, Principal Scientist
N. Kenner, Tranining Manager
J. Nagy, Senior Licensing and Compliance
K. Schutt, President, General Manager
T. Sheehan, HEU Operations Director
M. Shope, Quality Assurance Manager
G. Tipton, Plant Facilities Director
M. Tester, Sr. Manager, Radiation Control
G. Tipton, Director, Plant Facilities
A. Vaughn, Director, Fuel Production
H. Webb, Acting Nuclear Criticality Safety Manager
J. Wheeler, ISA Manager
D. Wise, Project Director, BPF

2. INSPECTION PROCEDURES USED

TI 2600/006	Safety Operations, Safeguards, Radiological Controls & Facility Support
TI 2600/011	Verification of Disposition of Potentially Defective 1-Inch Hunt Valves for Uranium Hexafluoride Cylinders
IP 88015	Nuclear Criticality Safety
IP 88020	Plant Operations

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Status	Type	Description
70-143/2004-12-01	Closed	NCV	Failure to Follow Posted Criticality Safety Instructions.
70-143/2004-12-02	Open	VIO	Failure to complete training on procedural changes.

[redacted]

70-143/2004-012-03	Open	IFI	Changes to [redacted] Process Safety Controls
70-143/2004-12-04	Open	AV	Degraded SRE PLC
70-143/2004-12-05	Open	URI	Mixing and Sampling Tests Not Completed
70-143/2004-12-06	Closed	NCV	Failure to annunciate a CAAS alarm.
70-143/2004-08-02	Closed	URI	Improper Actions During Criticality Alarm
70-143/2004-207-04	Closed	IFI	Double Contingency Protection for the Scrap Dissolver
70-143/2004-12-07	Open	IFI	Contamination [redacted]
70-143/2004-12-08	Closed	NCV	Failure to perform contamination survey.

4. LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management Systems
AV	Apparent Violation
BLEU	Blended Low Enriched Uranium
BPF	BLEU Preparation Facility
CAAS	Criticality Accident Alarm System
CFR	Code of Federal Regulations
dpm	Disintegrations Per Minute
ECC	Emergency Control Center
HEPA	High Efficiency Partialet Air
HEU	High Enriched Uranium
IFI	Inspection Followup Item
IP	Inspection Procedures
IR	Inspection Report
IROFS	Items Relied On For Safety
LEU	Low Enriched Uranium
LOA	Letter of Authorization
mR/hr	Millirem Per Hour
NCS	Nuclear Criticality Safety
NCSE	Nuclear Criticality Safety Evalation
NFS	Nuclear Fuels Services

NOV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OCB	Oxide Conversion Building
PARS	Publicly Available Records
PIRCS	Problem Identification, Resolution and Corrective Action System
PLC	Process Logic Controller
SNM	Special Nuclear Material
SRE	Safety Related Equipment
TQ	Training and Qualification
TI	Temporary Instruction
UF6	Uranium Hexafluoride
[redacted]	[redacted]
U-235	Uranium-235
UNB	Uranyl Nitrate Building
URI	Unresolved Item
VIO	Violation

Attachment:
Persons Contacted
Inspection Procedures Used
List of Acronyms