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

April 21, 2006

EA-06-018
Event No. 42133

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

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY - $32,500 (NRC INSPECTION REPORT NO. 70-143/2005-010)

Dear Mr. Schutt:

This refers to the inspection conducted from October 2, 2005, through November 12, 2005, at Nuclear Fuel Services, Inc, (NFS) Erwin, Tennessee, facility. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. The results of the inspection, including the identification of an apparent violation involving the failure to provide adequate assurance that items relied on for safety (IROFS) would be reliable and available to meet nuclear criticality safety performance criteria, were transmitted to you in Inspection Report No. 70-143/2005-010, dated December 16, 2005. During the NRC staff's review, an additional apparent violation was identified involving the failure to report the above described condition, as required by 10 CFR 70 Appendix A, paragraph (b)(1).

On March 1, 2006, a predecisional enforcement conference was conducted in the Region II office with you and members of your staff to discuss the apparent violations, their significance, root causes, and your corrective actions. The enclosures to this letter include a listing of conference attendees, material presented by NFS, and material presented by the NRC at the conference.

Based on the information developed during the inspection and the information that you provided during the conference, the NRC has determined that two violations of NRC requirements occurred. The violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report.

Violation A involves the failure to develop and implement a design for the enclosure overflow system which provided adequate assurance that IROFS would be reliable and available to perform their function when needed. In this case, the Facility enclosure overflow system (designated as an IROFS) may not have functioned properly due to the elevation of the drain. As required by Safety Condition S-1 of Special Nuclear Materials License No. SNM-124, 10 CFR 70.61(d), and NFS procedure NFS-HS-A-79, IROFS will be reliable and available to perform their function when needed, under normal and credible abnormal conditions. Violation B is interrelated, and involves the failure to report the above condition, as required by 10 CFR 70, Appendix A, paragraph (b)(1). The NRC has concluded that criticality is not highly unlikely, under the expected and bounding process conditions that existed in the enclosure, due to the failure to install the enclosure drains at the correct height.

At the conference, NFS provided an overview of the process, a timeline of events and NFS's response, its assessment of the significance of the issue from a risk perspective, and its corrective actions. NFS agreed with the characterization of the violations, and expressed its awareness of the importance of the issues raised. However, NFS concluded that the design failure did not pose a substantial risk (i.e., criticality was not credible), and that the violations do not warrant escalated enforcement. NFS's conclusion that a criticality accident was not credible was based, in part, on its determination that: (a) the maximum realistic enclosure vacuum would be less than , and (b) using a revised estimate of solution concentration under expected and typical process conditions, the minimum solution slab height required for criticality . NFS concluded that these vacuum and solution concentration values would not exist under normal and credible abnormal conditions. NFS also suggested that the NRC should exercise enforcement discretion to mitigate the violations, for reasons as discussed at the conference.

Although no actual consequences occurred as a result of the violation, the NRC considers the potential consequences of this event to be significant. In this case, the enclosure drain system provides two IROFS for an accident sequence leading to criticality, and these IROFS were subject to a common mode failure . In addition, based on our review of the information presented by NFS at the conference, the NRC has concluded . The NRC also reviewed NFS's information regarding the amount of U^{235} that would be expected in a maximum process batch. Although NFS assumed this maximum value to be the NRC notes that a mass of , would result in a maximum This additional mass would reduce the critical slab height to less than the value determined by NFS, based on the abnormal condition safety limit of k_{eff} less than 0.95.

Because the maximum vacuum in the affected enclosure under credible upset conditions may be greater than , and the minimum critical slab height is likely to be less than the

, the NRC concluded that criticality is not highly unlikely, under the expected and bounding process conditions that existed due to the failure to install the enclosure drains at the correct height. The NRC further notes that these enclosures are present throughout the NFS facility and their drains are the only protection against the accumulation in them . Therefore, Violation A has been categorized in accordance with the NRC Enforcement Policy at Severity Level III. Because Violation B is interrelated, these violations will be characterized together as a Severity Level III Problem. Regarding NFS's request for the exercise of enforcement discretion, the NRC has concluded that a sufficient basis for such discretion has not been provided.

In accordance with the Enforcement Policy, a base civil penalty in the amount of $32,500 is considered for a Severity Level III violation or Problem. Because your facility has been the subject of escalated enforcement action within the last 2 years,[1] the NRC considered whether credit was warranted for *Identification* and *Corrective Action* in accordance with the civil penalty assessment process in Section VI.C.2 of the Enforcement Policy.

Because the issue was identified during an NRC inspection, credit is not warranted for the factor of *Identification.* Corrective actions taken by NFS were discussed at the predecisional enforcement conference, and included: the immediate suspension of all operations until the ; senior NFS management and the NFS Board of Directors were briefed on the event; lessons learned were discussed with Nuclear Criticality Engineers and Process/Project Engineers at the facility; training sessions with engineers were conducted to discuss key configuration program elements, new configuration management procedures, and roles and responsibilities; set-point analyses for the were revised and approved; walk-downs of process and instrument diagrams were conducted; and, various procedures were revised to clarify engineering responsibilities with regard to design and functionality of engineered controls. NFS also made a 24-hour notification to the NRC on November 11, 2005. Other corrective actions were taken or planned as discussed at the conference as well. Based on the above, credit is warranted for the factor of *Corrective Action.*

Therefore, to emphasize the importance of development and implementation of IROFS that are reliable and available to perform their function when needed, and in recognition of your previous escalated enforcement action, I have been authorized, after consultation with the Director, Office of Enforcement, to issue the enclosed Notice of Violation and Proposed Imposition of Civil Penalty in the base amount of $32,500 for the Severity Level III Problem.

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence is already adequately addressed on the docket, in this letter, and in the information provided by NFS at the enforcement conference. Therefore, you are not required to respond to the provisions of 10 CFR 2.201 unless the description herein does not accurately reflect your corrective actions

[1] A Severity Level III Problem and $32,500 Civil Penalty was issued on October 24, 2005 (EA-05-093).

[redacted]

or your position. In that case, or if you choose to provide additional information, you should follow the instructions specified in the enclosed Notice.

[redacted] The NRC also includes significant enforcement actions on its Web site at www.nrc.gov; select **What We Do**, **Enforcement**, then **Significant Enforcement Actions**.

Sincerely,

/RA/ L. R. PLISCO FOR

William D. Travers
Regional Administrator

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

Enclosures:
1. Notice of Violation and Proposed Imposition of Civil Penalty
2. Conference Attendees
3. Material Presented by NFS
4. Material Presented by NRC
5. NUREG/BR-0254 Payment Methods (Licensee only)

[redacted]

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

Distribution w/encls 1,2,3,4:
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Enforcement Coordinators
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E. Hayden, OPA
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H. Bell, OIG
M. Burrell, OE
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S. Sparks, RII
D. Ayres, RII
W. Gloerson , RII
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R. Trojanowski, RII
OEMAIL
RII Docket File, DFFI

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ADAMS: ☐ Yes ACCESSION NUMBER:_____

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SIGNATURE	LPLISCO	DCOLLINS	CFEVANS	/RA/MBURELL	/RA/MBURELL	/RA/MBURELL	
NAME	LPLISCO	DCOLLINS	CFEVANS	JOHNSON	M.BUPP	GALLOWAY	
DATE	4/19/06	4/3/06	4/3/06	4/18/06	4/ 8/096	4/18/06	
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

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NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION OF CIVIL PENALTY

Nuclear Fuel Service, Inc.
Erwin, Tennessee

Docket No. 70-143
License No. SNM-124
EA-06-018

During an NRC inspection conducted from October 2, 2005, through November 12, 2005, violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the NRC proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violations and associated civil penalty are set forth 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."

10 CFR 70.61(d), Performance Criteria, states, "In addition to complying with paragraphs (b) and (c) of this section, the risk of nuclear criticality accidents must be limited by assuring that under normal and credible abnormal conditions, all nuclear processes are subcritical, including use of an approved margin of subcriticality for safety. Preventive controls and measures must be the primary means of protection against nuclear criticality accidents."

NFS procedure HS-A-79, section 6, Baseline Design Criteria, states "designs must be developed and implemented in accordance with management measures, to provide adequate assurance that Items Relied On For Safety (IROFS) will be reliable and available to perform their function when needed."

Contrary to the above, prior to September 9, 2005, the licensee failed to develop and implement a design for the [redacted] enclosure overflow system which provided adequate assurance that IROFS would be reliable and available to perform their function when needed. Specifically, the design of the enclosures for the [redacted] system (designated as an IROFS) was such that it may not have functioned properly during normal and credible abnormal conditions.

B. 10 CFR 70 Appendix A, paragraph (b), requires any event or condition that results in the facility being in a state that was not analyzed, was improperly analyzed, or is different

from that analyzed in the Integrated Safety Analysis, and which results in failure to meet the performance requirements of 10 CFR 70.61, to be reported within 24 hours.

Contrary to the above, from October 22, 2005, through November 10, 2005, the licensee failed to report a condition that resulted in the facility being in a state that was not analyzed, and which resulted in failure to meet the performance requirements of 10 CFR 70.61. In this case, the condition involved the design of the enclosures for the Blended Low Enriched Uranium Preparation Facility overflow system, which may not have functioned properly during normal and credible abnormal conditions.

This is a Severity Level III Problem (Supplement VI).
Civil Penalty - $32,500 (EA-06-018).

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence and the date when full compliance was achieved is already adequately addressed on the docket, in the cover letter transmitting this Notice, and in the information presented by Nuclear Fuel Services, Inc. at the enforcement conference. However, you are required to submit a written statement or explanation pursuant to 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a "Reply to a Notice of Violation - EA-06-018," and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 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).

Within the same time as provided for the response required above under 10 CFR 2.201, the Licensee may pay the civil penalty proposed above or the cumulative amount of the civil penalties if more than one civil penalty is proposed, in accordance with NUREG/BR-0254 and by submitting to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, a statement indicating when and by what method payment was made, or may protest imposition of the civil penalty in whole or in part, by a written answer addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission. Should the Licensee fail to answer within 30 days of the date of this Notice of Violation and Proposed Imposition of Civil Penalty, an order imposing the civil penalty will be issued. Should the Licensee elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalty, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation - EA-06-018" and may: (1) deny the violation listed in this Notice, in whole or in part, (2) demonstrate extenuating circumstances, (3) show error in this Notice, or (4) show other reasons why the penalty should not be imposed. In addition to protesting the civil penalty in whole or in part, such answer may request remission or mitigation of the penalty.

In requesting mitigation of the proposed penalty, the factors addressed in Section VI.C.2 of the Enforcement Policy should be addressed. Any written answer in accordance with 10 CFR

2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of the Licensee is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing a civil penalty.

Upon failure to pay any civil penalty due which subsequently has been determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282c.

The response noted above (statement as to payment of civil penalty) should be addressed to: Michael Johnson, Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852-2738, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region II, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice.

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

Dated this 21st day of April 2006

CONFERENCE ATTENDEES

NUCLEAR REGULATORY COMMISSION:
L. Plisco, Deputy Regional Administrator
D. Collins, Director, Division of Fuel Facilities Inspection (DFFI)
D. Ayres, Chief, DFFI
S. Sparks, Senior Enforcement Specialist
D. Morey, Office of Nuclear Materials Security and Safeguards
D. Rich, Senior Resident Inspector, DFFI

NUCLEAR FUEL SERVICES, INC.:
K. Schutt, President and General Manager
M. Moore, Vice President of Safety and Regulatory
T. Sheehan, HEU Operations Director
R. Shackelford, NCS Manager
G. Hazlewood, Director, Engineering
A. Ward, General Counsel
R. Maurer, Nuclear Safety
S. Skiles, Nuclear Safety
P. Johnson, Jr., Vice President Applied Technology

Enclosure 2