



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2800
ATLANTA, GEORGIA 30322-0199

August 21, 1996

EA 96-213

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

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY -
\$12,500 (NRC Inspection Report No. 70-143/96-05)

This letter refers to the special inspection conducted by the Nuclear Regulatory Commission's (NRC) Augmented Inspection Team (AIT) during the period April 3 through 11, 1996, at your Erwin, Tennessee facility. The inspection reviewed the facts and circumstances surrounding a fire in the incinerator and 300 Complex ventilation system on April 2, 1996. The results of the AIT inspection were formally transmitted to you by letter dated May 21, 1996; and by letter dated June 24, 1996, you were informed of the apparent violations resulting from the inspection. A closed, predecisional enforcement conference was conducted at your facility in Erwin, Tennessee, on July 12, 1996, to discuss the apparent violations, the root causes, and your corrective actions to preclude recurrence. A letter summarizing the conference was sent to you on July 29, 1996.

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

Violation A in the enclosed Notice involved your failure to implement and maintain a configuration control and management system for the Building 302 incinerator which was used to handle uranium. Violations B.1 and B.2 involved your failure to institute adequate procedures for the safe operation of the incinerator and multiple examples in which your staff failed to follow procedures. Of particular concern was your failure to verify the operability of the quench tank spray nozzles prior to operation of the incinerator because such verification contributes to assuring the effectiveness of the incinerator exhaust cooling. Violation C in the enclosed Notice involved your failure to identify the incinerator as safety-related which resulted in failure to implement a preventative maintenance and surveillance program for components essential to safety. Finally, Violation D involved your failure to implement an adequate training program for personnel operating the incinerator equipment. The root cause of the violations appears to be a lack of attention in ensuring that safety systems and controls remain in place and that changes which might affect them are controlled and reviewed.

Collectively, the violations represent a significant regulatory concern because they are indicative of a significant lack of attention toward licensed responsibilities. Specifically, multiple processes and barriers to preventing unsafe operation of the Building 302 incinerator failed including equipment, procedures, and personnel which culminated in the April 2, 1996, fire. A further example of your lack of attention is the fact that corrective actions in response to a similar fire in 1983 were not effective in preventing the April 1996 fire and were not fully implemented. Therefore, the violations in *the Notice* are classified in the aggregate in accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600, as a Severity Level III problem.

In accordance with the Enforcement Policy, a base civil penalty in the amount of \$12,500 is considered for a Severity Level III problem. Because your facility has not been the subject of escalated enforcement actions within the last two years, the NRC considered whether credit was warranted for Corrective Action in accordance with the civil penalty assessment process described in Section VI.8.2 of the Enforcement Policy. Your immediate actions included a prompt and effective response to mitigate the fire in the incinerator and 300 Complex ventilation system and establishment of an investigation team to review the event. At the conference, you stated that additional corrective actions implemented and/or planned included: (1) review of other operational activities (decommissioning and waste water treatment) and associated procedures to determine whether similar deficiencies existed; (2) issuance of a notice to all employees regarding expectations for procedural adherence and conduct of follow-up meetings with each employee; (3) enhancements to the training program; (4) performance of a hazards review and incorporation of lessons learned into the readiness review program for the near-term activities in the 200 Complex; and (5) development of a Performance Management Program intended to provide an audit and quality oversight function for site activities including configuration control and procedural adherence. In addition, you stated that a hazards analysis and implementation of corrective actions have not yet been completed for the incinerator itself; however, such activities would be performed prior to any restart of the equipment. Although many of your corrective actions are not implemented because your operations are inactive, your investigation team and management did identify the root causes of the violations. In view of these actions, the NRC concluded that credit is warranted for the factor of Corrective Action.

The application of the Enforcement Policy as described above would normally result in no civil penalty. However, the violations represent particularly poor performance in several aspects of your safety program. Not only did the violations contribute to the April 2, 1996 fire with the potential release of uranium outside controlled areas, but the consequences of the fire, both potential and actual, would have been mitigated had you effectively implemented corrective actions following the 1983 fire.

The NRC recognizes that work with uranium at the site has been limited since 1993 and the off site impact of the uranium released as a result of the fire was minimal; however, adequate controls for the licensed activities you were conducting should have been implemented and in effect, and they were not. Therefore, the NRC is exercising discretion by assessing a base civil penalty

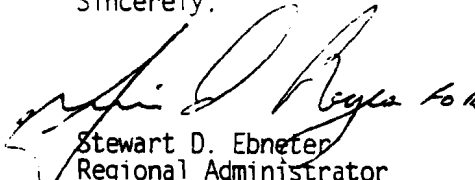
in accordance with Sections VI.B.2.d and VII.A.1 of the Enforcement Policy to reflect NRC's concern regarding the violations. In reaching the decision to exercise discretion, the NRC did consider your comments made during the predecisional enforcement conference regarding the civil penalty assessment process and mitigation of enforcement sanctions in this case. However, to emphasize the importance of effective management and control of equipment and systems important to safety, I have been authorized, after consultation with the Director, Office of Enforcement, to issue the enclosed Notice in the base amount of \$12,500 for the Severity Level III problem.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In your response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. After reviewing your response to this Notice, including your proposed corrective actions and the results of future inspections, the NRC will determine whether further NRC enforcement action is necessary to ensure compliance with NRC regulatory requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be placed in the NRC Public Document Room (PDR). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction.

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

Sincerely,



Stewart D. Ebner
Regional Administrator

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

Enclosure: Notice of Violation and Proposed
Imposition of Civil Penalty

cc w/encl: (See Page 4)

NFS

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

Michael H. Mobley, Director
Division of Radiological Health
3rd Floor, L and C Annex
401 Church Street
Nashville, TN 37243-1532

NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION OF CIVIL PENALTY

Nuclear Fuel Services, Inc.
Erwin, Tennessee

Docket No. 70-143
License No. SNM-124
EA 96-213

As a result of an NRC inspection conducted on April 3 through 11, 1996, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions," NUREG-1600, the Nuclear Regulatory Commission 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. License Condition 10 of Special Nuclear Materials (SNM) License No. 124 requires the licensee to comply with all listed conditions in the following three sections: Safety Conditions, Safeguards Conditions, and Transportation Conditions.

Safety Condition S-30 requires the licensee to develop, implement, and maintain a configuration control system including a process and instrument document description system on or before December 31, 1993.

Contrary to the above, as of April 2, 1996, the licensee failed to implement and maintain an adequate configuration control and management system for the Building 302 incinerator which was used to incinerate licensed materials. Specifically, as-built descriptions and drawings, including piping and instrument drawings (P&IDs) of the incinerator system were not maintained to ensure control of the configuration of the system, as evidenced by the following:

1. The P&ID 302-F0011-D, "302 Incinerator P&ID," dated February 2, 1994, did not reflect the actual, installed features of the Building 302 incinerator system in that there was instrumentation installed in the system which was not shown on the diagram, including certain temperature elements for measuring temperatures in the process streams and displayed on specific instruments; and
 2. The licensee did not maintain any drawings, wiring diagrams or logic diagrams for the instrumentation or control circuits, including alarms for the Building 302 incinerator system. (01013)
3. License Condition 10 of Materials License No. SNM-124 requires the licensee to comply with all listed conditions in the following three sections: Safety Conditions, Safeguards Conditions, and Transportation Conditions.

Safety Condition S-12 requires, in part, that the licensee, on or before September 6, 1993, establish and implement written procedures for the control of equipment to maintain personnel and nuclear criticality safety and to avoid unauthorized operation of equipment.

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Imposition of Civil Penalty

Safety Condition S-1 requires the licensee to comply with the statements, representations, and conditions in Chapters 1 through 8 of the application dated August 15, 1989, and supplements thereto.

Chapter 2, Section 2.7 of the application, requires that SNM operations and safety function activities be conducted in accordance with written procedures. Operating and safety procedures are defined in Sections 1.7.4 and 1.7.5, respectively.

Standard Operating Procedure (SOP) 266, Section L, Incinerator, Revision 11, dated June 5, 1992, which is written and approved as set forth in Section 1.7.4, specifies the actions to be performed during loading, operation, and unloading of the Building 302 incinerator and the operation of the incinerator scrubber system.

1. Contrary to the above, from September 6, 1993, until April 2, 1996, SOP 266, a written procedure for the control of equipment, was inadequate to maintain personnel safety or avoid unauthorized operation of equipment, as evidenced by the following:
 - a. SOP 266 required inspection of the pre-quench tank spray nozzles prior to each run. However, the procedure did not provide specific instruction to assure the spray nozzles functioned as designed or as authorized for safety.
 - b. SOP 266 required inspection of the pre-quench tank spray nozzles prior to each run only after instructing the operator to start the scrubber pump and maintain the scrubber line pressure. This would result in the operator disassembling part of the system for the inspection while it was under pressure which would be dangerous for the operator. Therefore, the procedure was not adequate to maintain personnel safety.
 - c. Except for the scrubber system startup, SOP 266 did not contain a specific set of instructions or check-lists to tell the operator how system valves should be aligned to start-up, run or shutdown the systems; and, therefore, was not adequate to avoid unauthorized operation of equipment or maintain safety as designed.
 - d. Section L.8.3 of SOP 266 specified temperature set points for the Underfire Air Controller of 1700 degrees Fahrenheit (°F) and 1600°F for the Afterfire Burner Fuel Controller. However, Section L.7.2 of SOP 266 stated that the Underfire Air dampers closed at temperatures above 1600°, and Section L.9.4 stated that the Afterfire Burner was designed to throttle back at temperatures above 1400°F; thus providing conflicting instructions to the operator regarding instrument set points, which would not avoid unauthorized operation. (01023)

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2. Contrary to condition S-1 and Chapter 2 of the license application, on April 2, 1996, the licensee failed to follow safety procedures written for SNM operations, as evidenced by the following:
 - a. Section L.1.1 of SOP 266 required that the incinerator be continually manned while it was in operation (during the burning of material), but the operator assigned to perform manning activities was assigned other tasks one of which required him to go to the other side of the 300 Complex to sample the scrubber:
 - b. Sections L.2.3 and L.2.4 of SOP 266 required that certain valves be opened and closed to place the scrubber water filters on line, but, the incinerator system was started with the filters by-passed:
 - c. Section L.2.10 of SOP 266 required the pre-quench spray nozzles to be inspected, but the inspection was not performed:
 - d. Section L.2.11 of SOP 266 required three independent tests be performed to verify that there was flow of the scrubber solution to the upper two pre-quench nozzles, to the venturi nozzles, and the flow of city water to the lower pre-quench nozzle, but the independent tests were not performed:
 - e. Section L.7.1.B of SOP 266 required the incinerator water sprays to be checked by activating the "high temperature" and "water spray" controllers to provide a full bed water spray, but the check was not performed:
 - f. Section L.8.15 of SOP 266 required the Afterfire Burner temperature to reach 1400°F before ignition of the Overfire Burner, but the operator started the Overfire Burner when the Afterfire Burner temperature was 500°F. (01033)
- C. Safety Condition S-12 of Material License SNM-124 requires, in part, that on or before September 6, 1993, the licensee establish and implement written procedures for the following: (1) maintenance of safety-related equipment expected to require recurring maintenance; (2) post-maintenance testing and inspection of equipment to verify and document its functional acceptability; (3) calibration and testing of safety-related equipment and instrumentation, such as interlocks, alarm devices, and in-line monitors; and (4) preventative maintenance of equipment and instrumentation.

Procedure NFS-HS-GH-43, Safety-Related Equipment Control Program, Revision 1, dated December 19, 1994, defines safety-related equipment, establishes a system for identification of safety-related equipment, establishes requirements for maintenance (including preventive

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maintenance), calibration, and functional verification of the performance of safety-related equipment, and training of personnel who perform maintenance on safety-related equipment. Safety-related equipment is defined as "... that equipment whose primary purpose is to protect personnel from injury during plant operations. This equipment may be used as a barrier or to provide an indication of when a process is approaching a potentially hazardous condition."

Contrary to the above, as of April 2, 1996, the licensee failed to adequately establish and implement written procedures for the items in Safety Condition S-12 for the Building 302 incinerator and related components which were safety related. Specifically, the licensee's maintenance and surveillance program did not include components of the incinerator system and related equipment that met the definition in Procedure NFS- HS-GH-43, as evidenced by the following:

1. Safety-related components of the incinerator system, such as thermocouples, temperature and pressure indicators, and high temperature alarms, all of which were designed to protect personnel from injury and to provide an indication of when a process was approaching a potentially hazardous condition, were not included in the maintenance and surveillance program;
2. The licensee did not perform preventative maintenance on key components of the incinerator system such as the spray nozzles, system vacuum damper valve, alarms, scrubber system filters, or solenoid valves;
3. There was no implemented preventative maintenance program to functionally verify the performance of the incinerator ductwork in that inspections were not performed to verify that the ductwork was not damaged or that there was no material buildup inside the ducting; and
4. Adequate calibration and testing of safety-related equipment and instrumentation was not performed in that the calibration involved only the sensor (thermocouple) and the read-out (meter) and did not involve the entire instrument loop. As a result, some of the instrumentation was not working as designed on April 2, 1996.
(01043)

D. Safety Condition S-1 of Materials License No. SNM-124 requires the licensee to comply with the statements, representations, and conditions in Chapters 1 through 8 of the application dated August 15, 1989, and supplements thereto.

Chapter 2, Section 2.6 of the application, requires that the licensee's work training program for operating personnel will provide the desired knowledge and/or skill for operating procedures, safety controls specific to a particular work assignment, and refresher training when changes are made.

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Contrary to the above, on April 2, 1996, training on incinerator operations was demonstrated to be inadequate in that it did not provide the desired level of knowledge and/or skill to personnel. Specifically, an operator lacked an understanding of which portions of the procedure were requirements and which were recommendations and incorrectly understood that certain operational steps were optional, as evidenced by the following:

1. During system startup, the scrubber water filters were routinely placed in the by-pass mode instead of on-line as required by procedure; and
2. The pre-quench spray nozzles were not inspected as required, but were assumed to be operating by operator observation that the lights on the panel that indicated the flow switches were sensing flow to the nozzles. (01053)

This is a Severity Level III Problem (Supplement VI)
Civil Penalty - \$12,500

Pursuant to the provisions of 10 CFR 2.201, Nuclear Fuel Services, Inc. (Licensee) is hereby required to submit a written statement or explanation to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, within 30 days of the date of this Notice of Violation and Proposed Imposition of Civil Penalty (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each alleged violation: (1) admission or denial of the alleged violation, (2) the reasons for the violation if admitted, and if denied, the reasons why, (3) the corrective steps that have been taken and the results achieved, (4) the corrective steps that will be taken to avoid further violations, and (5) the date when full compliance will be achieved. 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 why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

Within the same time as provided for the response required above under 10 CFR 2.201, the Licensee may pay the civil penalty by letter addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, with a check, draft, money order, or electronic transfer payable to the Treasurer of the United States in the amount of the civil penalty proposed above, or the cumulative amount of the civil penalties if more than one civil penalty is proposed, 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 the time specified, 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" and may: (1) deny the

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violations 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.

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 (Reply to Notice of Violation, letter with payment of civil penalty, and Answer to a Notice of Violation) should be addressed to: James Lieberman, 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.

Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. However, if you find it necessary to include such information, you should clearly indicate the specific information that you desire not to be placed in the PDR, and provide the legal basis to support your request for withholding the information from the public.

Dated at Atlanta, Georgia
this 21st day of August 1996