



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

October 30, 2012

Mr. Joseph G. Henry  
President  
Nuclear Fuel Services, Inc.  
P. O. Box 337, MS 123  
Erwin, TN 37650

**SUBJECT: NUCLEAR REGULATORY COMMISSION INTEGRATED INSPECTION  
REPORT 70-143/2012-004 AND NOTICE OF VIOLATION**

Dear Mr. Henry:

This refers to the inspections conducted from July 1, 2012, to September 30, 2012, at the Nuclear Fuel Services (NFS) facility in Erwin, TN. The purpose of these inspections was to determine whether activities authorized under the license were conducted safely and in accordance with Nuclear Regulatory Commission (NRC) requirements. The enclosed report presents the results of these inspections. The findings were discussed with members of your staff at an exit meeting held on October 5, 2012.

During these inspections, the NRC staff examined activities conducted under your license as they related to public health and safety and to confirm compliance with the Commission's rules and regulations and with the conditions of your license. Areas examined during the inspections are identified in the enclosed report. Within these areas, the inspections consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of these inspections, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. This violation was evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at (<http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>).

The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation is being cited in the Notice because it was identified by the NRC.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC review of your response to the Notice will also determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In addition to the violation discussed above, a violation was also identified and treated as a Non-Cited Violation (NCV), consistent with Section VI.A of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation, 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: (1) the Regional Administrator, Region II; (2) the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and (3) Galen Smith at the Nuclear Fuels Services facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/readingrm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning these inspections, please contact us.

Sincerely,

*/RA/*

Alan J. Blamey, 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 No. 70-143/2012-004  
w/Attachment: Supplementary Information

cc w/encls: (See page 3)

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 Alan J. Blamey, Chief  
 Fuel Facility Inspection Branch 1  
 Division of Fuel Facility Inspection

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Distribution w/encls:

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- NFS Website

PUBLICLY AVAILABLE     NON-PUBLICLY AVAILABLE     SENSITIVE     NON-SENSITIVE  
 ADAMS: X Yes    ACCESSION NUMBER: ML12305A353    X SUNSI REVIEW COMPLETE x FORM 665 ATTACHED

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| SIGNATURE    | /RA/           | Via email | Via email | Via email | /RA/      | /RA/           | /RA/         |
| NAME         | GSmith/MChitty | MRomano   | MCrespo   | JFisher   | RPrince   | MToth/NPeterka | PGlenn/GGoff |
| DATE         | 11/ /2012      | 11/ /2012 | 11/ /2012 | 11/ /2012 | 11/ /2012 | 11/ /2012      | 11/ /2012    |
| E-MAIL COPY? | YES NO         | YES NO    | YES NO    | YES NO    | YES NO    | YES NO         | YES NO       |

cc w/encls:

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Erwin, TN 37650

## NOTICE OF VIOLATION

Nuclear Fuel Services  
Erwin, TN

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

During NRC inspections conducted from July 1 to September 30, 2012, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Section 8.2 of the License Application states that the requirements of the Emergency Plan are implemented through approved written procedures.

Section 9.2 of the Emergency Plan specifies that: 1) a procedure for decontamination and repair of affected plant areas is prepared; 2) a procedure for corrective actions for on-site contamination outside the work areas is also developed; 3) these procedures include provisions for checking and restoring to normal operation all criticality alarms, effluent and area monitors, and emergency supplies used during the emergency; and 4) the intent is for recovery operations to return the plant to a state of emergency preparedness before normal operations commence.

Contrary to the above, as of August 24, 2012, the inspectors identified that the licensee failed to create and implement procedures to address post accident recovery and restoration of the plant before normal operations commence.

This is a Severity Level IV violation (Section 6.2.d.7).

Pursuant to the provisions of 10 CFR 2.201, Nuclear Fuel Services (NFS) is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, Region II, and a copy to the NRC Resident Inspector at NFS, 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, 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 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, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> to the extent possible, it should not include any personal privacy, proprietary or safeguards information so that it can be made available to the public 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 bases 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 of receipt.

Dated this 30th day of October 2012

U. S. NUCLEAR REGULATORY COMMISSION  
REGION II

Docket No.: 70-143

License No.: SNM-124

Report No.: 70-143/2012-004

Licensee: Nuclear Fuel Services, Inc.

Facility: Erwin Facility

Location: Erwin, TN 37650

Dates: July 1, 2012 to September 30, 2012

Inspectors: G. Smith, Senior Resident Inspector  
M. Chitty, Resident Inspector  
R. Prince, Fuel Facility Inspector  
J. Fisher, Fuel Facility Inspector  
M. Toth, Fuel Facility Inspector  
M. Romano, Fuel Facility Inspector  
P. Glenn, Fuel Facility Inspector  
G. Goff, Fuel Facility Inspector  
N. Peterka, Fuel Facility Inspector  
N. Pitoniak, Fuel Facility Inspector-In-Training

Approved by: A. Blamey, Chief  
Fuel Facility Inspection Branch 1  
Division of Fuel Facility Inspection

## **EXECUTIVE SUMMARY**

Nuclear Fuel Services, Inc.  
NRC Integrated Inspection Report 70-143/2012-004  
July 1 - September 30, 2012

Inspections were conducted by the resident and regional inspectors during normal and off-normal shifts in the areas of safety operations, radiological controls, and facility support. The inspectors performed a selective examination of licensee activities which were accomplished by direct observation of safety-significant activities and equipment, tours of the facility, interviews and discussions with licensee personnel, and a review of facility records.

### **Safety Operations**

- Plant operations were performed safely and in accordance with approved plant procedures. (Paragraph A.1)
- A non-cited violation was noted in the area of nuclear criticality safety controls. (Paragraph A.2)
- The licensee adequately implemented its fire protection systems and programs in accordance with site procedures and consistent with license and regulatory requirements. (Paragraph A.3)
- The fire brigade demonstrated its readiness to respond to a fire. (Paragraph A.4)

### **Radiological Controls**

- The licensee maintained an effective program to ensure the safe receipt, packaging, delivery, and private carriage of licensed radioactive materials. (Paragraph B.1)
- The inspectors determined that the licensee maintained an adequate program for managing radioactive waste in compliance with 10 CFR Part 20 and 10 CFR Part 61. (Paragraph B.2)
- The Environmental Protection program was implemented in accordance with the license application and regulatory requirements. (Paragraph B.3)
- The licensee adequately implemented the radiation protection program consistent with the license and regulatory requirements. (Paragraph B.4)

### **Facility Support**

- A violation was identified for failure to implement requirements of the emergency plan through approved written procedures related to chapter 9 of the NFS Emergency Plan "Recovery and Restoration." (Paragraph C.1)
- The Plant Modifications program was implemented in accordance with the license application and regulatory requirements. (Paragraph C.2)
- Adverse conditions were adequately identified, evaluated, and entered into the Problem Identification, Resolution, and Correction System (PIRCS). (Paragraph C.3)



**Special Topics**

- The licensee adequately implemented corrective actions for a previous violation involving configuration control during maintenance. (Paragraph D.1)

Attachment:

Key Points of Contact

List of Items Opened, Closed, and Discussed

Inspection Procedures Used

Documents Reviewed

Acronyms and Initialisms

## **REPORT DETAILS**

### **Summary of Plant Status**

The facility began the inspection period with the following process areas operating: 1) Naval Fuel Manufacturing Facility (FMF); 2) Blended Low Enriched Uranium (BLEU) Preparation Facility (BPF) which included the Uranium (U)-Oxide, U-Metal, U-Aluminum, Solvent Extraction (SX), and the down-blending (DB) lines; and 3) Building 301 Commercial Development (CD) lines which included the Column Dissolvers and the Receipt Calciner.

### **A. Safety Operations**

#### **1. Plant Operations (IP 88135)**

##### **a. Inspection Scope and Observations**

The inspectors performed routine tours of plant operating areas housing special nuclear material (SNM) and determined that equipment and systems were operated safely and in compliance with the license. Daily operational meetings and turnover meetings were observed throughout the period where production status and operational issues were discussed. The inspectors reviewed selected licensee-identified events and corrective actions for previously identified events. The inspectors focused on plant operations, safety related equipment (i.e. valves, sensors, instrumentation, in-line monitors, scales, etc) and items relied on for safety (IROFS).

The routine tours included walk-downs of the BPF, CD line, FMF, storage areas, vaults, and the waste water treatment facility (WWTF). The inspectors verified that there was adequate staffing and that operators were attentive to their duties and the status of alarms and annunciators. The inspectors observed activities during normal and upset conditions for compliance with procedures and station limits. The inspectors noted that safety controls were in place and functional to ensure proper control of SNM. The inspectors verified the adequacy of communications between supervisors and operators within the operating areas. The inspectors walked down portions of safety-significant operating systems and verified that IROFS were identified and operable. The inspectors reviewed log books, Lockout/Tagout records, and Letters of Authorization (temporary modifications) to obtain information concerning operating trends and activities. The inspectors verified the licensee actively pursued corrective actions for conditions requiring temporary modifications and that compensatory measures were prescribed and implemented as required.

The inspectors performed periodic tours of the outlying facility areas during the inspection period and determined that equipment and systems were operated safely and in compliance with the license. The focus of these tours centered on the evaluation of potential missile hazards, combustible material storage and fire loading, hazardous chemical storage, storage of compressed gas containers, potential degradation of plant security features, and potential fire hazards. During these tours, the inspectors also verified that required Notices to Employees were appropriately and conspicuously posted in accordance with 10 CFR 19.11.

The inspectors attended various plan-of-the-day meetings throughout the inspection period in order to determine the overall status of the plant. The inspectors evaluated the adequacy of the licensee's response to significant plant issues as well as their approach to solving various plant problems.

### Safety System Walk-downs

During the inspection period, the inspectors performed two walk-downs of safety-significant systems involved with the processing of SNM. As part of the walk-downs, inspectors verified the as-built configuration matched approved plant drawings. The inspectors interviewed operators in order to ensure that plant personnel were familiar with the assumptions and controls associated with these IROFS systems and instrumentation for maintaining plant safety. The inspectors also verified that IROFS assumptions and controls were properly implemented in the field. The inspectors reviewed the related Integrated Safety Analysis (ISA) to verify the systems' ability to perform its functions was not affected by outstanding design issues, temporary modifications, operator workarounds, adverse conditions, or other system-related issues. The inspectors also verified that there were no conditions that degraded plant performance, the operability of IROFS, safety-related devices, or other support systems essential to safety system performance. Systems examined included:

- Building 333, SX
- Building 302, Area 900

To determine the correct system alignment, the inspectors reviewed the procedures, drawings, related ISAs, and 10 CFR 70.61. During the walk-downs, the inspectors verified the following:

- Criticality safety hazards and controls were maintained;
- Chemical safety hazards and controls were maintained;
- The configuration of metal and glass columns was maintained in accordance with Nuclear Criticality Safety Evaluations;
- Valves were correctly positioned and did not exhibit leakage that would impact the valves' function;
- Electrical power was available as required;
- Major system components were correctly labeled, lubricated, cooled, and ventilated;
- Hangers and supports were correctly installed and functional;
- Tagging clearances were appropriate with breakers and valves correctly positioned and locked as required by the lockout/tagout program;
- Cabinets, cable trays, and conduits were correctly installed and functional;
- Visible cabling was in good material condition;
- Essential support systems were operational; and
- Ancillary equipment or debris did not interfere with system performance.

### b. Conclusion

No findings of significance were identified.

## 2. Criticality Safety (IP 88135)

### a. Inspection Scope and Observations

During daily production area tours, the inspectors verified various criticality controls to be in place, that personnel followed criticality station limit cards, and that containers were adequately controlled to minimize potential criticality hazards. The inspectors sampled a number of criticality-related IROFS for operability and for adequate identification in the field as well as on drawings. The inspectors noted that operators were knowledgeable of the requirements associated with IROFS.

On July 19, 2012, operations personnel transferred waste material from waste columns (favorable geometry) in Area 800 to the waste discharge (WD) tanks (unfavorable geometry) in Building 306. The transfer line is continuously analyzed by an In-line monitor (ILM) for U-235. If an excessive amount of U-235 is detected by the ILM, the transfer is stopped by two automatic valves. Prior to the transfer, the waste material in Area 800 was analyzed in the analytical lab, as required, and noted to be 0.004 gram per liter (g/l) of U-235. Subsequent to the transfer, the laboratory personnel noted that they had provided incorrect results to operations personnel. The actual U-235 content was 0.07 g/l, which was greater than the discharge limit of 0.05 g/l. This particular failure is analyzed within the existing NFS design basis. Specifically, the risk index (RI) for the sequence is -6 as follows:

- Initiating event: U concentration is greater than 0.18 g/l with a RI = -1
- IROFS #1: Sampling ensures no transfer of greater than 0.05 g/l U-235 with a RI = -2
- IROFS #2: ILM secures transfer at greater than 0.18 g/l with a RI = -3
- Total RI = -6

Since the laboratory sampling failed to prevent transfer, administrative IROFS #1 was considered to be failed. The RI for the remaining items in the accident sequence totaled -4, which ensures compliance of 10 CFR 70.61 since the RI is less than -3. Thus this event was not reportable because sufficient controls remained to ensure the performance criteria were met. The actual U-235 g/l was 0.07 and did not challenge the actuation of the ILM which would secure the transfer at 0.18 g/l. However, since the IROFS #1 failed to prevent the transfer, this issue is considered more than minor but of "very low safety significance" since the performance requirements of 10 CFR 70.61 were maintained at an acceptable level. The inspectors evaluated this event as well as the licensee's immediate corrective actions. Since this non-compliance was discovered by the licensee, identification credit is warranted. The licensee entered the issue into the Corrective Action Program (CAP) as PIRCS item #35499. Additionally, a root cause analysis was performed on this event in order to understand the underlying weaknesses and to develop lessons learned from the event. The failure to follow plant procedures during the processing of SNM is 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 70-143/2012-004-01). This item is considered closed.

### b. Conclusion

One NCV of NRC requirements was identified.

3. Fire Protection Quarterly (IP 88135)

a. Inspection Scope and Observations

During routine plant tours, the inspectors verified that transient combustibles were being adequately controlled and minimized. Fire barriers located between fire areas were being properly maintained.

During the inspection period, the inspectors conducted fire safety tours of Building 307, Building 333, the 310 Warehouse, and Building 440. The inspectors walked down various fire suppression components and systems that supplied the areas and verified these systems were properly aligned and operational. The inspectors verified that various aspects of the fire protection/prevention strategies conformed to the applicable nuclear criticality safety evaluation and adequate control of combustible material was maintained.

b. Conclusion

No findings of significance were identified.

4. Fire Brigade Annual (IP 88135)

a. Inspection Scope and Observations

On July 6, the inspectors observed the fire brigade respond to a fire alarm originating in Building 305. Inspectors noted that fire brigade members donned self-contained breathing apparatus (SCBA) equipment and entered the fire area of concern in a controlled manner. Fire brigade members brought firefighting equipment to the scene sufficient for the given alarm. The equipment observed was in good working order and was adequate for fire brigade members to perform their firefighting duties. The fire brigade leader utilized the fire fighting plan and status board and his fire fighting directions were thorough, clear, and effective. Communications between the fire brigade leader and the Plant Shift Superintendent were adequate.

b. Conclusion

No findings of significance were identified.

**B. Radiological Controls**

1. Transportation of Radioactive Material (IP 86740)

a. Inspection Scope and Observations

The inspectors evaluated whether the licensee had established and was maintaining an effective program to ensure the safe receipt, packaging, delivery, and private carriage of licensed radioactive materials. The inspectors also evaluated whether transportation activities were in compliance with the applicable transport regulations.

The inspectors reviewed a number of shipping records involving the shipment and receipt of special nuclear material products and waste disposal. The licensee included the appropriate documentation with the packages being shipped. The licensee recorded the required information on the packaging and shipping manifests including the transportation index, package activity, labeling, and placards.

The inspectors observed the licensee load a container for shipment and prepare another shipment of low-enriched uranyl nitrate for transport. The inspectors reviewed the shipping manifests, pre-shipment preparations, and radiological surveys associated with these shipments. Personnel loading the packages followed the appropriate procedures and packages were properly secured and braced in preparation for transport. The inspectors interviewed the radiation protection and transportation personnel to ensure they were knowledgeable of NRC and Department of Transportation requirements. The inspectors also interviewed the transport drivers to verify their knowledge of transportation requirements including actions to take in the event of delays or problems encountered while in transit. The drivers were knowledgeable of the pertinent actions to take in the event of an emergency situation or an extended delay while in route.

The inspectors reviewed training and qualification records for individuals designated as certified shippers and verified that qualifications were current and that individuals had received the required training.

b. Conclusion

No violations of NRC requirements were identified.

2. Radioactive Waste Management (IP 88035)

a. Inspection Scope and Observations

The inspectors evaluated whether the licensee had established and maintained adequate procedures and quality assurance (QA) programs to ensure compliance with the requirements of 10 CFR Part 20 and 10 CFR Part 61 applicable to low-level radioactive waste form classification, stabilization, and shipment. The inspectors determined that procedures adequately reflected the waste acceptance criteria requirements of the waste disposal facilities to which the material was to be transferred.

The inspectors reviewed procedures and observed the performance of tasks related to radioactive waste. The procedures were clearly written and adequately delineated responsibilities related to radioactive waste management. The operators were familiar with their responsibilities and performed their tasks in accordance with facility procedures. Packages associated with a radioactive waste shipment were observed to be properly loaded and braced in preparation for shipment.

The inspectors reviewed the QA program for radioactive waste management and determined that the licensee was performing the required audits. Audit findings were entered into the licensee's CAP for resolution.

The inspectors reviewed the licensee's program for classifying low-level radioactive waste. The inspectors reviewed the procedures for classifying waste as well as records relating to waste generation. Systems used for assaying radioactive wastes were

maintained and operational checks performed in accordance with approved procedures. Assay equipment was verified to be in current calibration. The inspectors reviewed the licensee's program for ensuring that waste was properly packaged per the waste form classification requirements of 10 CFR 61.56.

The inspectors reviewed the licensee's procedures for labeling and tracking of radioactive waste shipments. The procedures were adequate to ensure that radioactive waste was properly labeled. The procedures identified the specific actions to be taken should the shipments not reach the intended destination in the time specified. Additionally, the inspectors reviewed the procedures for placement, inspection, and repackaging of radioactive waste.

The inspectors performed walk-downs of selected radioactive material storage areas. Storage areas were properly posted and maintained in accordance with the licensee's program. Storage containers were properly labeled to reflect their contents and were in good physical condition.

b. Conclusion

No violations of NRC requirements were identified.

3. Effluent Control and Environmental Protection (IP 88045)

a. Inspection Scope and Observations

The inspectors interviewed licensee staff on program changes in the last year and determined that they were in compliance with the license application. The inspectors verified that there were no organizational changes in the last year. The inspectors reviewed the most recent internal audits and inspections performed by the licensee since the last inspection. These included Monthly Environmental Inspections and Environmental Safety Quarterly Audits since September 2011 and the Annual Compliance Review of Air Pollution Control Limits for 2011. The inspectors determined that the licensee performed these at the stated frequency, with the appropriate scope, documentation, and resolution of items.

The inspectors observed the quality control techniques utilized in the Environmental Laboratory and determined that the techniques used to verify the accuracy of measurements were in compliance with the license application. The inspectors verified that there were no changes in laboratory quality control techniques in the last year.

The inspectors observed the collection of sanitary sewer discharge water and determined that the activity was in accordance with approved procedures. The inspectors inspected the sampling station and determined that the equipment was operating properly. The inspectors observed the calibration technique for the flow proportional sampler and determined that it was properly calibrated. The inspectors reviewed the 2011 records for liquid released to the sanitary sewer and determined that activity concentrations were well below regulatory release limits.

The inspectors observed the collection of ambient air sampling filters and verified the monitoring locations. The inspectors determined that the equipment was properly functioning and that the flow rate meters were calibrated. The inspectors reviewed the

2011 and 2012 ambient air sampling results and verified that the concentrations were less than the investigation level specified in the license application. The inspectors accompanied licensee staff during the routine collection of stack samples and determined that the licensee performed this task as required by NFS-HS-B-18, "Collection and Analysis of NFS Stack Samples." The inspectors determined that the licensee was in compliance with both the approved procedures and license application. The inspectors questioned licensee staff collecting the filters regarding the calibration of equipment, the inspection of the sampling systems, and reporting the results. The staff was knowledgeable about the systems and the sampling activities. During walk downs, the inspectors verified that detectors were calibrated, valves were checked, and equipment was maintained as required by procedure. The inspectors also observed the analysis of the stack samples in the laboratory and verified the instruments were calibrated in accordance with the approved procedure. The inspectors verified that the laboratory analyzed the samples for gross alpha and gross beta as required by the license application.

The inspectors verified that the licensee was maintaining records and reports in accordance with 10 CFR 20. The inspectors reviewed the 2011 semi-annual effluent reports and determined that the licensee was in compliance with 10 CFR 70.59. The inspectors interviewed the Environmental Safety Unit Manager regarding the difference and determination of the values calculated for the initial submittal of the semi-annual effluent report on August 29, 2011, and the revision on February 21, 2012. The Environmental Safety Unit Manager and his staff explained the details associated with the calculational error. The inspectors noted that the overall changes were minimal with no impact of health and safety to the public. The inspectors reviewed both reports and verified the changes were adequate.

The inspectors reviewed the 2011 and 2012 environmental sampling results for surface water, sediment, soil, vegetation, and sludge samples. The inspectors verified that sampling was performed at the appropriate frequency and that the samples were less than the action level required in the license application. The inspectors reviewed monthly averages for WWTF liquid effluent releases for 2011 and 2012, and determined that the releases were below the action level in the license application.

The inspectors observed the weekly groundwater monitoring well sampling, including the calibration of the instruments, the preparation and preservation of samples, the nuclear material control paperwork and records, and the collection of the samples. In addition, the inspectors observed the stabilization of the readings in the field, the filling of the bottles and replicate samples, the preparation of the chain-of-custody seals, and the paperwork to accompany the samples to the laboratories. The inspectors determined the sampling of the groundwater monitoring wells was conducted in accordance with the licensee's approved procedure.

The inspectors reviewed the 2011 and 2012 groundwater sampling results for the groundwater monitoring wells required by the license application. The inspectors noted that one of the ten groundwater monitoring wells located along the perimeter of the property boundary exceeded the gross alpha investigation level specified in the license application. The licensee is required to perform specific isotopic analysis of groundwater samples exceeding investigation levels. The inspectors discussed the elevated gross alpha concentration with the licensee and determined that the licensee was proactively investigating the source and extent of the groundwater contamination. The



inspectors noted that the licensee had increased the groundwater sampling frequency of the affected groundwater monitoring well as a precautionary measure. The licensee briefed the inspectors on their efforts to implement additional measures to characterize the groundwater in the area of the affected well. Uranium concentrations were noted to be less than 10 CFR 20 liquid effluent release limits.

The inspectors reviewed the public dose assessment and determined that the total dose to the individual likely to receive the highest dose from the licensed operation did not exceed regulatory dose limits to members of the public for 2011. The inspectors reviewed the airborne portion of the public dose assessment and verified that result was in compliance with the As Low As Reasonably Achievable (ALARA) constraint required by 10 CFR 20.1101(d).

The inspectors reviewed a sample of corrective action items (problems and investigations) entered into the Problem Identification, Resolution, and Correction System (PIRCS) since the last inspection. The inspectors focused on the licensee's review of two stack samples that exceeded the licensee's action limit. The inspectors noted that neither of these cases exceeded regulatory effluent release limits. The inspectors verified that the licensee had identified these issues, characterized them at the appropriate threshold, and entered them into the PIRCS. Since these two were over the licensee's Seven Day count, they were entered into PIRCS as required by procedure. In addition, the inspectors observed PIRCS Screening meetings where the issues were discussed. The inspectors determined that the licensee took appropriate action to investigate the issues. The inspectors also reviewed procedure revisions since the last inspection and noted that none of the revisions had programmatic changes; all applicable procedure revisions were administrative in nature.

On August 22, the NRC began an independent sampling program for surface waters near the NFS site. The effort is described in Request for Technical Assistance (RFTA) 11-018. The main goal of the sampling program is to independently collect and analyze environmental surface water samples and share the results with the public. The following sample locations are included in the program:

- Nolichucky River upstream
- Nolichucky River downstream
- Martin's Creek upstream
- Martin's Creek downstream

The above samples were collected by an NRC contractor, Oak Ridge Institute Science and Education (ORISE), with oversight provided by the NRC resident inspectors. The Nolichucky River samples were obtained simultaneously with Tennessee Department of Environment and Conservation staff and the NFS environmental sampling technician. The independent Martin's Creek samples were obtained simultaneously with just NFS. As described in the RFTA, ORISE will independently analyze the samples for gross alpha and gross beta activity at their laboratory in Oak Ridge, TN and provide the results to the NRC. The NRC Region II inspectors will evaluate the results and provide their conclusions in the 4<sup>th</sup> quarter resident report (2012-005). This sampling activity will continue through 2014, on a quarterly basis, and be documented in the quarterly NRC integrated inspection reports.

b. Conclusion

No violations of NRC requirements were identified.

4. Radiation Protection Quarterly (IP 88135)

a. Inspection Scope and Observations

During tours of the production areas, inspectors observed radiation protection controls and practices implemented during various plant activities including the proper use of personnel monitoring equipment, required protective clothing, and frisking methods for detecting radioactive contamination on individuals exiting contamination controlled areas.

The inspectors reviewed the licensee leak test results for sealed sources for 2011 and 2012. The inspectors determined that the uranium sources were of an exempt quantity. The inspectors noted that the licensee maintained plutonium sources which were electroplated and not sealed. The inspectors determined that the license application requirement for leak testing of sealed sources was not applicable to the electroplated sources. The inspectors determined that the licensee was in compliance with the license application.

The inspectors noted that plant workers properly wore dosimetry and used protective clothing in accordance with applicable Radiation Work Permits (RWPs). The inspectors also noted that radiation area postings complied with plant procedures and included radiation maps with up-to-date radiation levels. The inspectors monitored the operation of radiation protection instruments and reviewed the calibration due dates of those instruments. The inspectors reviewed RWPs associated with the following safety work permits (SWPs):

- July 10, 2012, inspectors performed a review of a general SWP #12-39-029, repair/replace Building 301 column dissolver pump 4A02.
- July 20, 2012, inspectors performed a review of a specific SWP #14930 which relocated de-ionized water overflow drain lines on the BPF U-Oxide dissolvers.
- August 7, 2012, inspectors performed a review of a general SWP #12-39-038, repair/replace PE-4A02/piping on B Dissolver, Building 301.

b. Conclusion

No findings of significance were identified.

**C. Facility Support**

1. Emergency Preparedness (IP 88050)

a. Inspection Scope and Observations

Through select interviews of staff and a review of records, the inspectors determined that changes made to the Emergency Plan (EP) or within the facility were properly coordinated within the emergency preparedness program. The inspectors reviewed several procedures that had been revised since the last emergency preparedness

inspection and determined that the changes were in compliance with the EP. The inspectors also reviewed the licensee's emergency call list and verified that the list was current.

The inspectors reviewed training records and interviewed licensee staff regarding emergency preparedness training completed since the last emergency preparedness inspection. The inspectors determined that training was conducted in accordance with the EP. The inspectors interviewed the most recently qualified Emergency Director (ED) regarding his responsibilities related to this position. The interview included a mock table-top emergency scenario, mitigation actions, decision making and response measures. The inspectors also verified that the training provided by the licensee met the performance objectives required by the EP.

The inspectors reviewed the current memorandums of understanding (MOUs) in place with off-site support agencies and verified that that the agreements were up-to-date. The inspectors interviewed various off-site support agency representatives, including personnel from the Erwin Fire Department, Medic One EMS and Johnson City Medical Center Hospital. The inspectors determined that these personnel understood the written agreements. The inspectors also verified via interviews of off-site personnel and records reviewed that the licensee invited the off-site support agencies for training as required by the EP. The inspectors concluded that the training provided to off-site support personnel was understood and routinely included participation in the licensee's quarterly drills. The inspectors performed an independent communication test with the NRC Emergency Operations Center and verified that the licensee conducted communications testing with the off-site organizations at the required frequency as outlined by the EP and Emergency Plan Implementing Procedures (EPIPs).

The inspectors observed the storage of emergency equipment in the primary, alternate and off-site Emergency Control Centers (ECCs), including several remote, on-site storage locations. During those observations, the inspectors verified that inventory levels were maintained as required. The inspectors also verified that the primary and alternate ECCs were readily accessible and maintained the appropriate amount of communication equipment. The inspectors reviewed the accountability procedure and verified that assembly points were present and accessible for means of performing accountability and mustering during an evacuation. The inspectors also reviewed the control, distribution, and maintenance of the site's pre-fire plan, EP, and EPIP.

The inspectors reviewed the licensee's internal, independent audit of the emergency preparedness program conducted since the last inspection and verified that a system was in place for adequately tracking and resolving audit findings.

#### Failure to Implement Requirements of the Emergency Plan

*Introduction:* An NRC identified, Severity Level IV violation of the NFS license was noted during the inspection of the licensee's EP and EPIPs. The violation was a result of a failure to implement requirements of the NFS license Section 8.2, "Implementing Procedure," which mandates that the requirements of the EP be implemented through approved written procedures maintained by NFS. Section 9.2 of NFS' Emergency Plan, "Plant Restoration," requires the preparation and development of procedures "intended

for recovery operations to return the plant to a state of emergency preparedness before normal operations commence” following an emergency. The inspectors noted that NFS failed to develop and approve these written procedures.

*Description:* During a review of changes to the NFS EP and EIPs, the inspectors noted that NFS did not have the post-accident procedures that addressed plant personnel activities to recover and restore the plant prior to recommencing normal operations. In the NFS license application, the licensee committed to implementing requirements of the EP through approved and written procedures. Recovery and plant restoration are an integral part of an EP as required by 10 CFR Part 70.22(i)(3)(xi), “Safe Shutdown,” which states in part that EPs include a description of the means of restoring the facility to a safe condition after an accident.

Chapter 9, “Recovery and Plant Restoration,” of the NFS EP conveys expectations for both re-entry and plant restoration including key attributes of actions that need to occur such as the utilization of data to determine actions necessary to reduce ongoing releases and prevention of further occurrences, requirements for development of certain procedures, and the intent of recovery operations.

During an interview with the licensee’s primary and fully qualified ED, it was evident that the ED was not familiar with all the expectations and responsibilities detailed in chapter 9 of the NFS EP. The ED did appear familiar with the materials he would utilize when responding to an emergency situation, which he noted would include the EP, EIPs, and the ED checklist. However, no previously developed procedures addressing the recovery and restoration process as outlined in chapter 9 of the EP existed.

*Analysis:* Failure to implement requirements of chapter 9, of the NFS EP, “Recovery and Plant Restoration,” Revision (Rev.) 16, through approved written procedures is a violation of NRC requirements. This issue is more than minor because the licensee failed to implement one of the emergency plan requirements identified in 10 CFR Part 70.22(i)(3)(xi), “Safe Shutdown.” The inspectors evaluated this issue in accordance with the enforcement policy and the enforcement manual and noted that the violation is of very low safety significance because there was no actual impact on safety nor impact on protection of the workers, public, or environment.

The Enforcement Policy Section 6.2.d.7 addresses Severity Level IV (very low safety significance) violations as a licensee’s failure to meet or implement any emergency requirement not directly related to assessment and notification. The inspectors concluded that given an actual event, NFS had the knowledge and capability to implement recovery and restoration actions. However, the overall implementation of the emergency plan would be degraded due to the lack of specific pre-planned procedural guidance for recovery and restoration which could lead to unnecessary delays and oversights.

*Enforcement:* Section 8.2 of the License Application requires that the requirements of the EP are implemented through approved written procedures. NFS’ Emergency Plan section 9.2, “Plant Restoration,” states that a procedure for decontamination and repair of affected plant areas is prepared, that a procedure for corrective actions for on-site contamination outside the work areas is also developed, and that these procedures include provisions for checking and restoring to normal operation all criticality alarms, effluent and area monitors, and emergency supplies used during the emergency. It goes

on to say that “the intent is for recovery operations to return the plant to a state of emergency preparedness before normal operations commence.” Contrary to the above, the licensee failed to create and implement procedures to address post accident recovery and restoration of the plant prior to commencement of normal operations. There was no actual impact on safety. Additionally there was no actual impact to the protection of the workers, public, or environment. The licensee entered this issue into the CAP as PIRCS item #36085.

In accordance with the NRC Enforcement Policy, violations that are less serious, but are of more than minor concern, and that resulted in no or relatively inappreciable potential safety or security consequences are characterized as Severity Level IV violations. The failure to establish a specific recovery and plant restoration procedure(s) is a Severity Level IV violation (VIO) of NRC requirements and will be tracked as VIO 70-143/2012-004-02, “Failure to Implement Requirements of the Emergency Plan.”

b. Conclusion

One Severity Level IV violation of NRC requirements was identified.

2. Permanent Plant Modifications (IP 88070)

a. Inspection Scope and Observations

The inspectors reviewed the Commercial Development Line Receipt Calciner (also known as the Reliable Fuel Supply Calciner) and the BPF U-Oxide bag filter enclosure modification packages for accuracy and compliance against site procedures. Regarding the U-Oxide bag filter enclosure, this modification was performed to alleviate overflow spills that were discussed in NRC Inspection Report 70-143/2012-003. The inspectors interviewed staff engineering personnel, reviewed test paperwork, and verified that applicable post maintenance installation and testing requirements were adequately identified and performed prior to implementation of these permanent plant modification design packages. Completed modifications were adequately reviewed prior to implementation and before returning affected equipment to service or placing new equipment into operation.

The inspectors performed walk-downs of the selected modifications and validated that configuration was maintained in accordance with plant procedures. The inspectors verified that the licensee addressed baseline design criteria stipulated in 10 CFR 70.64 in the designs of permanent plant modifications. The inspectors also verified that new modifications were installed in accordance with approved engineering drawings.

The inspectors verified that the licensee’s work control program had provisions to ensure the adequacy of pre-job planning and preparation of permanent plant modification design packages. The configuration management system had adequate provisions to ensure that permanent plant modifications did not degrade the performance capabilities of IROFS or other safety controls that are part of the safety design basis.

The inspectors verified that the licensee addressed the impacts of modifications to the ISA, ISA Summary, and other safety program information developed in accordance with 10 CFR 70.62.

The inspectors reviewed the licensee's PIRCS and verified that issues relating to the preparation and installation of permanent plant modifications were entered into the corrective action program and that the entries that had been made were adequate.

b. Conclusion

No findings of significance were identified.

3. CAP Review (IP 88135)

a. Inspection Scope and Observations

The inspectors reviewed NFS's CAP to ensure that items adverse to safety were being identified and tracked to closure. The inspectors also performed frequent screenings of items entered into the CAP to aid in the identification of repetitive equipment failures or specific human performance issues for follow-up. Specifically, the inspectors reviewed all PIRCS entered during the inspection period.

b. Conclusion

No findings of significance were identified.

**D. Special Topics**

1. Follow-up on Previously Identified Issues

a. VIO 07000143/2012-002-01: Failure to Provide Adequate Management Measures To Ensure Functionality of a Firewall IROFS in Building 302.

The inspectors reviewed the immediate corrective actions taken by the licensee to correct the missing fire wall penetration seal using applicable site procedures. The inspectors determined that the extent of condition review conducted by the licensee adequately addressed similar conditions throughout the facility. This item is considered closed.

2. Event Follow-up

None

**E. Exit Meeting**

The inspection scope and results were presented to members of the licensee's staff at various meetings throughout the inspection period and were summarized on October 5 to Ms. C. Reed, Operations Director, and members of the NFS staff. No dissenting comments were received from the licensee. Proprietary information was discussed but not included in the report.

## SUPPLEMENTARY INFORMATION

### **1. KEY POINTS OF CONTACT**

| <u>Name</u>    | <u>Title</u>   |
|----------------|--|
| S. Barron      | Emergency Preparedness Coordinator                           |
| T. Coates      | E&I Engineering Section Manager                              |
| B. Cooper      | Industrial Safety Manager                                    |
| R. Dailey      | Engineering Director   |
| R. Droke       | Senior Regulatory Advisor                                    |
| M. Elliott     | Quality, Safety, & Safeguards Director                       |
| J. Henry       | President  |
| R. Holly       | Environmental Safety Unit Manager                            |
| M. Lee         | Licensing Specialist   |
| B. McKeehan    | Transportation & Waste Management Department Manager         |
| M. McKinnon    | Operations Section Manager                                   |
| M. Moore       | Environmental Protection & Industrial Safety Section Manager |
| C.S. Morie     | Decommissioning Environmental Unit Manager                   |
| C. Reed        | Operations Director  |
| R. Shackelford | Nuclear Safety & Licensing Section Manager                   |
| J. Wheeler     | Licensing & ISA Manager                                      |

### **2. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

#### Opened

70-143/2012-004-02      NOV      Failure to Implement Requirements of the Emergency Plan

#### Opened & Closed

70-143/2012-004-01      NCV      Failure to Ensure Operability of an Administrative IROFS

#### Closed

70-143/2012-002-01      VIO      Failure to Provide Adequate Management Measures To Ensure Functionality of a Firewall IROFS in Building 302

### **3. INSPECTION PROCEDURES USED**

|       |  |
|-------|--|
| 86740 | Transportation   |
| 88035 | Radioactive Waste Management                                     |
| 88045 | Effluent Control and Environmental Protection                    |
| 88050 | Emergency Preparedness   |
| 88070 | Permanent Plant Modifications                                    |
| 88135 | Resident Inspection Program For Category I Fuel Cycle Facilities |

### **4. DOCUMENTS REVIEWED**

#### Procedures:

ENG-HTG-024, Preparation of Plans for IQ/OQ/PQ Testing and Validation of Equipment and Systems, Rev. 1, dated July 13, 2012

EP-01, Standard Operational Guide for Evaluation of Unusual Incidents, Rev. 3

NFS-ACC-032, Rev. 19, Building 310 Storage Procedure

NFS-ACC-033, Rev. 37, Shipping Procedure for Nuclear Material  
 NFS-ACC-104, Rev. 8, Procedure for the Operation of the Versatile Automated Gamma Assay System (VAGAS)  
 NFS-ACC-0118, Rev. 4, Operation of ANTECH Segmented Gamma Scan System  
 NFS-CAP-009, NFS Corrective Action Program (CAP), Rev. 0  
 NFS-CL-19, Rev. 17, Nuclear Criticality Safety Buildings 100 and 310  
 NFS-CM-004, NFS Change Control Process, Rev.11, dated July 18, 2012  
 NFS-CM-005, NFS Change Control Board (CCB), Rev. 4, dated May 2, 2011  
 NFS-GH-027, Rev. 010, Impairments To Fire Protection Systems  
 NFS-GH-44, Evaluation and Implementation of Internally Authorized Changes (IACs)", Rev.12, dated August 15, 2012  
 NFS-GH-901, Configuration Management Program, Rev.15, dated January 10, 2011  
 NFS-GH-903, Emergency Plan, Rev. 16  
 NFS-GH-922, NFS Problem Identification, Resolution, and Correction System (PIRCS), Rev. 12  
 NFS-HS-A-24, Inspection of Emergency Supplies, Rev. 10  
 NFS-HS-A-54, Effluent Control and Environmental Monitoring Action Levels and Minimum Detectable Concentration Requirements, Rev. 9  
 NFS-HS-A-67, Documenting the Safety & Regulatory Review of Facility Change, Rev. 9  
 NFS-HS-A-68, ISA Risk Assessment Procedure, Rev. 5, dated April 16, 2012  
 NFS-HS-A-71, Pre-Fire Plan Administration, Rev. 3  
 NFS-HS-A-84, Rev. 3, Operation of the Downblending In-Line Monitoring System  
 NFS-HS-A-85, Rev. 0, Calibration of the ANTECH SGSS  
 NFS-HS-A-86, Rev. 2, Operation of the Process Discard In-Line Monitoring System (ILMS)  
 NFS-HS-B-16, Routine Sampling of Sanitary Sewer and Groundwater Treatment Facility Effluent, Rev. 29  
 NFS-HS-B-18, Collection and Analysis of NFS Stack Samples, Rev. 20  
 NFS-HS-B-40, Inspecting Emergency Equipment and Supplies, Rev. 24  
 NFS-HS-B-41, Groundwater Monitoring  
 NFS-HS-B-73, Analysis of Environmental Liquid and Environmental Air Samples, Rev. 8  
 NFS-HS-B-76, Sample Chain-of-Custody, Rev. 2  
 NFS-HS-E-02, Rev. 038, Emergency Criticality Evacuation  
 NFS-HS-E03, Emergency Response Organization, Rev. 24  
 NFS-HS-E-04, Fire Reporting and Response, Rev. 33  
 NFS-HS-E-07, On-Site Radiological Emergency Assessment, Rev. 27  
 NFS-HS-E-08, Off-Site Radiological Emergency Assessment, Rev. 23  
 NGF-HS-E-10, Emergency Communications, Rev. 25  
 NFS-WST-007, Rev. 4, Classification of Radioactive Material Shipments  
 NFS-WST-019, Rev. 8, Quality Assurance Program for the NNSS  
 NFS-WST-021, Rev. 6, NFS Waste Characterization Implementation Plan  
 NFS-WST-031, Rev. 3, Waste Packaging for Disposal Inside MAA  
 SOP-335A, Rev. 13, General Requirements for Waste Handling/Packaging  
 SOP-335J, Rev. 10, Waste Packaging for NNSS

PIRCS Review:

All PIRCS #35279 through #36490 (July through September 2012 Resident review)  
 PIRCS #35262, Breaker found locked on the "on" position  
 PIRCS 35712, Comments Identified by NRC during IP 88045, dated August 3, 2012  
 PIRCS 32570, 33228, 34505, 34881, 35409, 35487, 35523, 33228, 32283  
 PIRCS 36085, Documented during IP 88050 inspection, dated August 23, 2012  
 PIRCS 36091, Documented during IP 88050 inspection, dated August 23, 2012



Other Documents:

DWG 013-M4012-D

21T-12-0476, Quarterly Assessment of Radioactive Liquid and Gaseous Effluent, Q4 2011

21G-12-0032, Biannual Effluent Monitoring Report, January through June 2011

21G-12-0033, Biannual Effluent Monitoring Report, July through December 2011

Radioactivity Concentration in Effluent Air, Report from June 15, 2012 to July 26, 2012

FWP 160154, Column Support Welds

LOA-MISC-12-030, Authorization To Deviate From NFS-HE-E-04

LOA-2187S-024, Process Line Disconnection/Reconnection

SWP 1239029, Bldg 301 Column Dissolvers, Repair/replace pump 4A02

WR 202622, Bldg 301 Column Dissolvers, Replace Pump AD-4A02

WR 203504, Replace leaking flex hose

WR 203503, Remove piping and unclog Dissolver B

Modification Package: IAC-770, "Processing of Material from 301-FURNCOV-07C00 And Skull Oxides in 333 Column Dissolvers"

Process Hazards Analysis (PHA) for the 333 U-Oxide Dissolver Modifications

Letter of Authorization (LOA) for Compensatory Measures for IROFS BUM-36, -37, -38, -39, dated March 23, 2012

Level (Limit) Switch Post Maintenance Test

Test Report BFP Bag Filter Enclosure, BNL-11-003, 06/28/2011

Corrective Action Report, "Configuration Management (Management Measures) – Quality Assurance Audit QA-10-15"

ECR-2011 1209 &amp; 2011 1209-01, "333-ENCLOS-3F04 – Drain Modifications" (Install additional Drain Valves on Gag Filter Drawings)

ECR-2012 0794, "Post Maintenance Testing (PMT)/System Restoration Form," WR# 200754, dated July 21, 2012

ECR-2011 1209 &amp; 2012 0505, "IROFS 333-U Oxide", Rev. 27, dated April 28, 2012

P&amp;IDs: "BPF Bag Filter P&amp;ID 3F01 &amp; 3F02", 333-F0469-D, Revs. D, D-redline, &amp; G "BPF U-Oxide Dissolution P&amp;ID, Sheets 1 &amp; 2", 333-F0401D

DOE/NV-325, Rev. 9, February 2012, Nevada National Security Site Waste Acceptance Criteria

306E HEU Waste Handling and Packaging Surveillance, dated June 28, 2012

Raffinate Treatment for NNSS Disposal Surveillance, dated January 25, 2012

Daily Nuclear Safety Inspection of 310 Warehouse forms

SRE Test, IROFS 333-UAlumn, N333XXXXFSL1K08

SRE Test, IROFS 333-UAlumn, N333XXXXFSL1K07

Conduct of Operations Restart Authorization L2, U-Aluminum Centrifuge 1F01

SOP-409 Section 8, U-Oxide Dissolution Standard Operating Procedure, Rev. 41, dated July 20, 2012

ERO Training Records - 2012

Emergency Facilities and Equipment Inventory Records: NFS-HS-A-24 Attachments A and C – dated September 2011, November 2011, January 2012, April 2012, July 2012

Emergency Facilities and Equipment Inventory Records: NFS-HS-B-40 Attachments A, D, E, and J – dated September 2011, November 2011, January 2012, April 2012, July 2012

Laboratory Report - Compressed Air/Gas Quality Testing, March 2012, June 2012, July 2012

2010 Emergency Preparedness Program Audit

2011 Emergency Preparedness Program Audit

2011 Annual ERO Refresher Training and Exams

ECD Training Presentation 2012

SSRC Meeting Presentation, dated March 22, 2012  
 Current Call List, June 2012, Rev. 27  
 Emergency Drill/Exercise Packets dated September 2011, January 2012, November 2011  
 NFS Pre-Fire Plan, Rev. 3  
 Estimation of the Potential Dose to Specific Areas at NFS Resulting From an Accidental  
 Criticality, Rev. 0  
 Estimation of the Potential Dose to Exposed Workers and Off-Site Members of the Public  
 Resulting From an Accidental Criticality, Rev. 1

## 5. **ACRONYMS AND INITIALISMS**

|       |   |
|-------|---|
| ADAMS | NRC Document System                                       |
| ALARA | As Low As Reasonably Achievable                           |
| BLEU  | Blended Low Enriched Uranium                              |
| BPF   | BLEU Preparation Facility                                 |
| CAP   | Corrective Action Program                                 |
| CD    | Commercial Development                                    |
| CFR   | Code of Federal Regulations                               |
| ECC   | Emergency Control Center                                  |
| ED    | Emergency Director  |
| EP    | Emergency Plan  |
| EPIP  | Emergency Plan Implementing Procedure                     |
| ERO   | Emergency Response Organization                           |
| FMF   | Fuel Manufacturing Facility (Naval)                       |
| g/l   | gram per liter  |
| ILM   | In Line Monitoring  |
| IP    | Inspection Procedure                                      |
| IROFS | Item Relied On For Safety                                 |
| ISA   | Integrated Safety Analysis                                |
| MOU   | Memorandum of Understanding                               |
| NCV   | Non-Cited Violation                                       |
| NFS   | Nuclear Fuel Services, Inc.                               |
| NOV   | Notice of Violation                                       |
| NRC   | Nuclear Regulatory Commission                             |
| ORISE | Oak Ridge Institute for Science and Education             |
| PIRCS | Problem Identification, Resolution, and Correction System |
| QA    | Quality Assurance   |
| Rev.  | Revision  |
| RI    | Risk Index  |
| RWP   | Radiation Work Permit                                     |
| SCBA  | Self-Contained Breathing Apparatus                        |
| SNM   | Special Nuclear Material                                  |
| SWP   | Safety Work Permit  |
| SX    | Solvent Extraction  |
| U     | Uranium   |
| VIO   | Violation   |
| WD    | Waste Discharge   |
| WWTF  | Waste Water Treatment Facility                            |