



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

January 7, 2010

CAL No. 2-2010-001

Mr. David Kudsin  
President  
Nuclear Fuel Services, Inc  
P.O. Box 337, MS 123  
Erwin, TN 37650

SUBJECT: CONFIRMATORY ACTION LETTER

Dear Mr. Kudsin:

The purpose of this letter is to confirm the commitments made by Nuclear Fuel Services, Inc., in your letter of December 30, 2009, regarding actions you will take to resolve safety concerns before restarting specific processes in your Erwin, Tennessee, facility. These actions are intended to ensure that the root causes of a recent event in the Uranium-Aluminum line of the Blended Low Enriched Uranium (BLEU) Preparation Facility have been adequately evaluated and that appropriate corrective actions have been implemented for all potentially affected processes before you resume operations of those processes.

On October 13, 2009, Nuclear Fuels Services (NFS) experienced an unexpected exothermic reaction within the BLEU Preparation Facility. The elevated temperatures from the reaction created nitrogen compound gases within the associated process off-gas piping. An instrument located near the ceiling of the facility detected these gases and generated an alarm which resulted in the evacuation of employees from the affected area. Additionally, the elevated temperature of these gases caused portions of the off-gas piping to deform and sag in the nearby area. NFS personnel took action to shut down the system and as a result no personnel were injured and offsite environmental releases during the period associated with the event were within regulatory limits.

In response to the event, the NRC formed a Special Inspection Team which arrived onsite on October 19, 2009. The NRC upgraded its response to an Augmented Inspection Team following notification by NFS that an analysis of the specific type of material processed during the October 13, 2009, event revealed that the generation of the nitrogen compound gases could have resulted in high occupational consequences. The Augmented Inspection is ongoing.

Based on preliminary results of the Augmented Inspection and an interim review of NFS' overall safety performance, the NRC identified a number of concerns regarding NFS' ability to provide reasonable assurance of its ability to safely operate the Erwin facility. These concerns involve the adequacy of NFS' management oversight of facility process changes, perceived production pressures, lack of questioning attitude by workers and management and poor communications. In addition, the NRC identified concerns with the decisions made by NFS management, in both October and November 2009, to restart the Uranium Aluminum process lines without fully understanding the causes of the events and correcting the underlying problems that caused them.

Pursuant to a letter from NFS dated December 30, 2009 (NFS 21G-09-0208), and a discussion between NRC management and you on December 23 and 29, 2009, it is our understanding that you have taken (or will take) the following actions:

1. Suspend Special Nuclear Material processing operations associated with the Naval product line, the Uranium Aluminum and the Uranium Oxide lines of the BLEU Preparation Facility, and the Commercial Development line until you have completed the actions specified as "Actions Prior to Restart of Operations" and documented in the enclosure to your December 30, 2009, letter. (The commitments included in your December 30, 2009, letter are restated as an enclosure to this Confirmatory Action Letter.)
2. Complete the actions specified in the enclosure to your letter dated December 30, 2009, as "Actions Prior to Restart of Operations."
3. Provide the NRC sufficient time to inspect completion of "Actions Prior to Restart of Operation," consistent with our discussions with you on December 23 and 29, 2009.

As we discussed with you during the December 23, 2009, teleconference and as described in your December 30, 2009, letter, NFS may elect to complete commitments, including associated corrective actions and independent reviews and request NRC inspection of certain process lines in advance of completing actions for all process lines. In addition, please be advised that NRC oversight of the implementation of your commitments will include inspection as well as NRC management assessment of the inspection results. The NRC will provide the results of the inspection and the assessment, including prospective approvals to restart process lines, in writing.

In addition to the actions outlined in your letter as "Actions Prior to Restart of Operations," NFS also committed to undertake additional actions described as "Actions Post-Restart of Operations." These actions are also subject to NRC inspection and assessment; however, NRC inspection, assessment and approval of your implementation of those commitments ("Actions Post-Restart of Operations") are not required prior to restart of the affected process lines. During telephone calls on December 31, 2009, and January 4, 2010, you advised us of NFS' target completion dates for the "Actions Post-Restart of Operations." We have included those dates in the restatement of your commitments in the enclosure to this Confirmatory Action Letter.

Pursuant to Section 182 of the Atomic Energy Act, 42 U.S.C. 2232, you are required to:

1. Notify me immediately if your understanding differs from that set forth above;
2. Notify me if for any reason you cannot complete the actions within the specified schedule and advise me in writing of your modified schedule in advance of the change; and
3. Notify me in writing when you have completed the actions addressed in this Confirmatory Action Letter.

Issuance of this Confirmatory Action Letter does not preclude issuance of an order formalizing the above commitments or requiring other actions on the part of NFS; nor does it preclude the NRC from taking enforcement action for violations of NRC requirements that may have prompted the issuance of this letter. In addition, failure to take the actions addressed in this Confirmatory Action Letter may result in enforcement action.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and 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, your response 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.

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

Sincerely,

/RA by VMcree for/

Luis A. Reyes  
Regional Administrator

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

Enclosure: NFS Commitments

cc w/encl:  
Timothy Lindstrom  
Vice President, Operations  
Nuclear Fuel Services, Inc.  
Electronic Mail Distribution

David Ward, Director  
Safety and Regulatory Management  
Nuclear Fuel Services, Inc.  
Electronic Mail Distribution

Lawrence E. Nanney  
Director  
Tennessee Dept. of Environment & Conservation  
Electronic Mail Distribution

D. Kudsin

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January 7, 2010

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Sincerely,

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David Ward, Director  
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Lawrence E. Nanney  
Director  
Tennessee Dept. of Environment & Conservation  
Electronic Mail Distribution

Distribution w/encl: (See page 5)

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\* SEE PREVIOUS CONCURRENCE

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## **Actions Prior to Restart of Operations**

As discussed in its letter dated December 30, 2009, NFS will complete the following actions prior to restart of the Naval product line, BLEU Preparation Facility Uranium-Aluminum and Uranium-Oxide Processes, and the Commercial Development Line operations.

1. The restriction NFS management put in place following the Bowl Cleaning Station Incident prohibiting the processing of granular metallic "fines" in the Uranium-Aluminum process will be institutionalized.
2. NFS will institutionalize identified and necessary improvements to the change control process, which are currently delineated in a temporary procedure that expires in mid-January. Training on the process will be provided to appropriate operations, technical, oversight and management staff.
3. The incident investigation, including detailed causal analysis, of the Bowl Cleaning Station Incident will be completed.
4. The near-term corrective actions needed to address the causal factors identified by the investigation of the Bowl Cleaning Station Incident will be determined and implemented.
5. The extent of condition reviews of process area safety basis conducted after the Bowl Cleaning Station Incident will be expanded to include the BLEU Preparation Facility Uranium-Oxide Dissolution Process.
6. An extent of cause analysis for each causal factor will be completed and specific interim corrective actions will be identified and implemented as appropriate.
7. Each facility accident scenario involving nitrogen compound gas generation will be re-evaluated to ensure appropriate items relied on for safety (IROFS) have been identified and implemented to provide adequate protection and that management measures for those IROFS are sufficient to ensure these IROFS are available and reliable to perform their intended safety function when needed.
8. Following completion of restart actions, NFS will have an independent review conducted to verify implementation of the restart actions. Personnel participating in these reviews will have no responsibility for the conduct or oversight of NFS operations. Appropriately qualified independent personnel within the Babcock & Wilcox family of companies may participate in the review. NFS may elect to perform these reviews for individual process lines as appropriate actions are completed.
9. NFS will allow sufficient time for NRC to perform inspections of restart actions. The NRC will be provided with a two-week notice prior to the time NFS management would like for the NRC inspectors to arrive at the NFS site. NFS may elect to request these inspections for individual process lines as appropriate actions are completed.

Enclosure

10. Implement a Senior Engineering Watch (SEW), to provide additional technical coverage on the process floor. The SEW will have the sole duty of providing independent technical oversight of process operations to promote the identification, adjudication, and resolution of potential safety concerns. The SEW will functionally report to the Vice President of Operations. NFS will maintain this watch for a minimum period of 6-months after restart of all operations.
11. Implement an initiative to increase management presence and engagement on the process floor that will better enable open and timely communication of potential safety concerns. This initiative will be structured around a series of daily meetings held by management with processing personnel.
12. Develop updated programmatic guidance to provide specific criteria to invoke Corrective Action Review Board review of investigations, corrective actions and effectiveness reviews to help ensure appropriately broad investigations and effective corrective actions.
13. Revise and implement the procedure that requires processes, process parameters and process inputs be clearly defined prior to implementation. This program is designed to prevent changes such as a change in the composition and physical characteristics of the feed material (such as change in the aluminum form and concentration in the Uranium-Aluminum dross materials) that may result in abnormal occurrences during processing.
14. Conduct an independent review of NFS' investigation processes. This review will be conducted by a subject matter expert to establish a plan to implement enhancements necessary to ensure adequate breadth and depth of investigations.
15. Revise the procedure that provides guidance for preparation of set-point analysis documentation to enhance the basis of evaluation, specifically to provide guidelines for justifying the basis for critical parameters.

### **Actions Post-Restart of Operations**

In addition to the previous actions necessary to provide reasonable assurance that NFS operations can be restarted and operated safely, NFS management plans to implement the actions discussed below. These actions need not be completed prior to restart of the affected process lines.

1. Evaluate the cause(s) by June 15, 2010, and implement specific corrective actions for NFS' failure to complete the root cause analysis, extent of condition review and extent of cause review following the Bowl Cleaning Station Incident without significant prompting from the NRC. Corrective actions will be entered and tracked in the corrective action program.
2. Identify and evaluate the cause(s) of NFS' decision to propose restart of operations the week of November 30, 2009, prior to completion of the root cause investigation, extent of condition review by June 15, 2010, and implement appropriate corrective actions. Corrective actions will be entered and tracked in the corrective action program.

3. Identify and implement specific long-term corrective actions to address each of the causal factors that contributed to the Bowl Cleaning Station Incident by December 31, 2010.
4. Establish a Program Management Department with responsibility for managing day-to-day production schedule and cost priorities for all NFS contracts. This action will be complete by April 15, 2010.
5. Restructure the Safety & Regulatory Department to reduce the number of technical managers reporting directly to the Department Director. In addition, the Safety & Regulatory Department Director will report directly to the President of NFS. This action will be complete by April 15, 2010.
6. Develop training materials and lesson plans to train applicable NFS staff on the Bowl Cleaning Station Incident in order to institutionalize the lessons learned from this event by May 30, 2010.
7. Evaluate the technical oversight review process conducted by the Safety and Safeguards Review Council, including benchmarking against similar processes associated with other facilities by December 31, 2010, and implement any necessary enhancements. These actions will be entered and tracked in the corrective action program.
8. Evaluate the Integrated Safety Analysis program, including benchmarking against similar programs associated with other facilities by December 31, 2010, and implement any necessary enhancements. These actions will be entered and tracked in the corrective action program.