Global Nuclear Fuel

A Joint Venture of GE, Toshiba, & Hitachi

Global Nuclear Fuel – Americas, LLC
Castle Hayne Rd., Wilmington, NC 28401

August 18, 2010

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

Subject: 30-day Report of Event – Gad Slugger IROFS Degradation

References:
1) NRC License SNM-1097, Docket 70-1113
2) NRC Regulation 10CFR70.50
3) NRC Notice of Violation 70-1113/2010-002-01, 3/26/10
4) GNF-A Notice of Violation Response, 4/23/10
5) GNF-A Event Report 446168, 8/11/10

Dear Sir or Madam:

In accordance with 10CFR70.50(c)(2), the Global Nuclear Fuel – Americas L.L.C. (GNF-A) facility in Wilmington, North Carolina hereby submits the required written report for the August 11, 2010 event involving a loss of a criticality safety control in the Fuel Manufacturing Operation gadolinium powder process area in January 2010.

The applicable information required by 10CFR70.50(c)(1) was submitted by facsimile on August 11, 2010 and is included as Attachment 1.

GNF-A's initial review of the January 25th, 2010, gad slugger IROFS degradation determined the event was not reportable. However, during an inspection February 22-26, 2010, NRC evaluated the event and determined that during the period when the tube was misaligned, facility performance requirements were not met and a report to the NRC was required. GNF-A took several actions in response to the incident. The spilled powder was cleaned up with Radiation Protection support and the feed tube was repaired with a new clamp and verified sealed. An extent of condition review was conducted and identified no other issues. In addition, the following actions to prevent recurrence were completed:

- The incident was entered into GNF's Corrective Action Program. (completed 1/25/2010)
- A safety communication was issued and presented to relevant employees on all shifts (completed 2/16/2010)

- A Higher Level Critique/Root Cause analysis was conducted. The report was issued 3/12/2010.
- The Gad Slugger Operating Procedure (OP 1720.00) was modified to include additional verifications of the feed tube clamps. (completed 6/29/2010)

Additional information regarding the event was provided in our April 23, 2010 response to the notice of violation as shown in Attachment 2.

The NRC issued a notice of violation to GNF-A on March 26, 2010 (70-1113/2010-002-01) for failure to report the event pursuant to 10CFR70 Appendix A(b)(2).The event was reported retroactively on August 11, 2010 to satisfy this reporting requirement. As indicated in our 4/23/10 response (Reference 4), internal event reporting procedure (P/P-40-32) has been revised to provide additional guidance on 10 CFR 70, Appendix A reporting determinations when an IROFS is discovered in a failed or degraded state.

Additional information regarding the event was provided in our April 23, 2010 response to the notice of violation as shown in Attachment 2.

If additional information is needed regarding this event, please contact me at (910) 819-5950.

Sincerely,

Phillip D. Allen for

S.P. Murray, Manager
Licensing and Liabilities

Attachments 1-2

cc: SPM 10-033
NRC Region II Administrator, Atlanta, GA
M.T. Adams, HQ Washington, DC
R. Gibson, Region II, Atlanta, GA

Attachment 1 – Event Description

On January 25, 2010 during normal operation of a slugger press in the Fuel Manufacturing Building, a tube connecting the feed hood to the press became disconnected. After starting the vibrating feeder, an operator discovered the feed tube was slightly misaligned and some powder had spilled into the hood. The operator immediately used the emergency stop button and the equipment was shutdown. A total of 6.9 kg was removed from the hood. An investigation determined that a clamp on the feed tube came loose, allowing the tube to separate from the fit up device.

The two controlled parameters for criticality safety for this equipment are moderation and geometry and Items Relied on for Safety (IROFS) are established for both. When the tube became misaligned, one geometry related IROFS became unavailable to perform its intended safety function. Additional IROFS on geometry and moderation remained available to perform their intended safety functions and were not challenged. Therefore, this did not result in an unsafe condition.

GNF-A's initial review determined this event was not reportable. However, during an inspection February 22-26, 2010, NRC evaluated the event and determined that during the period when the tube was misaligned, one IROFS was not available to perform its intended safety function. Therefore, facility performance requirements were not met and a report to the NRC was required.

The NRC issued a notice of violation to GNF-A on March 26, 2010 (70-1113/2010-002-01) for failure to report the event pursuant to 10CFR70 Appendix A(b)(2). The event is now being reported retroactively to satisfy this reporting requirement.

S. P. Murray, Manager
Licensing and Liabilities
1430 8/11/10

Attachment 2 – April 23, 2010 NOV Response

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A Joint Venture of GE, Toshiba, & Hitachi

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(910) 819-5950, Fax (910) 362-5950

April 23, 2010

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Subject: Reply to Notice of Violation

Reference:
1) NRC License SNM-1097, Docket 70-1113
2) Letter, S. P. Murray to C. Cramer, NRC RII, dated March 12, 2010 "GNF-A GAD Slugger Feed Tube Event Information"
3) NRC Inspection Report, 70-1113/2010-002, dated March 26, 2010

Enclosed with this letter is Global Nuclear Fuel – Americas, LLC's (GNF-A) response to the Notice of Violation described in Reference 3. The violation was identified during an NRC inspection conducted at our licensed fuel fabrication facility February 22-26, 2010 by inspectors Lopez, Cramer, Foster, and Startz.

The NRC inspection report comments and suggestions are helpful to us in our continuing efforts to improve our programs, protect the health and safety of plant personnel, and ensure compliance with NRC regulations and licensed conditions.

Please contact me on (910) 819-5950 if you have any questions or would like to discuss this matter further.

Sincerely,

S. P. Murray, Manager
Licensing and Liabilities

Attachment

cc: SPM-10-017
Luis A. Reyes, NRC Regional Administrator, Region II Atlanta
Richard A. Gibson, NRC Region II Atlanta
Beverly Hall, Chief - Radiation Protection Section, NCDENR

The information provided below summarizes the Notice of Violation dated March 26, 2010 associated with NRC Inspection Report 70-1113/2010-002.

VIOLATION NO. 2010-002-01

A. 10 CFR 70, Appendix A section (b)(2) states, in part, that a report must be made to the NRC Operations Center within 24 hours of discovery, of the loss or degradation of items relied on for safety that results in failure to meet the performance requirement of 10 CFR 70.61.

10 CFR 70.61(b) states, in part, that engineered controls, administrative controls, or both shall be applied to the extent needed to reduce the likelihood of occurrence of the event so that, the event is highly unlikely or its consequences are less severe than those in paragraphs (b)(1)(4) of this section. Paragraph (b)(1) describes a high consequence event that result in an acute dose of 1 Sv (100 rem) or greater total effective dose equivalent.

Contrary to the above, on January 26, 2010, the licensee failed to report within 24 hours of discovery, a loss or degradation of an item relied on for safety that resulted in the failure to meet the performance requirement of 10 CFR 70.61(b). Specifically, a safe geometry gad slugger hood feed tube (IROFS 30206) failed to perform its intended safety function. This increased the likelihood of a high consequence accident scenario, "Loss of moderation and geometry control," from highly unlikely to unlikely, and therefore a report to the NRC Operations Center within 24 hours of discovery was required.

This is a Severity Level IV violation (Supplement VI).

GNF-A's Response to Violation:

1) The reason for the violation

Based on a review of the ISA and supporting documentation it was determined on January 25, 2010 that the event was not reportable. This was based on the fact that function of IROFS #30206 was to prevent a large accumulation (i.e., greater than a safe mass) of powder inside the hood. Since the amount of powder that spilled was less than a safe mass and IROFS #30207 remained available and reliable to perform its intended function, the event was initially determined to be non-reportable and the event was documented internally. This evaluation was documented and provided to NRC in Reference 2.

The event was re-assessed for reportability with consideration given to the NRC's assessment of the event provided in Inspection Report 2010-002. GNF-A understands NRC's position that the operator action taken to shutdown the process was not described as part of an IROFS and as a result may not be credited for compliance with the performance requirements. Had the operator not taken action after the degradation of the feed tube (IROFS #30206), a greater mass could have accumulated in the hood, although IROFS #30207 did remain available and reliable to perform its intended function.

This violation occurred due to the fact that credit was inappropriately taken for the operator's actions in assessing reportability when such actions had not specifically been declared either as part of IROFS #30206, or as an independent IROFS. In addition, internal reportability procedures do not clearly indicate whether operator actions, which are not specifically declared as IROFS, may be credited in assessing compliance with the performance requirements for reporting purposes. The corrective and preventive actions described below have been identified to prevent recurrence of this type of event, which resulted in failure to report per 10 CFR 70, Appendix A, Section (b)(2).

2) Short term corrective steps taken

Internal event reporting procedure (P/P-40-32) has been revised to provide additional guidance on 10 CFR 70, Appendix A reporting determinations when an IROFS is discovered in a failed or degraded state. The revision clarifies specific instructions on safety documentation to be reviewed, control or actions for which credit may be taken, and the actions necessary to assess compliance with Part 70 performance requirements.

3) Corrective steps taken to avoid future violations

Operator response to shut down the slugger as a part of the IROFS protecting against this accident sequence has been incorporated into internal procedures. This allows credit to be taken for the operator's actions as part of the IROFS, which assures a large powder accumulation does not accumulate in the hood due to a catastrophic loss of containment. *Scheduled completion date - 6/30/2010*

All passive IROFS descriptions will be reviewed to determine if additional operator actions need to be specified as part of an IROFS, or as an independent IROFS, so credit can be taken for operator response. *Scheduled completion date - 6/30/2010*

4) The date when full compliance will be achieved

Full compliance has been achieved. Additional preventive actions have been scheduled. The additional preventive actions have been entered in the GNF-A audit tracking system.

VIOLATION NO. 2010-002-03

B. Safety Condition No. S-1 of Special Nuclear Material License No.1097 requires that material be used in accordance with statements, representations, and conditions of the application dated June 5, 1997 and December 7, 1999; and supplements thereto.

Section 7.7.1 of the License Application states that areas where fire or explosion hazards are present, automatic detection equipment is installed.

Contrary to the above, as of February 26, 2010, the licensee failed to install automatic detection equipment in areas where fire or explosion hazards were present. Specifically, fire hazards (i.e. combustible materials) were present in the Process Technology Laboratory area and automatic detection equipment was not installed.

This is a Severity Level IV violation (Supplement VI).

GNF-A's Response to Violation:

1. The reason for the violation

Details on the date and time when the sprinklers in the Process Technology Lab (PTL) area were disconnected are unclear. The PTL area was used for testing and development of new technologies for the uranium fuel manufacturing from the late 1970s to early 1980s. Based on our investigation the sprinklers in this area were disconnected related to the installation to a new type of powder blender that has since been removed. One of the controls required for double contingency in this area is moderation and the area is designated as a Moderation Controlled Area (MCA). Because of this, the sprinklers were likely disconnected as a part of moderation control for criticality safety. This was

supported by a posting in the area with a requirement for nuclear safety approval prior to reconnecting the sprinkler system.

Primary Factor: Configuration Management - When the equipment was removed from the PTL area, the configuration management process did not address reconnecting the sprinkler lines prior to using the area for a staging area.

Contributing Factor: Audit and Inspections – The sprinkler lines coming through the wall into the PTL Lab were disconnected on the other side of the laboratory wall, which was not visible to personnel conducting audits or inspections in the PTL area.

2. Short term corrective steps taken

The sprinkler system in the PTL area has been reconnected. This action was completed on April 1, 2010

3. Corrective steps taken to avoid future violations

   a. Revise general area operating procedures to include instructions relating to combustible storage requirements in areas (additional clarifications to current combustible controls in place). *Scheduled completion date - 5/30/2010*

   b. Include, as part of annual nuclear safety training, combustible controls and requirements for all required personnel. *Scheduled completion date - 6/30/2010*

   c. A Fire Protection Engineer has been contracted to perform walk downs of the sprinkler systems and to identify deficiencies. Appropriate corrective actions will be taken for any identified deficiencies. *Scheduled completion date - 6/30/2010*

   d. Assess configuration management program to ensure fire protection is adequately covered in the scope of inspections. *Scheduled completion date - 6/30/2010*

   e. Assess audit and inspection methods to ensure fire protection measures are adequate. *Scheduled completion date - 6/30/2010*

4. Full compliance has been achieved. Additional preventive actions have been scheduled. The corrective and preventive actions have been entered in the GNF-A audit tracking system.