Global Nuclear Fuel
A Joint Venture of GE, Toshiba, & Hitachi

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

July 20, 2007

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

Subject: 30-day Report of Event – Powder Additive IROFS Failure

References: 1) NRC License SNM-1097, Docket 70-1113
2) NRC Regulation 10CFR70.50

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 June 21, 2007 determination involving a failure of an Item Relied On For Safety (IROFS) in the Fuel Manufacturing Facility. The event was reported within 1 hour by telephone on June 21, 2007 by Mr. Phill Ollis, Acting Manager, Licensing and Liabilities to the NRC Operations Center in accordance with 10CFR70.50 Appendix A(a)(5).

The applicable information required by 10CFR70.50(c)(1) was submitted by facsimile on June 21, 2007 and is included as Attachment 1.

Additional information is provided as follows:

Event Details and Safety Significance

Powder additives are used as a part of the dry conversion process (DCP) in the fuel manufacturing operation (FMO) to improve powder flow and pellet production characteristics. Addition of these additives to the DCP powder blending process is strictly controlled by a combination of multiple passive and active engineered controls as well as simple administrative controls.

A powder sample on June 18, 2007 indicated the presence of elevated carbon content in a routine powder blend. The elevated carbon result indicated that an improper

amount of one particular type of additive was present in the blend. Additional testing results received on June 20, 2007 also indicated an elevated amount of one type of additive was present.

Despite the addition of an incorrect additive type, other controls maintained the equivalent water moderation of the powder to within both the uniform and non-uniform moderation limits for the process. The as-found condition was bounded by the existing criticality safety analysis of the operation.

Immediate Corrective Actions

Upon discovery, the blending operation in DCP was shutdown until a full investigation of the event was performed and the causes determined. A root cause analysis team was formed to determine the cause of the error.

Involved operators were interviewed to determine how the incorrect additive could have been placed in the blender. Stand-downs were conducted with the DCP operators to communicate the error and the significance of the error.

A review of the existing criticality safety evaluation confirmed that the improper amounts of additives present did not violate either the uniform or non-uniform moderation safety limits for the process.

Through additional sampling and analyses, it was determined that no additional in process DCP powder blends had improper amounts of additives.

Probable Cause of Event

At 16:30 on June 21, 2007, the investigation determined that an operator improperly placed a type of additive with a higher carbon content into the additive bottle for discharge into the DCP line #3 blender during a blend-only operation.

One of the two items relied on for safety (IROFS) to prevent excessive additive addition to the blender did not prevent the incorrect type of additive from being used under all scenarios. As a result, this IROFS was deemed to have failed placing the system in a 1-hour reportable condition per 10CFR70.50 Appendix A.

Near-term Corrective Actions Taken

1. Prior to restart of blender operations a one over one verification of additive type was implemented to ensure that correct additives were used. In addition, the required IROFS were re-established in accordance with the safety analysis.

2. An additional sampling step was added following the blending process to check for elevated carbon levels to ensure if this issue was repeated it would be detected immediately.
3. The blending process IROFS was updated to properly reflect the criticality safety requirements.

Long-term (Preventative) Corrective Actions

1. Implement additional augmented administrative controls for manual additive addition processes. Due: September 3, 2007
2. Perform a detailed review of all powder additive locations to ensure there are no other opportunities for cross contamination. Due: September 30, 2007.
3. Perform an engineering evaluation to relocate additive hoods in DCP to minimize potential for incorrect additive use. Due September 30, 2007

If additional information is needed regarding the event, please contact me on (910) 675-5950.

Sincerely,

Original Signature On File

S.P. Murray,
Manager, Licensing and Liabilities COE

Attachment

cc: SPM 07-033
Dr. W. Travers, Region II Administrator, Atlanta, GA
N. Baker, HQ Washington, DC
O. Lopez, Region II, Atlanta, GA

Attachment 1 – Event Notification Description

DCP Powder Additive IROFS Failure

During a review of the Integrated Safety Analysis for an additive addition step, it was determined that one of the Items Relied on for Safety (IROFS), as documented in the ISA Summary, was not reliable. This report is submitted for administrative reporting pursuant to 10CFR70.50 Appendix A (a)(5). At no time did an unsafe condition exist. The existing criticality safety analysis of the operation bounded the situation, was effective and was not challenged.

The IROFS described for the additive sequence did not prevent incorrect type of additive from being added under all scenarios.

All affected equipment is in the process of being shut down pending revision of the ISA IROFS for this additive addition process.

Phill Ollis,
Acting Manager, Licensing and Liabilities COE
17:20PM, 6/21/07