



**Global Nuclear Fuel**

A Joint Venture of GE, Toshiba, & Hitachi

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

November 9, 2007

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

Subject: Reply to Notice of Violations

References: 1) NRC License SNM-1097, Docket 70-1113  
2) NRC Inspection Report 70-1113/2007-203, October 12, 2007

Global Nuclear Fuel – Americas, L.L.C.'s (GNF-A) facility in Wilmington, North Carolina, hereby responds to the two Notices of Violation dated October 12, 2007. The violations were identified during an NRC inspection conducted from September 10 thru September 14, 2007 at our licensed fuel fabrication facility by inspector D. Morey.

Our replies to the Notice of Violations are provided as an attachment to this letter.

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

Please contact me on (910) 675-5950 if you have any questions or would like to discuss this matter further.

Sincerely,

***ORIGINAL SIGNATURE ON FILE***

S.P. Murray, Manager  
Licensing and Liabilities COE

Attachment

cc: SPM 07-048  
C. Carpenter, NRC OE, Washington, DC  
Dr. W. Travers, NRC Region II, Atlanta, GA  
D. Hartland, NRC Region II, Atlanta, GA  
O. Lopez, NRC Region II, Atlanta, GA  
N. Baker, NRC NMSS, Washington, DC  
B. Hall, NCDENR Raleigh, NC

## ATTACHMENT

The information given below refers to the two Notice of Violations dated October 12, 2007 relative to NRC Inspection Report 70-1113/2007-203.

*During an NRC inspection from September 10-14, 2007, violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:*

*Safety Condition No. 1 of License No. SNM-1097 requires that material be used in accordance with the statements, representations, and conditions in the license application dated June 5, and December 7, 1999, and supplements thereto.*

### **VIOLATION NO. 2007-203-02**

*License section 6.2.5.5 requires, in part, that for fixed neutron absorbers used as part of a geometry control, (1) the composition of the absorber are measured and documented prior to first use, and (2) periodic verification of the integrity of the neutron absorber system subsequent to installation is performed on a scheduled basis approved by the criticality safety function.*

*Contrary to the above, on and before May 11, 2007, removable polyvinylchloride piping was used in the gadolinia slugger press as part of a geometry control and was not treated as a fixed neutron absorber. Specifically, the composition of the polyvinylchloride was not verified prior to first use and periodic integrity verification of the polyvinylchloride piping was not performed on a scheduled basis subsequent to installation.*

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

### **GNF-A's Response to the Violation**

#### **Reason for the Violation**

SNM 1097 license condition 6.2.5.5 was written and has been consistently applied at our facility for over 25 years for fixed neutron absorber materials installed as an integral part of the facility equipment or fuel component consistent with ANSI/ANS Guide 8.21 – 1995 “Use of Fixed Neutron Absorbers in Nuclear Fuel Facilities Outside Reactors”.

Absorbers installed for this purpose at our facility are typically constructed of materials with high neutron absorption properties such as boron or cadmium and are permanently fixed in place as part of the structure or component.

As noted in the inspection report, the polyvinylchloride (CPVC) piping had been installed in the lower regions of a gadolinia slugger press as part of a geometry control. Since the installed piping was removable, at the time it was installed it was not considered as a fixed absorber. This is supported by the fact that the CPVC pipes were modeled in the

criticality analysis as PVC pipes with an additional 20% reduction in the chlorine content to conservatively account for manufacturing tolerance uncertainties. The neutron absorption credit was taken because chlorine has a relatively large thermal neutron cross-section.

In addition, prior to first use the chlorine content of the installed CPVC pipe was verified and documented as required by the criticality safety function; however, a periodic verification of the piping subsequent to installation was not established or performed.

### **Corrective Steps Taken and the Results Achieved**

1. The slugger press had been shutdown for an annual uranium physical inventory the week of May 7, 2007. The unit remained shutdown until a full accounting of the required configuration was performed. No other deficiencies were identified.
2. An investigation indicated the polyvinylchloride piping was last removed in June 2004 during an equipment disassembly and cleanout. It was concluded that during re-assembly the tubes were improperly packed and the final configuration did not fully fill the cavity volume as required. The investigation also determined that the reassembly process for this equipment was inadequate to ensure the tubes met the required configuration.

### **Corrective Steps that have been Taken to Avoid Further Violations**

1. A criticality safety evaluation was performed to demonstrate safety for the improper tube configuration including the amount of uranium accumulated since the last cleanout.
2. The equipment nuclear safety requirements have been modified to more clearly define the required CPVC configuration in the lower cavity region.
3. The annual periodic maintenance (PM) for the press has been updated to include a verification by the criticality safety function that the tubes are properly installed prior to startup.
4. In addition a review of other criticality safety analyses that credit neutron absorbers is underway to ensure the required control parameters for neutron absorbers are being met. Due: January 30, 2008

### **Date when Full Compliance will be Achieved**

Full compliance will be achieved with the completion of the above corrective action.

**VIOLATION NO. 2007-203-03**

*Section 4.1 of the license application states, in part, that the GNF is committed to establish and maintain the controls identified in the integrated safety analysis (ISA) and to provide an appropriate level of assurance to ensure their reliability. The ISA will be maintained current through the configuration management program process.*

*Section 4.10 of the license application states, in part, that the ISA is maintained current through a configuration management program that ensures that: (1) facility changes receive adequate integrated safety review, and (2) changes are adequately documented.*

*Contrary to the above, on and before August 1, 2007, the licensee failed to ensure that criticality controls in the new revision of the ISA were current and properly documented. Specifically, the licensee identified 14 examples of criticality controls that were not described as items relied on for safety in the new ISA revision but were required to be in place according to criticality analysis. The licensee could not demonstrate that the configuration management program would maintain the reliability and availability of the omitted controls as required by 10 CFR 70.61(e) and 10 CFR 70.62(a)(3).*

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

**GNF-A's Response to the Violation**

The determination that updates that were needed to our Integrated Safety Analysis summary was identified on our own initiative, properly reported to NRC, non-repetitive and corrected in a timely fashion prior to the inspection. In addition, the equipment for which items relied on for safety were added in the ISA documentation all had an existing criticality safety analysis that bounded the operation and effective controls were in place that were not challenged. While cited as a Severity Level IV violation, it appears to satisfy the requirement in NRC Enforcement Policy Section VI.A.8 as a non-cited violation. As stated in NRC Inspection Manual Chapter 0610, "NRC enforcement should seek to encourage licensee self assessment efforts and seek to avoid the negative impact that can result from a redundant NRC emphasis on problems which the licensee's responsible action has already identified and corrected."

**Reason for the Violation**

During a July 2007 review of the fuel manufacturing operation (FMO) Integrated Safety Analysis, it was discovered that the container transfer station in the dry scrap recycle area had not been analyzed by the ISA team. As a result, equipment safety controls and necessary Items Relied on for Safety (IROFS) were not declared or documented in the ISA.

The container transfer station equipment was installed in 1999. It was concluded that when the Dry Conversion Process area ISA was completed in 2003, the review team did not document the evaluation of this process equipment as required.

#### **Corrective Steps Taken and the Results Achieved**

A container transfer station ISA review was performed and process IROFS were identified.

#### **Corrective Steps that have been Taken to Avoid Further Violations**

1. A detailed review of additional process equipment and controls was initiated to ensure each had been evaluated in an ISA and the required IROFS had been identified. This review identified ten other processes with a valid criticality safety analysis that were not specifically documented as a part of an ISA evaluation and the required IROFS had not been identified. The ISA reviews for these processes were completed in August 2007 and the required IROFS documented. A total of twelve new IROFS were established.
2. Additional reviews of authorized process equipment and controls are underway as part of ongoing ISA updates. Any additional IROFS will be listed in the revised January 30, 2008 ISA summary report submitted to NRC pursuant to 10CFR70.72.

#### **Date when Full Compliance will be Achieved**

Full compliance will be achieved with the completion of the above corrective action.