



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

April 8, 2003

Global Nuclear Fuels - Americas, L.L.C.  
ATTN: Mr. J. D. Fuller, Chief Executive Officer  
and Facility Manager  
Global Nuclear Fuels - Americas, L.L.C.  
P. O. Box 780  
Wilmington, NC 28402

SUBJECT: NRC INSPECTION REPORT NO. 70-1113/2003-02

Dear Mr. Fuller:

This report refers to the inspection conducted from March 10 - 14, 2003 at the Wilmington facility. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with United States Nuclear Regulatory Commission (NRC) requirements. At the conclusion of the inspection, the findings were discussed with those members of your staff identified in the enclosed report.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress.

Based on the results of the inspection, no violations or deviations were identified.

In accordance with 10 CFR 2.790 of NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in NRC's Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

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

Sincerely,

**/RA BY WILLIAM B. GLOERSEN  
ACTING FOR/**

David Ayres, Chief  
Fuel Facilities Branch  
Division of Nuclear Materials Safety

Docket No. 70-1113  
License No. SNM-1097

Enclosure: (See Page 2)

Enclosure: NRC Inspection Report

cc w/encl:  
 Charles M. Vaughan, Manager  
 Facility Licensing  
 Global Nuclear Fuels - Americas, L.L.C.  
 P. O. Box 780, Mail Code J26  
 Wilmington, NC 28402

Beverly Hall, Director  
 Division of Radiation Protection  
 N. C. Department of Environmental  
 Health & Natural Resources  
 Electronic Mail Distribution

Distribution w/encl:

D. Ayres, RII  
 W. Gloersen, RII  
 L. Roche, NMSS  
 R. Cesaro, NMSS  
 K. O'Brien, RIII  
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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 70-1113

License No.: SNM-1097

Report No.: 70-1113/2003-02

Licensee: Global Nuclear Fuel - Americas, LLC

Location: Wilmington, NC 28402

Dates: March 10 - 14, 2003

Inspector: M. Crespo, Fuel Facility Inspector, RII

Approved By: D. Ayres, Chief  
Fuel Facilities Branch  
Division of Nuclear Materials Safety

Enclosure

## EXECUTIVE SUMMARY

### Global Nuclear Fuel - Americas NRC Inspection Report 70-1113/2003-02

This routine unannounced inspection involved observation and evaluation of the licensee's programs for plant operations. The inspection identified the following aspects of the licensee's programs:

#### **Plant Operations**

- The licensee demonstrated adequate communication of safety issues to management through the use of Unusual Incident Reports (Paragraph 2.a).
- The licensee's safety controls for the fuel bundling area and incinerator area provided for double contingency and were adequate in controlling safety parameters (Paragraph 2.b).
- The housekeeping in the radwaste area had improved. Plant activities were performed in accordance with approved plant procedures and operators were knowledgeable of the safety controls of their area. An issue regarding the interlock of the pellet grinder was appropriately addressed (Paragraph 2.c).
- The licensee's configuration control system for facility modifications ensured that safety significant modifications were properly reviewed, approved, and documented (Paragraph 2.d).
- The licensee's administrative controls over the operating procedures used in the facility were effective. The observed operators at the facility were noted to be knowledgeable of the operating procedures of their area (Paragraph 2.e).
- The licensee performed functional tests of nuclear criticality safety (NCS) controls according to written and approved procedures (Paragraph 2.f).
- The licensee adequately emphasized NCS and procedure compliance for the ceramics area operators through the use of an online training verification system (Paragraph 2.g).

#### Attachment:

Persons Contacted

Inspection Procedures

List of Items Opened, Closed, and Discussed

List of Acronyms

## REPORT DETAILS

### 1. **Summary of Plant Status**

This report covered a five-day period. Powder, pellet, and fuel assembly production proceeded at normal rates.

### 2. **Plant Operations (IP 88020) (O3)**

#### a. Management and Administrative Practices (O3.01)

##### (1) Inspection Scope

The inspector interviewed supervisors and engineers of the fuel production area and reviewed several unusual incident reports (UIRs) to verify that safety problems were identified, reported to management, and resolved in a timely manner.

##### (2) Observations and Findings

The inspector noted that the engineers and supervisors of the fuel production area kept management aware of any developing safety issues in the fuel production shortly after their discovery. These communications were captured in UIRs. The issues reviewed by the inspector in the UIRs were often discovered by employees and communicated effectively to management. The UIRs were then used to plan an effective resolution to the issue as well as a timetable for completion. The safety issues communicated to management illustrated clear safety communication between employees and managers. No issues were noted with the UIRs reviewed nor with the resolution of their issues.

##### (3) Conclusions

The licensee demonstrated adequate communication of safety issues to management through the use of UIRs.

#### b. Safety Function (O3.02)

##### (1) Inspection Scope

The inspector reviewed operations in bundle assembly area with the area manager and discussed with the nuclear safety manager the operations regarding the incinerator to verify that safety controls were identified, double contingency was provided, and limits for controlled parameters and safety control systems were specified.

##### (2) Observations and Findings

The inspector noted no issues with regard to the operations being performed in bundle assembly area. Safety controls in the area were present and provided for double contingency. The description and observation of the controls present in the incinerator room adequately illustrated the safety controls in the area that are used to prevent an

accumulation of uranium in the incinerator system. The controls also prevent a release of material to the environment through a filtering and scrubbing system.

(3) Conclusions

The licensee's safety controls for the fuel bundling area and incinerator area provided for double contingency and were adequate in controlling safety parameters.

c. Plant Activities (O3.03)

(1) Inspection Scope

The inspector reviewed plant housekeeping to verify that it did not adversely affect the radiological safety or emergency egress of the facility. Plant activities were reviewed to determine if they were performed according to approved plant procedures. The inspector also reviewed several safety controls to verify that operators were knowledgeable of the controls in their process area.

(2) Observations and Findings

The inspector toured the radwaste system, Dry Conversion Process (DCP) area, and pelleting area. The inspector noted that housekeeping in the radwaste system area had improved since the last visit, which was attributed to the significant reduction in loaded cans being stored in the area. The inspector discussed with an operator in the radwaste area the procedures for loading cans. The operator was familiar with the procedures for loading the cans and knowledgeable of the mass limits for the cans that assure criticality safety.

The inspector noted that the licensee had upgraded their notification system for respiratory requirements for the different rooms of the DCP area. In lieu of signs on doors that need to be posted individually on multiple floors, a system of illuminated signs above the doors were in place. The lit sign indicated the respiratory requirements for the room. The pressing of a button changed the signs for all the corresponding rooms on the different floors (since the system was linked together). No issues were noted with the upgrade.

The inspector also interviewed the operators in the control room. The operators demonstrated detailed knowledge of the safety systems involved in the operation of the vaporizers in the DCP area.

During the tour of the pelleting area, the inspector interviewed grinder operators about safety controls. The operators appropriately mentioned that feeder to the grinder is interlocked with the weight of the scrap can (limited to 25 kilograms gross weight). While observing operations at the gadolinium grinder, the inspector noted the feeder was operating and pellets were being dropped into the can; however, the weight of the can was reading zero grams on the screen (an empty can alone should read about 1500 grams). Upon questioning operators about the reading of the monitor, the operators made some adjustments and the actual weight of the scrap can appeared. This observation was passed on to the software engineer of the system, who took note of the

problem (the computer reading the wrong scale for a period of time) and corrected it immediately. In addition, due to an incident where a scrap can became overloaded (although the analyzed safe limit was not exceeded), the area manager decided to have a light installed on all the grinders that would flash when the scrap can needs emptying. The light would alert operators that no more material should be placed into the can. The corrective actions addresses the observation appeared effective. The inspector had no further issues.

(3) Conclusions

The housekeeping in the radwaste area had improved. Plant activities were performed in accordance with approved plant procedures and operators were knowledgeable of the safety controls of their area. An issue regarding the interlock of the pellet grinder was appropriately addressed.

d. Configuration Controls (O3.04), Change Control (O3.05)

(1) Inspection Scope

The inspector reviewed the licensee's configuration control system for recent facility modifications to verify that safety significant modifications were reviewed, approved, and documented according to their procedures.

(2) Observations and Findings

The inspector reviewed with the area engineer the kiln tube leak event and discussed the modification to the hydrogen fluoride (HF) sensors that will assist in early detection of a kiln tube leak.

The inspector discussed with the safety manager and the software engineer regarding the removal of active engineered controls (AECs) from service. The AECs were removed from the Nuclear Safety Release/Requirements (NSRRs) due to the removal / isolation of equipment that would make the AEC necessary. The inspector reviewed the change request and noted that the proper nuclear safety evaluations were completed prior to performing the modification.

The inspector interviewed the software engineer for the DCP system regarding changes to AECs that effect software. The engineer stated that any modification or new installation of AECs that requires a modification of the operating software must begin with a software modification plan (SMP) that details that changes that are going to be performed. Once the software engineer performs the changes, the new controls are functionally tested. The appropriate area managers then review the SMP and authorize the use of the equipment.

The inspector reviewed the change request forms for the addition of an AEC to the reactor kiln screw. The inspector noted that the proper approvals for modifications to the procedures and the new function test were obtained prior to their implementation. The inspector also reviewed the change request for the location change of an HF detector in the kiln room. The HF detector was moved to a location that would provide

better early indication of a leak in the kiln tube as well as a cooler position that will allow the detector to last longer. The modification was performed when the line was not in operation and with the appropriate approvals.

(3) Conclusions

The licensee's configuration control system for facility modifications ensured that safety significant modifications were properly reviewed, approved, and documented.

e. Operating Procedures (O3.06)

(1) Inspection Scope

The inspector observed selected operations being performed throughout the facility to verify that the appropriate operating procedures were being followed. The inspector also verified that any changes in procedures involved the appropriate approvals.

(2) Observations and Findings

The inspector reviewed the compensatory instructions for the criticality alarm system used during severe weather. The compensatory instructions detailed how a trained individual would be assigned to the criticality alarm station and would assess the readings of the detectors prior to initializing the criticality evacuation alarm. This procedure minimized the threat of false alarms that could place plant personnel in danger if they evacuate into severe weather. The inspector verified that the procedure contained the appropriate approvals for use.

(3) Conclusions

The licensee's administrative controls over the operating procedures used in the facility were effective. Operators at the facility were noted to be knowledgeable of the operating procedures of their area.

f. Maintenance for NCS (O3.07)

(1) Inspection Scope

The inspector observed maintenance activities involving NCS controls to verify the use of written and approved procedures for the tests.

(2) Observations and Findings

The inspector observed operators and the software engineer perform functional tests of the steam supply systems. The inspector also reviewed the functional test procedures and noted the appropriate amount of detail to perform the tests. The inspector noted that experienced personnel were performing the tests according to the approved procedures. No issues were noted.

(3) Conclusions



The licensee performed functional tests of NCS controls according to written and approved procedures.

g. NCS Training (O3.08)

(1) Inspection Scope

The inspector reviewed the training program for the operators in the ceramics area and in the DCP area to verify that NCS and procedure compliance were emphasized.

(2) Observations and Findings

The inspector interviewed the ceramics shift leader to obtain how training was conducted and tracked in the ceramics area. The shift leader explained that the training of employees was integrated into an online training list for employees called KATS (Know All The Stuff). The KATS system was integrated into the Fuel Business System (FBS). Therefore, if an operator was not current on their operating procedures or training, the system would lock them out of their work station until the training requirement was met. This system was being piloted in the ceramics area and would eventually be incorporated into the DCP area. The system allowed operators the opportunity to review NCS controls and radiation protection requirements, as they were incorporated into the operating procedures. Medical and respiratory qualifications were also incorporated into the system.

The licensee's Red Bar training (the general radiation protection and NCS training for employees) was enforced by a different system. If an operator's Red Bar training expired, the FBS would prevent them from entering the controlled area.

The inspector also reviewed the training program of shift leaders. The inspector discovered that no formalized training program for shift leaders existed, however no program was required by the license. The inspector passed this observation to the licensee. The licensee then stated that the on-the-job training for the shift leaders (the bulk of their training) would be structured to ensure a more standard training program.

(3) Conclusions

The licensee adequately emphasized NCS and procedure compliance for the ceramics area operators through the use of an online training verification system.

h. Follow up on Previously Identified Issues (O3.13)

(Closed) URI 70-1113/2002-05-02: Unanalyzed array of trash receptacles.

The inspector reviewed the incinerator area, where an array of trash receptacles had been observed that did not match the requirement of trash receptacles in the DCP area. The inspector noted that the spacing of the trash receptacles in the incinerator room complied with the newly written NSRRs. The inspector also reviewed the analysis justifying the requirements for the NSRRs. The inspector had no issues with the analysis justifying the use and spacing of the trash receptacles. The inspector noted that spacing and bag type for the trash receptacles had been standardized throughout the plant. Based on the prompt and extensive actions by the licensee upon notification of the inconsistency, this item will be closed.

3. Exit Meeting

The inspection's results were summarized on March 14, 2003 with the licensee's senior management representatives. Although proprietary documents and processes were reviewed during this inspection, the proprietary nature of these documents or processes has been deleted from this report. No dissenting comments were received from the licensee.

## ATTACHMENT

### 1. PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Ball, Manager, Global Supply Chain  
F. Beaty, Principle Engineer  
R. Crate, Manager, Fuel Manufacturing Operations  
R. Foleck, Program Manager, Facility Licensing  
B. Hines, Leader, Fuel Manufacturing Operations Engineering  
L. Paulson, Manager, Nuclear Safety  
J. Reeves, Shift Leader for DCP  
J. Reynolds, Technical Leader  
R. Haughton, Manager, Fabrication  
E. Saito, Environmental, Health and Safety Blackbelt  
G. Smith, Manager, Integrated Safety Analysis and Configuration Management Control  
S. Smith, Radiation Safety Monitor  
H. Strickler, Manager, Site Environment, Health and Safety

Other licensee employees contacted included engineers, technicians, production staff, and office personnel.

### 2. INSPECTION PROCEDURES (IP) USED

IP 88020      Regional Nuclear Criticality Safety Inspection Program

### 3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Item</u>	<u>Status</u>	<u>Description</u>
70-1113/2002-05-02	Closed	URI: Unanalyzed array of trash receptacles (Paragraph 2.h)

### 4. LIST OF ACRONYMS USED

AEC	Active Engineered Control
DCP	Dry Conversion Process
FBS	Fuel Business System
GNF-A	Global Nuclear Fuels-Americas
HF	Hydrogen Fluoride
IP	Inspection Procedure
IR	Inspection Report
KATS	Know All The Stuff
NCS	Nuclear Criticality Safety
NRC	Nuclear Regulatory Commission
NSRR	Nuclear Safety Release/Requirements
SMP	Software Modification Plan
UIR	Unusual Incident Report