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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 70-1201

License No.: SNM-1168

Report No.: 70-1201/97-03

Licensee: Framatome Cogema Fuels

Facility: Lynchburg Manufacturing Facility

Location: Lynchburg, VA

Dates: March 31 through April 3, 1997

Inspectors: C. Bassett, Senior Radiation Specialist  
D. Ayres, Fuel Facilities Inspector

Approved by: E. J. McAlpine, Chief  
Fuel Facilities Branch  
Division of Nuclear Materials Safety

Enclosure 2

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EXECUTIVE SUMMARY

Framatome Cogema Fuels  
NRC Inspection Report No. 70-1201/97-03

The primary focus of this inspection was the observation and evaluation of the licensee's programs for operational safety, configuration management, and maintenance of safety controls. The report includes inspection efforts of two regional inspectors. The inspection identified the following aspects of the licensee programs as outlined below:

PLANT OPERATIONS

- Criticality safety postings and safety rules were properly issued and conspicuously posted. However, some of the posted instructions were found to be confusing or ambiguous. The postings were also widely issued without an indication on them as to management approval and may be susceptible to producing conflicts with approved procedures or document control problems.
- Despite recent retraining efforts and emphasis on procedural compliance, the licensee's adherence to approved procedures and postings was found to be less than adequate. A violation of required procedures and postings in the plant operations realm was identified by the inspectors (VIO 97-03-01). Although the inspectors found no immediate hazards, improvements in the licensee's content of and conformity to safety-related instructions are necessary for continued assurance of safety.
- An unresolved item (URI 97-03-02) was identified concerning an unanalyzed condition regarding moderating materials in the fuel assembly storage area.
- The licensee's Configuration Control Program was found to have a detailed, programmatic method for reviewing, approving, and implementing facility modifications. However, the licensee's implementation of this program and the maintaining of the required document trail were found to be incomplete, although adequate safety reviews were performed. The incomplete document trail is another example of failure to follow procedures and is noted as a non-cited violation (NCV 97-03-03).

MANAGEMENT ORGANIZATION AND CONTROLS

- No problems were noted with the recent changes that had been made in the licensee's organization and the individuals were aware of their responsibilities with respect to nuclear criticality safety.

- The inspectors concluded that qualified personnel were conducting the audits, that issues were being identified that required corrective actions, and that the audit findings were being forwarded to and reviewed by management. One audit item concerning NCS postings on scrap pellet storage trailers was noted by the inspectors as a non-cited violation (NCV 97-03-04).
- The intervals between safety audits were such that the licensee did not adequately fulfill the semi-annual audit requirements. A violation was cited by the inspectors (VIO 97-03-05) for failure to adhere to the commitments in the license application concerning audit frequency.

MATERIAL CONTROL AND ACCOUNTING

- A violation of internal procedure for failure to control access to tamper-safing devices was identified and is described in Enclosures 3 and 4 (VIO 97-03-06).

Attachment:

Persons Contacted

Inspection Procedures Used

List of Items Closed and Opened

Report Details #1

I. Safety Operations

A. Plant Operations (03) (88020)

1. Conduct of Operations (03.01)

a. Inspection Scope

The inspectors conducted plant tours of various facility areas to confirm that operations were being performed as described in written procedures and in accordance with posted instructions to assure safe operations of the facility processes.

b. Observations and Findings

The inspectors were initially given a tour of the Lynchburg Manufacturing Facility and observed material handling activities in the pellet loading room (observed through a window from a "non-controlled" area); fuel rod fabrication area; and fuel bundle assembly, storage, and shipping areas. The inspectors also toured areas which routinely involve radioactive material handling, but in which material handling activities were not being performed at the time of the tour. These areas included the pellet receiving room, and two of the Service Equipment Reconditioning Facilities (SERF-1 and SERF-4). Criticality safety postings and other posted safety-related instructions were observed at various locations throughout the facility. The inspectors found most of the postings to be framed and neatly displayed and easily recognizable. However, the inspectors found some of the instructions confusing or too ambiguous to be clearly understood by someone who is not already familiar with the intent of the instructions. Examples include maintaining a 12 foot separation between different accumulations of SNM (with no indication as to what constitutes "different accumulations") and limiting pellets to a 4 inch slab height configuration except when transferring fuel from the shipping container to a conveyor (with no indication as to the limits during this transfer). These observations were shared with the licensee's Safety and Licensing support staff.

During the facility tour, the inspectors observed two slightly different sets of safety instructions posted in the same part of the pellet receiving area. The inspectors informed the licensee of the discrepancy and the licensee subsequently removed the outdated posting. Although not specifically required by NRC regulations, the inspectors also identified that none of the postings were marked with any type of indicators for document control nor for management approval. These

indicators (which can include a document or form number, a revision number, copy number, and a management contact reference) are typically useful for maintaining control of posted instructions. A system for controlling safety and licensing documents already exists for procedures and forms (in the licensee's procedure SL-1000), and could be similarly applied to safety postings. The inspectors identified this potential problem area to the licensee's Safety and Licensing support staff.

The inspectors performed numerous reviews to confirm the licensee's compliance with approved procedures and postings in its conduct of operations. A review of a recent process equipment change prompted the inspectors to examine posted instructions for the operation and inspection of a vacuum cleaner used to remove SNM residues from a downdraft table in the pellet loading room. As part of the new installation, the vacuum cleaner bag casing was modified to limit the size of the filter bag and to restrict the volume of SNM accumulating within the casing. The posting included an instruction for a daily visual inspection of the filter bag inside the vacuum cleaner to verify the integrity of the bag, and thus to verify that criticality safety controls remain intact. A logsheet was also provided to document these inspections. The inspectors found that in the previous six months, the filter bag inspections were not being documented except when the filter bag was changed (once or twice a month). Interviews with operations personnel indicated that these inspections were being performed daily. However, the documentation of safety-related inspections are important for confirming that safety requirements are being met by the licensee. The licensee's internal Health-Safety inspection program is maintained to provide assurance that plant activities are conducted safely and in accordance with license specifications. This internal program should have been able to detect the lack of documentation of required safety-related inspections, and is an example of the ongoing problems the licensee has experienced with adherence to procedures.

During an inspection of the fuel assembly storage area on April 2, 1997, the inspectors observed a large collection of nylon straps (approximately 100) within the designated storage area. The straps were each approximately 5 cm wide and 1 meter in length. About 60 straps were observed to be neatly coiled into individual bundles and placed in various locations along the catwalks between rows of storage racks. Another collection of about 40 straps were loosely piled at the end of one of the catwalks next to a wall. These straps were found to have been placed in the area in anticipation of their use in securing NUKEM fuel assemblies into the storage racks. The inspectors found the accumulation of nylon straps to be in contradiction with the posted criticality limits in the area which stated, "Moderating material (plastics, liquids, etc.) MUST NOT be stored in the fuel assembly storage area...." The as-found condition of the storage racks was such



that fuel assemblies containing SNM were not present in the vicinity of the moderating materials. However, the lack of control of unanalyzed moderating materials in a SNM storage area can result in a situation in which acceptable safety margins are compromised. Even though the as-found condition did not directly affect fuel assemblies containing SNM, strict adherence to criticality safety rules is expected. Due to its potential safety risk, this issue is cited as a violation for failure to follow posted safety instructions (VIO 70-1201/97-03-01).

Additionally, the use of nylon straps to secure NUKEM fuel assemblies into the racks was found to have not been fully analyzed as to their effect on the  $k_{eff}$  value of the storage array, but had been deemed insignificant by the licensee. Further discussions with licensee management revealed that the effects of other plastics used for protecting fuel assemblies from damage had not been fully analyzed. The inspectors could not assess the significance of the effects of these unanalyzed moderating materials, and this issue will be referred to NRC Headquarters for further evaluation and is identified as an unresolved item (URI 70-1201/97-03-02).

c. Conclusions

The licensee's adherence to approved procedures and postings was found to be less than adequate. Although the inspectors found no immediate hazards, improvements in the licensee's content of and conformity to safety-related instructions are necessary for continued assurance of safety.

2. Facility Modifications and Configuration Controls (03.02)

a. Inspection Scope

The licensee's Configuration Control Program was reviewed to confirm that any recent changes or modifications to the facility with nuclear criticality safety implications were reviewed, approved, and implemented as required by procedure.

b. Observations and Findings

The licensee's Configuration Control Program was outlined in procedure AS-1120, "CNFP Safety Review Board," Revision 5, dated December 8, 1993. The inspectors reviewed the procedure and noted that, even though a modification could be reviewed, approved, and completed, the procedure did not specifically address how the modification could affect and cause a need for revisions to the affected piping and instrumentation diagrams

(P&IDs) or revisions to the maintenance program. However, the inspectors confirmed that appropriate controls for implementing the actual changes and modifications were established to meet the intent of the license.

The inspectors also reviewed the forms completed by the licensee to document the implementation of the modifications and the controls specified or required by such changes. The inspectors determined that the documentation was not always complete. Nine project packages for facility modifications dating back over the past three years were reviewed for compliance with the program outlined in procedure AS-1120. The inspectors identified deficiencies in the completion of the prescribed forms for eight of these projects. Auxiliary documents (memos, analyses, etc.) confirmed that adequate reviews by the safety functions had been performed, but the intent of the completion of the prescribed forms was to provide an easily recognizable status of the safety requirements associated with a process modification. The deficiencies in the completion of the forms prescribed in procedure AS-1120 was found to be a violation of the license application. However, adequate safety reviews had been performed and corrective actions were being implemented to address a previous similar violation. Therefore, this NRC-identified violation is not being cited because criteria specified in Section VII.B of the NRC Enforcement Policy were satisfied (NCV 70-1201/97-03-03).

c. Conclusions

The licensee's Configuration Control Program was found to have a detailed, programmatic method for reviewing, approving, and implementing facility modifications. The licensee's implementation of this program and the maintaining of the required document trail were found to be incomplete, although adequate safety reviews were performed.

B. Management Organization and Controls (05) (88020)

1. Organizational Structure (05.01)

a. Inspection Scope

The inspectors reviewed the licensee's organizational structure to determine whether changes had been made since the last inspection at the facility.

b. Observations and Findings

During the inspection, the inspectors were provided with a copy of the facility organizational structure. It was noted that changes had been made to the organization since the last Region II inspection. The

persons filling the positions of Manufacturing Engineering and Fuel Manufacturing were new to those positions but not new to the company or the facility. Through discussions with those individuals the inspectors determined that they were aware of and understood their responsibilities concerning nuclear criticality safety as well as their other responsibilities for production and safety in general.

c. Conclusions

No problems were noted with the recent changes that had been made in the licensee's organization and the individuals were aware of their responsibilities with respect to nuclear criticality safety.

2. Internal Reviews and Audits (05.03)

a. Inspection Scope

The inspectors reviewed recent audits to ensure that the audits were being conducted by the appropriate staff as required by the license application and in accordance with applicable procedures and to ensure that procedural violations and equipment or system failures related to NCS were being identified and reported.

b. Observations and Findings

The inspectors reviewed the most recent semi-annual audits in the area of nuclear criticality safety. The inspectors noted that the audits had been conducted and reviewed by personnel from the nuclear criticality staff and the results had been forwarded to the Manager of Safety and Licensing, as well as the Plant Manager. The inspectors noted that two audits were conducted each year and included a review of the activities in the various receiving, manufacturing, and storage areas of the plant. When an audit identified items that needed to be corrected, a response was generated and corrective actions were initiated by the licensee.

One of the audit findings noted by the licensee's auditors during December 1996 was that some trailers used to store UO<sub>2</sub> scrap material did not have criticality safety signs affixed to the trailer doors indicating the presence of the SNM material inside. The auditors noted that the failure to post the trailers was an apparent violation of License Condition 10 of Materials License SNM-1168 which requires the licensee to comply with all listed conditions in Safety Conditions. Safety Condition S-1 requires the licensee to comply with the statements, representations, and conditions in Part I of the License Application dated June 22, 1990, and supplements thereto. Part I, Chapter 4, Section 4.1.5 of the Application, requires that nuclear safety postings, approved by Health-Safety, shall be maintained specifying nuclear safety parameters that are subject to procedural



controls. Section 4.1.5 also stipulates that operations for which specific (dedicated) controls are applicable shall be individually posted. In response to this audit, the licensee posted each trailer containing  $UO_2$  scrap material with signs designating that SNM was stored inside and stipulating the Criticality Safety Limits for the trailers. The licensee also submitted all the criticality safety postings to the nuclear criticality safety group for review and revision as necessary. The inspectors informed the licensee that this licensee-identified and corrected violation was not being cited because criteria specified in Section VII.B of the NRC Enforcement Policy were satisfied (NCV 70-1201/97-03-04).

The inspectors reviewed the timeliness of the audits. It was noted that audits had been conducted as follows: December 13, 1994, July 20, 1995, October 6, 1995, August 26, 1996, and December 16, 1996. The inspectors noted that the time span between the inspection in October 1995 and August 1996 appeared to be in violation of License Condition 10 of Materials License SNM-1168 which requires the licensee to comply with all listed conditions in Safety Conditions. Safety Condition S-1 requires the licensee to comply with the statements, representations, and conditions in Part I of the License Application dated June 22, 1990, and supplements thereto. Part I, Chapter 2, Section 2.7 of the Application, requires that independent auditors shall conduct, as a minimum, semi-annually nuclear safety, fire safety, and health physics inspections at the CNFP. Procedure No. RP-000, "Radiation Protection Program Definitions," Revision 1, dated January 31, 1996, which is applicable to the plant Safety and Licensing Department, defines "semi-annual" in Section 4.24 as being at least once every six (6) calendar months +25% (45 days). The licensee was informed that the failure to complete a semi-annual audit of the nuclear safety program within the required time frame was cited as a violation for failure to follow procedures (VIO 70-1201/97-03-05).

c. Conclusions

The inspectors concluded that qualified personnel were conducting the audits, that issues were being identified that required corrective actions, and that the audit findings were being forwarded to and reviewed by management. However, the intervals between audits were such that the licensee did not adequately fulfill the semi-annual audit frequency requirement.

II. Management Meetings

A. Exit Interview (M1)

On April 3, 1997, the inspection scope and results were summarized with licensee representatives. The inspectors discussed in detail the routine program areas inspected, and the findings, including violations. No dissenting comments were expressed by the licensee.

The licensee did not identify any of the materials provided during the inspection as proprietary.

ATTACHMENT

1. PERSONS CONTACTED

Licensee Personnel

- \*T. Allsep, Health Physicist
- \*C. Carr, Vice President, Manufacturing and Services
- \*G. Elliott, Manager, Safety and Licensing
- \*R. Gardner, Manager, Quality, FCF
- \*D. Gordon, Sr. Health Physicist
- \*G. Lindsey, Health Physicist
- \*F. Masseth, Manager, Operations and Resource Control
- \*D. Minor, Manager, Manufacturing Engineering
- \*T. Wilkerson, Manager, Nuclear Fuel Manufacturing

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

\*Denotes those present at the exit meeting on April 3, 1997.

2. INSPECTION PROCEDURE USED

IP 88020 Regional Nuclear Criticality Safety Inspection Program

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Item Number</u>	<u>Status</u>	<u>Description</u>
70-1201/97-03-01	Open	VIO - Failure to comply with posted NCS requirements concerning storage of moderating materials in the fuel assembly storage area.
70-1201/97-03-02	Open	URI - Plastic materials used in the fuel assembly storage area have not been fully analyzed for their effect on $k_{eff}$ .
70-1201/97-03-03	Closed	NCV - Failure to comply with documentation requirements of the licensee's Safety Review Board procedure (AS-1120).

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70-1201/97-03-04	Closed	NCV - Failure to properly post storage trailers containing unirradiated scrap fuel pellets per the approved license application.
70-1201/97-03-05	Open	VIO - Failure to comply with the timeliness requirements of semi-annual safety audits per the approved license application and the Radiation Protection Program Definitions procedure (RP-000).
70-1201/97-03-06	Open	VIO - Failure to control access to tamperseals per FNMC Plan.

4. LIST OF ACRONYMS

CNFP	Commercial Nuclear Fuel Plant
FCF	Framatome Cogema Fuels
FNMC	Fundamental Nuclear Materials Control
IP	Inspection Procedure
NCS	Nuclear Criticality Safety
NCV	Non-Cited Violation
SERF	Service Equipment Reconditioning Facility
SNM	Special Nuclear Material
URI	UnResolved Item
VIO	Violation

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