EA No. 96-538

February 10, 1997

Mr. Robert B. Hoffman, President
B&W Fuel Company
Commercial Nuclear Fuel Plant
3315 Old Forest Road
P.O. Box 10935
Lynchburg, VA 24506-0935

Dear Mr. Hoffman:

This letter refers to the Predecisional Enforcement Conference held with you and members of your staff on January 27, 1997. The meeting enabled us to gain a better understanding of the circumstances surrounding the apparent violations identified in Inspection Report No. 70-1201/96-202.

In accordance with 10 CFR 2.790 of the NRC "Rules of Practice", Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosure will be placed in the NRC's Public Document Room.

No reply to this letter is required. Your cooperation with us in this matter is appreciated.

Sincerely,
ORIGINAL SIGNED BY
Elizabeth Q. Ten Eyck, Director
Division of Fuel Cycle Safety
and Safeguards, NMSS

License No. SNM-1168
Docket No. 70-1201

Enclosures:
1. NRC Enforcement Conference
   Report No. 70-1201/97-201
2. Enforcement Conference Slides

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Charles W. Carr, B&W Fuel Company, Vice President

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U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Report No. 70-1201/97-201

License No. SNM-1168

Docket No. 70-1201

Safeguards Group: III

Licensee: B&W Fuel Company
Commercial Nuclear Fuel Plant
P.O. Box 11646
Lynchburg, VA 34506-1646

Pre-Decisional Enforcement Conference Conducted at: Rockville, MD

Pre-Decisional Enforcement Conference Conducted on: January 27, 1997

Prepared by: D. Whaley, MC&A Physical Scientist — Date Signed: 1/29/97

Approved by: Philip Ting, Chief
Operations Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS — Date Signed: 1/29/97

Predecisional Enforcement Conference: On January 27, 1997, a predecisional enforcement conference was held at NRC Headquarters, Rockville, Maryland, to discuss six apparent violations identified in Inspection Report No. 70-1201/96-202. The licensee acknowledged the six violations cited. The licensee described the corrective actions undertaken to correct the items of non-compliance, and to prevent similar violations from occurring in the future.

Enclosure 1

REPORT DETAILS

1. Attendces

B&W Fuel Company, Commercial Nuclear Fuel Plant

C. Carr, Vice President, Manufacturing and Field Services
G. Elliott, Manager, Safety and Licensing
R. Gardner, Manager, Quality
D. Guza, Chief Counsel, Legal Department
R. Hoffman, President
J. Taylor, Licensing

NRC

B. Brach, Deputy Director, Fuel Cycle Safety and Safeguards
E. Easton, Branch Chief, Spent Fuel Project Office
C. Hughey, Sr. Resident Inspector, B&W Naval Nuclear Fuel
M. Lamastra, Project Manager, Licensing Branch
N. Mamish, Enforcement Specialist, Office of Enforcement
E. McAlpine, Branch Chief, Region II
H. McGurren, Sr. Attorney, Office of General Counsel
T. Pham, Sr. Safeguards Technical Analyst, Licensing Branch
P. Santiago, Special Assistant, Office of the Executive Director
W. Schwink, Section Chief, Fuel Cycle Operations Branch
E. Ten Tyck, Director, Fuel Cycle Safety and Safeguards
P. Ting, Branch Chief, Fuel Cycle Operations Branch
W. Troskoski, Sr. Chemical Engineer, Fuel Cycle Operations Branch
M. Weber, Branch Chief, Licensing Branch
D. Whaley, Physical Scientist, Fuel Cycle Operations Branch

Department of Transportation

R. Boyle, Office of Hazardous Materials Technology
G. McGinnis, Enforcement Specialist

2. Summary

On January 27, 1997, a predecisional enforcement conference was held at NRC Headquarters, Rockville, Maryland. The conference provided an opportunity for B&W Fuel Company to discuss the six apparent violations and to provide corrective and preventive actions.

In the opening statement, the Director of the Division of Fuel Cycle Safety and Safeguards stated the reasons for the predecisional enforcement conference as it related to the inadvertent return of an unirradiated fuel assembly to Griefswald,

Germany. The Director explained that this meeting would provide B&W Fuel Company the opportunity to discuss the events surrounding the apparent violations identified during the November 13-15, 1996, Special Inspection Team inspection; to acknowledge or deny the apparent violations; and to provide any corrective actions to prevent recurrence.

The NRC Enforcement Specialist summarized the NRC's Enforcement Policy concerning the missing fuel assembly. The discussion included the purpose of the predecisional enforcement conference and the enforcement process before the NRC makes the final enforcement decision for this event.

The Director discussed the six apparent violations identified in the Inspection Report which included:

1) The licensee's failure to implement proper notification procedures of the event to the NRC;

2) The licensee's failure to follow its own procedures for the downloading operation;

3) The licensee's failure to provide adequate and detailed procedures for the downloading operation;

4) The licensee's failure to adequately evaluate the results of the radiological survey of container #440/70-30 which housed the fuel assembly;

5) The licensee's failure to comply with numerous requirements for the shipment of licensed material; and

6) The licensee's failure to implement adequate MC&A procedures and practices to verify the presence of fuel assembly #31908.

The licensee acknowledged and agreed with all six violations. The licensee did feel the intent of the notification requirement was met.

The licensee discussed their perspective of the event beginning with a review of the incident. B&W believed the event caused no actual safety significance but acknowledged that, in the aggregate, the violations presented a potential threat to the health and safety of the public. The presentation included the results of the root cause analysis and provided a detailed review of the Inspection Report Findings with correlation to root causes and corrective actions already planned and completed. B&W's investigation essentially agreed with the Inspection Report and stated the B&W organization understood the seriousness of this event and is committed to correcting the conditions and practices that allowed the event to occur. B&W management understood the responsibility for this event and acknowledged that proactive management oversight and involvement must be strengthened.

Enforcement options available to the Commission were explained by the Enforcement Specialist, and the licensee was advised that they would be informed, in the near future, of NRC's enforcement decision. The licensee stated that its prompt and corrective actions and the lack of actual safety significance should be considered as mitigating circumstances for NRC's final enforcement decision.

The meeting was adjourned.

PREDECISIONAL ENFORCEMENT CONFERENCE AGENDA

B&W FUEL COMPANY

January 27, 1997 at 1:00 pm
NRC Headquarters, Rockville, Maryland

I. OPENING REMARKS AND INTRODUCTION
Elizabeth Q. Ten Eyck, Director
Division of Fuel Cycle Safety and Safeguards, NMSS

II. NRC ENFOPCEMENT POLICY
Nader Mamish, Enforcement Specialist
Office of Enforcement

III. SUMMARY OF ISSUES
STATEMENT OF CONCERNS/ APPARENT VIOLATIONS
Elizabeth Q. Ten Eyck, Director
Division of Fuel Cycle Safety and Safeguards, NMSS

IV. LICENSEE PRESENTATION
Charles Carr, Vice President,
Manufacturing and Field Services
B&W Fuel Company (Framatome Cogema Fuels)

V. BREAK/ NRC CAUCUS

VI. NRC FOLLOW-UP QUESTIONS

VII. CLOSING REMARKS
Elizabeth Q. Ten Eyck, Director
Division of Fuel Cycle Safety and Safeguards, NMSS

Enclosure 2

SUMMARY OF EVENT

- NOVEMBER 12, 1996 B&W FUEL COULD NOT LOCATE FUEL ASSEMBLY #31908.
- NOVEMBER 13, 1996 THE INVENTORY EFFORTS COULD NOT LOCATE THE ASSEMBLY AND THE EVENT WAS REPORTED TO THE NRC.
- NOVEMBER 14, 1996 THE ASSEMBLY WAS LOCATED IN GREIFSWALD, GERMANY

APPARENT VIOLATIONS[1]

I) THE LICENSEE FAILED TO IMPLEMENT PROPER NOTIFICATION PROCEDURES OF THE EVENT TO THE NRC.

II) THE LICENSEE FAILED TO FOLLOW ITS OWN PROCEDURES FOR THE DOWNLOADING OPERATION.

III) THE LICENSEE FAILED TO PROVIDE ADEQUATE AND DETAILED PROCEDURES FOR THE DOWNLOADING OPERATION.

IV) THE LICENSEE FAILED TO ADEQUATELY EVALUATE THE RESULTS OF THE RADIOLOGICAL SURVEY OF CONTAINER #440/70-30 WHICH HOUSED THE FUEL ASSEMBLY.

V) THE LICENSEE FAILED TO COMPLY WITH NUMEROUS REQUIREMENTS FOR THE SHIPMENT OF LICENSED MATERIAL.

VI) THE LICENSEE FAILED TO IMPLEMENT ADEQUATE MC&A PROCEDURES AND PRACTICES TO VERIFY THE PRESENCE OF FUEL ASSEMBLY #31908.

[1] The apparent violations discussed at this conference are subject to further review and change by the NRC prior to any resulting enforcement action.

Presentation Outline

1. Review of Incident
2. Overall Safety Significance of the Event
3. Determination of Root Cause and Corrective Actions
4. Overarching Root Cause
5. Detailed Review of Inspection Report Findings and Correlation to Root Causes and Corrective Actions Already Planned or Completed
6. Precursor Events
7. Planned Future Action
8. Conclusions

Review of Incident

- On September 25, 1996, FCF returned shipping package S/N 30 to Greifswald in Germany.
- On November 12, 1996 during preparation for scheduled download, the FCF supervisor could not find VVER assembly S/N 31908.
- The SNM Control Administrator was notified and a review of records was initiated to locate the assembly or the SNM removed from the assembly in the download operation.
- During the review, the Plant Manager was notified by the Manufacturing Manager that an assembly could not be located.
- All parties reviewed the FNMC Plan, Rev. 7 and agreed that if the physical search and records review were not successful and the situation was not resolved by 8:00 AM the following day, NRC notification would occur.

Review of Incident

- Investigation by the Manufacturing Manager discovered an indication in the shipping paperwork that the assembly may never have been removed from its shipping package.
- On November 13, 1996, Plant Manager was made aware that physical search and records review had not located the assembly and there was probably an inadvertent re-shipment of the assembly.
- NRC Region and Headquarters were notified.
- Inquiry was initiated with the German company to locate the container and assembly.
- NRC responded with an Inspection Team.
- On Nov. 14, 1996 the missing assembly was located in its shipping container in Germany.
- On January 3, 1997 the VVER assembly S/N 31908 was received back at FCF. It was verified and stored in accordance with the NRC's Confirmatory Action Letter in its shipping package.

Safety Significance of the Event

- The effect on the health and safety of the public of this event was not significant.
  - The assembly was always encased in its approved shipping package.
  - External radiation readings were very low (<0.6 mRem).
  - The assembly was isolated, which together with packaging design, minimized any criticality concerns.
- There are scenarios where the assembly could have presented a minor risk to public health and safety because its presence was unknown.
- The incident pointed out work practices, attitudes, systems and management practices at FCF which could, under other circumstances, have safety consequences.

Determination of Root Cause and Appropriate Corrective Action

- Executive Management of Framatome Technologies and Framatome Cogema Fuels organized a special Management Oversight Team to ensure that an effective investigation would be done and comprehensive corrective actions applied.
- Industry experts were retained to help with the root cause analysis and corrective actions.
- The Management Oversight Risk Tree (MORT) analysis tool was employed after discussion with the NRC.
- The entire FCF organization was included in the analysis.
- An Independent Team of senior industry managers was retained to review the final effort prior to submittal to the NRC on December 20.
- The Self Assessment Team has continued to work and will complete their report by the end of February.

Overarching Root Cause

Reference NRC letter Dated Jan. 22, 1997

- Overarching Root Cause
  - Deficiencies in management oversight particularly related to non-standard activities at LMF.
  - The perception of the organization and key managers that this work could be completed without the management and control systems routinely associated with nuclear fuel production.
  - Actions taken to correct problems in regulatory compliance have tended to be to narrowly focused.
- Corrective Actions
  - Management review and oversight will be strengthened by administrative procedures with emphasis on non-standard and infrequently occurring activities.
  - Administrative procedures have been changed to assure that all operations involving SNM are under the full authority and control of the Quality Assurance Plan. There will be no different "classes" of operations.
  - Emphasize to all employees the importance of managing changing conditions.
  - Management procedures and methods will be examined and modified so that events and deficiencies in all areas are treated individually and collectively, trends identified, and action taken.

Report No. 70-1201/96-202

Inspection Report Findings

Ms. Gayle F. Elliott
Manager, Safety and Licensing

- Numbers in Parentheses after Cause and Corrective actions refer to Attachment 2 to FCF's letter of Dec. 20, 1996

Inspection Report Findings
Violation 96-202-01
Failure to Follow General Reporting Requirements

- Facts
  - FCF agrees with the essence of the observations and findings as presented.
  - FCF followed the FNMC Plan which was in effect at the time of the incident.
  - FCF did not believe that a theft or unlawful diversion of SNM had occurred based on initial evaluations.
  - A very high degree of confidence existed as to the cause of the missing assembly within 24 hours.
- Safety Significance
  - There was no safety significance. The NRC was duly notified.

Inspection Report Findings
Violation 96-202-01

- Cause
  - Reviews of the FNMC Plan did not detect any discrepancy between the wording of 10CFR70 and 74 and the requirements of Para. 7.1 of the FNMC Plan.
  - Theft was not suspected, thus the 1 hour reporting requirement of 10CFR and the FNMC Plan were judged not to be applicable.
- Corrective Actions
  - The FNMC Plan is being verified by independent overview to assure that reporting requirements are correct and highlighted.
  - All relevant procedures are being reviewed to verify that reporting requirements of 10CFR 70, 71 and 74 are accurately specified and highlighted.
  - Changes to the FNMC Plan will be discussed with the NRC staff to assure that interpretations are correct.

Inspection Report Findings
Violation No. 96-202-02
Failure to Follow Procedure MA-587 and RP-007

- Facts
  - FCF agrees with the essence of the observations and findings as presented.
  - The level of detail and the lack of sign-off on the Route Card was the result of the degree of control the engineering and manufacturing personnel felt was necessary for the job.
  - If the operators had done what was required by the procedures, the event would not have occurred.
- Safety Significance
  - For this event there was no safety significance, however, strict adherence to procedures is **required** for safe, quality operation of our facility.

Inspection Report Findings
Violation No. 96-202-02

- Cause (5,10)
  - Failure of operator to follow procedures.
  - Lack of verification process through normal Quality system.
  - Work was performed to a Route Card which did not adequately reference the procedure.
  - Adequate supervision was not maintained.
- Corrective Actions (5.1 ,5.2, 10.1)
  - Implementation of a formal administrative procedure to cause the evaluation of risk in situations where conditions are changing or are non-standard.
  - Clear and unambiguous direction from management through employee meetings and written communications concerning the importance of strict adherence to procedures.
  - Changes to the General Employee Training syllabus to emphasize the need and importance of procedures.
  - Route Cards have been revised to reference the proper procedures.

Inspection Report Findings
Violation No. 96-202-03
Inadequate Procedures and Route Cards

- Facts
  - FCF agrees with the essence of the observations and findings as presented.
  - The prevailing attitude toward the downloading job and statements by management at several levels created an approach to this job which was less formal than other work with SNM.
  - The fuel storage racks were treated as a primary control volume for SNM however no log was in place and there was no audit process.
- Safety Significance
  - There was no safety significance. Configuration and criticality controls were maintained by the design of racks and containers.

Inspection Report Findings
Violation No. 96-202-03

- Cause (3, 5)
  - Procedures and requirements were vaguely written and allowed excessive latitude.
  - SNM procedures did not require a log in of the assembly at the point of storage.
  - There was no independent verification in the Route Card that the assembly was removed from the container and properly stored.
  - Storage in the rack was not originally part of the plan for this download job.
  - The need to remove and store was created by the change in plans which was driven by the change in the schedule.
  - A review of the procedures and methods was not made when plans changed.
- Corrective Actions (3.1, 5.1, 5.2)
  - Procedures and Route Card have been revised to provide the necessary details, independent verification, and sign-offs.
  - A log system for SNM has been created for the storage rack as a primary control volume.
  - Administrative procedures to require reevaluations of procedures and methods when plans change will be implemented.

Inspection Report Findings
Violation No. 96-202-04
Failure to Adequately Evaluate Surveys

- Facts
  - FCF agrees with the essence of the observations and findings as presented.
- Safety Significance
  - The gamma level of 0.6 mRem at the surface of the container exterior exceeded DOT regulations for empty containers (0.5 mRem).
- Cause (9)
  - Inadequate initiative by the personnel involved to resolve the unusual conditions observed.
  - Inadequate procedures and survey forms.
- Corrective Actions (9.2, 9.3)
  - Procedures and survey forms have been revised to provide appropriate data and instructions when shipments are not within limits.
  - Personnel have been retrained on DOT requirements.
  - Shipping procedures have been revised to prohibit shipments from the facility without a written Health Safety release.

Inspection Report Findings
Violation No. 96-202-05
Shipment of Container with SNM Without Meeting the Requirements for Such Shipment

- Facts
  - FCF agrees with the essence of the observations and findings as presented.
  - The violations were the result of the belief that the package was empty and that the requirements for shipping fissile material were not applicable.
- Safety Significance
  - The shipment of a container which was believed to be empty but which was not, could have exposed the public to very low concentrations of radioactive material had an accident occurred which breached the container and the assembly.
- Cause (8, 9)
  - Personnel errors during the unloading of the assemblies and shipment of the containers.
  - Failure to follow procedures for shipment of licensed material.
- Corrective Action (8.1, 9.1, 9.2, 9.3)
  - Administrative controls for safety related work will be used for all work involving SNM in the future.
  - Procedures for radiation protection and shipping of licensed material have been revised to verify proper handling and labeling.

Inspection Report Findings
Violation No. 96-202-06
Multiple Deficiencies in the MC&A Plan

- Facts
  - FCF agrees with the essence of the observations and findings as presented.
  - The FNMC Plan and procedures have been and are effective in meeting the requirements of 10CFR74 for operations normally conducted at FCF.
  - The VVER download as originally planned did not challenge the FNMC Plan.
- Safety Significance
  - For non-standard operations, failure to adequately control licensed material could endanger the public health and safety.
- Cause (3,6)
  - Inadequate management oversight.
  - Poor planning in the face of changing conditions.
- Corrective Actions (3.1, 3.2, 6.1)
  - Controls and administrative procedures applicable to safety related work will be applied to all operations involving SNM.
  - The FNMC Plan will be revised to enhance the positive control of all SNM.
  - All SNM records for shipped material have been corrected.

Framatome Cogema Fuels

Evaluation of Precursor Events, Future Actions, and Conclusions

Charles W. Carr

Precursors

- NRC imposed a civil penalty in Nov. 1995
  - Use of pellet shipping containers which did not meet the requirements of the Certificate of Compliance.
  - Furnishing incorrect information to the NRC on the use of shipping containers.
  - Having possession of natural UF6 in excess of licensed limits.
- To address the NRC's technical position, poison plates were added to the containers to improve margin in the criticality analysis.
- Organizational changes were made in MC&A and Licensing groups to correct the communication issues.
- These events were unlike the VVER assembly shipment event. FCF believes that the actions taken to improve the quality of performance in normal pellet shipments were effective.
- Corrective actions for these events have been verified and closed out by the NRC.

Future Action

- As discussed in FCF's Dec. 20 letter, an assessment of the management and control of regulated activities at the Lynchburg Manufacturing Facility of FCF will be completed by an outside team of industry recognized experts.
- Plant management changes are being made and training needs will be addressed by FCF senior management.
- The effectiveness of the corrective actions taken for this event will be evaluated after a suitable interval.
- Additional corrective action details (not discussed in the Dec. 20 letter) will be discussed in our written response to the inspection findings.

Conclusions

- FCF's investigation essentially agrees with the NRC inspection report.
- There was no threat to the health and safety of the public.
- FCF management and personnel understand the seriousness of this event and are committed to correcting the conditions and practices that allowed the event to occur.
- FCF management accepts the responsibility for this event and acknowledges that proactive management oversight and involvement must be strengthened.

Conclusions

- The corrective actions already implemented will prevent this specific event in the future.
- Additional future corrective actions to address the management, processes, and culture issues will significantly reduce the likelihood of a similar event in the future.
- FCF believes that its reporting, investigation, and actions related to this event have been appropriate.
- FCF acknowledges the constructive criticism from the NRC.
- FCF management is committed to Continuous Improvement. We have demonstrated that in the manufacturing of defect-free nuclear fuel. We intend to also demonstrate that result in the area of all regulated activities.