U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 70-1100/92-03

Docket No. 70-1100

License No. SNM-1067 Priority: 1 Category: ULFF

Licensee: Combustion Engineering, Incorporated
1000 Prospect Hill Road
Windsor, Connecticut 06095-0500

Facility Name: Nuclear Fuel Manufacturing and Nuclear Laboratories

Inspection At: Windsor, Connecticut

Inspection Conducted: November 16 - December 1, 1992

Inspectors:

J. Roth, Project Engineer — Date: 12/29/92
Facilities Radiation Protection Section

J. Noggle, Radiation Specialist — Date: 12/29/92
Facilities Radiation Protection Section

C. Gordon, Sr. Emergency Preparedness Specialist — Date: 12/29/92
Emergency Preparedness Section

Approved By:

for W. Pasciak, Chief — Date: 12/30/92
Facilities Radiation Protection Section

Areas Inspected: Announced inspection by three region-based inspectors of the licensed program in the areas of operations review, emergency preparedness (EP), decommissioning activities, and preparation of a decommissioning plan for the Windsor Fuel Manufacturing facility.

Results: The licensee's response actions for the EP exercise were adequate to provide protective measures for the health and safety of the public. Areas for improvement were identified relating to performance and control during the EP exercise, to onsite decommissioning activities, and to preparation of the Windsor Fuel Manufacturing Facility Decommissioning Plan. Within the scope of this inspection, no safety concerns or violations of regulatory requirements were identified.

DETAILS

1.0 Individuals Contacted

R. Bennett, Manager, Training
* J. Conant, Manager, Nuclear Licensing
* S. Junkrans, Vice President, Manufacturing Operations
* G. Kersteen, Uranium Plant Manager
J. Limbert, RSO, Outage Services
* M. Michelsen, Licensing Engineer
J. Moulton, Manager, Windsor Woods Project
A. E. Scherer, Vice President, Regulatory Affairs
* W. Sharkey, Manager, Radiological Protection and Industrial Safety

* Denotes those present at the exit interview. Other individuals were also interviewed during this inspection.

2.0 Review of Operations

The inspector examined areas of the nuclear fuel manufacturing facility, and the nuclear laboratories to observe operations and activities in progress. In addition, the following areas were reviewed: nuclear safety aspects of the facilities; the general state of cleanliness, housekeeping, adherence to fire protection rules; and the status of redeployment and decommissioning activities.

2.1 Nuclear Fuel Manufacturing

During examination of the Nuclear Fuel Manufacturing facilities located in the Building 17/21 Complex, the inspector reviewed the following items.

2.1.1 Status of Redeployment Activities

The inspector observed that cleanup of the Pellet Shop was completed. This included removal and/or relocation of all process equipment. The licensee also completed initial decontamination of walls and floors of portions of the Pellet Shop, where required.

2.1.2 Building 21 Warehouse Storage

During examination of the Building 21 Warehouse, the inspector noted that each of the east-west aisles between storage racks was blocked. This made egress of personnel from the west end of the building, in case of fire or other emergency, very difficult. Licensee representatives stated that this condition would be rectified as soon as possible.

2.1.3 Radiation Protection Records Review

The inspector reviewed survey records of the NFM facility for the period September 1 to December 1, 1992. These records indicated that all of the routine surveys were being accomplished in a timely fashion and were complete and of good quality. TLD results for the same period were also reviewed and the licensee has shown diligence in manually correcting the vendor-supplied TLD results with a site specific beta correction factor. No discrepancies were noted.

2.2 Building 5 Complex Tour

During examination of the Nuclear Laboratories, located in the Building 5 Complex, the inspector observed the following item.

2.2.1 Ceramics Laboratory

The inspector noted that the licensee completed equipment removal from the Building 5 Ceramics Laboratory. The laboratory has been gutted. The ceiling was removed, the walls stripped of equipment and the floor has been scabbled to remove a potentially contaminated layer. A contaminated drainline was removed to the wall of the laboratory and the end of the pipe was then sealed with a concrete plug. Soil samples from around the excavated drainline were taken and split with the NRC for analyses. The results will be included in an inspection report when they are available.

During examination of the decontaminated laboratory, the inspector noted the existence of one concrete sealed floor drain that had not been checked for contamination by the licensee. Three other floor drain penetrations (two roof drains and another floor drain) were not checked to assure contaminated material had not penetrated the floor surrounding the drains. Numerous floor equipment anchor bolts had not been removed and checked for contamination. Inside surfaces of room air ventilation ductwork had not been surveyed and surfaces adjacent to holes in the walls and ceilings had not been checked for contamination.

The inspector arrived at the site prepared to review the licensee's final survey report and to conduct a verification survey in this laboratory. However, because of the survey deficiencies identified above and because the final survey report was not provided to the inspector until the end of this inspection, no verification surveys were performed. The licensee was requested by the inspector to (1) perform the additional surveys identified above, (2) revise the final survey report accordingly, and (3) provide that

revised survey report to the NRC for review 30 days prior to the expected release of the laboratory for unrestricted use. The 30-day notice is required by License Condition No. 17 to License No. SNM-1067.

3.0 Contaminated Wooded Area

The licensee has formally applied to the Department of Energy (DOE) for funds and guidance to facilitate cleanup of the contaminated wooded areas onsite. This guidance was expected to lead to a final disposition of the special nuclear material found, possibly under the DOE Formerly Utilized Site Remedial Action Program (FUSRAP).

Since the last inspection, the licensee initiated characterization of Building 3 at the Windsor site. This building originally was used for the fabrication of reactor cores for the U.S. Navy Nuclear Propulsion Program under contract with the USAEC. Preliminary results of this characterization indicated the presence of uranium contamination under paint on surfaces up to about 60,000 dpm per 100 cm^2. In addition, it has been determined that a site creek which leads to the Farmington River is also contaminated with uranium and will require remediation.

4.0 Status of the Windsor Fuel Manufacturing Facility Decommissioning Plan

According to licensee representatives, the Windsor Fuel Manufacturing facility is expected to be shut down at the end of the third quarter of 1993. As a result, the licensee expects to submit a Decommissioning Plan to the NRC by December 31, 1992.

During discussions with licensee representatives, the inspector stated that the NRC will expect the following to be addressed: decontamination of the wooded areas, Building 3, the stream, drainlines from Building 5, and the Building 6 hold tanks. This should be done pending resolution of discussions held with the DOE FUSRAP Program Office to ensure that appropriate actions are taken to clean up the indicated areas prior to termination of the special nuclear material license.

5.0 Biennial Emergency Preparedness (EP) Exercise

5.1 Background

On November 16, 1992, the licensee conducted the required biennial EP exercise. A scenario was developed by CE site staff and submitted to NRC on October 16, 1992. NRC Region I reviewers discussed scenario improvements with the Training Department Manager. The scenario, as implemented, was determined to be broader in scope than previous exercise submittals, and proposed sufficient challenges to certain key elements of the Windsor Emergency Plan. Also

included in the scenario were areas previously identified by the NRC that were in need of corrective action.

The scenario included the following simulated events:

- Gas explosion near the Bulk Dryer Furnace;
- Partial loss of Nuclear Fuel Facility (NFF) Building 17 structures;
- Presence of dust, smoke, broken glass, debris, and pellets throughout the NFF pellet shop;
- Unmonitored release of radioactive material to the environment through an emergency exit door,
- Injury and contamination of two production area workers;
- Transmittal of injured workers to an off-site hospital.

Activities observed by the NRC inspector were:

1. Selection and use of implementing procedures.
2. Assessment of events and classification of an Alert.
3. Direction and coordination of emergency response.
4. Notification of licensee personnel and off-site agencies.
5. Communications/information flow, and recordkeeping.
6. Assessment of off-site radiological dose.
7. Consideration of protection actions.
8. Coordination for in-plant radiation protection.
9. Accident analysis and mitigation.
10. Assembly and accountability of personnel.

5.2 Exercise Observations

The following observations were made during the exercise and discussed with the Training Manager on November 17, 1992.

Overall, the licensee adequately tested and met stated exercise objectives. Activation of the Windsor site emergency response organization (ERO) and use of emergency response facilities generally were consistent with the Emergency Plan and implementing procedures. There was good capability demonstrated at the Emergency Operations Center (EOC) by the Emergency Director (ED) and his support staff to implement key response actions. This included overall command and control of the emergency, direction of in-plant teams, notifications of ERO personnel and off-site support organizations, and coordination with off-site fire and rescue personnel assisting with on-site response. Improvements over the previous exercise were noted in scenario challenges, use of upgraded checklists, and integration of the Management Operations Center (MOC) into the response by senior site staff.

Areas for improvement were also identified.

- The exercise was not conducted in a comprehensive, well-controlled manner. The EP Manager served as the lone controller, rotating himself among different site locations to oversee each event. Several individuals were available throughout the site to function as observers and monitor response activities of ERO personnel, but did not provide sufficient scenario direction and control. Examples included early exercise termination by players, limited extent-of-play in the MOC, lack of medical (vital) information on injured victims, and confusion in the use of real-time vs. scenario-furnished meteorological data. The dose assessment function, which included the ability to perform off-site radioactive release estimates, was not tested.

- The scenario allowed a good challenge to the licensee's off-hours medical response capability. As a result, however, the inspector found that an event leading to contaminated/injured personnel at different site locations could not be handled expeditiously. During the response by the ambulance crew, the seriously injured individual at the accident scene did not receive prompt attention by Emergency Medical Technicians since they were directed by the ED to another injured individual in a different site area.

- Although direction of activities was acceptable, the ED appeared overburdened while carrying out immediate response actions until relieved by MOC staff. In addition to assuming overall control of the emergency,

concurrent responsibilities included accident assessment evaluation, emergency classification, coordination of radiation protection effort and field survey teams, direction of site security, and assuring that notifications and press releases were made.

- The emergency classifications presented in Attachment A to EPIP 2.00, Revision 5, "NRC and State of Connecticut Emergency Classifications Comparisons," are not consistent with those in Attachment B, "Emergency Classification and Assessment." For this scenario, the appropriate classification from Attachment A was Alert, based upon an incident causing a radioactive release on-site without off-site impact. This conflicts with classification based on Attachment B, which specifies a Site Area Emergency for an explosion which breaches facility integrity.

- The EOC was used primarily for in-plant team briefings and equipment issue while the majority of ED direction was provided from outside the EOC via portable radio. This reduced the efficacy of the EOC as an emergency response facility. Further, positioning the ED outside the EOC had the potential to hamper a prolonged response due to extreme real-time weather conditions.

- MOC discussions relative to media interactions centered around issuing a press statement in lieu of a press release. The licensee's position on handling of a press statement and press release and the distinction between each was unclear.

- A post-exercise critique was held in which the licensee summarized observations from the exercise. A draft Exercise Observations report was provided to the inspectors and included recommended actions in the areas of training, accountability, communications, equipment upgrades, and scenario control. Review of the report indicated good recommendations, but a management commitment to address recommendations was not provided.

6.0 Exit Interview

The inspectors met with the licensee representatives denoted in Paragraph 1.0 at the conclusion of the inspection on November 17 and December 1, 1992. The inspectors summarized the scope and findings of the inspection.