License File
Docket File # 70-0036

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

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NOV 10 1992

MEMORANDUM FOR: Roy J. Caniano, Chief, Fuel Facilities and Contaminated Sites Section

FROM: George M. France, III, Fuel Facilities Inspector

SUBJECT: TRIP REPORT FROM OCTOBER 28, 1992, MEETING WITH COMBUSTION ENGINEERING

On October 28, 1992, I attended and participated in a meeting in NMSS with Combustion Engineering representatives to discuss nuclear criticality safety in CE Hematite operations. Representatives attending the meeting from the NRC and licensee are identified in the list attached to this memorandum.

The licensee presented three changes or facility modifications to existing operations that will require a nuclear safety analysis, but not necessarily a license amendment application. Apparently, a calculation based on a safety scenario discloses an unsafe condition. A calculated K-effective for the vaporizer, which is used to heat UF_6 cylinders, may exceed unity, especially if the void surrounding the cylinder is assumed to be filled with enriched uranium-235. In practice, the vaporizer is stationed in a tilted arrangement and the unit is loosely placed over the cylinder. This arrangement will allow UF_6 to escape and cause K-eff of the vaporizer to remain below unity. The licensee, will include this analysis in the nuclear safety file as part of the nuclear safety scenario.

The licensee plans to blend erbium oxide (Er_2O_3) with UO_2 powder as a replacement for gadolinium, a substance used in nuclear fuel to absorb neutrons. This will require a modification to the erbium pellet line in Bldg. 255. The modification would involve erecting a wall to isolate the erbium pellet line. The construction of the wall, along with the new ventilation system, should prevent cross contamination between Er treated UO_2 and UO_2 used in the pelletizing operations ongoing in Bldg 254. A 1,000 kg storage hopper will be used to transport or store oxide that is scheduled to be treated with Er_2O_3. Deployment of the storage hopper should also reduce the number of 5 gallon pails required for transporting and storing UO_2. The amount of hydrogenous material brought about by either the structural or operational changes should have no significant affect on nuclear criticality safety.

The above changes will probably be accepted by NRC as facility modifications, to be implemented in accordance with the license. Consequently, no license amendment is necessary.

The licensee presented two changes that affect the license amendment application for the fuel rod expansion program. A steel access door will be

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installed on the roof of the room that houses the UO_2 pellet storage and retrieval system. A steel cover will be provided for each storage and retrieval tray. These changes were not described in the previous submittal. The trays are designed with drainage holes, to prevent any build up of moisture. Ambient conditions are controlled and should prevent condensate from forming on the inside of a pellet tray lid. During the meeting, the licensee agreed to develop a procedure to check the building roof for rainwater leaks. NRC is concerned that a leak in the building's roof may go undetected and cause water to either accumulate or infiltrate the inner roof that protects the Kardex storage and retrieval system. The presence of water as a moderator, could increase K-eff from 0.48 to >0.95, which would render the Kardex retrieval unit out of compliance with the license. Albeit, the pellet trays have perforated bottoms to offset any problem from water build up. Also, the Kardex unit is designed to store pellets at a minimum tray height of 15 inches above the floor.

In response to other NRC concerns, the licensee indicated that a "radiation work permit" (RWP) will be developed for maintenance workers to follow, when servicing the Kardex unit.

The licensee expressed concern about the need for an environmental assessment (EA) to cover certain preliminary activities in the fuel rod plant. NMSS stated that it is feasible that the use of radioactive material to test the rod load scanner, and test load the Kardex unit may meet the criteria for a categorical exclusion from an EA. Additionally, the new building is not expected to impact upon the 150 μCi quarterly limit for radioactive airborne effluent that is currently imposed by license condition.

I plan to continue discussions with NMSS and the licensee concerning the construction process. Additionally, I will review the various problems which may arise, during onsite inspections.

I will be glad to discuss this matter with you at any time.

George M. France, III
Fuel Facilities Inspector

cc: Docket File No. 70-0036

Attachment: As Stated

CE/NRC Meeting Attendees
10/28/92. 1:30pm, OWFN 4B/3

SEAN SOONG. NRC/NMSS

George M. France III NRC/DRSS Region III

Chuck Robinson NMSS

Bob Klotz ABB-CE

JOHN COMANT ABB-CE

Michael Tokar NRC/NMSS

John Hickey NRC/NMSS