

April 15, 2002

MEMORANDUM TO: File

FROM: John F. Stang, Sr. Project Manager, Section 1 /RA/
Project Directorate III

SUBJECT: TELEPHONE CONVERSATION WITH INDIANA MICHIGAN POWER
COMPANY REGARDING THE UPCOMING INSPECTION OF THE
REACTOR VESSEL HEAD OF DONALD C. COOK NUCLEAR PLANT,
UNIT 1 (TAC NO. MB4540)

On March 28, 2002, and March 29, 2002, the U.S. Nuclear Regulatory Commission (NRC) staff held a telephone conference call with the staff of Indiana Michigan Power Company (the licensee) to discuss the upcoming reactor vessel head inspection at Donald C. Cook Nuclear Plant, (D.C. Cook) Unit 1.

The conversation is summarized below:

The NRC staff asked the licensee to describe the upcoming reactor vessel head inspection for D.C. Cook, Unit 1. The licensee indicated that it will perform a 100 percent bare metal visual inspection of the Unit 1 head under the insulation during the upcoming Unit 1 Cycle 18 refueling outage. Certified personnel will perform the inspections.

The licensee also indicated that it will perform one of the following inspections for each of the control rod drive mechanism (CRDM) and thermocouple penetrations during the Unit 1, Cycle 18 refueling outage:

Surface examination, eddy current test or liquid penetrant, of the wetted surfaces on and near the "J-groove" weld on the outside and inside diameter, supplemented by ultrasonic testing as necessary for weld locations that are not accessible by eddy current probes.

Ultrasonic testing from the inside diameter of the penetration capable of detecting circumferential cracks on the outside diameter above and in the vicinity of the J-groove weld.

The licensee stated that the basis for the 100 percent bare metal visual inspection and the non-destructive examinations is to confirm that the vessel head has no indications of degradation, and that the CRDM and thermocouple penetrations have no unacceptable flaws.

The NRC staff asked the licensee the history of boric acid leaking on the Unit 1 reactor vessel head, and if a bare metal inspection of the Unit 1 reactor vessel head had been performed previously.

The licensee indicated that a 100 percent bare metal inspection of the reactor vessel head has not been performed. However, in 1994, using a remote camera, a bare metal inspection of the 34 outermost penetrations was performed to detect evidence of reactor coolant system reactor coolant system leakage. No leakage from the vessel head was detected during this examination. During the same outage, three canopy seal weld leaks that had been identified were repaired. Three panels of insulation were moved or removed for boric acid cleaning. The majority of the boric acid was cleaned, but minor amounts of dried boric acid crystals were allowed to remain on the head. Upon completion of cleaning, a bare metal VT-1 examination of these areas was performed using both direct visual and a remote camera system. The VT-1 examination was found to be acceptable. The three leaking canopy seal welds were repaired prior to returning Unit 1 to power. Since 1994, there have been no leaks from above the reactor vessel head that have reached the insulation.

In addition, the licensee stated that penetration cracking is not expected to exist in Unit 1 due to its low susceptibility ranking. The plant-specific input data used in developing the susceptibility ranking were the average operating temperature of the reactor vessel head over the life of the plant and the number of effective full power years (EFPY) of operation. The susceptibility evaluation showed that it will take 30.3 EFPY of additional operation for D.C. Cook, Unit 1 (from March 2001), to reach the same time-at-temperature as Oconee-3 at the time the leaking nozzles were discovered. This is based on the assumption that the average head temperatures remain the same for future years. In addition, the most recent boric acid walkdowns following a forced outage in September 2001, revealed no leakage from sources above the head.

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