DOCKET FILES

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUN 05 1990

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Docket No. 50-247

LICENSEE: Consolidated Edison Company of New York, Inc.

FACILITY: Indian Point Nuclear Generating Unit No. 2

SUBJECT: MEETING MINUTES REGARDING MAY 21, 1990 MEETING TO DISCUSS RESULTS OF MID-CYCLE INSPECTION OF INDIAN POINT 2 STEAM GENERATORS

A meeting was held in the NRC One White Flint Office in Rockville, Maryland on May 21, 1990, with Consolidated Edison and NRC staff representatives to discuss the results of the recently completed mid-cycle inspection of the Indian Point 2 steam generators. This meeting was requested by the NRC staff as a followup to the March 14, 1990 meeting during which the initial results of the mid-cycle inspection were discussed. The purpose of the meeting was for the licensee to brief the staff on the results of the mid-cycle inspection of the Indian Point 2 steam generators and to review the results of the licensee's analysis supporting continued operation of Indian Point 2. Enclosure 1 is a list of the meeting attendees.

Prior to the meeting, the staff had received and reviewed copies of proprietary WCAP 12573 and non-proprietary WCAP 12574 "Indian Point Unit 2 Steam Generator Inspection, Repair, and Restoration Program."

The licensee's presentation consisted of a non-proprietary discussion of inspection results, repairs, metallurgical analyses, root cause and mitigating actions and a proprietary discussion of industry experience and steam generator integrity evaluations. Enclosure 2 is a copy of the licensee's non-proprietary handout. The material used during the proprietary discussion was attached to Enclosure 3; however, the proprietary material has been removed and is being withheld from public disclosure.

During the meeting, the licensee reported that analyses had determined that the cracking in the girth welds, base material of the transition cones and in the feedwater ring supporting brackets was caused by corrosion fatigue and/or stress corrosion depending on the loads, environment and location. These analyses also determined that the crack initiation occurred at locations with surface pitting that was caused by the presence of oxygen, copper and stress (residual or applied). The cracking in the feedwater piping and nozzles was caused by corrosion fatigue.

The licensee has removed and repaired all identified cracks in accordance with ASME Code requirements. The feedwater piping and nozzles have been returned to the original design configuration. The licensee is also making modifications to the plant to reduce the level of oxygen in the water that contributes to

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pitting and crack initiation. In addition, the licensee has a program to replace all copper bearing materials in the condensate and feedwater system during the next two refueling outages. In response to NRC's concern that pitting in other parts of the steam generator shells could lead to cracking, the licensee stated that although they had not performed detailed inspections of the lower internal surfaces of the steam generator shells, they had noted that the surface pitting appeared concentrated in the areas near the girth welds.

At the conclusion of the meeting, the NRC staff reiterated its position that the steam generators, including internal brackets and feedwater nozzles, must meet the requirements of the ASME Boiler and Pressure Vessel Code for restart and for the duration of the subsequent operating period. The licensee's analyses for restart and continued operation must include consideration of the maximum additional cracking considered credible during the next period of operation.

Based on the information presented at the meeting and the staff's preliminary review of the licensee's analyses, the NRC staff made the following requests:

1. The licensee should perform appropriate visual inspections of one steam generator to confirm that the lower interior surface of the steam generator shell is acceptably free of surface pitting. The results of these inspections should be recorded. The licensee committed to perform these visual inspections.

2. The NRC should be informed of the inspection plan and engineering acceptance criteria for these visual inspections prior to initiating these visual inspections.

3. If the acceptance criteria for surface pitting is exceeded, the results should be reported to the NRC and the licensee should determine the extent of additional volumetric inspections required.

4. Prior to restart, the licensee should provide the NRC with a summary of inspections performed during the current outage. This summary should include the results of additional UT inspections currently being performed.

5. The licensee should provide a comprehensive final report within approximately 30 days of restart. This report should include:

   a. inspection results
   b. definition of loads considered
   c. stress analyses
   d. fracture mechanics
   e. metallurgical analyses
   f. repair methods

ORIGINAL SIGNED BY:

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Enclosures:
As stated

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