Consumers Power
POWERING MICHIGAN'S PROGRESS
Big Rock Point Nuclear Plant, 10269 US-31 North, Charlevoix, MI 49720

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Nuclear Regulatory Commission
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DOCKET 50-155 - LICENSE DPR-6 - BIG ROCK POINT PLANT - REPLY TO A NOTICE OF VIOLATION - NRC INSPECTION REPORT 93019; ITEM 01: FAILURE TO EVALUATE RESULTS OF VOTES TESTING FOR MOTOR OPERATOR (MO)-7053. CORRECTIVE ACTION UPDATE.

By a letter forwarded January 17, 1994, Consumers Power Company responded to NRC Inspection Report 93019; Item 01: Failure to evaluate results of VOTES testing for motor operator MO-7053. The violation concerns the failure to evaluate the results of static VOTES (Valve Operation Test and Evaluation System) testing at the final "as left" torque switch setting for motor operator MO-7053, the Emergency Condenser Outlet Valve Operator for Loop No. 2, conducted August 4, 1993.

The purpose of this letter is to update three of the seven corrective steps taken during the recent maintenance outage to avoid further violations.

Discussion

The Limitorque valve operator on MO-7053 was overhauled and diagnostically tested using VOTES during the 1993 refueling outage. During the VOTES testing, MO-7053 had an abnormally high disk pullout force. The torque switch was deliberately set low to reduce the seating force (which in turn decreases the pullout force). MO-7053 has a safety function to open and efforts had been made to maximize the margin in the open direction. Arrangements were also initiated to work on MO-7053 valve set/disk angles during the 1994 refueling outage. It was anticipated that this was the cause of the high pullout forces.

On November 5, 1993, while performing surveillance test T90-26; MO-7053 stroked open, but failed to close (it is normally closed). A Deviation report was issued to document this event. The plant was in power operation at the time of the occurrence.

During the review of the VOTES work order, the wrong VOTES test report had been attached to the work order. This "interim" test met all the acceptance criteria in the procedure, however a later "final" test had been performed at

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a lower torque switch setting. This "final" as left test did not meet the minimum closing thrust requirements.

Based on this information, it was anticipated that the low torque switch setting was the cause of the failure. Several attempts were made to "bump" MO-7053 closed, but these attempts were unsuccessful. The plant continued to operate in accordance with 10 CFR 50.36(B)(ii)(A).

The corrective steps that will be taken to avoid further violations - update.

1. *Perform a VOTES test on VOP-7053 and the necessary torque switch adjustment to ensure valve closing and opening thrust values meet MGP-39 acceptance criteria.*

During the March, 1994 maintenance outage, a work order was issued to correct the problems with MO-7053. A troubleshooting plan was made which included giving the valve a close signal while monitoring the stroke using VOTES. The valve closed without incident, confirming that the torque switch was set too low to close against system pressure. The torque switch setting was verified to be approximately 1.25.

The actuator was removed from the valve, and the valve was disassembled. The disk was blued and was found tight on the top seating surface. The disk was then machined to match the seat angle more closely. 0.005 inches of material was removed from the top of the disk (to .000 inches at the bottom). The disk was blue checked to the seat and found satisfactory.

The valve was reassembled and the actuator was remounted. Switches were set and VOTES testing performed. The pullout force decreased over 2,500 pounds (from 4763 to 2185 pounds-measured); this was after increasing the seating force over 1700 pounds (from 3163 to 4926 pounds).

In summary, the cause of the high pullout forces (disk to seat angle) was dispositioned, significantly decreasing the pullout force. This enabled the torque switch setting to be adjusted from 1.25 to 2.75 in order to provide assurance the valve will close against system pressure.

2. *Revise EA-AIR-A-NL-89-41-0 (Thrust and Torque Calculation for MO-7053) to take into account the average running load data from the latest VOTES test (#9).*

The average running loads from VOTES tests 8 and 9 for MO-7053 were reviewed.

In the OPEN direction, the average running force for test #9 is less than the measured thrust on test #8. Revising the EA to reflect this change would be less conservative; therefore the EA was not revised.

In the CLOSE direction, the average running force for test #8 was less than test #9 by 64 pounds, or 6.5%. This is in the "non-conservative" direction. However, the diagnostic equipment used to measure force has an accuracy of plus or minus 9% (the error is already included in the EA, therefore it is not necessary to revise it). In addition, the average running load only makes up

35% of the total load the MOV must overcome to close. This further minimizes the effect of the 64 pound force increase. To illustrate, the EA has a calculated minimum thrust to close MO-7053 of 2870 pounds. Adding 64 pounds would increase this value to 2934 pounds. This is only a 2% increase in the calculated minimum thrust required to close the valve. The acceptance criteria in MGP-39 for MO-7053 is 3227 pounds, which includes the 9% VOTES inaccuracy factor. This valve is sufficiently conservative to account for the slight increase in running load. The EA was not revised.

3. *Revise MGP-39 minimum closing thrust value to its required value as determined by the Engineering Analysis EA-AIR-A-NL-89-41-0.*

MGP-39, Motor Operated Valves Post Maintenance/Acceptance Testing and the EA are directly related. Since the EA was not revised, it follows that MGP-39 would not require revising.

Summary

These actions comprise three of the seven corrective steps that were committed to be taken to avoid further violations. As stated in the letter dated January 17, 1994, if the facility is forced to go to cold shutdown prior to the scheduled refueling outage, these three steps would be completed. This update forwards to the commission how these actions have been accomplished. The remaining corrective steps will be addressed prior to the 1994 refueling outage.

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CC: Administrator, Region III, USNRC
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