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Carolina Power & Light Company

OCT 4 1989

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United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
RESPONSE TO MOTOR-OPERATED VALVE INSPECTION (50-261/89-200)

Gentlemen:

Inspection Report No. 50-261/89-200 discusses findings, including two potential enforcement items and two open items, identified by a team which inspected motor-operated valve issues at H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR2) during the period May 22-26, 1989. The report requests a response regarding the findings and weaknesses within 60 days.

Through subsequent contact with the NRC Resident Inspector, CP&L has learned that a Notice of Violation will be issued regarding the two potential enforcement items. We have agreed with the Project Manager that our response to the potential enforcement items identified in the report will be submitted as our response to the Notice of Violation. Accordingly, the attachment to this letter discusses our action in response to the open items.

Questions regarding this matter may be referred to Mr. R. W. Prunty at (919) 546-7318.

Yours very truly,

L. I. Loflin
Manager

Nuclear Licensing Section

JSK/lhr (498CRS)

Attachment

cc: Mr. S. D. Ebnetter
Mr. L. Garner (NRC - HBR)
Mr. R. Lo

IEO1
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ATTACHMENT

DISCUSSION OF OPEN ITEMS

Open Item: Torque Switch Settings

"Within 90 days, a review will be performed of the adequacy of torque switch settings for all safety-related MOVs installed at the H. B. Robinson plant."

The existing torque switch settings were established as a part of the preventive maintenance (PM) program put in place in 1984. The PM program was established to minimize problems associated with the Limitorque actuators. The as-found readings taken on the torque switches were recorded and maintained. A determination was made that no changes would be made to the settings without appropriate engineering evaluation.

On June 6, 1989, a conference call was held between Carolina Power & Light Company (CP&L), NRR, and Region II personnel to discuss the adequacy of the torque switch settings for all safety-related MOVs installed at the H. B. Robinson plant. The Robinson Plant agreed to perform "rough calculations" to determine the torque switch setting adequacy with the understanding that all data may not be available within the 90-day period and certain assumptions and estimations may be required.

Summary

Of the seventy-nine (79) safety-related valves relevant for the review, three (3) valves were found to have torque switch settings below the theoretical minimum value to properly close under differential pressure conditions. These were CC-832, V6-16C, and V6-34C. Two of the three, however, (V6-16C and V6-34C) are routinely stroked under full differential pressure, and review of the stroke time data for these valves reveals no apparent anomalies in their operation. The third valve, CC-832, did in fact not close under differential pressure. Since CC-832 has no close safety function, however, this was strictly an operational concern, and has been dispositioned via standard station procedures.

Two valves (SI-861A and B) were found to have settings approximately 4% higher than the special service rating for the actuator. The settings were, however, far less than the commercial rating for the same actuator. Limitorque was contacted and provided assurance that the as-found settings would not damage the actuators.

Several of the valves reflected torque switch settings above the ANSI B16.34 limits established by CP&L for our review. The use of these limits was suggested by both Crane and Anchor Darling since they could not support performing calculations in the required time frame. The ANSI pressure limit thrust values are considered extremely conservative by both manufacturers and, in general, individual valve component stress limits are well above these values. Since we have assurance from Anchor Darling and Crane that the ANSI limits are conservative, reflecting similar conservatism in the design of their valves, no operability concerns exist for those valves which exceeded the ANSI B16.34 limits.

One additional valve, CVC-350, was found to have a torque switch setting above that determined to be the valve maximum setting. This valve, however, was not going closed, and a current trace revealed what was suspected to be a binding torque switch. Thus, the potential overthrust condition was not exerted on the valve itself. Since CVC-350, however, like CC-832 has no close safety function, it is strictly an operational matter that is being addressed by normal station procedures.

Conclusion

With the exception of CC-832, all of the seventy-nine (79) valves in the review demonstrated adequately high torque switch settings either analytically and/or by physical differential pressure testing. Since CC-832 has no closing safety functions, all of the safety-related valves which have a safety function to close had adequate torque switch settings.

Open Item: Thermal Overload Heater Sizing Review

"Within 90 days, a review will be performed of the thermal overload sizing relative to all safety-related MOVs where either the valve, the motor actuator, or the overload protective device has been modified since original plant construction."

Summary

Ninety-two of the 95 safety-related valves at HBR2 were reviewed: 3 valves which have power removed were not reviewed.

For most of the MOVs, little protection is provided for the motor at locked rotor current and 40% of nominal torque current. For all 92 MOVs, excess valve stroke margin exists. This is consistent with the philosophy stated in Regulatory Guide 1.106 which states, "In nuclear power plant application, the criterion for establishing an overload trip setpoint should be to complete the safety function ... rather than merely to protect the motor from destructive heating." Thus, existing motor protection permits full operation of the valve.

For several of the motors investigated, thermal overload protection was determined to be set too low (excess protection provided). This could cause nuisance trips should locked rotor conditions occur or should excess running load be present during the stroke. However, from the previous review of torque switch setpoint adequacy, it is clear that none of the motors in question would ever approach locked rotor conditions while performing their required functions. All except three of the valves are routinely stroked under full flow and pressure and no nuisance trips have occurred. The three actuators (V2-20A and RHR-750/751) have no design basis accident safety function and no nuisance trips have occurred during stroke testing of these valves.

Conclusion

Based upon the summary discussion, all 92 valves have acceptable thermal overload protection which provides adequate valve stroke margin.