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 RECIP. NAME RECIPIENT AFFILIATION  
 Document Control Branch (Document Control Desk)

SUBJECT: Responds to ltr re weaknesses noted in Insp Rept  
 50-261/91-201 on 910610-14. Corrective actions: opening  
 differential pressure will be revised & used in reviews of  
 mechanical thrust, torque & acutator motor requirements.

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NRC INSPECTION REPORT 91-201: RESPONSE TO IDENTIFIED WEAKNESSES

Gentlemen:

Carolina Power and Light Company (CP&L) hereby provides this response to the issues identified during the Motor Operated Valve Inspection conducted by the Office of Nuclear Reactor Regulation during June 10 through 14, 1991 at the CP&L Corporate Office. As requested in the inspection report, the enclosure to this letter includes actions to address each item and the date when each item is available for reinspection.

With respect to the issues of valve mispositioning and flow determination, the Inspection Report states that CP&L is not in compliance with the recommendations of Generic Letter 89-10. CP&L wishes to emphasize that it is in compliance with the commitments made in its December 27, 1989 response to Generic Letter 89-10, and as reiterated in our June 6, 1991 supplemental response. CP&L further believes that those issues should be considered by the NRC as generic to the industry.

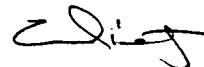
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Letter to United States Nuclear Regulatory Commission  
Serial: RNP/91-2406  
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Should you have any questions regarding this matter, please contact  
Mr. J. D. Kloosterman at (803) 383-1491.

Very truly yours,



Charles R. Dietz  
Vice President  
Robinson Nuclear Project Department

RDC:

cc: Mr. S. D. Ebner  
Mr. L. W. Garner  
INPO

Response to NRC Inspection Report 50-261/91-201  
Motor Operated Valve Inspection

FINDING 91-201-01: Determination of Design Basis Flow Rate

Description of Condition:

To determine the condition under which the MOV must perform its safety function, the generic letter directs licensees to consider all relevant factors that may affect the capability of the MOV to perform its function. These factors include differential pressure and flow conditions. Contrary to the generic letter, the licensee indicated that fluid flow will not be evaluated for design basis conditions. The licensee elaborated on this position by indicating that a component for flow does not exist in the current industry equations for MOV sizing or in the proposed INEL thrust equation.

Response

The inspection report correctly states CP&L's position that system flow rates are contained in various plant documents and will not be reevaluated for specific MOVs which will be in the generic letter MOV program. However, as reiterated in our letter of June 6, 1991, a parameter for flow does not exist in the current industry equations for MOV sizing or in the proposed INEL thrust equation. The parameters which are used in the current industry equations include differential pressure, upstream pressure, valve geometry, and packing loads. As emphasized in the June 6 letter, CP&L will use existing system configurations (i.e. available pumps, valves and piping, etc.) to develop maximum flow rates that can be achieved during differential pressure testing. We are not aware of any licensee who uses flow as a parameter for thrust evaluation. CP&L considers this issue to be generic within the industry and most appropriately resolved by the NRC as such. We therefore believe that it is inappropriate for the NRC to categorize this issue as an Open Item for any specific licensee.

FINDING 91-201-02: Failure to Revise Mispositionable MOVs

Description of Condition:

CP&L is not planning to review the capability of valves to be repositioned to their safety position if that valve or system has a redundant train that can perform the safety function. As such, CP&L's position on valve mispositioning is not in accordance with the recommendations of GL 89-10. Specifically, the generic letter does not allow the exclusion of a valve from the recommended design basis reviews solely on the basis that a redundant valve or system exists.

Response:

The Inspection Report correctly states that CP&L's stance on valve mispositioning is not in agreement with the recommendations of GL 89-10, as the Generic Letter does not allow the exclusion of valves from mispositioning reviews solely on the basis that a redundant valve or system exists. However, the Inspection Report does not acknowledge the positions taken by the Westinghouse Owners Group (WOG), BWR Owners Group (BWROG), and NUMARC on this issue. As indicated in our June 6, 1991 letter on this subject, CP&L stated that as a member of these industry organizations, it supported these positions. Additionally, the Inspection Report fails to acknowledge that valve mispositioning, in conjunction with an additional single failure, is beyond the current licensing basis for CP&L's plants. As with Open Item 91-201-01 related to flow requirements, CP&L considers this issue to be generic to the industry and inappropriately classified as an Open Item for any specific licensee.

FINDING 91-201-03: Undersized Actuators for Valves FW-V2-6A, 6B, and 6C

Description of Condition:

During the team's review associated with the galling of the V2-6A valve stem, the team performed a rough calculation that indicated that the actuators for valves FW V2-6A, 6B, and 6C appear to be undersized. The problem is only apparent on the valve's close-to-open direction, which the licensee has stated is not a safety function of the valve. The stated safety function of these valves is to close on a safety injection signal, separating the auxiliary and the main feedwater systems. Although the actuators appear to be sized adequately to stroke the valves to their safety positions, problems associated with stroking the valve to the open position could damage or degrade the MOV and, hence, prevent the MOV from performing its safety function.

Response:

The active safety function of FW-V2-6A, 6B, and 6C is to close on receipt of a Safety Injection (SI) signal. Due to having this safety function, they are considered part of the Generic Letter 89-10 program. These valves do not have a safety function to open during any FSAR Chapter 15 accident scenario. Additionally, there are no requirements for these valves to open during any abnormal operating condition. Based on conservative analytical calculations, the differential pressure that these MOVs would be expected to operate against is well within the capability of the motor operators. However, because they are included in the GL-89-10 program, the capability of the MOVs to function properly in the opening direction is evaluated.

The opening differential pressure will be revised and used in the reviews of the mechanical thrust, torque, and actuator motor requirements for these MOVs. These reviews are scheduled to be completed during September, 1991. The results of these reviews will be available for reinspection at that time.

FINDING 91-201-04: Setting of Closed-to-Open Torque Switch Bypass Limit

Description of Condition:

The setting of 5 percent of valve stroke for the closed-to-open torque bypass limit switch was considerably less than settings normally used by industry. EPRI MOV guidelines recommend a minimum setting of 10 percent of valve stroke, and the guidelines state that a lower setting may not encompass the initial unseating for all valves. The closed-to-open torque switch setting could result in failure of the MOV to fully open under a differential pressure. The fact that not all torque switches may have been balanced heightens the concern in this area.

Response:

The EPRI Guideline 7.3.2.1 indicates that a setting from five to ten percent results in "maximum mechanical protection." This guideline also indicates that "diagnostic testing should be used to confirm that the cracking load has disappeared before the end of the bypass." Diagnostic data, static and dynamic, obtained during the MOV testing for the Generic Letter will be reviewed to ensure the open torque switch bypass is set appropriately to allow proper functioning of the valve.

Plant procedure CM-111 will be revised to require torque switch balancing prior to new installations. Routine balancing will also be considered under the Managed Valve Maintenance program. The CM-111 revision will be completed by December 31, 1991.

Since there is no specific guidance in Generic Letter 89-10 regarding torque bypass limit switch settings, CP&L considers this issue to be generic within the industry and most appropriately resolved by the NRC as such.

FINDING 91-201-05: Procedures for Controlling Design Basis Testing

Description of Condition:

The procedures used to control the Robinson design basis testing appear deficient as exemplified by the test scheduling, performance, and evaluation during Refueling Outage 13, which was completed in March, 1991:

- Baseline static diagnostic testing was reportedly not performed on the nine MOVs that were diagnostically tested at or near full differential pressure. All nine MOVs had been assigned high priorities (licensee priority 1 or 2) for performance of GL 89-10 testing. The static testing can be performed later but this is inefficient and may unnecessarily delay the availability of baseline test data for use in post-maintenance and periodic assessments of continued valve capabilities.
- Although RF13 had been completed for approximately 3 months, none of the test results had been fully assessed. Licensee personnel stated that the results had been examined sufficiently, on an informal basis, to ensure that there were no operability concerns.
- Test records reviewed by the team did not have flow and differential pressure recorded in a way that was readily available to the individual who assesses the test results.

Response:

Generic Letter 89-10 recommends that MOVs be stroked under dynamic conditions (design basis) within a specified time frame. This aspect of the Generic Letter was accomplished for these nine valves. It should be noted that the Generic Letter does not require baseline static testing of MOVs at the same time as dynamic testing. However, CP&L's plans for dynamic testing will include provisions for the baseline static testing to be performed prior to the dynamic testing as system conditions allow.

CP&L agrees that test results should be formally reviewed and evaluated for operability concerns in a timely manner. In order to accomplish this, procedures will be developed for the timely review of design basis testing results. These procedures will be developed and available for inspection by March 1, 1992.

Future differential pressure testing will be performed using procedures which adequately indicate test pressures/flows as applicable. Test procedures for Refueling Outage 14 are under development, and completion of all diagnostic testing procedures will parallel the testing effort currently scheduled for completion during Refueling Outage 15. This item will be available for reinspection upon testing completion.



FINDING 91-201-06: Periodic Verification of MOV Operability

Description of Condition:

PM-420 required that the valve stem be cleaned and lubricated within 3 months before performing diagnostic testing. The team determined that it would be more conservative to test the valve just before performing any periodic maintenance that would enhance MOV operation. This process would verify that the MOV had not degraded to a condition where it could not have performed its safety function. Testing in the as-found condition would also verify that periodic maintenance was being performed at the proper intervals.

Response:

Although not specifically addressed by GL 89-10, CP&L agrees with this concept as a program enhancement, and PM-420 has been revised to require lubrication prior to baseline testing only. This item is currently available for reinspection.

FINDING 91-201-07: Inadequate Documentation and Corrective Action for MOV Deficiencies

Description of Condition:

In two instances, the team determined that the licensee had failed to properly document and evaluate deficient conditions that questioned MOV operability. In the first case, valve packing for the RHR-744B valve was tightened from 46 to 138 foot pounds without performing an engineering review or a post-modification test necessary to ensure that the motor operator thrust capability and switch settings were consistent with any increased valve thrust requirements resulting from the increased packing load. In addition, valve movement during stroking, documented on the work order for the packing adjustment, was evaluated as being inconsequential without providing the basis for this determination.

In the second case, valve stem galling, as identified by a licensee operator on the main feedwater valve V2-6A valve, was also not adequately evaluated. This galling, which could be the result of another valve problem, could inhibit the ability of the motor actuator to transfer thrust to the valve. Again, no formal operability determination was performed for this valve. In addition, the team determined that this valve had a history of problems, including thermal overload trips, and the licensee's failure to adequately document and evaluate these discrepancies was cited in NRC Inspection Report 50-261/89-200.

Response:

Testing was been performed on RHR-744B on June 14, 1991, per Maintenance Work Request 91-AIDQ1 to verify that no significant additional loading was placed on the operator due to the packing adjustment. In addition, the valve operator was observed during stroking to verify that no abnormal actuator movement was taking place. The slight movement occurred at motor start due to the forces required to set the valve in motion. Thus, no operational concern existed.

The V2-6A valve has been cycled several times, and diagnostic data has been taken to verify that no operability concerns exist for this valve. In addition, a Maintenance Work Request 91-AKH11 has been written to investigate the cause of the galling. This investigation is scheduled to take place during the next outage of sufficient duration for valve disassembly, but no later than Refueling Outage 14.

FINDING 91-201-08: MOV Setpoint Document Control of Switch Settings

Description of Condition:

Procedure CM-111 did not provide torque switch settings, limit switch settings, or thrust values for numerous safety-related MOVs. This deficiency resulted in torque switches being set by I&C technicians at setpoints obtained verbally from the MOV Coordinator.

Response

Control of MOV switch settings and thrust values will be controlled using the automated Equipment Database System (EDBS), thus eliminating the necessity for I&C Technicians to obtain this information verbally from the MOV Coordinator. An Nuclear Engineering Department Guideline is under development to delineate the methodology for input and communication of approved data into this system.

Complete MOV switch setting and thrust values are intended to be on the EDBS system by December 31, 1992, and CM-111 will be revised accordingly in order to establish appropriate controls at the Plant level. This process will be available for reinspection by the NRC at that time.

FINDING 91-201-09: MOV Post-Maintenance Testing

Description of Condition:

MM-004 did not require that the MOV thrust margin be verified with diagnostic test equipment following maintenance that could affect MOV performance.

Response:

The issue of determining operability using thrust data is currently under review by CP&L at the Corporate level. As such, this item will be closed following completion of that review, and will be available for further inspection in accordance with the Generic Letter implementation schedule.

FINDING 91-201-10: Failure to Periodically Test Thermal Overloads

Description of Condition:

Thermal overloads on MOV motor circuits are not periodically tested at the Robinson plant. Incorrect overload setpoints could result in failure of an MOV because of a premature motor trip and therefore should be tested accordingly.

Response

The issue of thermal overload testing is currently under advisement within CP&L. Industry initiatives aimed at determining specific testing requirements are included as part of the review in order to satisfy CP&L's commitment to the MOV program. It is anticipated that this issue will be resolved within the scheduled implementation period of GL 89-10 activities.