50-528/529/530

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 17, 1999

Mr. James M. Levine
Senior Vice President, Nuclear
Arizona Public Service Company
Post Office Box 53999
Phoenix, Arizona 85072-3999

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING GENERIC LETTER 96-05, 'PERIODIC VERIFICATION OF DESIGN-BASIS CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES" - PALO VERDE NUCLEAR GENERATING STATION (TAC NOS. M97080, M97081 AND M97082)

Dear Mr. Levine:

On September 18, 1996, the NRC issued Generic Letter (GL) 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves," to request that nuclear power plant licensees establish a program, or ensure the effectiveness of the current program, to verify on a periodic basis that safety-related motor-operated valves (MOVs) continue to be capable of performing their safety functions within the current licensing basis of the facility.

By letters dated March 18, 1997, and July 19, 1998, Arizona Public Service Company submitted responses to GL 96-05 for the Palo Verde Nuclear Generating Station, Units 1, 2, and 3, (Palo Verde) indicating its intent to implement the provisions of a Joint Owners Group (JOG) Program on MOV periodic verification. The NRC staff has encouraged licensees to participate in the industry-wide JOG program to provide a benefit in reactor safety by sharing expertise and information on MOV performance and to increase the efficiency of GL 96-05 activities at nuclear plants. Licensee participation in the JOG program also minimizes the amount of information necessary for the NRC staff to review. As a result, the NRC staff requires only limited information to complete its GL 96-05 review for Palo Verde.

Enclosed is a request for additional information regarding the GL 96-05 program for Palo Verde. Questions 2, 4 and 5 are based on the information provided in the March 18, 1997, letter. If the information contained in the July 19, 1998, letter supercedes the positions outlined in the March 18 letter, then a statement to that effect will adequately answer these questions.

This request was discussed with your staff on March 10, 1999, and it was agreed upon that your response would be provided within 90 days of the date of this letter.

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If you have any questions, please contact me at (301) 415-3062.

Sincerely,

Original signed by

Mel B. Fields, Project Manager
Project Directorate IV-2
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Office of Nuclear Reactor Regulation

Docket Nos. STN 50-528, STN 50-529
and STN 50-530

Enclosure: Request for Additional Information

cc w/encl: See next page

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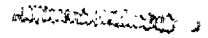

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REQUEST FOR ADDITIONAL INFORMATION ON RESPONSE

GENERIC LETTER 96-05, 'PERIODIC VERIFICATION OF DESIGN-BASIS CAPABILITY

OF SAFETY-RELATED MOTOR-OPERATED VALVES"

PALO VERDE NUCLEAR GENERATING STATION

DOCKET NOS. STN 50-528, STN 50-529, AND STN 50-530

1. In NRC Inspection Report No. 50-528, 529, & 530/96-15, the NRC staff closed its review of the motor-operated valve (MOV) program implemented at the Palo Verde Nuclear Generating Station (Palo Verde) in response to Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance." In the inspection report, the NRC staff noted certain aspects of the licensee's MOV program that would be addressed over the long term. For example, the NRC staff noted that the licensee (1) had not completed its documentation of the final data reconciliation that forms the basis for GL 89-10 program completion; (2) intended to justify its use of hydrostatic testing to determine valve-specific performance in the final program documentation; and (3) intended to revise the diagnostic test acceptance criteria to evaluate unwedging capability, extrapolated to design-basis conditions. The licensee should describe the actions taken to address the specific long-term aspects of the MOV program at Palo Verde that were noted in the NRC inspection report.

2. In a letter dated March 18, 1997, in response to GL 96-05, the licensee reported that (1) actuator output degradation margin would not be included for MOVs that use the Electric Power Research Institute's (EPRI) MOV Performance Prediction Model (PPM); and (2) that MOVs with large calculated margins would not be dynamically tested in the future and would not have any additional valve degradation margin added to the design-basis requirements. The Joint Owners Group (JOG) MOV Periodic Verification Program consists of three phases: (1) the interim MOV static diagnostic testing program; (2) an MOV dynamic testing program over the next 5 years; and (3) the long-term periodic test program. The NRC staff considers a licensee's commitment to the JOG program to include all three phases unless otherwise specified. Where a licensee that has committed to implement the JOG program proposes to implement a different approach, the licensee will be expected to notify the NRC and to provide justification for the proposed alternative approach. Arizona Public Service Company's letter of March 18, 1997, implies that the JOG long-term program might not be followed for some MOVs. The licensee should clarify its commitment to the JOG program or justify its long-term periodic verification program for those MOVs that will not follow the JOG program recommendations.

3. In a letter dated July 19, 1998, the licensee updated its commitment to implement the JOG MOV Periodic Verification Program and stated that the interim MOV static diagnostic test program differs in some respects from the program described in Revision 2 of Combustion Engineering Owners Group (CEOG) Topical Report MPR-1807. For example, the licensee's interim MOV static diagnostic test program allows all valves to be tested only once every two refueling outages as compared to the every outage frequency recommended by the JOG interim MOV static diagnostic test

program for high-risk valves with low margins. The licensee also noted that the two-cycle frequency could be extended based on valve performance and available margins. In the NRC safety evaluation dated October 30, 1997, on CEOG Topical Report MPR-1807 describing the JOG program, the NRC staff stated that MOVs with scheduled test frequencies beyond 5 years will need to be grouped with other MOVs that will be tested on frequencies less than 5 years in order to validate assumptions for the longer test intervals. The NRC staff stated that this review must include both valve thrust (or torque) requirements and actuator output capability. The licensee should describe how its MOV static diagnostic testing program will satisfy this condition of the NRC safety evaluation on the CEOG topical report.

4. The JOG program specifies that the methodology and discrimination criteria for ranking MOVs according to their safety significance are the responsibility of each participating licensee. In a letter dated March 18, 1997, the licensee stated that it was developing a new risk ranking study that uses a blend of probabilistic and deterministic methods that will be used to adjust test frequencies, test methods, and maintenance schedules. As Palo Verde's units are pressurized water reactors (PWRs) designed by Combustion Engineering (CE), the licensee should describe the methodologies used for risk ranking MOVs at Palo Verde in detail, and provide a list of the high-risk MOVs at Palo Verde, if any. In responding to this request, the licensee might apply insights from the guidance provided in the Westinghouse Owners Group (WOG) Engineering Report V-EC-1658-A (Revision 2, dated August 13, 1998), "Risk Ranking Approach for Motor-Operated Valves in Response to Generic Letter 96-05," and the NRC safety evaluation dated April 14, 1998, on the WOG methodology for risk ranking MOVs at Westinghouse-designed PWR nuclear plants. The licensee could also obtain insights from an MOV risk-ranking methodology developed by the Boiling Water Reactor Owners Group.

5. The licensee should briefly describe its plans for the use of test data from the motor control center (MCC) including (1) correlation of new MCC test data to existing direct force measurements; (2) interpretation of changes in MCC test data to changes in MOV thrust and torque performance; (3) consideration of system accuracies and sensitivities to MOV degradation for both output and operating performance requirements; and (4) validation of MOV operability using MCC testing.

6. The JOG program focuses on the potential age-related increase in the thrust or torque required to operate valves under their design-basis conditions. In the NRC safety evaluation dated October 30, 1997, on the JOG program, the NRC staff specified that licensees are responsible for addressing the thrust or torque delivered by the MOV motor actuator and its potential degradation. The licensee should describe the plan at Palo Verde for ensuring adequate ac and dc MOV motor actuator output capability, including consideration of recent guidance in Limitorque Technical Update 98-01 and its Supplement 1.