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SUBJECT: Forwards response to NRC 990415 RAI re GL 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves."

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U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Response to Request for Additional Information
Generic Letter 96-05 - Periodic Verification of Design-Basis
Capability of Safety-Related Motor-Operated Valves

By letter dated April 15, 1999, the NRC issued a Request for Additional Information (RAI) regarding Generic Letter (GL) 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves." The attachment to this letter provides the Florida Power and Light Company response to the GL 96-05 RAI for Turkey Point Units 3 and 4.

Should there be any questions concerning this response, please contact us.

Very truly yours,

R. J. Hovey
Vice President
Turkey Point Plant

OIH

cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant

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Response to NRC Request for Additional Information Regarding the
Turkey Point Units 3 and 4 Generic Letter 96-05 Program

By letter dated April 15, 1999, the NRC issued a request for additional information in order to complete the review and approval process of the Turkey Point Generic Letter (GL) 96-05 program. The Florida Power and Light Company (FPL) response to the NRC questions is provided below:

1. The licensee should provide (a) the MOV capability margins, (b) representative MOVs to be tested for each valve group in the GL 96-05 program at Turkey Point, and (c) the dynamic testing schedule to establish applicable degradation rates for the potential increase in valve thrust or torque operating requirements, for each GL 96-05 MOV at Turkey Point.

FPL Response

The background information included in question one highlighted the fact that Turkey Point had not committed to implement the generic industry program developed by the Joint Owner's Group (JOG) and requested the additional information necessary to assess a stand alone program. Turkey Point is committed to participate in the JOG Program. As a participant in that program the data associated with all tested MOV groups is available to validate the Turkey Point MOV program. As a JOG participant, testing requirements and schedules are defined by that program. The Turkey Point response to question one below does not attempt to provide the data necessary for assessing a stand-alone program, rather the response clarifies those items necessary to define the plant participation in the JOG and how that participation satisfies the concerns raised in the request for additional information.

The GL 96-05 program implemented at Turkey Point utilizes design margin, i.e., calculated "residual" margin, in lieu of field set-up margin to address the effects of potential thrust or torque degradation. Rather than "building in" values of degradation, the design thrust values for gate valves include a 20% margin to compensate for age-related degradations in packing load, corrosion, and valve factor. A 10% design margin is used for globe valves. Given these margin values, the program implemented at Turkey Point exceeds the "high" margin criteria as defined by the Joint Owners' Group (JOG) for all high and medium risk valves.

The high design margin utilized at Turkey Point is considered to yield "aged" thrust requirements. As a participant in the JOG program, Turkey Point will continue to meet or exceed the technical requirements of the program as documented in Revision 2 of MPR-1807 (Reference 1). The JOG program results will validate Turkey Point's aging assumptions with regard to degradation rates for the potential increase in valve thrust or torque operating requirements, for each GL 96-05 MOV at Turkey Point.

Turkey Point currently performs dynamic testing of several safety related MOVs in support of the JOG data collection effort. As part of our overall MOV program, a target population of approximately 10% of the valves practical and useful to test are dynamically tested



over a 3 cycle period for each unit. Dynamic testing for the target population is currently scheduled for completion by the end of Cycle 19 for each unit (Reference 2).

Turkey Point will review the final JOG program and will notify the NRC if any significant deviations exist between that program and the MOV program at Turkey Point within six months of receipt of the final JOG program report.

2. The licensee should describe the process for monitoring and evaluating MOV parameters to identify degradation trends.

FPL Response

The trending of data will be conducted for all actuators in the MOV program as relevant data is collected. As a minimum, valve factor, load sensitive behavior, and stem coefficient of friction will be trended to ensure that no actuator will experience an inability to perform its intended safety function during any period between scheduled maintenance testing cycles.

Valve Factor

MOVs that are dynamically tested will have their valve factors calculated and compared to design basis values prior to returning the valves to service. The calculated valve factors will also be compared with previous test data to determine if any degradation trends are developing. The required comparison will identify any changes in valve performance that has occurred between test intervals. It will also provide assurance that the MOV design parameters will not be exceeded over the course of the next maintenance cycle. Any identified degradation trends will be noted in "like valves" and an evaluation of these valves will also be performed.

Load Sensitive Behavior

Load sensitive behavior (LSB) is a term used to describe the apparent change in output thrust (at the torque switch trip point) that occurs between static testing and dynamic testing conditions.

To account for the differences in test conditions, an error factor is applied to those valves that are statically tested to compensate for the load sensitive behavior phenomenon. This applied error factor is statistically derived from Turkey Point test data. Those MOVs that are dynamically tested will have LSB reviewed and trended. If a degrading trend in LSB is identified, it will be evaluated for the entire population of valves in the Turkey Point MOV Program.

Coefficient of Friction

The stem friction coefficient is currently measured for those valves subject to static testing. This data can not be trended in the classic sense because the stem / stem nut region of each MOV is re-lubricated every 18 months. The measured friction values, however, are checked against previously recorded values for consistency. Appropriate acceptance criteria are contained in the test procedures. The test procedures require that a condition report be generated if

the observed friction coefficient during a test is abnormally high, or exceeds design parameters. A similar approach is used to monitor the stem friction coefficient on valves that are dynamically tested.

If the stem friction coefficient is not consistent with previous test values, it will be evaluated for the entire population of valves in the Turkey Point MOV Program.

Trouble and breakdown work orders, actuator inspection results, and grease condition are monitored in addition to the performance-based data described above.

Potential degradation in actuator output is primarily accommodated by determining motor output capability based on nameplate rating and motor pullout efficiency. This approach provides a conservative estimate of actuator output and is expected to account for any potential degradation in torque capability that may occur with service life. Preventive measures such as periodic actuator inspections, overhauls, and grease monitoring, also reduce the potential for age-related degradation.

The requirements for trending and monitoring discussed above will be incorporated in the guidance documents governing the Turkey Point MOV program.

3. The licensee should describe the updated methodology used for risk ranking MOVs at Turkey Point, including application of an expert panel in evaluating the safety significance of the GL 96-05 MOVs, and comparison of the high-risk MOVs at Turkey Point to those at other Westinghouse-designed PWR nuclear plants.

FPL Response

The current risk ranking methodology of MOVs used at Turkey Point is more conservative than the methodology contained in the Westinghouse Owner's Group (WOG) document V-EC-1658-A (Reference 3). A revised probabilistic risk ranking has been performed using V-EC-1658-A, Rev. 2 (as approved by the NRC), and the latest Turkey Point Probabilistic Safety Assessment (PSA) model. This analysis shows that, using the Westinghouse methodology, valves that are currently established as high risk would be classified as low to medium risk valves based on PSA analysis alone. Results of the revised PSA were also reviewed by the Turkey Point expert panel. The initial judgement of the Turkey Point expert panel is that valves currently categorized as high risk may only be reduced to medium risk as a result of the revised PSA analysis. However, future reviews of the MOV risk rankings may take full advantage of the reduced PSA risk values for applicable MOVs. The revised risk rankings are currently being evaluated against the risk rankings of MOVs at other utilities to assess differences in rankings, and whether reducing the risk ranking of any particular valve is appropriate. Any differences (i.e., lower risk ranking) will be appropriately documented.



References

1. Topical Report MPR-1807, "Joint BWR, Westinghouse and Combustion Engineering Owners' Group Program on Motor-Operated Valve (MOV) Periodic Verification," Revision 2, dated July 1997.
2. FPL Letter to the NRC L-97-055 dated March 11, 1997, "Response to Generic Letter 96-05, Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves."
3. Westinghouse Owners Group Engineering Report V-EC-1658-A, "Risk Ranking Approach for Motor-Operated Valves in Response to Generic Letter 96-05," Revision 2, dated April 14, 1998.