

Florida Power

CORPORATION

Crystal River Unit 3
Docket No. 80-302

September 18, 1992
3F0992-05

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

Subject: Safety Related Motor-Operated Valves (MOV) Testing and Surveillance

References: A. NRC to FPC, Generic Letter 89-10 including Supplements
1 through 4
B. FPC to NRC, dated January 2, 1990 (3F0190-01)
C. FPC to NRC, dated April 13, 1992 (3F0492-05)

Dear Sir:

Florida Power Corporation (FPC) is submitting an update to Reference B, our initial response to Generic Letter 89-10 (Reference A). This update is provided to inform the NRC of our current actions to resolve MOV issues and how these actions relate to those recommended in the generic letter. This letter supersedes Reference B in its entirety. FPC agreed to provide this update in Reference C, our response to Inspection Report 92-01. Our schedule to complete the implementation of the MOV Program remains Refuel 9, currently scheduled for April 1994. The Attachment contains action items a through k from Generic Letter 89-10 and the corresponding updated response from FPC.

Sincerely,

P. M. Beard, Jr.
Senior Vice President
Nuclear Operations

PMB:LVC

Attachments

xc: Regional Administrator, Region II
Senior Resident Inspector

NRR Project Manager

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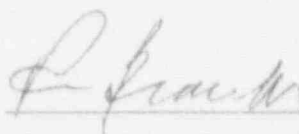
Florida Progress Company

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STATE OF FLORIDA

COUNTY OF CITRUS

P. M. Beard, Jr. states that he is the Senior Vice President, Nuclear Operations for Florida Power Corporation; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the information attached hereto; and that all such statements made and matters set forth therein are true and correct to the best of his knowledge, information, and belief.



P. M. Beard, Jr.
Senior Vice President
Nuclear Operations

Subscribed and sworn to before me, a Notary Public in and for the State and County above named, this 18th day of September, 1992.


Notary Public

Notary Public, State of Florida at Large,

Notary Public, State of Florida

My Commission Expires: My Commission Expires Oct. 17, 1994

Bonded Thru Troy Fair - Insurance Inc.

NRC REQUEST:

Item a. Review and document the design basis for the operation of each MOV. This documentation should include the maximum differential pressure expected during both the opening and closing of the MOV for both normal operations and abnormal events, to the extent that these MOV operations and events are included in the existing approved design basis.

FPC RESPONSE:

Item a. The design-basis review and preparation of differential pressure (DP) calculations for all position changeable MOVs has been completed. These calculations are being reviewed and revised as necessary to incorporate actual plant conditions and lessons learned from the MOV Program. The revised calculations will be completed prior to the scheduled DP testing of each valve. Inadvertent operation is included in the design-basis review, however, FPC is not implementing any test requirements for inadvertent operation pending the results of the ongoing NRC evaluation for the removal of this requirement.

NRC REQUEST:

Item b. Using the results from item a., establish the correct switch settings. This will include establishing a program to review and revise, as necessary, the methods for selecting and setting all switches (i.e., torque, torque bypass, position limit, overload) for each valve operation (opening and closing). One purpose of this letter is to ensure that a program exists for selecting and setting valve operator switches to ensure high reliability of safety-related MOVs.

FPC RESPONSE:

Item b. An initial evaluation of all valves included in the MOV Program which verifies the correctness of switch settings using the latest available industry information has been completed. Thrust calculations for all MOV Program valves will be revised to reflect current information. Additionally, the MOV Program manual is being revised to incorporate the latest industry information and lessons learned with respect to selecting and setting valve operator switches. Procedures will be reviewed and revised to include the revised switch settings. The MOV program will include the periodic monitoring of MOV performance and adjustment of switch settings.

NRC REQUEST:

Item c. Individual MOV switch settings should be changed, as appropriate, to those established in response to item b. Whether the switch settings are changed or not, the MOV should be demonstrated to be operable by testing it at the design-basis differential pressure and/or flow determined in response to item a. Testing MOVs at design-basis conditions is not recommended where such testing is precluded by the existing plant configuration. An explanation should be documented for any cases with the design-basis differential pressure or flow cannot practicably be performed. This explanation should include a description of the alternatives to design-basis differential pressure testing or flow testing that will be used to verify the correct settings.

Note: This letter is not intended to establish a recommendation for valve testing for the condition simulating a break in the line containing the MOV. However, a break in the line should be considered in the analysis described in items a., b., and c. if MOV operation is relied on in the design basis.

Each MOV should be stroke tested, to verify that the MOV is operable at no-pressure or no-flow conditions even if testing with differential pressure or flow cannot be performed.

FPC RESPONSE:

Item c. Switch settings of valves tested by the MOV Program have been corrected as necessary.

All valves that can be tested under dynamic conditions will be tested by the end of Refuel 9 currently scheduled for April 1994. Documentation of valves which can not be insitu tested under design-basis differential pressure or flow has been completed. Alternative testing, such as the two-stage approach and prototype testing recommended in item f. of the SL is currently being evaluated in parallel with industry efforts. FPC will participate in industry efforts to determine acceptable alternative methods for testing. Static testing will be performed on all valves within the MOV Program.

In regards to the Note in Item c., FPC analyzed maximum DP conditions for line breaks assumed in Chapter 14, Safety Analysis, of the FSAR.

NRC REQUEST:

Item d. Prepare or revise procedures to ensure that correct switch settings are determined and maintained throughout the life of the plant. These procedures should include provisions to monitor MOV performance to ensure the switch settings are correct. This is particularly important if the torque or torque bypass switch setting has been significantly raised above that required.

It may become necessary to adjust MOV switch settings because of the effects of wear or aging. Therefore, it is insufficient to merely verify that the switch settings are unchanged from previously established values. The switch settings should be verified in accordance with the program schedule (see item j). The ASME Code Section XI stroke-timing test required by 10 CFR Part 50 is not oriented toward verification of switch settings. Therefore, additional measures should be taken to adequately verify that the switch settings ensure MOV operability. The switch settings need not be verified each time the ASME Code stroke-timing test is performed.

FPC RESPONSE:

Item d. Procedures will be reviewed and revised as necessary to include revisions to switch settings and thrust values for applicable MOVs to assure switch settings are maintained throughout the life of the plant. The MOV program will include provisions to periodically monitor MOV performance. Those provisions will include ensuring switch settings are correct and adjusting switch settings when necessary. The switch settings will be verified as part of the overall MOV Program. The schedule for accomplishing these activities is provided in item j.

NRC REQUEST:

Item e. Regarding item a., no change to the existing plant design is intended and none is inferred. The design-basis review should not be restricted to a determination of estimated maximum design-basis differential pressure, but should include an examination of the pertinent design and installation criteria that were used in choosing the particular MOV. For example, the review should include the effects on MOV performance of design-basis degraded voltage, including the capability of the MOV's power supply and cables to provide the high initial current needed for the operation of the MOV.

FPC RESPONSE:

Item e. FPC has undertaken a separate effort to review the degraded voltage effects on electrical equipment. The results of this effort will be factored into the MOV program. However, testing of MOVs at degraded or over-voltage conditions is not included in the program.

NRC REQUEST:

Item i. Each licensee with an operating licence (OL) should complete all design-basis reviews, analyses, verifications, tests, and inspections that have been instituted in order to comply with items a. through h. within five years of three refueling outages of the date of this letter, whichever is later. Each licensee with a construction permit (CP) should complete this actions within 5 years of the date of this letter or before the OL is issued, whichever is later.

For plants with an OL, the documentation described in items 1. and 2. below should be available within one year or one refueling outage of the date of this letter, whichever is later. For plants with a CP, the documentation outlined in items 1. and 2. should be available within one year of the date of this letter or before the OL is issued, whichever is later. The documents should include:

1. The description and schedule for the design-basis review recommended in item a. (including guidance from item e.) for all safety-related MOVs and position-changeable MOVs as described, and
2. The program description and schedule for items b. through h. for all safety related MOVs and position-changeable MOVs

FPC RESPONSE:

Item i. FPC has implemented the MOV Program which addresses parts 1 and 2 of this item. FPC plans to complete the design-basis review and testing of all MOVs contained in the MOV Program by the end of Refuel 9 with the exception of the testing of those valves considered for alternative testing defined in FPC's response to Item c.

NRC REQUEST:

Item i. The program for the verification of the procedures outlined in item d., as well as other tests or surveillance that the owner may choose to use to identify potential MOV degradations or misadjustments, such as those described in Attachment A, should be implemented after maintenance or adjustment (including racking adjustment) of each MOV, and periodically thereafter. The surveillance interval should be based on the licensee's evaluation of the safety importance of each MOV as well as its maintenance and performance history. The surveillance interval should not exceed 5 years or three refueling outages, whichever is longer, unless a longer interval can be justified (see item h) for any particular MOV.

FPC RESPONSE:

Item i. FPC's present plan is to surveil all MOVs in the MOV Program within a three (3) refueling outage schedule. Post-maintenance testing is being evaluated in light of MOV history and industry guidelines and will be modified accordingly.

NRC REQUEST:

Item d. Documentation of explanations and the description of the actual test methods used for accomplishing item c. should be retained as part of the required records of the MOV.

It is also recognized that it may be impracticable to perform insitu MOV testing at design-basis degraded voltage conditions. However, the switch settings established in response to item b. should at least be established to account for the situation where the valves may be called on to operate at design-basis differential pressure, or flow, and under degraded voltage conditions. If the licensee failed to consider degraded voltage, power supply, or cable adequacy for MOVs in systems covered by Bulletin 85-03, the design review and established switch settings for those MOVs should be reevaluated.

Alternatives to testing a particular MOV in-situ at design-basis pressure or flow, where such testing cannot practicably be performed, could include a comparison with appropriate design-basis test results on other MOVs, either in-situ or prototype. If such test information is not available, analytical methods and extrapolations to design-basis conditions, based on the best data available, may be used until test data at design basis conditions become available to verify operability of the MOV. If this two stage approach is followed, it should be accomplished within the schedule outlined in item i. and would allow for MOV testing and surveillance to proceed without excessive delay.

Testing of MOVs at design basis conditions need not be repeated unless the MOV is replaced, modified, or overhauled to the extent that the licensee considers that the existing test results are not representative of the MOV in its modified configuration.

FPC RESPONSE:

Item f. Test methods and system configuration during the performance of the tests are documented in plant procedures and records. Alternative test methods as previously discussed in item c. are under evaluation. Where insitu dynamic testing can be performed at a pressure lower than the maximum accident DP, operability will be assured through analytical methodology and extrapolation of test data.

Valves, which under normal operating conditions are subject to the maximum expected differential pressure conditions, will have their switch settings calibrated using diagnostic equipment at static conditions. Operability under maximum DP conditions is verified through normal operational performance. Reduced voltage capabilities will be evaluated and documented through analytical methodology.

NRC REQUEST:

Item g. A number of deficiencies, misadjustments, and degraded conditions were discovered by licensees, either as a result of their efforts to comply with Bulletin 85-03 or from other experiences. A list of these conditions (including switch settings) is included in attachment A to this letter for licensee review and information.

FPC RESPONSE:

Item g. FPC has reviewed the list of conditions contained in Attachment A of the Generic Letter. Those conditions are being considered in the MOV Program.

NRC REQUEST:

Item h. Each MOV failure and corrective action taken, including repair, alteration, analysis, test, and surveillance, should be analyzed or justified and documented. The documentation should include the results and history of each as-found deteriorated condition, malfunction, test, inspection, analysis, repair or alteration. All documentation should be retained and reported in accordance with plant requirements.

It is suggested that this MOV data be periodically examined (at least every two years or after each refueling outage after program implementation) as part of a monitoring and feedback effort to establish trends of MOV operability. These trends could provide the basis for a licensee revision of the testing frequency established to periodically verify the adequacy of MOV switch settings (see items d. and j.). For this monitoring and feedback effort, a well-structured and component-oriented system (e.g., the Nuclear Plant Reliability Data System, NPRDS) is needed to capture, track, and share the equipment history data. The NRC encourages the use of the industry-wide NPRDS, appropriately modified, for this purpose in view of the multiple use for these data.

FPC RESPONSE:

Item h. Each MOV failure and corrective action taken will be documented in accordance with the plant Problem Report process.

Data obtained from MOV testing will be reviewed and maintained. This data will be used to establish a tracking and trending program which will be in place within the suggested time-frame of two years after Program implementation. FPC plans to complete implementation of the MOV Program by the end of Refuel 9.

NRC REQUEST:

Item k. In recognition of the necessity for preplanning, refueling outages that start within 6 months of the date of this letter need not be counted in establishing the schedule to meet the time limits recommended in items i. and j.

FPC RESPONSE:

Item k. The present MOV testing schedule is to complete the initial testing of the MOVs contained in the program by the end of the third refueling outage (Refuel 9) with exceptions as described in item c. Refuel 9 is currently scheduled for April 1994.