



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801

March 17, 1997

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

10 CFR 50.54(f)

Gentlemen:

In the Matter of)	Docket Nos.	50-259	50-390
Tennessee Valley Authority)		50-260	50-391
			50-296	50-438
			50-327	50-439
			50-328	

BROWNS FERRY NUCLEAR PLANT (BFN) (TAC NOS. M97020, M97021, M97022), SEQUOYAH NUCLEAR PLANT (SQN), WATTS BAR NUCLEAR PLANT (WBN), AND BELLEFONTE NUCLEAR PLANT (BLN) 180-DAY RESPONSE TO NRC GENERIC LETTER (GL) 96-05, "PERIODIC VERIFICATION OF DESIGN-BASIS CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES," DATED SEPTEMBER 18, 1996

This letter provides TVA's 180-day response to the subject GL. In accordance with the GL and TVA's commitment made in our November 18, 1996 letter, TVA has performed the requested actions for BFN, SQN, and WBN. This letter summarizes the actions taken, conclusions reached, and provides a summary description of the program that will be implemented for each site.

TVA is a member of both the Westinghouse Owners Group and the BWR Owners Group which have established a joint committee tasked to develop a generic program for this GL. TVA is participating in the development of the Joint Westinghouse and BWR Owners Group's (JOG) Motor-Operated Valves Periodic Verification (MOV PV) Program, and will implement the JOG Program.

In accordance with the subject GL, Enclosures 1 through 3 provide a summary description for the BFN, SQN, and WBN MOV PV Programs, respectively. Enclosure 4 summarizes TVA's commitment(s) contained in this letter.

In addition, as committed to in TVA's November 18, 1996, 60-day response to the subject GL, TVA's proposed course of action is to establish and submit a summary description of the GL 96-05 MOV PV Program and a schedule for implementation no later than six months prior to fuel load of each unit at BLN. This schedule is based on the current reduced level of activity and preservation mode at BLN.

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If you have questions regarding this response, please contact Terry Knuettel at (423) 751-6673.

Sincerely,



Pedro Salas
Manager
Licensing and Industry Affairs

Subscribed to and sworn to before me
this 17th day of March 1997

Carol J. Hamill
Notary Public

My Commission Expires 9-8-99

Enclosure

cc (Enclosure):

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cc: Continued on page 3

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cc (Enclosures):

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ENCLOSURE 1

**TENNESSEE VALLEY AUTHORITY
BROWN'S FERRY NUCLEAR PLANT (BFN)
UNITS 1, 2, AND 3**

**NRC GENERIC LETTER (GL) 96-03, "PERIODIC VERIFICATION (PV) OF
DESIGN-BASIS CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES (MOV),"
DATED SEPTEMBER 18, 1996**

BACKGROUND

The current PV Program for MOVs at BFN requires static and dynamic testing of MOVs within the scope of the GL 89-10 program at a frequency of five years or three refueling cycles, whichever is longer. The static testing methods include "At-The-Valve" and "At-The-Motor-Control-Center" test methods, when applicable. The frequency of five years or three refueling cycles is based on the accepted frequencies of the baseline test period as defined in GL 89-10. The operability of each MOV is assured by design bases evaluation and is controlled by BFN's design, maintenance, and testing programs. These programs ensure that the valves will operate properly. The static testing provides additional confidence that the MOVs will remain operable between scheduled tests. BFN's GL 89-10 PV Program requires twelve (12) MOVs for each unit (Unit 2 and Unit 3) to be dynamically tested under full or near full differential pressure (DP) conditions within the five years or three refueling cycles. This verifies that the margin established during the design bases evaluation is not degraded by an age-related mechanism.

PROGRAM DESCRIPTION

TVA Nuclear BFN is a member of the BWR Owners Group which has established a joint committee with the Westinghouse Owners Group to develop a generic program for this GL. BFN is participating in the development of the Joint Westinghouse and BWR Owners Group's (JOG) MOV PV Program, and BFN will implement this JOG MOV PV Program as described in Topical Report No. NEDC 32719, "BWR Owners' Group Program on MOV PV" (MPR report 1807).

Static Testing

Under the JOG MOV PV Program, BFN will statically test the MOVs as previously identified by the GL 89-10 Program, and include those valves recently incorporated into the program as a result of the resolution of IFI 50-260/95-19-01 and 50-296/95-19-01, which was discussed in TVA's letter dated January 6, 1997. The static testing methods will include both the "At-The-Valve" and "At-The-Motor-Control-Center" test methods, when applicable. A testing frequency matrix will be determined by the selection criteria based on valve margin and Probability Safety Assessment (PSA)/risk categories, as recommended by the JOG MOV PV Program. The PSA/risk methodology is based on Topical Report NEDC 32264, "Application of PSA to Generic Letter 89-10 Implementation," and in accordance with NRC Safety Evaluation dated February 27, 1996. An expert panel, consisting of representatives of appropriate site organizations, reviews the results of the PSA/risk analysis and provides appropriate input into the testing frequency

matrix. This analysis provides the added assurance that the MOV testing frequency reflects risk to the plant and confidence that the appropriate MOV receives the attention commensurate with its risk significance. Therefore, based on the testing methods described above, and the selection criteria recommended by the JOG, static tests will provide a high level of confidence that the MOVs will remain operable until the next scheduled test.

DP Testing

BFN will DP test the selected MOVs, as required, to support the JOG MOV PV Program. If major MOV work is performed such as valve replacement, major valve maintenance that changes the valve geometry, etc., additional DP tests will be performed or engineering justification will be internally documented.

The DP testing to be performed at BFN is part of the large JOG MOV PV Program data pool (approximately 100 nuclear units). This DP test data will be used to verify the necessary valve margin to account for age-related degradation.

PROGRAM ADJUSTMENT/EVALUATION

As a participant of the JOG MOV PV Program, BFN will review and trend both the static test data and DP test data to determine if BFN MOV PV Program adjustments are required. Since the DP test data is part of the JOG data pool, BFN plans to participate in the JOG evaluation process in determining the impact of the DP test data. Performing evaluations based on this large data pool enables participating utilities to develop conclusions which can be reached with a higher degree of confidence than the normal extrapolation process performed by a single utility with a limited data pool. BFN will make adjustment(s), as required, to incorporate applicable data and recommendations by the end of the five year JOG MOV PV Program (projected to be complete by December 2003).

PROGRAM TRANSITION

The primary difference between the current BFN MOV PV Program and the JOG MOV PV Program is the use of a MOV-specific PSA analysis in the JOG Program to prioritize and determine valve test frequencies. Another difference is the total number of BFN DP tested valves will be reduced because of BFN's participation in the JOG DP data pool. The difficulties in transitioning from the current BFN MOV PV Program to the JOG MOV PV Program are expected to be minimal.

Due to the involvement of key personnel in PSA activities in support of the Maintenance Rule, the PSA/risk analysis for the GL 96-05 program will not be complete by BFN's refueling outage planning date (6 months prior to outage) for the 1997 Unit 2 fall refueling outage. Therefore, BFN plans to implement the Unit 2 JOG MOV PV Program in two phases. The first phase includes testing the MOVs in the 1997 fall refueling outage which are selected based primarily on the margin evaluation. This will ensure that the valves with the lowest margin will be given appropriate priority for testing. The second phase includes testing MOVs during subsequent refueling outages which are selected based on both margin evaluation and the PSA analysis.

In GL 96-05, NRC highlighted the ASME OMP-1 code case recommendation to eliminate the Inservice Testing (IST) stroke-time test. The JOG recommended that the OMN-1 be reviewed after the 180-day response is completed. In order to implement this JOG MOV PV Program with minimum impact to plant procedures and existing programs, BFN plans to maintain the current IST stroke-time test for the GL 89-10 MOVs for the near term. The JOG is in the process of requesting clarifications from ASME Working Group OM-8 regarding some interpretations of OMN-1. BFN plans to evaluate the applicability of the OMN-1 after the MOV PV program is established and a recommendation is received from the JOG.

IMPLEMENTATION SCHEDULE

BFN Unit 2 will implement the JOG recommended GL 96-05 MOV PV Program, and begin testing during the fall refueling outage scheduled for September 1997. Note, as previously stated, that the static test selection for the Unit 2 1997 fall outage will be based on the margin evaluation, rather than a combination of a PSA/risk analysis and a margin evaluation. BFN Unit 3 will implement the JOG recommended GL 96-05 MOV PV Program, and begin testing during the fall refueling outage scheduled for October 1998. BFN Unit 1 will implement the JOG recommended GL 96-05 MOV PV Program, and begin testing during the first refueling outage after restart.

ENCLOSURE 2

**TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2**

**NRC GENERIC LETTER (GL) 96-05, "PERIODIC VERIFICATION (PV) OF
DESIGN-BASIS CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES (MOV_s),"
DATED SEPTEMBER 18, 1996**

BACKGROUND

The current PV Program for MOVs at SQN requires static and dynamic testing of MOVs within the scope of the GL 89-10 program at a frequency of five years or three refueling cycles, whichever is longer. The static testing methods include "At-The-Valve" and "At-The-Motor-Control-Center" test methods, when applicable. The frequency of five years or three refueling cycles is based on the accepted frequencies of the baseline test period as defined in GL 89-10. The operability of each MOV is assured by design bases evaluation and is controlled by SQN's design, maintenance, and testing programs. These programs ensure that the valves will operate properly. The static testing provides additional confidence that the MOVs will remain operable between scheduled tests. SQN's GL 89-10 PV Program requires thirteen (13) MOVs for unit 1 and fourteen (14) for Unit 2 to be dynamically tested under full or near full differential pressure (DP) conditions within the five years or three refueling cycles. This verifies that the margin established during the design bases evaluation is not degraded by an age-related mechanism.

PROGRAM DESCRIPTION

TVA SQN is a member of the Westinghouse Owners Group which has established a joint committee with the BWR Owners Group to develop a generic program for this GL. SQN is participating in the development of the Joint Westinghouse and BWR Owners Group's (JOG) MOV PV Program, and SQN will implement this JOG MOV PV Program as described in Topical Report No. OG-97-018, "JOG Program on MOV PV" (MPR report 1807).

Static Testing

Under the JOG MOV PV Program, SQN will statically test the MOVs as previously identified by the GL 89-10 Program. The static testing methods include both "At-The-Valve" and "At-The-Motor-Control-Center" test methods, when applicable. A testing frequency matrix is determined by the selection criteria based on valve margin and Probability Safety Assessment (PSA)/risk categories, as recommended by the JOG MOV PV Program. The PSA/risk methodology is based on Topical Report OG-97-019, "Risk Ranking Approach for Motor-Operated Valves in Response to Generic Letter 96-05." An expert panel, consisting of representatives of appropriate site organizations, reviews the results of the PSA/risk analysis, and provides appropriate input into the testing frequency matrix. This analysis provides the added assurance that the MOV testing frequency reflects risk to the plant and confidence that the appropriate MOV receives the attention commensurate with its risk significance. Therefore,

based on the testing methods described above, and the selection criteria recommended by the JOG, static test will provide a high-level of confidence that the MOVs will remain operable until the next scheduled test.

DP Testing

SQN will DP test the selected MOVs, as required, to support the JOG MOV PV Program. If major MOV work is performed such as valve replacement, major valve maintenance that changes the valve geometry, etc., additional DP tests will be performed or engineering justification will be internally documented.

The DP testing to be performed at SQN is part of the large JOG PV Program data pool (approximately 100 nuclear units). This DP test data will be used to verify the necessary valve margin to account for age-related degradation.

PROGRAM ADJUSTMENT/EVALUATION

As a participant of the JOG MOV PV Program, SQN will review and trend both the static test data and DP test data to determine if the MOV PV program adjustments are required. Since the DP test data is part of the JOG data pool, SQN will participate in the JOG evaluation process in determining the impact of the DP test data. Performing evaluations based on this large data pool enables participating utilities to develop conclusions which can be reached with a higher degree of confidence than the normal extrapolation process performed by a single utility with a limited data pool. SQN will make adjustment(s), as required, to incorporate applicable data and recommendations by the end of five year JOG MOV PV Program (projected to be complete by December 2003).

PROGRAM TRANSITION

The primary difference between the current SQN MOV PV Program and the JOG MOV PV Program is the use of a MOV-specific PSA analysis in the JOG Program to prioritize and determine valve test frequencies. Another difference is the total number of SQN DP tested valves will be reduced because of SQN's participation in the JOG DP data pool. The difficulties in transitioning from the current SQN MOV PV Program to the JOG MOV PV Program are expected to be minimal.

Due to the involvement of key personnel in PSA activities in support of the Maintenance Rule and the Sentinel System (risk-based maintenance and planning tool), the PSA/risk analysis for the GL 96-05 program will not be complete by SQN's refueling outage planning date (6 months prior to outage) for the 1997 Unit 2 fall refueling outage. Therefore, SQN plans to implement the Unit 2 JOG MOV PV Program in two phases. The first phase includes testing the MOVs in the 1997 fall refueling outage which are selected based primarily on the margin evaluation. This will ensure that the valves with the lowest margin will be given appropriate priority for testing. The second phase includes testing MOVs during subsequent refueling outages which are selected based on both margin evaluation and the PSA analysis.

In GL 96-05, NRC highlighted the ASME OMN-1 code case recommendation to eliminate the Inservice Testing (IST) stroke-time test. The JOG recommended that the OMN-1 be reviewed after the 180-day response is completed. In order to implement this JOG MOV PV Program with minimum impact to plant procedures and existing programs, SQN plans to maintain the current IST stroke-time test for the GL 89-10 MOVs for the near term. The JOG is in the process of requesting clarifications from ASME Working Group OM-8 regarding some interpretations of OMN-1. SQN plans to evaluate the applicability of the OMN-1 after the MOV PV program is established and a recommendation is received from the JOG.

IMPLEMENTATION SCHEDULE

SQN Unit 2 will implement the JOG GL 96-05 MOV PV Program, and begin MOV testing during the fall refueling outage scheduled for October 1997. Note, as previously stated, that the static test selection for the Unit 2 1997 fall outage will be based on the margin evaluation, rather than a combination of a PSA/risk analysis and a margin evaluation. SQN Unit 1 will implement the JOG GL 96-05 MOV PV Program, and begin MOV testing during the fall refueling outage scheduled for September 1998.

ENCLOSURE 3

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN)
UNITS 1 AND 2

NRC GENERIC LETTER (GL) 96-05, "PERIODIC VERIFICATION (PV) OF
DESIGN-BASIS CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES (MOV),"
DATED SEPTEMBER 18, 1996

BACKGROUND

The current PV Program for MOVs at WBN requires static and dynamic testing of the MOVs within the scope of the GL 89-10 program at a frequency of five years or three refueling cycles, whichever is longer. The static testing methods include "At-The-Valve" and "At-The-Motor-Control-Center" test methods, when applicable. The frequency of five years or three refueling cycles is based on the accepted frequencies of the baseline test period as defined in GL 89-10. The operability of each MOV is assured by design bases evaluation and is controlled by WBN's design, maintenance, and testing programs. These programs ensure that the valves will operate properly. The static testing provides additional confidence that the MOVs will remain operable between scheduled tests. WBN's GL 89-10 PV Program requires testable MOVs with less than twenty-five percent (25%) margin to be dynamically tested under full or near full differential pressure (DP) conditions within the five years or three refueling cycles. This verifies that the margin established during the design bases evaluation is not degraded by an age-related mechanism.

PROGRAM DESCRIPTION

TVA WBN is a member of the Westinghouse Owners Group which has established a joint committee with the BWR Owners Group to develop a generic program for this GL. WBN is participating in the development of the Joint Westinghouse and BWR Owners Group's (JOG) MOV PV Program, and WBN will implement this JOG MOV PV Program as described in Topical Report No. OG-97-018, "JOG Program on MOV PV" (MPR report 1807).

Static Testing

Under the JOG MOV PV Program, WBN will statically test the MOVs as previously identified by the GL 89-10 Program. The static testing methods include both "At-The-Valve" and "At-The-Motor-Control-Center" test methods, when applicable. A testing frequency matrix will be determined by the selection criteria based on valve margin and Probability Safety Assessment (PSA)/risk categories, as recommended by the JOG MOV PV Program. The PSA/risk methodology is based on Topical Report No. OG-97-019, "Risk Ranking Approach for Motor-Operated Valves in Response to Generic Letter 96-05." An expert panel, consisting of representatives of appropriate site organizations, reviews the results of the PSA/risk analysis, and provides appropriate input into the testing frequency matrix. This analysis provides the added assurance that the MOV testing frequency reflects risk to the plant and confidence that the appropriate MOV receives the attention commensurate with its risk significance. Therefore,

based on the testing methods described above, and the selection criteria recommended by the JOG, static test will provide a high level of confidence that the MOVs will remain operable until the next scheduled test.

DP Testing

WBN will DP test the selected MOVs, as required, to support the JOG MOV PV Program. If major MOV work is performed such as valve replacement, major valve maintenance that changes the valve geometry, etc., additional DP tests will be performed or engineering justification will be internally documented.

The DP testing to be performed at WBN is part of the large JOG MOV PV Program data pool (approximately 100 nuclear units). This DP test data will be used to verify the necessary valve margin to account for age-related degradation.

PROGRAM ADJUSTMENT/EVALUATION

As a participant of the JOG MOV PV Program, WBN will review and trend both the static and DP test data to determine if MOV PV program adjustments are required. Since the DP test data is part of the JOG data pool, WBN will participate in the JOG evaluation process in determining the impact of the DP test data. Performing evaluations based on this large data pool enables participating utilities to develop conclusions which can be reached with a higher degree of confidence than the normal extrapolation process performed by a single utility with a limited data pool. WBN will make adjustment(s), as required, to incorporate applicable data and recommendations by the end of the five year program (projected to be complete by December 2003).

PROGRAM TRANSITION

The primary difference between the current WBN MOV PV Program and the JOG MOV PV Program is the use of a MOV-specific PSA analysis in the JOG Program to prioritize and determine valve test frequencies. Another difference is the total number of WBN DP tested valves will be reduced because of WBN's participation in the JOG DP data pool. The difficulties in transitioning from the current WBN MOV PV Program to the JOG MOV PV Program are expected to be minimal.

The PSA activities in support of the Maintenance Rule and the Sentinell System (risk-based maintenance and planning tool) are complete for WBN. The PSA/risk analysis will be fully incorporated into the WBN GL 96-05 Program for the 1997 fall refueling outage testing.

In GL 96-05, NRC highlighted the ASME OMN-1 code case recommendation to eliminate the Inservice Testing (IST) stroke-time test. The JOG recommended that the OMN-1 be reviewed after the 180-day response is completed. In order to implement this JOG MOV PV Program with minimum impact to plant procedures and existing programs, WBN plans to maintain the current IST stroke-time test for the GL 89-10 MOVs for the near term. The JOG is in the process of requesting clarifications from ASME Working Group OM-8 regarding some interpretations of OMN-1. WBN plans to evaluate the applicability of the OMN-1 after the MOV PV program is established and a recommendation is received from the JOG.

IMPLEMENTATION SCHEDULE

WBN Unit 1 will implement the JOG recommended GL 96-05 MOV PV Program, and begin MOV testing during the fall refueling outage scheduled for September 1997. Should WBN Unit 2 be completed, TVA will implement the JOG recommended GL 96-05 MOV PV Program and begin testing during the first refueling outage after startup.

ENCLOSURE 4

TENNESSEE VALLEY AUTHORITY

**RESPONSE TO NRC GENERIC LETTER (GL) 96-05, "PERIODIC VERIFICATION (PV)
OF DESIGN-BASIS CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES (MOV_s),"**
DATED SEPTEMBER 18, 1996

COMMITMENT SUMMARY

BROWNS FERRY NUCLEAR PLANT (BFN)

Commitment(s)

1. BFN will make adjustment(s), as required, to incorporate applicable data and recommendations by the end of the five year JOG MOV PV Program (projected to be complete by December 2003).
2. BFN Unit 2 will implement the JOG recommended GL 96-05 MOV PV Program, as described in Topical Report No. NEDC 32719 (MPR report 1807), and begin testing during the 1997 fall refueling outage. Note that the static test selection for the 1997 refueling outage will be based primarily on the margin evaluation. The static test selection for subsequent refueling outages include a combination of a PSA/risk analysis and a margin evaluation (refer to Enclosure 1, "Program Transition").
3. BFN Unit 3 will implement the JOG recommended GL 96-05 MOV PV Program, as described in Topical Report No. NEDC 32719 (MPR report 1807), and begin testing during the 1998 fall refueling outage.
4. BFN Unit 1 will implement the JOG recommended GL 96-05 MOV PV Program, as described in Topical Report No. NEDC 32719 (MPR report 1807), and begin testing during the first refueling outage after restart.

SEQUOYAH NUCLEAR PLANT (SQN)

Commitment(s)

1. SQN will make adjustment(s), as required, to incorporate applicable data and recommendations by the end of the five year JOG MOV PV Program (projected to be complete by December 2003).
2. SQN Unit 2 will implement the JOG recommended GL 96-05 MOV PV Program, as described in Topical Report OG-97-018 (MPR report 1807), and begin MOV testing during the 1997 fall refueling outage. Note that the static test selection for the 1997 refueling outage will be primarily based on the margin evaluation. The static test selection for subsequent refueling outages include a combination of a PSA/risk analysis and a margin evaluation (refer to Enclosure 2, "Program Transition").

3. SQN Unit 1 will implement the JOG recommended GL 96-05 MOV PV Program, as described in Topical Report No. OG-97-018 (MPR report 1807), and begin MOV testing during the 1998 fall refueling outage.

WATTS BAR NUCLEAR PLANT (WBN)

Commitment(s)

1. WBN will make adjustment(s), as required, to incorporate applicable data and recommendations by the end of the five year JOG MOV PV Program (projected to be complete by December 2003).
2. WBN Unit 1 will implement the JOG recommended GL 96-05 MOV PV Program, as described in Topical Report No. OG-97-018 (MPR report 1807), and begin MOV testing during the 1997 fall refueling outage.
3. Should WBN Unit 2 be completed, TVA will implement the JOG recommended GL 96-05 MOV PV Program, as described in Topical Report No. OG-97-018 (MPR report 1807), and begin testing during the first refueling outage after startup.

BELLEFOURTE NUCLEAR PLANT (BLN)

Commitment contained in TVA's 60-Day letter to GL 96-05, dated November 18, 1997.

TVA's proposed course of action is to establish and submit a summary description of the GL 96-05 MOV PV Program and a schedule for implementation no later than six months prior to fuel load of each unit at BLN. This schedule is based on the current reduced level of activity and preservation mode at BLN.