

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
400 Chestnut Street Tower II

March 15, 1984

U.S. Nuclear Regulatory Commission  
Region II  
Attn: Mr. James P. O'Reilly, Regional Administrator  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2 - NRC-OIE REGION II INSPECTION  
REPORT - 50-327/83-31 AND 50-328/83-31 - RESPONSE TO VIOLATIONS

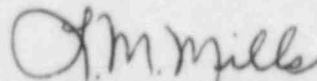
The subject OIE inspection report dated February 14, 1984 from  
J. P. O'Reilly to H. G. Parris cited TVA with five Severity Level IV  
violations. Enclosed are the responses to the items of violation in the  
subject inspection report.

If you have any questions, please get in touch with R. H. Shell at  
FTS 858-2688.

To the best of my knowledge, I declare the statements contained herein are  
complete and true.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



L. M. Mills, Manager  
Nuclear Licensing

Enclosure

cc: Mr. Richard C. DeYoung, Director (Enclosure)  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
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ENCLOSURE

RESPONSE - NRC INSPECTION REPORT NOS.  
50-327/83-31 AND 50-328/83-31  
JAMES P. O'REILLY'S LETTER TO H. G. PARRIS  
DATED FEBRUARY 14, 1984

Item 1 (327/83-31-02)

Technical Specification 6.8.1.c requires that written procedures be implemented for surveillance and test activities of safety-related equipment. Surveillance Instruction SI-166.3, "Full Stroke Testing of Category A&B Valves During Cold Shutdown," provides prerequisites, precautions and instructions for inservice testing of various safety related valves including 1-FCV-72-41.

Contrary to the above, written procedures for surveillance activities of safety-related equipment were not properly implemented in that on December 16, 1983, valve 1-FCV-72-41 was opened without valves 1-HCV-74-37 and 1-74-531 being shut as required by Section 7.7.3.2 of SI-166.3. The improper valve alignment resulted in approximately 600 gallons of primary coolant being sprayed into Unit 1 containment.

This is a Severity Level IV Violation (Supplement I). This violation applies to Unit 1 only.

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

Unit 1 was shut down for generator repairs on November 24, 1983, following a reactor trip caused by a phase-to-ground fault in the generator. On December 16, 1983, the unit was in mode 5 (cold shutdown) with reactor coolant system (RCS) temperature and pressure at approximately 134°F and 260 psig. Operations personnel had successfully performed SI-166.3, "Full Stroking of Category A and B Valves During Shutdown," on the A train of the residual heat removal (RHR) system from 0258C to 0317C on December 16, 1983. A portion of this test requires stroking of the valves in the flow path from the containment sump to the RHR spray header. The A train RHR was placed in service at 0630C, and the B train RHR pump was stopped in preparation of performing the SI-166.3 on the B train RHR.

Just before 1950C, the unit 1 operator in preparation of performing SI-166.3 on valves FCV-63-73, FCV-63-11, and FCV-72-41 performed the following:

- Closed FCV-74-21 (RHR pump B suction valve) from control room
- Closed FCV-63-3 (SI pumps to refueling water storage tank) from control room
- Closed FCV-74-35 (RHR crossover B train isolation valve) from control room
- Verified on control board FCV-72-20 (containment sump to containment spray isolation valve) was closed
- Verified on control board FCV-74-24 (A RHR pump miniflow valve) was closed

The operator had assumed that valves HCV-74-37 (RHR pumps crossover leg B train isolation) and HCV-74-531 (RHR pumps miniflow crossconnect line B train isolation valve) were closed. He made this assumption based on a previous conversation during shift turnover and a quick check of system status files. The operator did not check, or have checked, the positions of 74-37 or 74-531. He proceeded with the test, signing the SI data sheet that the valves were verified closed.

At 1950C, the operator began the test and successfully stroked valves FCV-63-73 and FCV-63-11. When the operator attempted to stroke 72-41, the valve would not operate from the control room. Since interlocks require 63-73 to be open before 72-41 opening, the operator checked 63-73 for proper position. Finding 63-73 open as required, the assistant shift engineer (ASE) went to the motor-operated valve board on elevation 749 to attempt to operate the valve from the board. The ASE switched controls to auxiliary and momentarily bumped the valve open and immediately back closed. At this time (2027C), an assistant unit operator (AUO) called the control room operator from containment and reported water dripping from the RHR spray header. The unit operator noted an approximate five percent drop in pressurizer level (cold calibrated instrumentation). The operator immediately notified the ASE at the controls of 72-41 to ensure the valve was closed. An AUO was immediately dispatched to check the positions of HCV-74-531 and HCV-74-37 at 2030C. The AUO reported back that 74-531 and 74-37 were in the open position. The two valves were closed immediately and personnel dispatched to verify the position of FCV-72-41. At 2053, valve FCV-72-41 was verified closed (hand tight). With 74-531 and 74-37 now verified closed, the SI-166.3 stroke test was successfully performed on valve FCV-72-41. Health Physics (HP) personnel were called in, and the unit 1 containment was cleaned and decontaminated.

The cause of the event was the result of operator error in that the operator did not have the positions of valves HCV-74-531 and HCV-74-37 verified properly before performing the test. No personnel were

contaminated during the event, and radiation levels or contamination areas were not increased as shown in HP surveys following the containment decontamination.

The reason for FCV-72-41 not operating from the control room could not be determined. A change in level of five percent in pressurizer level indicates an approximate loss of 600 gallons from the RCS. Based on the normal fill of the RHR spray headers, about 130 gallons were used up filling the remainder of the 8-inch header. This indicates that a maximum of 470 gallons of RCS water was discharged into the unit 1 containment.

3. Corrective Steps Which Have Been Taken and the Results Achieved

The operator responsible for the error was removed from licensed duties. After instructions emphasizing the importance of adherence to procedures, he was placed in a nonlicensed operator position for further performance evaluation. After approximately two months of such duties, his performance was judged satisfactory and he was returned to licensed duties for an additional performance evaluation.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

1. Because of this and other events, plant management emphasized following procedures and reducing personnel errors to all plant supervisors. In addition, each plant section supervisor was charged with the responsibility to provide documented training to each of the section's employees on following procedures, reduction of personnel errors, and paying attention to details.
2. All Operations personnel were retrained on the following items:
  - a. The difference in the usage of Category A and Category B SOIs.
  - b. Operation of the system status file, including proper procedure for updating the file.
  - c. Operation of the configuration log, including responsibilities for updating the log.
  - d. Proper procedures for verifying locked valve position.
  - e. Procedure for first and second person verification of valve position.
  - f. Proper control room work atmosphere.
  - g. Proper method for issuing or receiving verbal instructions.
  - h. Shift relief responsibilities in respect to system status and alignment.

- i. Minimum entries that should be made in the daily shift journal.
- j. Proper information required to be placed on removed chart recorder paper.
3. The above Operations retraining will be conducted annually.
5. Date When Full Compliance Will Be Achieved

The spray event was terminated at approximately 2027 on December 16, 1983, and additional corrective actions were completed by January 15, 1984.

Item 2 (328/83-31-02)

Technical Specification 6.8.1.a requires that written procedures be established and implemented covering safety-related activities including the operation of the Emergency Core Cooling System (ECCS). System Operating Instruction SOI-63.1, "Emergency Core Cooling System," provides the standby mode system adjustment requirements for the Residual Heat Removal (RHR) system.

Contrary to the above, written procedures were not properly implemented for safety-related activities in that on December 9, 1983 the inspector found that valve 2-FCV-74-520 (2A RHR pump discharge valve) was open but not locked as required by valve check list 63.1D-1. The 2A RHR pump was required to be operable.

This is a Severity Level IV Violation (Supplement I). This violation applies to Unit 2 only.

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

The reason for this violation has been attributed to Operations personnel lacking a full understanding of procedures to be followed when locking valves or verifying positions of locked valves. Also, procedures did not adequately provide guidance on the methods and details of locking valves.

3. Corrective Steps Which Have Been Taken and the Results Achieved

The valve was verified to be in its proper position and properly locked upon discovery.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

1. Procedures were revised to provide methods and details of locking.
2. Because of this and other events, plant management emphasized following procedures and reducing personnel errors to all plant supervisors. In addition, each plant section supervisor was charged with the responsibility to provide documented training to each of the section's employees on following procedures, reduction of personnel errors, and paying attention to details.
3. All Operations personnel were retrained on the following items:
  - a. The difference in the usage of Category A and Category B SOIs.
  - b. Operation of the system status file, including proper procedure for updating the file.
  - c. Operation of the configuration log, including responsibilities for updating the log.
  - d. Proper procedures for verifying locked valve position.
  - e. Procedure for first and second person verification of valve position.
  - f. Proper control room work atmosphere.
  - g. Proper method for issuing or receiving verbal instructions.
  - h. Shift relief responsibilities in respect to system status and alignment.
  - i. Minimum entries that should be made in the daily shift journal.
  - j. Proper information required to be placed on removed chart recorder paper.
3. The above Operations retraining will be conducted annually.

5. Date When Full Compliance Will Be Achieved

The valve was properly locked on December 9, 1983. Procedure changes and retraining were completed January 31, 1984.



Item 3 (328/83-31-03)

Technical Specification 3.6.1.1 requires that Primary Containment Integrity shall be maintained in modes 1, 2, 3 and 4 and that Containment Integrity shall be demonstrated by verifying that all penetrations required to be closed during accident conditions are closed by valves, blind flanges or deactivated automatic valves secured in their positions. Surveillance Instruction SI-14.2, "Verification of Containment Integrity" demonstrates Containment Integrity by verifying that certain valves in the containment annulus which isolate containment penetrations are locked closed.

Contrary to the above, Containment Integrity was not properly demonstrated in that on December 19, 1983 the inspector checked approximately 40 SI-14.2 valves in the Unit 2 annulus and 12 of the valves were not locked. All valves checked were in their proper positions.

This is a Severity Level IV Violation (Supplement I). This violation applies to Unit 2 only.

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

A detailed evaluation was conducted regarding locked valves and the associated procedures, training, and plant sections involved. The review indicated that the procedures governing locked valves important to safety contained minor deficiencies and personnel were failing to follow procedures and failing to pay attention to detail.

Only two plant sections, Operations and Instrument Maintenance (IM), are involved with aligning and locking valves. The review of IM procedures used to work on locked valves revealed that the requirements to properly align the valves and provide independent verification are addressed, but guidance on the methods and details of locking were not provided. The review of Operations procedures used to align, independently verify, and lock valves important to safety revealed that sufficient guidance is provided with the exception of the methods and details of locking.

3. Corrective Steps Which Have Been Taken and the Results Achieved

All accessible locked valves were verified to be in their locked position on unit 2 and all locked valves on unit 1, which was in an outage, were verified to be in their proper position before startup.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

1. Procedures were revised to provide methods and details of locking.
2. Due to this and other events, plant management emphasized following procedures and reducing personnel errors to all plant supervisors. In addition, each plant section supervisor was charged with the responsibility to provide documented training to each of the section's employees on following procedures, reduction of personnel errors, and paying attention to details.
3. All Operations personnel were retrained on the following items:
  - a. The difference in the usage of Category A and Category B SOIs.
  - b. Operation of the system status file, including proper procedure for updating the file.
  - c. Operation of the configuration log, including responsibilities for updating the log.
  - d. Proper procedures for verifying locked valve position.
  - e. Procedure for first and second person verification of valve position.
  - f. Proper control room work atmosphere.
  - g. Proper method for issuing or receiving verbal instructions.
  - h. Shift relief responsibilities in respect to system status and alignment.
  - i. Minimum entries that should be made in the daily shift journal.
  - j. Proper information required to be placed on removed chart recorder paper.
4. The above Operations retraining will be conducted annually.
5. The unit 2 inaccessible locked valves will be verified to be in their proper position at the next outage.
6. Instrument mechanics were retrained and will be retrained annually on configuration control and independent verification techniques.



5. Date When Full Compliance Will Be Achieved

With the exception of verifying the positions of the unit 2 inaccessible locked valves, all corrective action was completed by January 15, 1984.

Item 4 (327, 328/83-31-01)

Technical Specification 6.11 requires that procedures for personnel radiation protection shall be approved, maintained and adhered to for all operations involving personnel radiation exposure. Radiological Control Instruction RCI-14 "Radiation Work Permit (RWP) Program" requires that each worker entering an RWP area record his name, social security number, date, time and dosimeter reading each time he enters and leaves the area and that he comply with any other instructions of the RWP.

Contrary to the above, procedures for personnel radiation protection were not adhered to in that on December 22, 1983, the inspector noted that key card records for door A-8 to the 2A RHR pump room showed that approximately 200 entries were made into the room between November 19 and December 8, 1983. Review of RWP 02-2-00831 time sheets 34, 35, 36, and 37 which were in effect for that time period revealed that only 34 entries were logged.

This is a Severity Level IV Violation (Supplement IV). This violation applies to units 1 and 2.

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

The reason for this violation has been attributed to plant personnel not following plant procedures.

3. Corrective Steps Which Have Been Taken and the Results Achieved

A review of radiological postings for accuracy and clarity was performed by the HP Section. Postings that may have promoted an element of confusion to the workers were corrected.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

Because of this and other events, plant management emphasized following procedures and reducing personnel errors to all plant supervisors. In addition, each plant section supervisor was charged with the responsibility to provide documented training to each of the section's

employees on following procedures, reduction of personnel errors, paying attention to details, safe work policies, and radiological work requirements.

HP training and retraining were revised to reinforce the radiological work permit (RWP) and the HP posting program.

The effectiveness of these corrective actions will be monitored by periodically checking key card records to RWP records.

5. Date When Full Compliance Will Be Achieved

Full compliance was achieved on March 1, 1984.

Item 5 (328/83-31-04)

Technical Specification 3.8.2.1 requires the four 120 Volt A.C. Vital Instrument Boards be energized from their respective inverters in Modes 1, 2, 3, and 4. The Action Statement requires that with one inverter inoperable, energize the associated Vital Instrument Power Board within 8 hours; restore the inoperable inverter to operable status within 24 hours or be in at least hot standby within the next six hours and in cold shutdown within the following 30 hours.

Contrary to the above, with unit 2 in Mode 1 while performing maintenance on vital inverter 1-I, the inverter was taken out of service at 12:08 a.m. CST on December 20, 1983, and not returned to service until 8:00 a.m. on December 22, 1983. This is in excess of the 24 hours allowed by the Action Statement to restore the inverter to operability or be in Hot Standby within the next six hours. Power to the Vital Instrument Power Board was maintained during this inverter outage.

This is a Severity Level IV Violation (Supplement I). This violation applies to Unit 2 only.

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

While running Maintenance Instruction (MI)-10.6, "120 Volt Vital Instrument Power Board Check," vital inverter 1-I was taken out of service at 0008 CST on December 20, 1983. Operations was notified at 0630 CST on December 20, 1983, to put the inverter back in service. The oncoming shift ASE (SRO) was told the inverter would be needed out of service again that night and decided to leave it out of service since unit 1 was in mode 5 which required only two of four inverters operable.

The SRO for unit 1 failed to realize that even though his unit was in a nonapplicable mode, unit 2 was in mode 1 requiring the inverter to be operable. Electrical Maintenance personnel noted that the inverter was still out of service at 0650 CST on December 22, 1983. Operations was notified at 0700, and the inverter was returned to service at 0800 on December 22, 1983.

Very few technical specifications have dual unit applicability such as this one. The fact that this was inverter 1-I implied that it belonged to unit 1 only, and the SRO did not check both units' technical specifications.

3. Corrective Steps Which Have Been Taken and the Results Achieved

The inverter was returned to service upon discovery of the error.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

Maintenance instructions are being revised to add a signoff for notification of both unit SROs if an inverter, 6900-volt shutdown board, or 480-volt shutdown board is removed from service.

This incident will be covered in licensed group training and emphasis will be placed on technical specifications common to both units.

5. Date When Full Compliance Will Be Achieved

Full compliance was achieved on December 22, 1983, when the inverter was returned to service. Licensed group training will be completed June 1, 1984. Maintenance instructions will be revised by April 13, 1984.