

RIVER BEND STATION, UNIT 1

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PUMP AND VALVE OPERABILITY ASSURANCE AUDIT  
TECHNICAL EVALUATION REPORT

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## SUMMARY

The Brookhaven National Laboratory (BNL) pump and valve operability review team and representatives of the Equipment Qualification Branch (EQB) of the NRC conducted an on-site audit of the River Bend Station Unit 1, pump and valve operability assurance program during the week of October 29, 1984. Ten (10) components, three (3) identified as belonging to the Nuclear Steam Supply System (NSSS) and seven (7) to the Balance of Plant System (BOP), were reviewed during the audit. The results of this audit revealed generic deficiencies in the applicant's pump and valve operability assurance program as well as specific concerns regarding the qualification of eight of the ten components.

### 1. INTRODUCTION

To assure that an applicant has developed and implemented a program regarding the operability qualification of safety-related pumps and valves, the Equipment Qualification Branch (EQB) performs a two-step audit. The first step is a review of Section 3.9.3.2 of the River Bend Final Safety Analysis Report (FSAR) for the description of the applicant's pump and valve operability assurance program. The information provided in the FSAR, however, is general in nature and not sufficient by itself to provide confidence in the adequacy of the licensee's overall program for pump and valve operability qualification. To provide this confidence, the Pump and Valve Operability Review Team (PVORT), consisting of staff from the NRC and Brookhaven National Laboratory (BNL), conducts an on-site audit (second step) of a small representative sample of safety-related pumps and valves and supporting documentation.

The criteria by which the audit is performed is described in Section 3.10 entitled, "Seismic and Dynamic Qualification of Mechanical and Electrical Equipment" of the Standard Review Plan (SRP). Conformance with SRP 3.10 is required in order to satisfy the applicable portions of General Design Criteria (GDC) 1, 2, 4, 14, and 30 of Appendix A to 10 CFR 50 as well as Appendix B to 10 CFR 50.

### 2. DISCUSSION

The EQB staff in performing the first step of the audit, reviewed Section 3.9.3.2 of the River Bend Station Unit 1 FSAR. The on-site audit, or second step, was performed by the PVORT during the week of October 29, 1984. The purpose of this two-step review process is to determine the extent that the applicant, Gulf States Utilities (GSU), meets the criteria of Section 3.10 of the SRP and the GDCs mentioned. A sample of three Nuclear Steam Supply System (NSSS) and seven Balance of Plant (BOP) components were selected to be audited.

In preparation for this audit, the applicant's list of safety-related equipment entitled, "Seismic and Dynamic Qualification Summary and Status Report Master List of Safety-Related Equipment" was reviewed and several pieces of equipment were selected as candidates for review. From this list of

candidates, seven (7) components classified as being BOP and three (3) as being NSSS components were selected to be reviewed at the time of the audit as identified in Table 1 entitled "Audited Equipment."

The on-site audit includes a plant inspection of the as-built configuration and installation of the equipment, a review of the normal, accident, and post accident conditions under which the equipment and systems must operate, the associated fluid dynamic loads, and a review of the qualification documentation (status reports, test reports, analysis, specifications, surveillance programs, and long-term operability program(s), etc.).

Table 1 identifies the equipment audited.

### 3. SPECIFIC CONCERN

A number of concerns were noted during the plant walkdown with some being satisfactorily resolved during the audit. The PVORT made a check of the applicant's documentation system by requesting, at short notice, the appropriate specification test reports, and related qualification documentation for a particular component. GSU response to this request was both thorough and complete, in addition to escorting the team on a tour of the documentation or central file at the plant. The following is an example, highlighting the evaluation or audit process of the individual components.

#### 3.1 E12-C002C - Residual Heat Removal Pump (NSSS)

This pump is located in the Auxiliary Building at the 70 foot elevation. The normal function of the component is fuel pool, suppression pool, and reactor shutdown cooling. Its safety function is to supply water to the core in the event of an accident, and suppression pool cooling. The component normally is in a standby condition, and must operate approximately 100 days following an accident.

The components are qualified by both analysis and testing. Pursuing the basis for the acceptance criteria for in-plant pump performance, it was discovered that manufacturer's data and acceptance criteria were not utilized. The specific question that was asked, to which there was no reply, is "How is pump performance (curves, vibration levels, bearing temperatures, etc.) established without the use of manufacturer's data/acceptance criteria?"

A list of qualification documents in GSU possession and a list of tests performed at vendor, GE, and GSU were provided upon request. Clarification regarding the discrepancy between the serial number on the component and that of the long form was presented.

While reviewing the qualification documents, it appeared that two GE specifications were pertinent: GE specification 21A3504, Revision 1 and 21A3504BV, Revision 0. However, one specification does not list the IEEE standards as guides for qualification. The questions asked, to which there

Table 1. Audited Equipment.

Plant I.D. Number	NSSS or BOP	Description	Component	Manufacturer	Model
E22-F015	NSSS	20-inch motor operated gate valve 150#	Valve Actuator	Anchor Darling Limitorque	A/O Drawing No. 2994-3 SB-1-40
B33-F060A	NSSS	20-inch flow control valve	Valve assembly	Hammel Dahl	BWR-6-20
1SWP-P2A	BOP	Standby service water pump (vertical centrifugal)	Pump Driver	Hayword Tyler Siemens-Allis	18X23VSN1 Frame 588VP
1E12-MOVF21	BOP	14-inch motor operated globe valve	Valve Actuator	Velan Limitorque	B19-1074C-02TS SMB-3-60
1HVC-MOV1B	BOP	24-inch motor operated butterfly valve	Valve Actuator	Posi-Seal Limitorque	Not specified SMB-005-2-H2BC
1CCP-MOV13B	BOP	10-inch motor operated gate valve	Valve Actuator	Velan Limitorque	B16-0054B-02TS SMB-0-25
B21-AOVF-32A	BOP	20-inch check valve	Valve	Attwood and Morrill	Swing check valve with air assist closure
E33-SOV14	BOP	2-inch solenoid operated globe valve	Valve	Target Rock	77KK-005 (102/010-3)
E12-CC02C	NSSS	RHR pump (centrifugal three stage VMT)	Pump Driver	Byron Jackson General Electric	28DX18.5CKXL 5K6336XC322A
E12-PC003	BOP	RHR subsystem fill pump (horizontal centrifugal)	Pump Driver	Gould Westinghouse	3196ST TBFC (From No. 184T)

were no reply, were "Clarify the difference between the two specifications. Is this component designed and qualified to IEEE standards, and if not, why and what is the means of qualification?"

GE answered the concerns regarding the aging effect of elastomers by referencing the "Mechanical Equipment Environmental Report" NEDC.30717 (pump) and NEDC 30614 (motor). However, GSU was asked "How will or have they identified parts sensitive to aging mechanisms and how would they be tracked?" No response was received.

During the plant walkdown, it was observed that the discharge pressure transmitter associated with this component had a reject tag and an as-built acceptance tag? GSU was asked to clarify, to which there was no response, the difference between the two tags, the reason, and how they affect the qualification of the component.

Subject to the resolution of the concerns listed, the staff finds that the applicant has satisfactorily completed the operability qualification for this component.

### 3.2 B21-AOVF-32A - 20-inch Check Valve (BOP)

This valve is a containment isolation valve in the feedwater system. It is located in the auxiliary building at the 122 foot elevation. The function of this valve is to prevent loss of coolant and release of radioactivity in the event of a feedwater line break outside of the containment.

While reviewing the PVORT long form and the purchase specification, it was discovered that the parameters specified in these two documents were not in agreement. It was later discovered that Revision 5 of the specification which was presented to the audit team, is not the latest revision. Reviewing the latest revision, number 11, satisfied the concerns regarding the operating parameters.

Additionally addressed were questions regarding the internal/external allowable leakage criteria, the qualification test performed (hydrostatic shell, disc, seat leakage, air cylinder operational, and pneumatic seat leakage) and the establishment of the acceptance criteria for qualification.

The applicant has demonstrated qualification operability for the component.

### 3.3 E22-F015 - 20-inch Motor Operated Gate Valve (NSSS)

This valve is a containment isolation valve in the high pressure core spray system. It is located in the auxiliary building at approximately the 70 foot elevation. Its function, in addition to containment isolation, is to open in response to either a suppression pool high-level signal or a low condensate tank level.

The operability of this component was by analysis only. No testing was performed. Additional questioning regarding what fluid dynamic and seismic loads were utilized in the analysis were not addressed. In response to the concerns regarding qualification of this valve, the applicant indicated that a similar valve was presently undergoing a qualification program which included testing. Operability of this valve would be reestablished based upon a similarity analysis with the valve presently undergoing testing and that it would also consider the fluid dynamic and seismic effects to which this valve would be subjected under normal, accident, and post-accident conditions.

Subject to the resolution of the concerns listed, the staff finds that the applicant has satisfactorily completed the operability qualification for this component.

#### 3.4 E33-SOV014 - 2-inch Solenoid Operated Globe Valve (BOP)

The valve is identified as being a containment isolation valve in the main steam positive leakage control system. During normal operation, the valve is closed. Its safety function is to provide initial pressurization of the main steam positive leak control system. Upon completion it closes. The valve is located in the auxiliary building at the 141 foot elevation.

As a result of the plant walkdown and review of qualification documentation, it was discovered that the valve was not installed as per the qualification documentation and manufacturer's recommendation. These documents indicated that the working pressure should be above the seat, but the installation orientation has the working pressure under the seat. In response to the inquiry as to how installation orientation affects qualification and operability, the applicant indicated that an evaluation of these findings would be performed.

Based upon the design and operation of the valve, concerns were raised regarding the quality and quantity of air and working fluid required for the valve. Specifically, the questions asked that the qualification documentation did not address or the applicant responded to were (1) "What is the minimum air pressure required to open the valve and is it in agreement with the operating conditions/requirements experienced by the valve?" and (2) "What assurance is there that the quality of the air delivered to the valve is in agreement with the manufacturer's requirements?"

Similar concerns, also not addressed, had to do with the capability of the spring to close the valve. Specifically asked was the question "Are the forces delivered by the spring capable of closing the valve against the maximum loads of the working fluid?"

Based on the finding discussed above, the basis by which GSU determined qualification/operability was pursued. The questions specifically asked, to which there was no response was (a) "What tests were performed by GSU to date or will be performed in the future that has or will demonstrate operability?" and (b) "How is or will GSU track manufacturer's recommendations regarding

maintainability of components subject to aging, insuring long-term operability?"

Subject to the resolution of the concerns listed, the staff finds that the applicant has satisfactorily completed the operability qualification for this component.

### 3.5 E12-PC003 - Residual Heat Removal (RHR) Subsystem Fill Pump (BOP)

This pump is located in the auxiliary building at the 78 foot 6 inch elevation. The normal and safety function of this pump is to insure that the RHR system piping is filled and ready for startup of the main RHR pump.

The plant walkdown revealed that the pump takes its suction from the inlet side of RHR pump E12-PC002C. The purchase specification indicates that the primary work fluid is demineralized water. Since pump E12-PC002C may take its suction from the suppression pool, the applicant was asked as to what effect does this nondemineralized water have on the qualification and operability (e.g., wear ring, seal, impellers, bearings, etc.) of the pump. The response to this concern centered on conductivity, chloride, pH, and total insolubles. However, it is concluded that the applicant has not addressed the concerns regarding operability/qualification when considering (a) normal, accident, and post-accident operating condition; (b) source of water; and (c) factors contributing to degradation, etc.

During the review of the long form and test manual, it was observed that the stalled current was 26.5 amp while the specification indicated 32 amps. The applicants indicated that the specification data sheet should reflect the test data of 26.5 amps and that it would be revised accordingly.

In response to the concerns regarding the basis for the bearing temperature acceptance criteria, when performing the test, the applicant indicated that the vibration and bearing temperature test procedure (report 6237.160-108.0006A) uses the manufacturer's acceptance criteria. The resulting discussion and response satisfies the concern in this area.

The name plate and test data sheets revealed at full load a RPM value of 3,485, while the long form and specification indicated 3,500/3,600. The applicant, indicated that the name plate and test data sheets reflected actual values for the full load condition, while the specification data sheet lists the nominal pump rpm. This response satisfies the staff concerns in this area.

When reviewing the qualification documentation, there was no reference regarding the capability of the motor at reduce voltages. Specifically asked, to which there was no reply "At reduced voltages (the minimum voltage delivered) what is the capability of the pump/motor and does it meet the requirements of the system?"

Subject to the resolution of the concerns listed, the staff finds that the applicant has satisfactorily completed the operability qualification for this component.

### 3.6 ICCP-MOV138 - 10-inch Motor Operated Gate Valve (BOP)

This motor operated valve is located in the auxiliary building at the 114 foot elevation. The functional requirement of the valve is to isolate the containment and to interrupt the water flow of the reactor plant component cooling water system (RPCCW) to the nonregenerative heat exchanger.

Operability of this valve is demonstrated by a combination of analysis and test. The functional qualification of this valve as a candidate valve was accomplished by demonstrating design similarity to a previously qualified parent valve with ratio analysis used to show similarity.

The document review demonstrated that parameters affecting valve function had been evaluated with appropriate analysis and or test. Temperature and flow conditions for this valve are 105°F normal and 1,200 gpm, respectively and should not have any significant effect on valve operability. Test records showed that the valve had been subjected to a hydrostatic shell test and seat leakage test with satisfactory test results.

The parent valve was also subjected to a cyclic test with seismic loads, demonstrating operability without binding and leakage within specification.

The preoperational test procedure and test results were reviewed and found satisfactory.

During the walkdown inspection, the valve serial number was checked against the PVORT form. Two serial numbers were found on the valve, one of which was on the "N" stamp tag and agreed with the PVORT form and the other was later identified as the manufacturer's tag valve identification serial number. The inspection and test record form listed the manufacturer's tag valve serial number which does not agree with the PVORT form. The staff's concern is with the possibility of errors in value identification caused by the fact that two serial numbers are on the valve. Another valve on the audit list (MOVFO21) was checked and the PVORT form listed the manufacturer's serial number and the N-Stamp number in brackets. Gulf States Utilities (GSU) should reexamine the assignment and use of component serial numbers and implement changes to minimize the possibility of identification errors.

Another item noted by the PVORT walkdown team was that the actuator motor had been removed from MOV138. GSU responded after the walkdown stating that the removal had been authorized by GSU trouble ticket number CCP.002-11, the reason being a low megger reading on the motor. Near the end of the audit GSU indicated that the motor had been removed to a bench area for trouble shooting, was repaired and reinstalled with a satisfactory megger reading. Documentation was not provided to ensure that the motor would be returned to its operational status.



During the documentation review, the staff noted that Revision 2 to the MOV checkout procedure 1-G-EE-18 was initiated to correct excessive torque values listed in Revision 1. Comparing Revision 1 to Revision 2, the torque values appear to be the same. GSU should review these documents and correct if necessary.

In reviewing the specification data sheets for this component, the staff observed that the valve closure time was 30 seconds, compared to 20 seconds on the PVORT form and 22 seconds listed in the "Inspection and Test Record Procedure." The applicant indicated that the 20 seconds listed on the PVORT form was correct, however, the specification sheets and Inspection and Test Record Procedure should be revised if the 20 seconds is correct. The staff's concern with the variations observed is that changes in valve closure time during the "In Service Test Program" might not be interpreted correctly. The specification data sheets listed requirements for stem leakoff which did not appear to be in place on the valve. The applicant should review the requirements and if correct, verify that stem leakoff requirements have been provided.

Subject to the resolution of the concerns listed the staff finds that the applicant has satisfactorily completed the operability qualification requirements for this valve.

### 3.7 B33-F060A - Flow Control Valve (NSSS)

This 20-inch rotary ball valve's normal function is flow control of the recirculation pump to maintain desired reactor power, with its safety function being maintenance of pressure boundary integrity.

During the walkdown inspection, the PVORT team noted a reject tag on the valve. Responding to a request by the staff for information concerning the nature of the rejection, GSU quickly produced the applicable nonconformance and disposition report.

Another request by the staff for the manufacturer's production test report and preoperational test plan was quickly complied with and upon staff review, these documents were found to be satisfactory.

The staff's finding is that the applicant has satisfactorily demonstrated operability qualification for this valve.

### 3.8 ISWP-P2A Standby Service Water Pump (BOP)

This electrically driven vertical turbine-type pump is required to provide cooling water for safety-related equipment if normal service water is lost (Reference 3.8.2a,b). The equipment is located in the standby service water pumphouse with the main support at El. 118 feet.

The pumps are required to operate during three modes of operation, if the normal service water system is inoperative:

1. For the first 10 minutes after the LOCA, one pump is required at a flow of 3,430 gpm and a discharge head of 106 feet.
2. 10 minutes after a LOCA, a second pump is required in parallel with the first pump, for a combined flow of 12,020 gpm at a discharge head of 145 feet.
3. The third mode occurs during a loss of site power condition, when two pumps are required in parallel for a combined flow of 15,380 gpm at a discharge head of 170 feet. Each pump must be capable of delivering 7,690 gpm at 170 feet head.

This pump is manufactured by the Hayward Tyler Pump Company whose pumps are the subject of IE Bulletin number 83-05 that recommends users of HTPC pumps conduct pump performance/endurance tests to ensure reliability of the pumps.

In response to the staff's request for the status of the applicant's compliance with the recommendations in IE Bulletin number 83-05, the utility produced a letter from GSU to the Region IV Office of Inspection and Enforcement dated August 16, 1983 that provides a description of the test plan for the pump performance/endurance test. The letter also includes a statement that GSU is developing a pump and valve in service test program in compliance with the rules of ASME Section XI, Subsection IWP. GSU indicated in the letter that the system hydrostatic pressure tests for the pump had not been performed as required by the ASME code, however, the letter included details of the pressure test procedure to be used for the pump.

The staff finds the test plans developed by GSU for this pump satisfactory, however, satisfactory completion of the performance/endurance test in particular is required to provide confidence in the pump's operability.

Documentation provided for staff review included factory performance test results, vibration test results from a coupled run, preliminary alignment data, and various test procedures.

The performance data agreed with specification requirements, however, the staff notes that the vibration data presented used peak velocity in inches/second and the General Machinery Vibration Severity Chart for acceptability as opposed to the pump specification requirement that peak to peak vibration amplitudes, are not to exceed the limits shown in Figure 66 of the Hydraulic Institute Standards. The staff's concern is that this inconsistency in the use of vibration parameters can lead to errors when comparisons are made with baseline data, also, the acceptance criteria used by GSU in conjunction with the General Machinery Vibration Severity Chart appear to be less conservative than the limits found in Figure 66 of the Hydraulic Institute Standard.

Staff review of preliminary alignment data presented by GSU raised a concern over the fact that the pump shaft indicated runout of .004 inches was larger than the manufacturer's specified maximum coupled runout of .002 inches.

The staff finds that the applicant's operability program for this pump is comprehensive, however, operability qualification is subject to resolution of the staff concerns particularly successful completion of the tests outlined in IE 83-05.

### 3.9 1E12-MOVF021 - 14-inch Globe Valve (BOP)

This valve remains closed during normal plant operation. It is opened remote manually when RHR pump test operations are performed.

This component was picked at the start of the audit to determine the applicant's ability to retrieve documents and to ascertain the completeness of the central files.

After the walkdown, the staff requested documentation applicable to a nonconformance tag observed on the actuator motor. A review of the documentation provided indicated that the motor starter housing had been welded to the motor flange. The disposition was to use the motor temporarily while awaiting a replacement. The staff agrees with the disposition, however, they remain concerned with the possible effects of weld heat on the mating flange and shaft.

Other documents produced by the applicant and reviewed by the staff indicated satisfactory test results for tests that included a hydrostatic shell test, wedge test, seat test, back seat test, and packing test. A review of the valve specification data sheets listed requirements for valve steam leak-off, which did not appear to be in place on the valve. The applicant should review the requirements and if correct, verify that the stem leakoff requirements have been met.

Subject to the resolution of the concerns listed, the staff finds that the applicant has satisfactorily completed the operability qualification requirements for this valve.

### 3.10 1HVC-MOV1B - 24-inch Butterfly Valve (BOP)

The normal function of the valve is to circulate outside air to ac units used for the control room, with its safety function being to close and isolate the main control room from the outside environment during a LOCA.

During the PVORT team walkdown, it was noted that the actuator had a different serial number than that listed on the PVORT form. In checking, the applicant found that the serial number observed during the walkdown was that of the actuator adaptor and that the actuator itself was correctly serialized. The staff's concern is the possibility of identification error as had occurred during the walkdown.

At the staff's request, the applicant produced documentation demonstrating that the hydrostatic shell test, main seat leakage test, and cold cyclic tests had been performed in accordance with specification requirements.

When questioned about a low value of seal torques use in the static analysis, the applicant quickly produced the calculations, verified that there was an error in the seal torque value used, however, even when corrected, ample stress margin remained.

The staff finds that the applicant has satisfactorily completed the operability requirements for this valve, subject to resolution of the staff concerns.

#### 4. CONCLUSIONS

The staff concludes that GSU has assembled a group of dedicated personnel involved in the design, qualification, installation, and testing of the plant equipment. During the PVORT review, a number of generic and specific component concerns were raised. Some specific component concerns were satisfactorily resolved by either supplying additional information, or by demonstrating that appropriate commitments are already addressed by administrative controls. However, numerous generic and specific component qualification concerns still exist and are summarized in the following section entitled, "Generic Concerns" Section 3 of this report and in Table 2 entitled "Audit Findings." In general, it was concluded that a more systematic approach should be developed to perform the acceptance review of safety-related equipment.

#### GENERIC CONCERNS

- In many instances, it was observed that evidence of complete qualification is lacking and currently unavailable. More recent documentation packages were incomplete and appeared to be put together without checking.
- During the acceptance review of equipment, a procedure should be developed to identify limited life parts and ensure their replacement at appropriate intervals.
- The PVORT long forms contained numerous inconsistencies ranging from serial numbers, capability, and qualification information of the actual equipment.
- Procedures should be established to return tested equipment to its qualified status.
- Components were found to be incorrectly or improperly installed. Procedures should be established verifying equipment installation requirements and qualification.

- All pumps and valves important to safety have had their required pre-operational tests completed prior to fuel loads.
- All pumps and valves important to safety are qualified prior to fuel loads.
- None of the new loads applicable to pumps and valves important to safety exceed those loads originally used to qualify the equipment.

Table 2. Audit Findings.

Plant I.D. Number	Description	Safety Function	Findings/Resolution	Status	Remarks
E22-F015	20-inch motor operated gate valve (NSSS).	Open in response to either a suppression pool high-level signal or a low condensate tank level - containment isolation.	The operability of the valve was established using analysis only. A test program is presently being performed and a similar analysis with a similar valve which was tested will be submitted as demonstration of operability and qualification.	Open	
ISWP-P2A	Standby service water pump (BOP).	Provide cooling water for safety-related equipment if normal service water is lost.	- Clarify vibration acceptance criteria (displacement velocity)?	Open	
			- Coupling runout value (driven member) is inconsistent with alignment requirement.	Open	
			- Pump's weight incorrect on PVORT sheets.	Open	
			- Final qualification subject to compliance with endurance testing recommended in I&E Bulletin 83-05.	Open	
B33-F060A	20-inch flow control valve (NSSS).	Maintain pressure boundary integrity.	Satisfactory	Closed	

Table 2. Audit Findings (Cont'd.)

Plant I.D. Number	Description	Safety Function	Findings/Resolution	Status	Remarks
1E12-MOVF021	14-inch motor operated globe valve (BOP).	Containment isolation.	<ul style="list-style-type: none"> <li>- Have stem leakoff requirements been met?</li> <li>- N&amp;D No. 6189 motor starter housing welded to motor flange. Have possible effects of welding on valve flange and valve shaft assembly been considered?</li> <li>- Dates of issue on qualified documents very recent (i.e., ST-7003 "Operability Test Procedure" is dated 11/2/84 which was the exit meeting date). Completeness and approval required.</li> </ul>	<p>Open</p> <p>Open</p> <p>Open</p>	
1HVC-MOV1B	24-inch MO butterfly valve (BOP).	Isolate main control room during LOCA.	<ul style="list-style-type: none"> <li>- Actuator is serialized (260880), adapter plate is also serialized (260953). PVORT form picked up the adapter serial no. in place of the actuator no. Clarification required.</li> </ul>	Open	

Table 2. Audit Findings (Cont'd.)

Plant I.D. Number	Description	Safety Function	Findings/Resolution	Status	Remarks
ICCP-MOV138	10-inch motor oper- ated gate valve (BOP).	Outboard con- tainment iso- lation valve.	<p>Valve has serial no. 809 (1980) on "N" stamp tag. Manufacturer's name plate serial no. is 1413-2. PVORT form lists valve serial no. as 809 (1980). Inspection and test record form lists serial no. as 1413. Clarification required.</p> <ul style="list-style-type: none"> <li>- Stroke time requirements need clarification, they vary from 30 sec. (spec. sheet) to 22 sec. (inspection and test record) to 20 sec. (PVORT form).</li> <li>- Have stem leakoff requirements been provided?</li> <li>- Have space heaters been removed?</li> <li>- Rev. 2 to MOV Checkout Procedure 1 1-G-EE-18 initiated due to excessive torque values in Rev. 1. Comparing Rev. 1 and 2, the torque valves appear to be the same?</li> </ul>	Open	
				Open	
				Open	
				Open	
				Open	



Table 2. Audit Findings (Cont'd.)

Plant I.D. Number	Description	Safety Function	Findings/Resolution	Status	Remarks
B21-A0VF32A	20-inch check valve (BOP).	Containment isolation and reactor cool- ent pressure boundary.	Satisfactory	Closed	
E33-S0V14	2-inch solenoid operated globe valve (BOP).	Provide ini- tial pressuri- zation of main steam positive leak control system.	<ul style="list-style-type: none"> <li>- Valve installation contradicts note 18 of FSAR Fig. 6.7-1, qualification documentation and manufacture recommendations.</li> <li>- If the working fluid (air) provides opening force; what is the minimum air pressure required to open the valves?</li> <li>- Are the forces delivered by the spring capable of closing the valve against the loads of the working fluid?</li> <li>- What assurance is there that the delivered air quality is in agreement with the manufacturer's requirements?</li> </ul>	Open	
				Open	
				Open	
				Open	

Table 2. Audit Findings (Cont'd.)

Plant I.D. Number	Description	Safety Function	Findings/Resolution	Status	Remarks
E33-S0V14 (Cont'd.)			<ul style="list-style-type: none"> <li>- List tests performed by GSU to date or to be performed in the future.</li> <li>- How is or will GSU track manufacturer's recommendations regarding maintainability of components subject to aging?</li> </ul>	Open	
E12-C002C	RHR pump (NSSS).	Supply water to the core in the event of an accident. Supression pool cooling.	<ul style="list-style-type: none"> <li>- How is pump performance (curves, vibration levels, bearing temp., etc.) established without the use of manufacturer's data/acceptance criteria?</li> <li>- Discharge pressure transmitter has a reject tag and as built acceptance tag? Clarify difference and the reason for the reject tag and the action taken.</li> <li>- Serial number on motor qualification documentation and long form disagree.</li> </ul>	Open	
				Open	
				Open	

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