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RBG-45946

May 14, 2002

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

SUBJECT: River Bend Station, Unit 1
Docket No. 50-458
License Amendment Request
LAR 2002-11, "Modification of the Technical Specification Surveillance Requirements for the Safety/Relief Valves"

REFERENCES: 1) ASME Code, Section XI, 1989 Edition
2) ASME/ANSI OM-1987, Part 10 with addenda through OMa-1988

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Operations, Inc. (Entergy) hereby requests the following amendment for River Bend Station, Unit 1 (RBS). The proposed amendment would expand the safety function lift setpoint tolerances for the safety and relief valves (S/RVs) that are listed in Surveillance Requirement (SR) 3.4.4.1 of the Technical Specifications (TSs). This change would be limited to the lower tolerances and would not affect the upper limits. The tolerances for these valves would be changed from ±3% to +3%, -5% of the setpoint.

The S/RV safety lift setpoints will continue to be set within a tolerance of ±1%, but the setpoints will be tested to within the +3%, -5%. If a valve is tested and the lift setpoint is found outside the tolerances, two additional valves are to be tested and the setpoint for the failed valves will be reset to within the ±1% tolerance. Therefore, the +3%, -5% tolerance is only the criteria for testing the valves and deciding if a valve has failed the test.

The proposed amendment would also allow the surveillance of the relief mode of operation of the S/RVs to be performed without physically lifting the disk of a valve off the seat at power. The Bases pages of the TSs would also be changed as appropriate to reflect the revised requirements.

Included in this proposal is a request for relief from inservice testing (IST) requirements in the American Society of Mechanical Engineers Boiler and Pressure Vessel Code for the S/RVs. This relief is needed to revise the requirement in the RBS IST program so that the program does not require stroking of these valves at power.

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The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that this change involves no significant hazards considerations. The bases for these determinations are included in the attached submittal.

This application contains no new commitments.

The proposed changes are similar to amendments granted to the Grand Gulf Nuclear Station as amendments numbers 123 and 130.

Entergy requests approval of the proposed amendment by December 31, 2002 to allow time for planning and implementation prior to the spring outage of 2003. Once approved, the amendment shall be implemented within 60 days. Although this request is neither exigent nor emergency, your prompt review is requested.

If you have any questions or require additional information, please contact Bill Brice at 601-433-5076.

I declare under penalty of perjury that the foregoing is true and correct. Executed on May 14, 2002.

Sincerely,

Paul D. Hinnenkamp
Vice President, Operations
River Bend Station, Unit 1

PDH/WBB/bal

Attachments:
1. Analysis of Proposed Technical Specification Change
2. Proposed Technical Specification Changes (mark-up)
3. Changes to TS Bases pages
4. Valve Drawings
5. Request for Relief VRR-004

cc: U. S. Nuclear Regulatory Commission
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Attachment 1

RBG-45946

Analysis of Proposed Technical Specification Change

1.0 DESCRIPTION

This letter is a request to amend Operating License NPF-47 for River Bend Station, Unit 1 (RBS).

The proposed amendment will revise the Operating License to change the safety function lift setpoint tolerances for the Safety/Relief valves (S/RVs). This change would be limited to the lower tolerances and does not effect the upper limits. This change only applies to the as-found tolerance and not to the as-left tolerance which will remain unchanged at ±1% of the safety lift setpoint. The as-found tolerances are used for determining operability and to increase sample sizes for testing. There will be no change to the actual setpoints of the valves installed in the plant.

The proposed change would also allow the surveillance of the relief mode of operation of the S/RVs without physically lifting the disk of a valve off the seat at power. The Bases pages of the TSs would also be changed as appropriate to reflect the revised requirements.

Included in this proposal is a request for relief from Inservice Testing (IST) requirements in the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (Code) for the S/RVs. This relief is needed to revise the requirement in the RBS IST program so that the program does not require stroking of these valves at power.

2.0 PROPOSED CHANGE

The proposed amendment would change the safety function lift setpoint tolerances for the S/RVs that are listed in Surveillance Requirement (SR) 3.4.4.1 of the Technical Specifications (TSs). The tolerances for these valves would be changed from ±3% to +3%, -5% of the safety lift setpoint. This change only applies to the as-found tolerance and not to the as-left tolerance which will remain unchanged at ±1% of the safety lift setpoint. The as-found tolerances are used for determining operability and to increase sample sizes for testing. There will be no change to the valves as installed in the plant.

The proposed change would also change the SRs of 3.4.4.3, Safety/Relief Valves (S/RVs), 3.5.1.7, Automatic Depressurization System (ADS) Valves, and 3.6.1.6.1, Low-Low Set (LLS) Valves, of the TSs. The proposed change would state that the required surveillance of the valves is to verify that the relief-mode actuator strokes when the valve is manually actuated. RBS proposes performing the surveillance of each S/RV's relief mode of operation without physically lifting the disk off the seat at power. During the refueling outage, a sample of the population of S/RVs will be removed for safety-mode setpoint testing in accordance with the RBS IST program. Each of these S/RVs will be tested in the relief mode to verify that the pneumatic actuator functions correctly. Verification of the proper function of the test sample provides reasonable assurance that the installed S/RV pneumatic actuators will function properly. After the test sample of S/RVs is replaced in the plant and the S/RV controls have been reconnected, the pneumatic actuators for each of the newly-installed S/RVs will be uncoupled from the lever arm relief-mode actuator. Control air pressure to each actuator will be reduced from normal system pressure to prevent damaging the pneumatic relief-mode actuator. The actuator will then be remotely operated from the control room, as is currently required. Proper actuator response is visually verified. The actuator will then be re-coupled to the lever arm using the Clevis pin and retaining rings. Verification of the proper response of system logical controls for every installed S/RV will continue to be performed, as required by TSs.

In summary, the proposed changes will amend the Operating License to revise the as-found safety function lift setpoint tolerances for the S/RVs. This change does not change the actual setpoint or change the way the S/RVs are operated. This change would be limited to the lower tolerances and would not affect the upper limits. This change only applies to the as-found tolerance and not to the as-left tolerance which will remain unchanged at ±1% of the safety lift setpoint. The as-found tolerances are used for determining operability and to increase sample sizes for testing. There will be no change to actual setpoints of the valves installed in the plant.

The proposed change would also allow the surveillance of the relief mode of operation of the S/RVs without physically lifting the disk of a valve off the seat at power. Technical Specification Bases will be changed to support these changes.

3.0 BACKGROUND

Each RBS S/RV is a Crosby, 8 X 10, direct-acting, spring loaded, safety valve with attached pneumatic actuator for relief-mode operation. Attachment 4 provides drawings of the S/RV internals and relief components. The valve is direct acting; the single safety valve stem penetrates the valve bonnet and attaches directly to the valve disk. The S/RV bonnet is directly mounted to the top of the S/RV body. The S/RV body and cap assembly provide mounting facilities for the functional parts of the relief components. RBS has a total of sixteen S/RVs installed on the four main steam lines. All S/RVs are of the same design and can perform their intended function through two modes of operation.

The safety mode of operation consists of direct action of the reactor vessel steam pressure against a single spring-loaded disk. This disk will lift off of its seat when the reactor vessel pressure exceeds the spring force, thereby allowing vessel steam to flow directly through the seat-to-disk opening to the discharge piping and suppression pool. The safety function set pressure of each S/RV is established by changing the compressed spring force.

The relief mode of operation is accomplished when an automatic or manual control circuit signal provides electric power to the actuator solenoids. The actuator solenoids reposition, admitting control air to the pneumatic actuator cylinder. The pneumatic actuator piston strokes vertically, rotating an attached lever and dog/load plate assembly, which contacts the spindle nut threaded onto the S/RV stem. The S/RV stem which is directly attached to the disk, strokes vertically and lifts the disk off of the seat. The relief-mode of operation can actuate each S/RV regardless of reactor vessel pressure. The pneumatic operator and linkage are designed so that a malfunction of this linkage will not inhibit the safety-mode of operation. The relief-mode of operation requires three major elements to perform its intended function:

Actuation logic and controls,
Electrical power, and
Control air.

Seven of the S/RVs use the relief mode to perform the ADS function. Also, five S/RVs, one of which is also an ADS S/RV, use the relief mode to perform the LLS function.

Currently, all sixteen S/RVs installed on the Main Steam Lines (MSLs) are removed, bench tested for safety set pressure and replaced with valves certified to have zero seat-to-disk leakage and to have safety lift setpoint tolerances set to within ±1% of the setpoints specified in

the TSs. After this installation, each S/RV is stroked to verify that the relief function of the S/RV functions properly. This is performed to satisfy either TSs and/or Code requirements. We believe that this process is inefficient and sometimes counterproductive from a safety perspective.

RBS plans to initiate a sampling program for the S/RVs in accordance with Code requirements in lieu of replacing all 16 valves each refueling outage. The sampling program would require removal of a sample and testing for as-found conditions as required by the Code. The motivation behind this change would be to reduce plant personnel exposure and reduce costs associated with unnecessary valve refurbishment, additional testing, and increased outage durations. Additionally, this change will avoid the undesirable effects of opening the S/RVs at power.

The as-found setpoint tolerances will be changed only for the lower limit setting of the safety lift function. The revision will only be applicable to the safety mode of operation which is defined as the mode which is dependent only on system pressure (i.e., spring actuated). The relief mode of S/RV operation is dependent upon external power sources, and the setpoint for the relief mode will remain unchanged. The setpoints for other modes of operation, such as LLS and ADS, will not be changed.

The upper limit of the S/RV safety setpoints are designed to protect the Reactor Pressure Vessel (RPV) and associated piping etc., from overpressurization events as described in the accident and transient analyses and other upset conditions. The lower limit is set to prevent unnecessary challenges to the safety systems. Relaxation of the as-found safety mode setpoint tolerances will be for determination of operability and to determine if additional testing will be required. No change is being proposed to change the as-left setpoint tolerances for certified valves that will be installed in the plant.

The S/RV stroke test is performed to satisfy Code requirements for Category C valves, as well as TS requirements. This surveillance requires physically lifting the disk off of the valve seat and passing reactor vessel steam through the valve body. Following this surveillance, a potential exists for the valves to begin leaking due to the actuations.

Each leaking S/RV directs reactor vessel steam flow to the suppression pool where the steam is condensed and mixed with the suppression pool contents. The condensation transfers heat to the suppression pool, and as a consequence, one of the Residual Heat Removal (RHR) systems must be periodically re-aligned from its normal safety mode of vessel injection to provide suppression pool cooling. This operation of the RHR system generates additional wear and cycling of system components, and the re-alignment places the system in a configuration that differs from its intended normal standby mode of operation. The transfer of heat to the suppression pool is also a source of thermal heat loss from the power generation steam cycle, thereby reducing electrical generating efficiency. The reactor vessel steam that leaks through each S/RV provides an additional source of radioactive nuclides, which become a potential source for personnel contamination. The containment at RBS is accessible during power operations, and containment contamination would increase if an S/RV has a leaking seat. This contamination is undesirable from two aspects: personnel must spend additional time to exit the radiologically controlled area, and staff efforts must be utilized to reduce or remove this contamination.

4.0 TECHNICAL ANALYSIS

As stated above, this proposal would change the as-found safety lift setpoint tolerances for the S/RVs that are listed in SR 3.4.4.1 of the TSs. Only the lower tolerance would be changed from – 3% to – 5% of nominal. The safety lift setpoints would continue to be set within a tolerance of ± 1% of nominal. The revised tolerance would only be used to determine acceptance or failure of the as-found valve lift setpoint to support a sampling plan as allowed by the Code. Valves with setpoints found outside the +3%, - 5% tolerance would lead to additional valves being tested and the setpoints being reset to within the ± 1% tolerance. There is no change to the actual setpoints of the S/RVs or in the manner in which they are operated.

Additionally, this change would allow the surveillance of the relief mode of operation of the S/RVs without physically lifting the disk of a valve off the seat at power.

The proposed change does not alter the safety lift setpoints for the S/RVs, the frequency of verifying these setpoints, the number of these valves required to be operable in LCO 3.4.4, or other surveillance requirements in the TSs for these valves.

These changes are discussed separately below.

4.1 Setpoint Tolerance

RBS Technical Specifications require that the safety function of five S/RVs be operable and the relief function of four additional S/RVs be operable. The nominal opening setpoints and tolerances for the valves in each mode are as follows:

Number of S/RVs	Safety Mode Setting - psig	Number of S/RVs	Relief Mode Setting - psig
7	1195±36	1	1133±15
5	1205±36	8	1143±15
4	1210±36	7	1153±15

Current setpoint tolerance is based on ASME Code requirements for pressure relief devices operating in the pressure range described above. Operability of the valves is based on TS surveillance test acceptance criteria for an as-found setpoint tolerance of ±3%. Exceeding the tolerance requires performance of evaluations to determine if the plant has operated in an unanalyzed condition and Licensee Event Report (LER) initiation. In addition, test failures based on the ±3% criteria would result in testing additional valves to comply with Code requirements.

The current S/RV safety lift setpoint tolerances were established during the power up-rate process and included in the associated license amendments (amendments 109 and 114). The power up-rate required the as-left safety valve function settings to be within ±1% and allowed an as-found tolerance of ±3% before additional testing would be required. The change was made pursuant to Licensing Topical Report (LTR) NEDC-31753P "BWROG IN-SERVICE PRESSURE RELIEF TECHNICAL SPECIFICATION REVISION LICENSING TOPICAL REPORT" and the associated NRC Safety Evaluation Report (SER). The SER required several plant specific analyses to be performed prior to any modification of TSs. RBS supplied the analyses and complied with any limitations with the exception of the valve test frequencies. The test

frequencies are determined in accordance with the River Bend Inservice Testing Program. This was found to be acceptable by the NRC and the change to the TSs were granted.

A review of as-found test data for the RBS S/RVs indicates a tendency for minor setpoint drift in the negative direction to occur. This is especially true for valves that experience seat leakage, as seat leakage has a tendency to further lower the setpoint. This results in the additional burden of removal, testing, and replacement of S/RVs and can have a substantial impact on the scheduling of outage activities. We believe this is not necessary to ensure the safety function of the S/RVs and results in unnecessary dose, introduces potential human performance errors, and increased costs. Therefore, an evaluation was done to demonstrate changing the tolerance for the setpoint drift as proposed does not compromise plant safety or result in an increase in the number of unnecessary S/RV actuations. In addition, the proposed change was evaluated using the previously accepted methodology of the LTR and the associated SER. Since this was done in detail to support the current tolerances, and the conclusions of the evaluation have not changed, only those analyses not previously reviewed by the NRC will be discussed here. The details of the report are available for NRC review.

The proposed change to the as-found safety mode setpoint tolerance does not affect the actual setpoints of the S/RVs, the manner in which the S/RVs are operated, valve maintenance activities, or the testing activities. This change will only affect the decision to remove and test additional valves when an S/RV is found to lift outside the tolerance of ±3% during as-found set pressure testing.

S/RV Operating Mechanics: The safety mode of operation is initiated when the increasing static inlet pressure overcomes the restraining spring force acting against the inlet pressure and forces the disc insert to move in the opening direction. The lift increases as the steam is deflected upward via the disc ring and forces the disc insert to pop open to its full lift position as steam flow increases.

The relief mode of operation is initiated when an electrical signal energizes a solenoid, in turn opening an air valve, allowing pressurized air to flow into the air cylinder of the actuator, which pushes the piston inside the cylinder upwards. This upward action of the piston pushes a lever and lifting mechanism upwards, which in turn pulls the spindle nut and disc assembly upward to open the valve to its full lift position.

The pneumatic operator is so arranged that it does not prevent the valve disc from lifting if steam inlet pressure reaches the spring lift pressure prior to the valve receiving a signal to lift in the relief mode. Additionally, if the valve lifts in the spring mode and subsequently receives a signal to lift in the relief mode, the pneumatic operator will respond as designed and act to hold the disc in the full lift position until a close signal is received. Therefore, SRV operation is ensured, regardless of actuation mode.

Impact on Operating Margin: The purpose of the lower setpoint tolerance is to ensure sufficient margin exists between the normal operating pressure of the system and the point at which the S/RVs actuate in the relief mode. The nominal operating pressure of the reactor pressure vessel at power is 1055 psig. Assuming an as-found setpoint of –5%, the lowest nominal set S/RV (1195 psig) would lift at 1135 psig and provide an operating margin of 80 psi between the nominal reactor operating pressure and the S/RV lift pressure of the valves with the lowest safety setpoint. This provides sufficient margin and is sufficient to prevent unwanted actuation of the S/RVs. The margin is more for the S/RVs having a higher nominal lift setpoint.

The S/RVs are seat leakage tested during bench testing at 93% of set pressure and have shown to consistently exhibit zero leakage. This demonstrates that the valves are capable of remaining leak free at a setpoint within –5% of nominal lift setpoint. Additionally, the valves removed for testing are returned to a tolerance of ±1% prior to being installed for service, thereby returning the margin to original levels. Therefore, the margin is considered adequate and will not impact normal plant operation.

Impact on Instrument Setpoints: The tables below show the relationship between the proposed S/RV as-found setpoint tolerance, the relief mode, and LLS function instrument setpoints. These tables identify an overlap of the as-found safety mode setpoint tolerance with the relief instrument setpoints and LLS instrument setpoint tolerances. As shown in Table 1 below, a -5% setpoint tolerance for the S/RVs with the lowest nominal safety mode setpoint overlap the corresponding relief mode setpoints. As shown in Table 2 below, the proposed as-found safety mode setpoint tolerance of -5% remains above the corresponding LLS setpoints, but slightly overlaps when the allowable instrument setpoint tolerance is considered.

Table 1
Safety Mode Setpoint and proposed allowable values compared to SRV Relief Mode Setpoint and Allowable Value

SRV Mark Numbers	Nominal Safety Mode Setpoint (psig)	Proposed Safety Mode As-Found Allowable Value Limits High/Low (psig)	Nominal Relief Mode Setpoint (psig)	Relief Mode Allowable Value Limits Low/High (psig)
B21-RVF051D	1210	1246/1150	1133	1118/1148
B21-RVF047A	1205	1241/1145	1143	1128/1158
B21-RVF047B	1205	1241/1145	1143	1128/1158
B21-RVF047C	1205	1241/1145	1143	1128/1158
B21-RVF047D	1205	1241/1145	1143	1128/1158
B21-RVF047F	1205	1241/1145	1143	1128/1158
B21-RVF051B	1210	1246/1150	1143	1128/1158
B21-RVF051C	1210	1246/1150	1143	1128/1158
B21-RVF051G	1210	1246/1150	1143	1128/1158
B21-RVF041A	1195	1231/1135	1153	1138/1168
B21-RVF041B	1195	1231/1135	1153	1138/1168
B21-RVF041C	1195	1231/1135	1153	1138/1168
B21-RVF041D	1195	1231/1135	1153	1138/1168
B21-RVF041F	1195	1231/1135	1153	1138/1168
B21-RVF041G	1195	1231/1135	1153	1138/1168
B21-RVF041L	1195	1231/1135	1153	1138/1168

Table 2
Safety Mode Setpoints and proposed allowable values compared to LLS Setpoints and Allowable Values

SRV Mark Numbers	Nominal Safety Mode Setpoint (psig)	Proposed Safety Mode As-Found Allowable Value Limits High/Low (psig)	Nominal LLS Setpoint (psig)	Allowable Value Limits (psig)
B21-RVF051D open	1210	1246/1150	1063	1048/1078
close			956	941/971
B21-RVF051C open	1210	1246/1150	1103	1088/1118
close			966	951/981
B21-RVF047F open	1205	1241/1145	1143	1128/1158
close			976	961/991
B21-RVF051B open	1210	1246/1150	1143	1128/1158
close			976	961/991
B21-RVF051G open	1210	1246/1150	1143	1128/1158
close			976	961/991

In order to determine the affect of the overlaps described above, a review of the design bases for the S/RVs was performed. 5.2.2.4 of the USAR describes the three main protection functions of the S/RVs:

> Overpressure relief operation – The valves open automatically to limit a vessel pressure excursion during a postulated pressurization transient event.
>
> Overpressure safety function – The valves function as safety valves and open to prevent reactor vessel overpressurization.
>
> Depressurization operation – The ADS valves open automatically as part of the Emergency Core Cooling System (ECCS), or can be operated manually for events involving small breaks in the nuclear system process barrier.

Impact on Overpressure Protection Functions

Each protection function of the S/RVs is to limit Reactor Coolant Pressure Boundary (RCPB) pressurization during upset conditions, with the exception of ADS. ADS functions to rapidly depressurize the reactor vessel to enable injection by the low pressure ECCS systems. The relief mode setpoints are lower than the safety mode setpoints to ensure sufficient margin between anticipated relief mode closing pressures and valve spring forces of the safety mode for proper seating of the valves upon receiving a close signal. This remains unchanged since

the nominal setpoints for the relief and safety modes are not being changed. The change in tolerance is inconsequential to SRV operation during the transients described in chapter 15 of the USAR. USAR chapter 15.2 discusses the events which are expected to activate the primary system S/RVs. In the most severe pressure transient, including closure of the MSIVs, followed by reactor scram on high neutron flux (i.e., failure of the direct scram associated with MSIV position), five S/RVs are assumed to open in the safety mode, and four additional valves are assumed to open in the relief mode. The remaining seven S/RVs are assumed to be out of service. Credit is taken for 50% of SRV capacity operating via the relief mode and for the remaining SRV capacity via the safety mode of operation directly from inlet pressure. In this scenario, the pressurization rate and required relieving capacity experienced during a vessel isolation event is such that operation of the S/RVs in the relief mode and safety mode is assured with a negligible time differential between the S/RV actuation in the relief mode or in the safety mode. Once the S/RVs are actuated in the relief mode, the LLS function logic will be initiated to ensure that no more than one relief valve reopens to maintain reactor pressure.

In order to assure that no more than one relief valve reopens following a reactor isolation event, one ADS valve and four non-ADS valves are provided with lower opening and closing setpoints. These setpoints override the normal relief setpoints following the initial opening of the relief valves and act to hold these valves open longer, thus preventing more than a single valve from subsequently reopening. This system logic is referred to as the LLS relief logic and functions to ensure that the containment design basis of one S/RV operating on subsequent actuation is met. Therefore, the overlap between the as-found safety mode setpoint tolerance with the relief and LLS instrument setpoints will not impact response of the S/RVs in these modes during transient events.

Impact on The Automatic Depressurization System (ADS): The ADS valves open automatically (utilizing the actuator) as part of the ECCS for events involving small breaks in the nuclear system process barrier (USAR 5.2.2.4.1). ADS can also be initiated manually. ADS utilizes 7 of the 16 S/RVs to reduce reactor pressure following small breaks in the event of HPCS failure. When vessel pressure is reduced to within capacity of the low pressure systems (Low Pressure Core Spray and Low Pressure Coolant Injection), they provide inventory make-up to maintain acceptable post-accident temperatures (USAR 6.3.1.2.4). ADS is initiated by a high Drywell pressure signal and low reactor vessel water level signal as described in USAR Section 7.3.1. Therefore, the proposed change to the as-found safety setpoint tolerance will have no impact on the S/RV ADS function.

Impact on Containment Response: The containment response is unaffected by the lower setpoint tolerance since the steam discharge rate, which is one of the critical parameters in containment dynamic loads analysis, slightly decreases as a result of a lower setpoint. The -5% tolerance is bounded by the +3% assumption used in the safety analysis.

Impact on scram response: The Reactor Vessel Steam Dome Pressure – High Scram setpoint is 1094.7 psig. The high pressure scram terminates a pressurization transient not terminated by direct scram or high neutron flux scram. Drift of the SRV safety function to the proposed as-found tolerance of +3, -5% remains above this limit for each of the different nominal lift setpoints and provides assurance that there is a low probability of opening more than one S/RV without scram intervention.

As-Found Setpoint Test History : Test results have shown that the majority of S/RVs experience minor setpoint drift in the negative direction over time. However, based on review of

the 33 previous test results for the current valve design, the average drift over one operating cycle equated to approximately -1.6% from the previous as-left test results. The highest drift experienced was at -4.65% and was attributed to seat leakage. Excluding this valve, the average drift from the previous as-left test results was -1.4%. In the past River Bend has replaced all 16 S/RVs each refueling outage, and as such, there is no history to determine if drift continues over longer periods of time. However, test results provided by another BWR plant with similar Crosby S/RVs indicate that the amount of drift over multiple cycles was not significantly different than that experienced over one cycle. Out of 231 tests from single and multiple cycles resulted in an average drift of –0.8%. A drift of –0.3% was the average for tests conducted after 30 months or more from the previous test. Therefore, excessive drift over multiple operating cycles is not anticipated for the RBS S/RVs. More significant drift occurs when S/RVs are leaking by their seats. S/RV leakage is monitored and determined by the S/RV tail pipe temperatures recorded in the main control room. Once a valve's tailpipe temperature reaches a specified temperature, the S/RV is considered to be leaking and will typically not be permitted to remain in place beyond the next refuel outage.

4.2 Actuator Stroke

The RBS Inservice Testing (IST) Program currently classifies the S/RVs as ASME Boiler and Pressure Vessel Code, Section XI, Category B/C valves. The Category B classification requires periodic stroking of each S/RV installed in the plant, and the Category C classification requires functional tests and maintenance tasks related to set pressure and seat leak tightness.

Presently, a maintenance surveillance is performed on each S/RV to satisfy ASME Boiler and Pressure Vessel Code, Section XI, Category C requirements. The S/RV electrical and pneumatic controls are disconnected, and the S/RV is removed from the drywell and transported to a maintenance and testing facility. Each removed valve is tested on a test fixture and is certified for safety-mode set pressure, actuator stroke and leakage, and seat leak tightness. A certified S/RV is installed at the location of the removed S/RV, and the electrical and pneumatic controls are connected, after which a surveillance is performed to verify proper operation of the solenoid valves and a leakage test to verify proper connection of the control air. These maintenance and installation tests verify the operability of the S/RV safety mode and the relief mode up to the control air inlet to the pneumatic actuator.

One further surveillance is currently performed to verify system integration and proper connection of controls to the pneumatic actuator as well as satisfy the ASME Boiler and Pressure Vessel Code requirements for Category C valves. This surveillance is performed during reactor startup while the plant is diverting steam flow to the main condenser via the turbine bypass/control valves. Each S/RV hand-switch is taken to the "OPEN" position, giving the S/RV an open signal in the relief mode. Valve operation is verified by indication that the S/RV acoustic monitor red status light is on, a change occurs for the main steam control valves or bypass valves indicated position, or there is indication of decreasing main steam line flow. This test physically strokes the S/RV using the relief mode of operation. It is this test that has the potential to produce the S/RV seat leakage that has prompted this proposed change to the RBS Technical Specifications.

Pneumatic Actuator Testing

The Crosby S/RV provides pressure relief based on the principle of vertically moving the stem that attaches directly to the valve disk. The force that provides the stem movement is provided

by one of two sources; the vessel pressure directly against the force of the stem spring (safety mode), or the pneumatic actuator arm against the force of the stem spring (relief mode). The Code requires testing the characteristics of the safety mode and relief mode of operation once every five years. Once an S/RV is installed, the safety mode is never tested while the S/RV is installed in the plant. The testing of the relief mode of operation for a direct-acting S/RV provides verification that the control functions of electrical and pneumatic connections have been properly reconnected and that the actuator arm will provide the necessary force to operate the S/RV.

This proposed change provides verification of proper control connections by requiring the pneumatic and electrical controls to cycle the actuator on each S/RV after installation in the drywell. The test population of S/RVs removed each outage for safety setpoint testing will also be tested in the relief mode during bench testing. This testing will provide reasonable assurance that the installed S/RVs will function properly in the relief mode.

The remaining installed S/RVs will continue to be tested for proper system function. As presently required by RBS Technical Specification and administrative procedures, proper operation of the solenoid valve will be demonstrated by providing an open signal to each S/RV, with a check to verify that each solenoid valve repositions. Verification of proper solenoid valve operation, in addition to the proper relief-mode operation of the test population, provides reasonable assurance that the S/RV will perform as expected when control air pressure is applied to the actuator assembly.

Removal/Installation Concerns

After each S/RV has been removed for testing, a recertified valve is transported to the containment/drywell, and placed on the appropriate main steam line. During this process, each valve is hoisted and moved through locations that could possibly damage the valve. The components most susceptible to this damage are the relief-mode components, which this proposed change will test prior to plant start-up. The safety-mode components are encased entirely within the S/RV bonnet, and the stem for relief actuator attachment is protected by the S/RV cap assembly and lifting attachments. For the past ten cycles, with the exception of cycle nine, RBS has both removed and installed all sixteen S/RVs without incident. Cycle nine was a shortened operating cycle and in accordance with VRR-003, no S/RVs were removed for Inservice Testing. However, one S/RV was replaced for maintenance due to seat leakage.

After the test population of S/RVs is replaced and S/RV controls have been connected, the clevis pin of each newly-installed S/RV will be removed from the lever arm and clevis, the actuator assembly will be rotated away from the lever arm to allow an uncoupled actuation of the relief-mode actuator. Control air pressure to each actuator will be reduced from normal system pressure to prevent damaging the pneumatic relief-mode actuator. The actuator will be remotely operated from the control room, as required by current test methods, and visual verification will be performed for proper actuator response. After proper actuator operation has been verified, the actuator will be re-coupled to the lever arm by re-installing the clevis pin and retaining rings.

This test will demonstrate that no damage has occurred to the relief-mode actuator during reinstallation.

Technical Specification Verification of S/RV Discharge Line Flow-Path

The Technical Specification bases indicate that one purpose of mechanically stroking the S/RV is to verify that a change in measured steam flow indicates that no blockage exists in the S/RV discharge line. Foreign Material Exclusion (FME) controls are placed on all system openings when each S/RV is removed. These controls, as well as the horizontal orientation of the S/RV discharge lines provide reasonable assurance that no obstruction will be admitted into the S/RV discharge tailpipe. RBS has replaced all sixteen S/RVs for the past 10 refuel outages with the exception of refuel outage nine and has not experienced a single surveillance failure related to line blockage.

Technical Specifications Post Maintenance Testing

RBS Technical Specifications, Surveillance Requirement (SR) 3.0.1 BASES states, "Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2." SR 3.0.2 describes the requirements of SR testing frequency and associated completion times.

Upon completion of maintenance on the test sample of S/RVs, each newly-installed S/RV will be demonstrated OPERABLE by actual testing of the relief-mode function prior to reactor start-up. Previously, testing was performed by a series of overlapping tests, with final demonstration after reactor start-up. The proposed change demonstrates complete system operability prior to reactor start-up and vessel re-pressurization.

The S/RVs that were not removed for maintenance will be tested to ensure that no maintenance activities within the drywell have affected control system continuity. Verification of solenoid valve repositioning demonstrates that the electrical controls to the S/RV will operate as required. The control air to each of these S/RVs will remain connected to its respective S/RV during the refueling outage, unless disconnection is required for other system maintenance activities. This lack of system breach, in combination with foreign material controls, provides reasonable assurance that control air will be available for S/RV relief-mode actuation.

S/RV Actuator Service Life

Currently, after five years of service life (defined as actual time installed in the plant, including periods of plant shutdown), the S/RVs actuator assemblies undergo:

Disassembly and inspection of all internals for wear and damage,

Replacement of all elastomers, gaskets, seals and parts necessary due to inspection results, and valve lubrication

Also, prior to installation in the plant, each S/RV is tested and inspected for actuator stroke verification and leakage. The actuator components of each S/RV are designed to function as required during the five year service life; therefore, the individual components of each S/RV that was not part of the test population would be expected to perform as well as the test population of S/RVs. Currently, every S/RV is removed and replaced with a certified S/RV approximately every 18 months. This proposal provides for replacing a sample every 18 months, with all S/RVs to be replaced within five years.

5.0 REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

The proposed changes have been evaluated to determine whether applicable regulations and requirements continue to be met.

The RBS In-Service Testing (IST) Program is currently implemented in accordance with the requirements of the ASME Code, Section XI, 1989 Edition. Section XI, Subsection IWV endorses by reference ASME/ANSI OM-1987, Part 10 with addenda through OMa-1988. ASME/ANSI OMa-1988, Part 10 endorses by reference ASME/ANSI OM-1987, Part 1 for testing of pressure relief devices. The S/RVs at RBS are Class1 and both Category B and Category C valves according to the RBS IST Program.

ASME Code Class 1 Category C safety and relief valves are required to be tested at least once every 60 months in accordance with ASME/ANSI OM-1987, Part 1. Paragraph 3.3.1.1 describes the required tests. These test requirements are satisfied by performing bench testing (including set pressure, seat leakage, and actuator testing) of the S/RVs. Additionally, paragraph 3.4.1.1 requires that each valve maintained or refurbished in place, removed for maintenance and testing, or both, and reinstalled shall be remotely actuated at reduced system pressure to verify open and close capability of the valve prior to resumption of power generation. It is RBS's opinion that the purpose of this Part 1 requirement is to verify correct installation of the air and electrical systems associated with the relief mode operation of the S/RV. Such confirmation can be accomplished without physically lifting the valve disk from the nozzle seat. The uncoupled actuator test, as described in the Attached Request for Relief, is sufficient to perform this installation verification and will provide an acceptable level of quality and safety.

ASME/ANSI OM-1987, Part 1 requires that a sample of at least 20% of the valves be tested within any 24 month period. This 20% shall be previously untested valves, if they exist. Of those valves tested, if any valve exceeds the stamped set pressure criteria by 3% or greater; two additional valves shall be set pressure tested from the same group for each valve test failure. NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," paragraph 4.3.9 allows the owner to establish setpoint acceptance criteria for relief valves tested under the IST program in accordance with ASME/ANSI OM-1987, Part 1. Therefore, no relief will be required with regard to the setpoint tolerance change. However, a change to the TS will be required.

Category B power operated valves are required to be exercised and stroke timed to the safety positions at least once every three months in accordance with ASME/ANSI OMa-1988, part 10, Section 4.2.1. Additionally, remote position indication is required to be verified at least once every two years in accordance with Section 4.1. The requirement for exercising the valve is only met when the valve is stroked to meet the Category C requirement to stroke the valve after maintenance. This allowed by a current request for relief.

NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants" describes methods acceptable to the NRC regarding inservice testing. Section 4.3.4, Frequency and Method of Testing Automatic Depressurization Valves in Boiling-Water Reactors, states that "if the ASME

OM Committee determines that these valves are Category C (as opposed to Category B/C or A/C), meeting the Code Requirements for Category A or B will be unnecessary." The ASME OM Committee and the Board on Nuclear Codes and Standards recently excluded Category A and B safety and relief valves from inservice exercise testing.

And as stated in the attached Request for Relief:

> The ASME OM Committee and Board on Nuclear Codes and Standards approved a change to the ASME Operation and Maintenance (OM) Code Section ISTC 1.2, which adds the following statement:
>
> > Category A and B safety and relief valves are excluded from the requirements of ISTC 4.1, "Valve Position Verification" and ISTC 4.2, "Inservice Exercising Test."
>
> This change was incorporated into the ASME OM Code in the OMa-1996 Addenda.
>
> Although this does not address the categorization of safety and relief valves noted in NUREG-1482, it accomplishes the same objective, which is to limit inservice exercising of the valves when they are installed in the plant. By excluding the safety and relief valves from Sections ISTC 4.1 and ISTC 4.2, the OM Committee has in fact determined that these valves are only subject to Category C testing.

The request provides relief from all Type B category testing and is consistent with later, NRC approved versions of the Code.

5.2 No Significant Hazards Consideration

The proposed changes will amend the Operating License to revise the as-found safety function lift setpoint tolerances for the Safety/Relief Valves (S/RVs) for River Bend Station, Unit 1 (RBS). This change does not change the actual setpoint or change the way the S/RVs are operated. This change would be limited to the lower tolerances and would not affect the upper limits. This change only applies to the as-found tolerance and not to the as-left tolerance which will remain unchanged at ±1% of the safety lift setpoint. The as-found tolerances are used for determining operability and to increase sample sizes for testing. There will be no change to the valves as installed in the plant.

The proposed change would also allow the surveillance of the relief mode of operation of the S/RVs without physically lifting the disk of a valve off the seat at power. Technical Specification (TS) Bases will be changed to support these changes.

Entergy Operations, Inc. has evaluated whether or not a significant hazards consideration is involved with the proposed amendments by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

These changes have no influence on the probability or consequences of any accident. The setpoint tolerance change does not effect the operation of valves that are installed in the plant or change the as-left tolerance which will remain at ±1%. The setpoint tolerances for valves that have been tested or refurbished are not being changed. The change only has an effect on increased sampling for operability and for IST purposes. The change to the tolerance only affects the lower limit for opening the valve and does not change the upper limit which is the limit that protects from overpressurization.

There is no increase in the probability or consequences of any accident based on the changes to the remote actuation testing of the valves because the valve opening capability will continue to be bench tested and the actuator will be tested independently. The open and close capabilities will therefore be demonstrated satisfactorily.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

No new or different accidents are created because the proposed changes do not change the configuration or operation of the plant in any way. The setpoint tolerance changes only affect the criteria that determines when a valve test is considered to be a failure and is limited to the lower limit. It does not change the criteria for the upper limit that protects against overpressurization.

The changes to the remote actuation testing continue to provide assurance that the valves have open and close capabilities and remain consistent with the intent of the present surveillance.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed changes do not change the configuration or operation of the plant in any way. The setpoint tolerance changes only affect the criteria that determines when a valve test is considered to be a failure and is limited to the lower limit. It does not change the criteria for the upper limit that protects against overpressurization.

The changes to the remote actuation testing continue to provide assurance that the valve has open and close capability and is consistent with the intent of the present surveillance.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Entergy concludes that the proposed amendment(s) present no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.3 Environmental Considerations

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 PRECEDENCE

The proposed changes are similar to amendments granted to the Grand Gulf Nuclear Station as amendments Nos. 123 and 130.

Attachment 2

RBG-45946

Proposed Technical Specification Changes (mark-up)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 Safety/Relief Valves (S/RVs)

LCO 3.4.4 The safety function of five S/RVs shall be OPERABLE,

AND

The relief function of four additional S/RVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required S/RVs inoperable.	A.1 Be in MODE 3. AND A.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify the safety function lift setpoints of the required S/RVs are as follows: Number of S/RVs — Setpoint (psig) 7 — 1195 ~~+/- 36~~ +36, -60 5 — 1205 ~~+/- 36~~ +36, -60 4 — 1210 ~~+/- 36~~ +36, -60	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.4.4.2	----------NOTE---------- Valve actuation may be excluded. --- Verify each required relief function S/RV actuates on an actual or simulated automatic initiation signal.	18 months
SR 3.4.4.3	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify each required S/RV ~~opens~~ when manually actuated. RELIEF MODE ACTUATOR STROKES	IN ACCORDANCE WITH THE INSERVICE TESTING PROGRAM ~~18 months~~ on a STAGGERED TEST BASIS for each valve solenoid

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.5.1.5	----------NOTE---------- Vessel injection/spray may be excluded. --- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	18 months
SR 3.5.1.6	----------NOTE---------- Valve actuation may be excluded. --- Verify the ADS actuates on an actual or simulated automatic initiation signal.	18 months
SR 3.5.1.7	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify each ADS valve ~~opens~~ when manually actuated. RELIEF MODE ACTUATOR STROKES	IN ACCORDANCE WITH THE INSERVICE TESTING PROGRAM ~~18 months~~ on a STAGGERED TEST BASIS for each valve solenoid
SR 3.5.1.8	----------NOTE---------- ECCS actuation instrumentation is excluded. --- Verify the ECCS RESPONSE TIME for each ECCS injection/spray subsystem is within limits.	18 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each LLS valve ~~opens~~ when manually actuated. RELIEF MODE ACTUATOR STROKES	IN ACCORDANCE WITH THE INSERVICE TESTING PROGRAM ~~18 months~~ on a STAGGERED TEST BASIS for each valve solenoid
SR 3.6.1.6.2	----------NOTE---------- Valve actuation may be excluded. ---------- Verify the LLS System actuates on an actual or simulated automatic initiation signal.	18 months

Attachment 3

RBG-45946

Changes to Technical Specification Bases Pages

BASES

LCO (continued) ± 36 psig of the nominal setpoint to account for potential setpoint drift to provide an added degree of conservatism. Operation with fewer valves OPERABLE than specified, or with setpoints outside the ASME limits, could result in a more severe reactor response to a transient than predicted, possibly resulting in the ASME Code limit on reactor pressure being exceeded.

APPLICABILITY In MODES 1, 2, and 3, the specified number of S/RVs must be OPERABLE since there may be considerable energy in the reactor core and the limiting design basis transients are assumed to occur. The S/RVs may be required to provide pressure relief to discharge energy from the core until such time that the Residual Heat Removal (RHR) System is capable of dissipating the heat.

In MODE 4, decay heat is low enough for the RHR System to provide adequate cooling, and reactor pressure is low enough that the overpressure limit is unlikely to be approached by assumed operational transients or accidents. In MODE 5, the reactor vessel head is unbolted or removed and the reactor is at atmospheric pressure. The S/RV function is not needed during these conditions.

ACTIONS A.1 and A.2

With less than the minimum number of required S/RVs OPERABLE, a transient may result in the violation of the ASME Code limit on reactor pressure. If one or more required S/RVs are inoperable, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS SR 3.4.4.1

This Surveillance demonstrates that the required S/RVs will open at the pressures assumed in the safety analysis of Reference 2. The "as-left" SRV safety function lift setpoints are required to be within ± 1% of the specified nominal lift setpoint. Additionally, the sample size will be increased by two valves for each valve found outside of the "as found" ± 3% safety lift setpoint. These requirements formed a portion of the basis for increasing the "as-found" lift setpoint tolerance to ± 3% of the safety function lift setpoint. The demonstration of the S/RV safety function

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1 (continued)

lift settings must be performed during shutdown, since this is a bench test, and in accordance with the Inservice Testing Program. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures.

The Frequency was selected because this Surveillance must be performed during shutdown conditions and is based on the time between refuelings.

SR 3.4.4.2

The required relief function S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to verify the mechanical portions of the automatic relief function operate as designed when initiated either by an actual or simulated initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.4.4 overlaps this SR to provide complete testing of the safety function.

The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note that excludes valve actuation. This prevents an RPV pressure blowdown.

SR 3.4.4.3

SEE INSERT "A"

~~A manual actuation of each required S/RV is performed to verify that the valve is functioning properly and no blockage exists in the valve discharge line. This can be demonstrated by the response of the turbine control valves or bypass valves, by a change in the measured steam flow, or any other method suitable to verify steam flow (e.g., tailpipe temperature or acoustic monitor).~~ Adequate reactor

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.4.3 (continued)

Steam pressure must be available to perform this test to avoid damaging the valve. Also, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the S/RVs divert steam flow upon opening. Sufficient time is therefore allowed after the required pressure and flow are achieved to perform this test. Adequate pressure at which this test is to be performed is consistent with the pressure recommended by the valve manufacturer. Plant startup is allowed prior to performing this test because valve OPERABILITY and the setpoints for overpressure protection are verified, per ASME requirements, prior to valve installation. Therefore, this SR is modified by a Note that states the Surveillance is not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed for manual actuation after the required pressure is reached is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR. If the valve fails to actuate due only to the failure of the solenoid but is capable of opening on overpressure, the safety function of the S/RV is considered OPERABLE.

SEE INSERT "A"

The 18 month on a STAGGERED TEST BASIS Frequency ensures that each solenoid for each S/RV is alternately tested. The 18 month Frequency was developed based on the S/RV tests required by the ASME Boiler and Pressure Vessel Code, Section XI (Ref. 1). Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. ASME, Boiler and Pressure Vessel Code, Section III and XI.
2. USAR, Section 5.2.2.2.3.
3. USAR, Section 15.

SURVEILLANCE REQUIREMENTS

SR 3.4.4.3

A manual actuation of each required S/RV (those valves removed and replaced to satisfy SR 3.4.4.1) is performed to verify that the valve is functioning properly. This SR can be demonstrated by one of two methods. If performed by method 1), plant startup is allowed prior to performing this test because valve OPERABILITY and the setpoints for overpressure protection are verified, per ASME requirements (Ref. 1), prior to valve installation. Therefore, this SR is modified by a note that states the surveillance is not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed for manual actuation after the required pressure is reached is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR. If performed by method 2), valve OPERABILITY has been demonstrated for all installed S/RVs based upon the successful operation of a test sample of S/RVs.

1. Manual actuation of the S/RV, with verification of the response of the turbine control valves or bypass valves, by a change in the measured steam flow, or any other method suitable to verify steam flow (e.g., tailpipe temperature or pressure). Adequate reactor steam pressure must be available to perform this test to avoid damaging the valve. Also, adequate reactor steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the S/RVs divert steam flow upon opening. Sufficient time is therefore allowed after the required pressure and flow are achieved to perform this test. Adequate pressure at which this test is to be performed is consistent with the pressure recommended by the valve manufacturer.
2. The sample population of S/RVs tested each refueling outage to satisfy SR 3.4.4.1 will be stroked in the relief mode during "as-found" testing to verify proper operation of the S/RV. The successful performance of the test sample of S/RVs provides reasonable assurance that the remaining installed S/RVs will perform in a similar fashion. After the S/RVs are replaced, the relief-mode actuator of the newly installed S/RVs will be uncoupled from the S/RV, and cycled to ensure that no damage has occurred to the S/RV during transportation and installation. Following cycling, the relief-mode actuator is recoupled and the proper connection to the S/RV lever is independently verified.

This verifies that each replaced S/RV will properly perform its intended function.

If the valve fails to actuate due only to the failure of the solenoid, but is capable of opening on overpressure, the safety function of the S/RV is considered OPERABLE.

The STAGGERED TEST BASIS frequency ensures that each solenoid for each S/RV relief-mode actuator is alternately tested. The frequency of the required relief-mode actuator testing was developed based on the S/RV tests required by the ASME Boiler and Pressure Vessel Code, Section XI (ref. 1) as implemented by the Inservice Testing Program of Specification 5.5.6. The testing frequency required by the Inservice Testing Program is based on operating experience and valve performance. Therefore, the frequency was concluded to be acceptable from a reliability standpoint.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.5 (continued)

This SR is modified by a Note that excludes vessel injection/spray during the Surveillance. Since all active components are testable and full flow can be demonstrated by recirculation through the test line, coolant injection into the RPV is not required during the Surveillance.

SR 3.5.1.6

The ADS designated S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to demonstrate that the mechanical portions of the ADS function (i.e., solenoids) operate as designed when initiated either by an actual or simulated initiation signal, causing proper actuation of all the required components. SR 3.5.1.7 and the LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlap this Surveillance to provide complete testing of the assumed safety function.

The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note that excludes valve actuation. This prevents an RPV pressure blowdown.

SR 3.5.1.7

SEE INSERT "B"

~~A manual~~ actuation of each ADS valve is performed to verify that the valve and ~~solenoids~~ are functioning properly and that ~~no blockage~~ exists in the S/RV discharge lines. ~~This is demonstrated by~~ the response of the turbine control or bypass valve, ~~by a change in~~ the measured steam flow, or by any other ~~method suitable~~ to verify steam flow (~~e.g., tailpipe temperature or acoustic monitor~~). Adequate reactor steam ~~pressure must~~ be available to perform this test to

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.7 (continued)

avoid damaging the valve. Also, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the ADS valves divert steam flow upon opening. Sufficient time is therefore allowed, after the required pressure and flow are achieved, to perform this test. Adequate pressure at which this test is to be performed is consistent with the pressure recommended by the valve manufacturer. Reactor startup is allowed prior to performing this test because valve OPERABILITY and the setpoints for overpressure protection are verified, per ASME requirements, prior to valve installation. Therefore, this SR is modified by a Note that states the Surveillance is not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. SR 3.5.1.6 and the LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlap this Surveillance to provide complete testing of the assumed safety function.

SEE INSERT "B"

The Frequency of 18 months on a STAGGERED TEST BASIS ensures that both solenoids for each ADS valve are alternately tested. The Frequency is based on the need to perform this Surveillance under the conditions that apply just prior to or during a startup from a plant outage and the potential for unplanned transients. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.5.1.8

This SR ensures that the ECCS RESPONSE TIMES are within limits for each of the ECCS injection and spray subsystems. This SR is modified by a Note which identifies that the associated ECCS actuation instrumentation is not required to be response time tested. Response time testing of the remaining subsystem components is required. This is supported by Reference 14. Response time testing acceptance criteria are included in Reference 15.

ECCS RESPONSE TIME tests are conducted every 18 months. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.1.7

A manual actuation of each required ADS valve (those valves removed and replaced to satisfy SR 3.4.4.1) is performed to verify that the valve is functioning properly. This SR can be demonstrated by one of two methods. If performed by method 1), plant startup is allowed prior to performing this test because valve OPERABILITY and the setpoints for overpressure protection are verified, per ASME requirements (Ref. 16) prior to valve installation. Therefore, this SR is modified by a note that states the surveillance is not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed for manual actuation after the required pressure is reached is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR. If performed by method 2), valve OPERABILITY has been demonstrated for all installed ADS valves based upon the successful operation of a test sample of S/RVs.

1. Manual actuation of the ADS valve, with verification of the response of the turbine control valves or bypass valves, by a change in the measured steam flow, or any other method suitable to verify steam flow (e.g., tailpipe temperature or pressure). Adequate reactor steam pressure must be available to perform this test to avoid damaging the valve. Also, adequate reactor steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the ADS valves divert steam flow upon opening. Sufficient time is therefore allowed after the required pressure and flow are achieved to perform this test. Adequate pressure at which this test is to be performed is consistent with the pressure recommended by the valve manufacturer.
2. The sample population of S/RVs tested each refueling outage to satisfy SR 3.4.4.1 will be stroked in the relief mode during "as-found" testing to verify proper operation of the S/RV. The successful performance of the test sample of S/RVs provides reasonable assurance that all ADS valves will perform in a similar fashion. After the S/RVs are replaced, the relief-mode actuator of the newly installed S/RVs will be uncoupled from the S/RV, and cycled to ensure that no damage has occurred to the S/RV during transportation and installation. Following cycling, the relief-mode actuator is recoupled and the proper connection to the S/RV lever is independently verified. This verifies that each replaced S/RV will properly perform its intended function.

SR 3.5.1.6 and the LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlap this Surveillance to provide complete testing of the assumed safety function.

The STAGGERED TEST BASIS frequency ensures that both solenoids for each ADS valve relief-mode actuator are alternately tested. The frequency of the required relief-mode actuator testing was developed based on the tests required by ASME OM, Part 1, (ref. 16) as implemented by the Inservice Testing Program of Specification 5.5.6. The testing frequency required by the Inservice Testing Program is based on operating experience and valve performance. Therefore, the frequency was concluded to be acceptable from a reliability standpoint.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.8 (continued)

outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. USAR, Section 6.3.2.2.3.
2. USAR, Section 6.3.2.2.4.
3. USAR, Section 6.3.2.2.1.
4. USAR, Section 6.3.2.2.2.
5. USAR, Section 15.2.8.
6. USAR, Section 15.6.4.
7. USAR, Section 15.6.5.
8. 10 CFR 50, Appendix K.
9. USAR, Section 6.3.3.
10. 10 CFR 50.46.
11. USAR, Section 6.3.3.3.
12. Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCO's for ECCS Components," December 1, 1975.
13. USAR, Section 5.2.2.4.1.
14. NEDO-32291-A, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994.
15. RBS Technical Requirements Manual.
16. ASME/ANSI OM-1987, OPERATION AND MAINTENANCE OF NUCLEAR POWER PLANTS, PART 1.

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.6 Low-Low Set (LLS) Values

BASES

A PNEUMATIC OPERATOR AND MECHANICAL LINKAGE OVERCOME THE SPRING FORCE AND OPEN THE VALVE.

BACKGROUND

The safety/relief valves (S/RVs) can actuate either in the relief mode, the safety mode, the Automatic Depressurization System mode, or the LLS mode. In the LLS mode (one of the power actuated modes of operation), a pneumatic diaphragm and stem assembly. As in the safety mode, opening the pilot valve allows a differential pressure to develop across the main valve piston and thus opens the main valve. The main valve can be maintained open with valve inlet steam pressure as low as 0 psig. The pneumatic operator is arranged so that its malfunction will not prevent the valve disk from lifting if steam inlet pressure exceeds the safety mode pressure setpoints.

Five of the S/RVs are equipped to provide the LLS function. The LLS logic causes two LLS valves to be opened at a lower pressure than the relief or safety mode pressure setpoints and causes all the LLS valves to stay open longer, such that reopening of more than one S/RV is prevented on subsequent actuations. Therefore, the LLS function prevents excessive short duration S/RV cycles with valve actuation at the relief setpoint.

Each S/RV discharges steam through a discharge line and quencher to a location near the bottom of the suppression pool, which causes a load on the suppression pool wall. Actuation at lower reactor pressure results in a lower load.

APPLICABLE SAFETY ANALYSES

The LLS relief mode functions to ensure that the containment design basis of one S/RV operating on "subsequent actuations" is met (Ref. 1). In other words, multiple simultaneous openings of S/RVs (following the initial opening) and the corresponding higher loads, are avoided. The safety analysis demonstrates that the LLS functions to avoid the induced thrust loads on the S/RV discharge line resulting from "subsequent actuations" of the S/RV during Design Basis Accidents (DBAs). Furthermore, the LLS function justifies the primary containment analysis assumption that multiple simultaneous S/RV openings occur only on the initial actuation for DBAs. Even though five

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1

A manual actuation of each LLS valve is performed to verify that the valve and solenoids are functioning properly and that no blockage exists in the valve discharge line. This can be demonstrated by the response of the turbine control or bypass valve, by a change in the measured steam flow, or by any other method that is suitable to verify steam flow (e.g., tailpipe temperature or acoustic monitor). Adequate reactor steam pressure must be available to perform this test to avoid damaging the valve. Adequate pressure at which this test is to be performed is consistent with the pressure recommended by the valve manufacturer. Also, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the LLS valves divert steam flow upon opening. The 18 month Frequency was developed based on the S/RV tests required by the ASME Boiler and Pressure Vessel Code, Section XI (Ref. 3). The Frequency of 18 months on a STAGGERED TEST BASIS ensures that each solenoid for each S/RV is alternately tested. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SEE INSERT "C"

Since steam pressure is required in order to perform the Surveillance, however, and steam may not be available during a unit outage, the Surveillance may be performed during the shutdown prior to or the startup following a unit outage. Unit startup is allowed prior to performing this test because valve OPERABILITY and the setpoints for overpressure protection are verified by Reference 3 prior to valve installation. After adequate reactor steam pressure and flow are reached, 12 hours are allowed to prepare for and perform the test.

SR 3.6.1.6.2

The LLS designed S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to verify that the mechanical portions (i.e., solenoids) of the automatic LLS function operate as designed when initiated either by an actual or simulated automatic initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.4.4 overlaps this SR to provide complete testing of the safety function.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1

A manual actuation of each required LLS valve (those valves removed and replaced to satisfy SR 3.4.4.1) is performed to verify that the valve is functioning properly. This SR can be demonstrated by one of two methods. If performed by method 1), plant startup is allowed prior to performing this test because valve OPERABILITY and the setpoints for overpressure protection are verified, per ASME requirements (Ref. 3), prior to valve installation. Therefore, this SR is modified by a note that states the surveillance is not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed for manual actuation after the required pressure is reached is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR. If performed by method 2), valve OPERABILITY has been demonstrated for all installed LLS valves based upon the successful operation of a test sample of S/RVs.

1. Manual actuation of the LLS valve, with verification of the response of the turbine control valves or bypass valves, by a change in the measured steam flow, or any other method suitable to verify steam flow (e.g., tailpipe temperature or pressure). Adequate reactor steam pressure must be available to perform this test to avoid damaging the valve. Also, adequate reactor steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the LLS valves divert steam flow upon opening. Sufficient time is therefore allowed after the required pressure and flow are achieved to perform this test. Adequate pressure at which this test is to be performed is consistent with the pressure recommended by the valve manufacturer.
2. The sample population of S/RVs tested each refueling outage to satisfy SR 3.4.4.1 will be stroked in the relief mode during "as-found" testing to verify proper operation of the S/RV. The successful performance of the test sample of S/RVs provides reasonable assurance that all LLS valves will perform in a similar fashion. After the S/RVs are replaced, the relief-mode actuator of the newly installed S/RVs will be uncoupled from the S/RV, and cycled to ensure that no damage has occurred to the S/RV during transportation and installation. Following cycling, the relief-mode actuator is recoupled and the proper connection to the S/RV lever is independently verified. This verifies that each replaced S/RV will properly perform its intended function.

The STAGGERED TEST BASIS frequency ensures that both solenoids for each LLS valve relief-mode actuator are alternately tested. The frequency of the required relief-mode actuator testing was developed based on the tests required by ASME OM, Part 1, (ref. 3) as implemented by the Inservice Testing Program of Specification 5.5.6. The testing frequency required by the Inservice Testing Program is based on operating experience and valve performance. Therefore, the frequency was concluded to be acceptable from a reliability standpoint.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.2 (continued)

The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note that excludes valve actuation. This prevents a reactor pressure vessel pressure blowdown.

REFERENCES

1. GESSAR-II, Appendix 3B, Attachment A, Section 3BA.8.
2. USAR, Section 5.2.2.
3. ~~ASME, Boiler and Pressure Vessel Code, Section XI.~~ ASME/ANSI OM-1987, OPERATION AND MAINTENANCE OF NUCLEAR POWER PLANTS, PART 1.

Attachment 4

RBG-45946

Valve Drawings

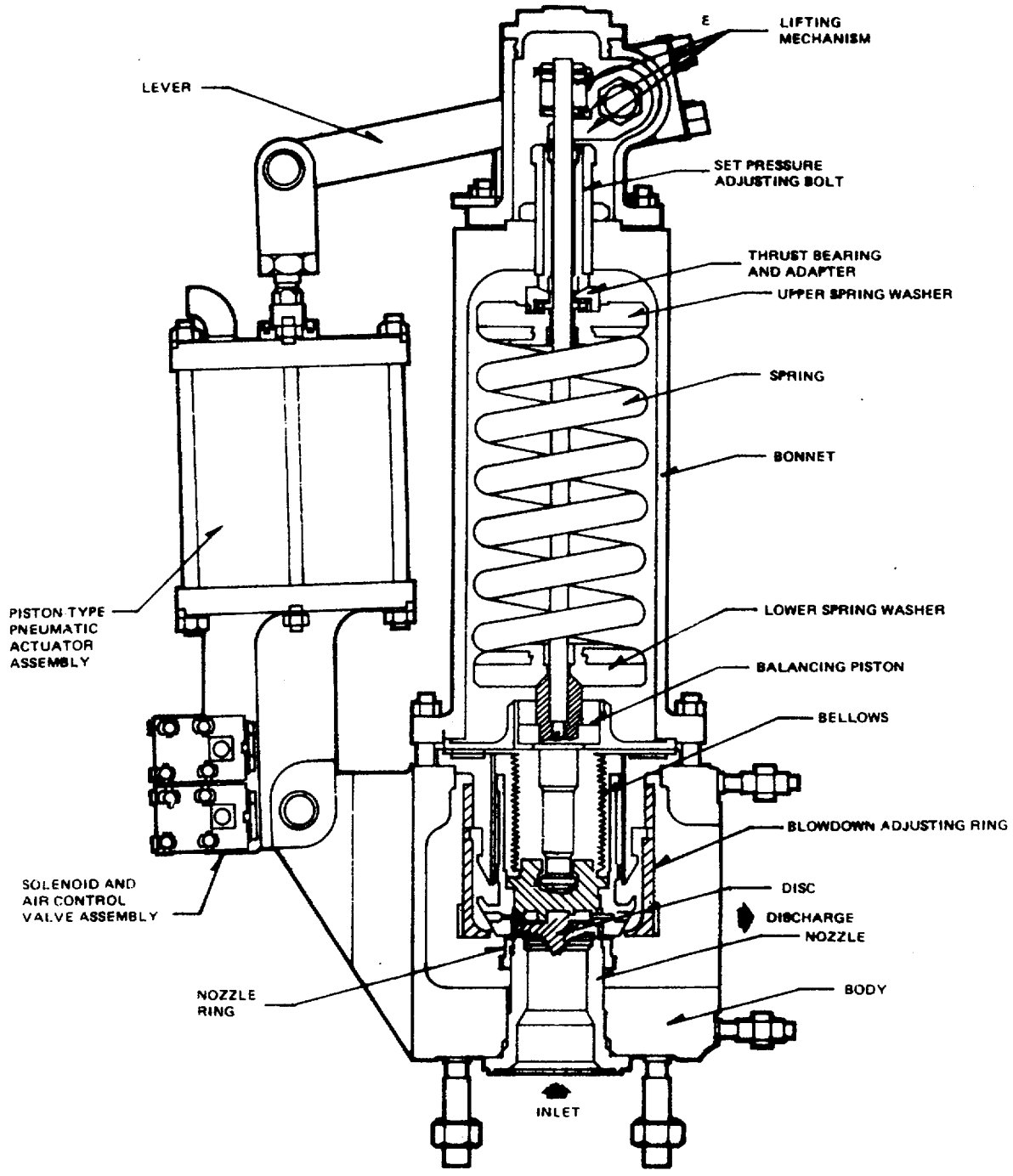
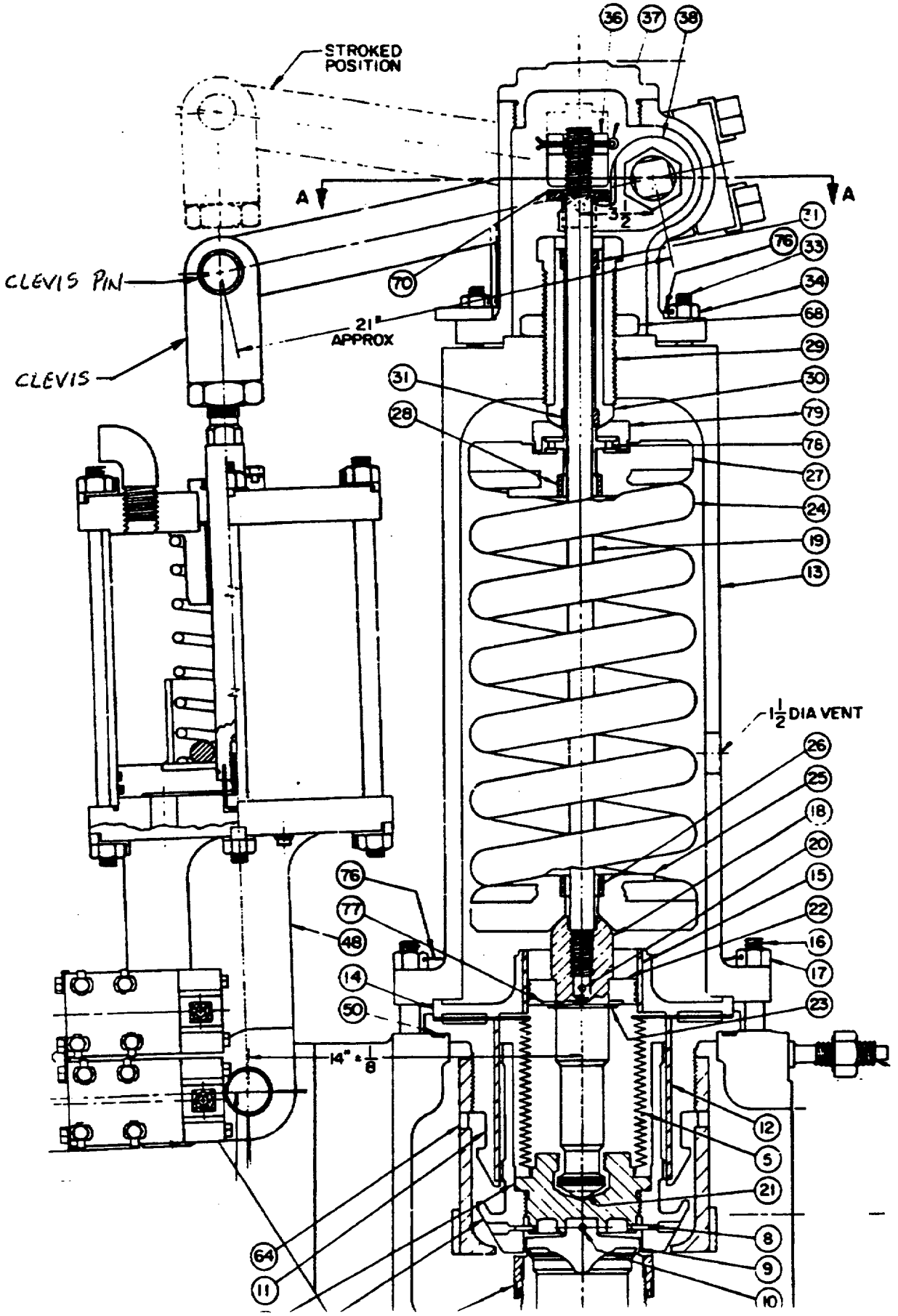


FIGURE 5.2-9

SCHEMATIC OF DUAL-FUNCTION TYPE SPRING-LOADED DIRECT-ACTING SAFETY/RELIEF VALVE

RIVER BEND STATION

UPDATED SAFETY ANALYSIS REPORT


STROKED POSITION
A
A
CLEVIS PIN
CLEVIS
21" APPROX
3 1/2
1 1/2 DIA VENT
14" ± 1/8
36
37
38
71
76
33
34
68
29
30
79
78
27
24
19
13
70
31
28
26
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64
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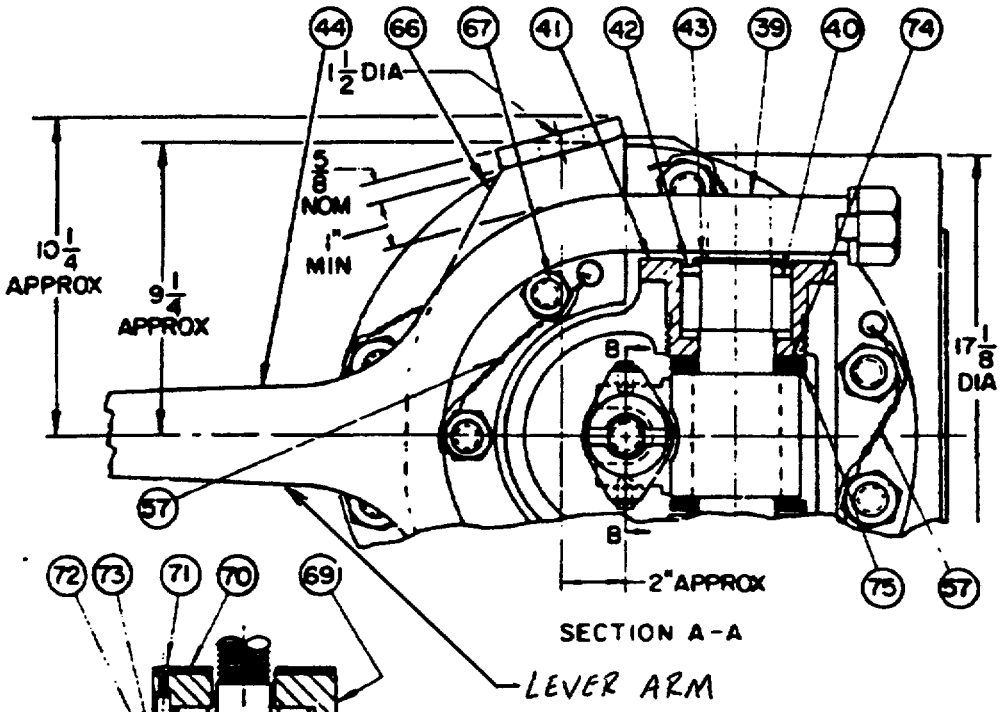
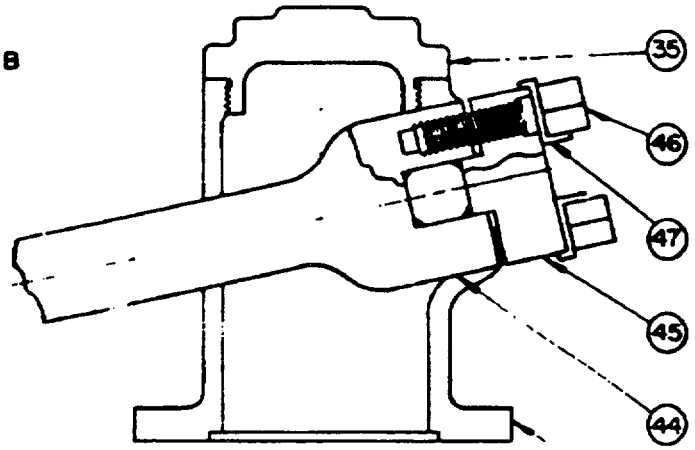
76
77
48
14
50

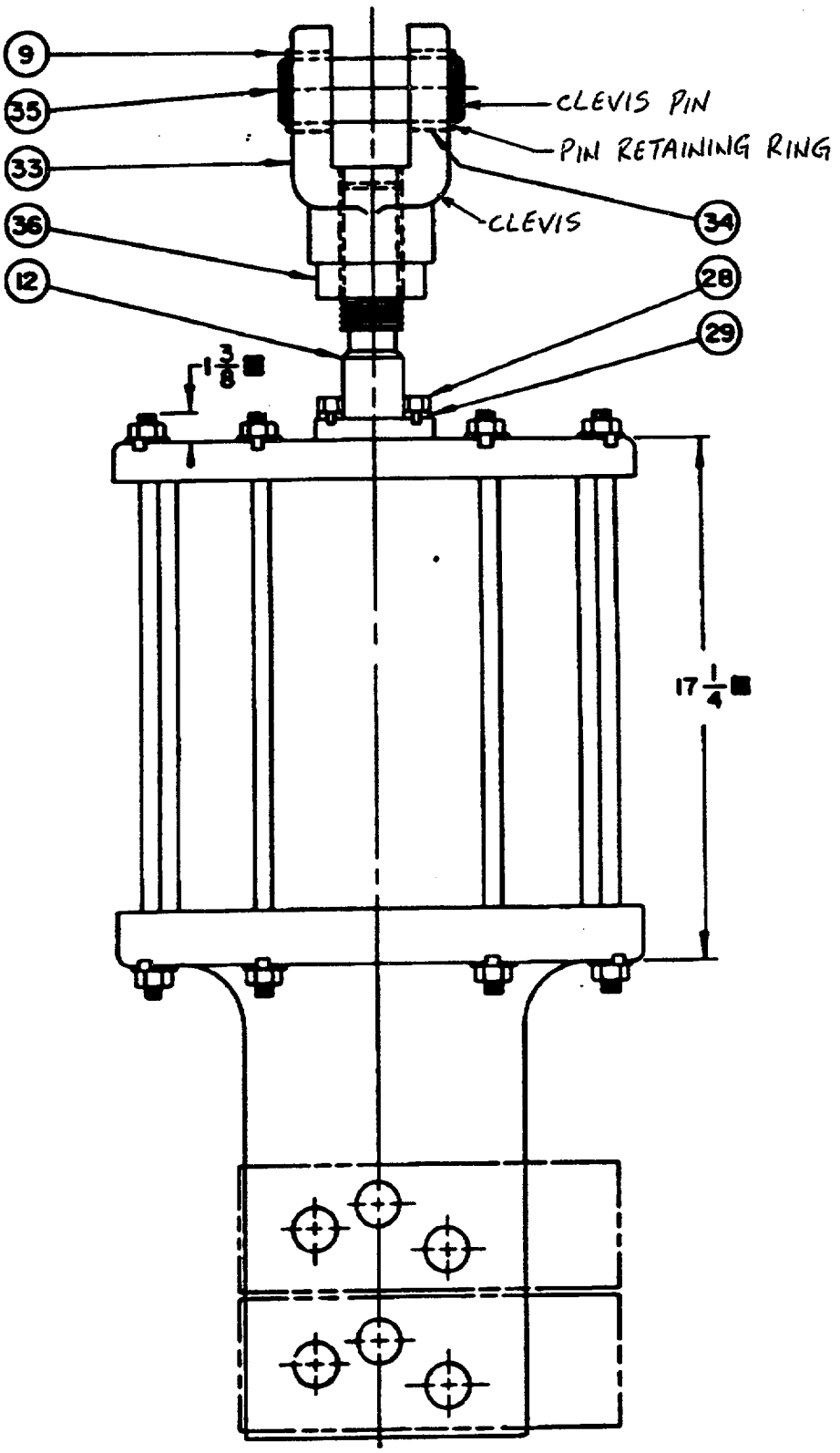


SECTION A-A

SECTION B-B



SUPPLEMENTARY VIEW OF CAP SHOWING
LEVER AND END CAP DETAIL


9
35
33
36
12
CLEVIS PIN
PIN RETAINING RING
CLEVIS
34
28
29
1 3/8
17 1/4

REAR VIEW

Attachment 5

RBG-45946

Request for Relief

VRR-004

REQUEST FOR RELIEF
RBS VRR-004
DATE: 4-18-02 PAGE 1 OF 4

SYSTEM: 109 – MSS – Main Steam **GE CODE: B21**

Component Identification	Code Class	Valve Category	Component Function
B21-RVF041A	1	B/C	MAIN STEAM LINE A PRESSURE RELIEF VALVE
B21-RVF041B	1	B/C	MAIN STEAM LINE B AUTO DEPRESSURIZATION SYSTEM PRESSURE RELIEF VALVE
B21-RVF041C	1	B/C	MAIN STEAM LINE C AUTO DEPRESSURIZATION SYSTEM PRESSURE RELIEF VALVE
B21-RVF041D	1	B/C	MAIN STEAM LINE D AUTO DEPRESSURIZATION SYSTEM PRESSURE RELIEF VALVE
B21-RVF041F	1	B/C	MAIN STEAM LINE B PRESSURE RELIEF VALVE
B21-RVF041G	1	B/C	MAIN STEAM LINE C PRESSURE RELIEF VALVE
B21-RVF041L	1	B/C	MAIN STEAM LINE C PRESSURE RELIEF VALVE
B21-RVF047A	1	B/C	MAIN STEAM LINE A AUTO DEPRESSURIZATION SYSTEM PRESSURE RELIEF VALVE
B21-RVF047B	1	B/C	MAIN STEAM LINE B PRESSURE RELIEF VALVE
B21-RVF047C	1	B/C	MAIN STEAM LINE C AUTO DEPRESSURIZATION SYSTEM PRESSURE RELIEF VALVE
B21-RVF047D	1	B/C	MAIN STEAM LINE D PRESSURE RELIEF VALVE
B21-RVF047F	1	B/C	MAIN STEAM LINE B PRESSURE RELIEF VALVE
B21-RVF051B	1	B/C	MAIN STEAM LINE B PRESSURE RELIEF VALVE
B21-RVF051C	1	B/C	MAIN STEAM LINE C PRESSURE RELIEF VALVE
B21-RVF051D	1	B/C	MAIN STEAM LINE D PRESSURE RELIEF VALVE
B21-RVF051G	1	B/C	MAIN STEAM LINE C AUTO DEPRESSURIZATION SYSTEM PRESSURE RELIEF VALVE

ASME CODE TEST REQUIREMENTS:
Class 1 Category C safety and relief valves are required to be tested at least once every 60 months in accordance with ASME/ANSI OM-1987, Part 1. Paragraph 3.3.1.1 describes the required tests. Additionally, paragraph 3.4.1.1 requires that each valve maintained or refurbished in place, removed for maintenance and testing, or both, and reinstalled shall be remotely actuated at reduced system pressure to verify open and close capability of the valve prior to resumption of power generation.

Category B power operated valves are required to be exercised and stroke timed to the safety positions at least once every three months in accordance with ASME/ANSI OMa-1988, part 10, Section 4.2.1. Additionally, remote position indication is required to be verified at least once every two years in accordance with Section 4.1.

BASIS FOR RELIEF:

Opening these valves during power operation would cause unnecessary transients in the reactor coolant system and require needless alignment and operation of the Residual Heat Removal system in the suppression pool cooling mode. Cycling of these valves during power operation significantly increases the risk of creating undesired seat leakage and/or escalating deterioration of valve seating surfaces due to such leakage. The initiation and continuation of MSRV seat leakage increases the amount of valve contamination and may necessitate extensive decontamination efforts on the valve prior to testing. The creation of extensive seat leakage would also require unnecessary alignment and operation of the Residual Heat Removal system in the suppression pool cooling mode. Extensive seat leakage can contribute to MSRV safety (spring) mode setpoint drift, unnecessarily forcing the removal and testing of additional valves. In addition to the potential seat leakage issues, there is the possibility of an MSRV sticking open during testing at power, thereby creating a LOCA. Although an inadvertently stuck open MSRV is an analyzed event in the USAR, it is not the intent for testing to increase the risk of initiating such a casualty.

In NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants (April, 1995) Section 4.3.4, the NRC Staff recommended reducing the number of challenges to the dual function Automatic Depressurization System (ADS) valves in order to reduce their failure rate. Since both ADS and non-ADS MSRVs perform dual function service, the same recommendation for reduction in the number of challenges to dual function operation is implied by inference for the non-ADS MSRVs. The Staff also noted that the ASME OM Committee was reviewing the categorization of safety and relief valves as Category C, rather than Category B/C, and stated that if the OM Committee determines these valves are Category C only, meeting the code requirements for Category A or B will be unnecessary.

The ASME OM Committee and Board on Nuclear Codes and Standards approved a change to the ASME Operation and Maintenance (OM) Code Section ISTC 1.2, which adds the following statement:

> Category A and B safety and relief valves are excluded from the requirements of ISTC 4.1, "Valve Position Verification" and ISTC 4.2, "Inservice Exercising Test."

This change was incorporated into the ASME OM Code in the OMa-1996 Addenda.

Although this approval does not address the categorization of safety and relief valves noted in NUREG-1482, it accomplishes the same objective, which is to limit inservice exercising of the valves when they are installed in the plant. By excluding the safety and relief valves from Sections ISTC 4.1 and ISTC 4.2, the OM Committee has in fact determined that these valves are only subject to Category C testing. Although this approval is to OM Code-1995, it addresses concerns which have existed since Section XI to the ASME Boiler and Pressure Vessel Code was originally issued. The 1995 OM Code requires safety and relief valves to meet the testing requirements of Appendix I. Similarly, OMa-1988 requires safety and relief valves to meet the testing requirements of OM-1987, Part 1. Thus, it is reasonable to apply the OM Committee's determination (which was approved in NUREG-1482) to OMa-1988. Therefore, Category B testing and valve position verification is not required.

Per OM-1987, Part 1, Para 3.4.1.1(d), the MSRVs are required to be stroked at reduced system pressure to verify open and close capability. As noted above, valve stroking on live steam is not desirable. Additionally, it is RBS's opinion that the purpose of this Part 1 requirement is to verify correct installation of the air and electrical systems associated with the relief mode operation of the MSRV. Such confirmation can be accomplished without physically lifting the valve disk from the nozzle seat. Thus, RBS believes that an uncoupled actuator test, as described in the Alternative Testing below, is sufficient to perform this installation verification and will provide an acceptable level of quality and safety.

PROPOSED ALTERNATE TESTING:
The MSRVs will be exercised to the open position by manual actuation of the valve control system during Emergency Operability testing and other certification activities on the valve test bench.

After installation in the plant following setpoint and certification testing, the valve actuator of each replacement Main Steam Safety Relief Valves (MSRVs) will be uncoupled from the valve lever arm which lifts the valve stem. The air actuators will then be exercised (without lifting the stems) to verify control signal continuity and air system configuration, following which the actuators will be re-coupled to the MSRV lever arms.

REFERENCES:
ASME/ANSI OM-1987, Part 1
ASME/ANSI OMa-1988, part 10
NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants

CONCLUSIONS:
A similar relief request was authorized for GGNS in an NRC safety evaluation dated July 1, 1999 (letter from Mr. Robert A. Gramm, Office of Nuclear Reactor Regulation, to Mr. William A. Eaton, VP Operations GGNS). The following evaluation and conclusion statement is based on 3.1.3 of that safety evaluation:

> Evaluation and Conclusion
>
> Paragraph 4.2 of OM-10 requires quarterly stroke time test of power-operated valves, and Paragraph 3.4.1.1(d) of OM-1 requires the post installation stroke test of safety/relief valves. In lieu of the quarterly stroke time test, the licensee proposes to be excluded from Paragraph 4.2 of OM-10 for the MSRVs based on the changes provided in OMa-1996 Addenda of the ASME OM Code that excluded Category A and B safety and relief valves from the requirements of ISTC 4.1, "Valve Position Verification" and ISTC 4.2, "Inservice Exercising Test." In lieu of actual stroke of the valve following reinstallation, the licensee proposes that only air actuators be exercised (without lifting the valve stems) to verify control signal continuity and proper air system configuration, following which the actuators will be re-coupled to the MSRV lever arms.
>
> The MSRVs are normally closed for reactor coolant system boundary. They are designed to open infrequently for overpressure protection and for automatic depressurization function. Frequent cycling of these valves using live steam would increase the risk of damaging valve seating surfaces and cause the valve to leak. In addition to the potential seat leakage, there is the possibility of the failure of an MSRV to reclose during testing at power thereby creating a LOCA. Furthermore, opening these valves, when not required could cause an undesirable transient in the reactor coolant system and require needless operation of the suppression pool cooling system. These MSRVs are fast acting valves, and without the installation of additional instrumentation, the stroke time of the valves cannot be measured. Therefore, it is impractical to stroke test and measure the stroke time of the affected valves during power, at cold shutdown, and refueling outage.
>
> The alternative testing provides for actual stroking of the valve disks after performing the Code setpoint testing. The proposed post installation test of air actuator would verify the correct installation of the air and electrical systems associated with the MSRVs. Therefore, the alternative testing provides reasonable assurance of the operational readiness of the valve because the only portion of the Code-required testing that is not incorporated into the proposed alternative is the verification that the stem is properly coupled to actuator. Also, these valves are primarily safety/relief valves. More recent editions of the OM Code provide for valve stroking of safety/relief valves only when setpoint tests, or maintenance or repair activities, are performed. Therefore, the proposal meets the more recent Code for these testing requirements.

Based on the consideration that it is impractical to stroke test the affected valves during operation, at cold shutdown and at refueling outage and that the proposed alternative provides reasonable assurance of valve operability, we request the proposed alternative be authorized pursuant to 10 CFR 50.55a(a)(3)(ii), because imposition of the Code requirements would result in hardship without a compensating increase in the level of quality and safety.