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SUBJECT: Provides response to 920916 safety evaluation request re resolution of IST anomalies identified in app B & description of criteria for inclusion of components in IST program.

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
RESPONSE TO IN SERVICE TESTING SAFETY EVALUATION

Gentlemen:

The purpose of this letter is to provide a response as requested in the September 16, 1992, Safety Evaluation regarding the In Service Testing (IST) Program at H. B. Robinson Steam Electric Plant, Unit No. 2. The Safety Evaluation requested a resolution of IST anomalies identified in Appendix B, and a description of criteria for inclusion of components in the IST Program. The responses are provided in the Enclosures to this letter.

Following NRC review and comment on the content of the Enclosure, an IST Program revision will be submitted to reflect the changes made as a result of the Safety Evaluation Report.

Questions regarding this matter may be referred to Mr. Jan S. Kozyra at (803) 383-1872.

Very truly yours,

David B. Waters

David B. Waters
Manager - Regulatory Affairs

DTG:lst
Enclosures
c: Mr. S. D. Ebneter
Ms. B. L. Mozafari
Mr. W. T. Orders

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ENCLOSURE 1
H.B. ROBINSON IST PUMP AND VALVE PROGRAM
THIRD TEN YEAR INTERVAL

The H.B. Robinson Unit 2 In Service Testing Program for the Third Ten Year Interval was developed utilizing the following documents:

1) ASME Section XI Code, 1986 Edition (no addenda).

2) NRC Generic Letter 89-04, Guidance on Developing Acceptable Inservice Test Programs.

3) ASME/ANSI OM-1

4) ASME/ANSI OM-6

5) ASME/ANSI OM-10

6) Plant Technical Specifications

7) Plant Updated FSAR

8) System Design Basis Documents

9) System Descriptions

10) 10 CFR 50.55a

11) Regulatory Guide 1.26

12) Regulatory Guide 1.147

13) Code Case N-465

14) IST Pump and Valve Program (Second Ten Year Interval)

15) Plant Piping and Instrument Drawings (P&IDs).

ENCLOSURE 2
H.B. ROBINSON IST PUMP AND VALVE PROGRAM
THIRD TEN YEAR INTERVAL

SELECTION PROCESS (PLANT SYSTEMS):

A comprehensive review was performed of all plant systems utilizing the ASME Section XI Code (1986 Edition), NRC Generic Letter 89-04, Plant Technical Specifications, Updated FSAR, and Design Basis documents for the determination of systems important to safety. Additionally, the guidance of Regulatory Guide 1.26 and ANSI 18.2 were utilized for the determination of those systems that should be classified as Code Class 1, 2, or 3. ASME Section XI only requires components located within Code Class 1, 2, or 3 systems to be tested, whereas Generic Letter 89-04 requires any safety-related component, regardless of the system classification, be tested to ensure it will perform its intended safety function. Therefore, some components not within Section XI boundaries were included in the IST Program. Additionally, some systems such as the Emergency Diesel Fuel Oil were optionally upgraded to Code Class 3. Components within these systems are tested using ASME Section XI as guidance (ref. IWA-1320(e)).

SELECTION PROCESS (PUMPS):

Centrifugal/displacement type pumps were selected for testing based on the criteria provided by the ASME Section XI Code (IWP-1100). The pumps selected for testing provide a specific function in shutting down the reactor or in mitigating the consequences of an accident and are provided with an emergency power source.

SELECTION PROCESS (VALVES):

Once the systems important to safety were determined, a systematic review of the valves within each system was conducted. Each valve was evaluated to determine the safety function it had to perform in mitigating the consequences of an accident, shutting down the reactor, and/or maintaining shutdown cooling. Again, the ASME Section XI Code (1986 Edition), NRC Generic Letter 89-04, the Plant Technical Specifications, Updated FSAR, and the Design Basis Documents were used to determine the component's safety function.

TEST REQUIREMENTS (PUMPS):

Testing requirements for each safety-related pump were based on the criteria established by the ASME Section XI Code (Table IWP-3100-1) and ASME/ANSI OMa-1988, Part 6. Based on a Relief Request granted by the NRC, annual bearing temperature tests on pumps are not performed. Instead, a more comprehensive vibration program, based on the requirements of ASME/ANSI OMa-1988, Part 6, has been implemented. In addition, for positive displacement pumps; ACCEPTABLE, ALERT, and REQUIRED ACTION RANGES have been established for discharge pressure. Pumps tested monthly/quarterly using a bypass loop (recirculation flow) during normal plant operations are full flow tested during cold shutdown/refueling outages, as applicable. The only exception is the testing of the Containment Spray Pumps, as system design will not permit full-flow testing.

VALVE CLASSIFICATIONS:

Valves designated as safety-related were further evaluated to determine if they needed to change position or if some mechanical motion had to be accomplished for the particular component to fulfill the design basis safety function. Only valves that have to change from their static state to a dynamic state were determined to require testing. If no position change was required, the particular valve was classified as PASSIVE and no testing requirements were identified.

After the safety function was established, the Code required classification A, B, and/or C, and the Code required classification of ACTIVE or PASSIVE was assigned to each component.

TEST REQUIREMENTS (VALVES):

Having determined the required classifications for each valve, the next step was to determine the required tests. Utilizing the ASME Section XI Code and NRC Generic Letter 89-04, applicable component tests were established.

Once the test requirements were assigned, a review of each system/component was performed to determine which applicable components could be operated at different plant conditions. The purpose for this activity was to determine if Code required quarterly testing was feasible for each component. If not, these determinations were used in developing Cold Shutdown Justifications, as well as some Relief Requests.

For any test that could not be accomplished as required by the Code and/or Generic Letter 89-04, a specific Request For Relief from the Code requirement was submitted.

Once all the above activities were completed, applicable implementing test procedures were developed to incorporate the test requirements. Several special test procedures were developed and performed to determine appropriate acceptance criteria, such as, new reference values for pumps and forward/reverse flow criteria for check valves. Results obtained from these special test procedures were incorporated into applicable surveillance test procedures.

The surveillance procedures used are a part of the Plant Operating Manual, which is required and controlled by 10 CFR 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants" requirements. These procedures are required to be reviewed and/or revised as applicable when design modifications or other activities are performed under 10 CFR 50.59.

ENCLOSURE 3
H.B. ROBINSON IST PUMP AND VALVE PROGRAM
THIRD TEN YEAR INTERVAL

Appendix B Responses

Item 1

Procedures were developed to obtain vibration reference values to be used to establish acceptance criteria to meet the OMa-1988, Part 6 requirements. After establishment of vibration reference values, procedures were revised to incorporate the additional data measurement points and accompanying Acceptable, Alert and Required Action data ranges. Baseline vibration data for pump tests performed during cold shutdown/refueling intervals was gathered during the recently completed Refueling Outage 15. This data will be used to develop reference values for testing during the next cold shutdown/refueling interval tests. All quarterly pump testing has been performed with acceptance criteria meeting the OMa-1988, Part 6 requirements.

Item 2

Data from one cycle of testing utilizing ultrasonic flow instrumentation has indicated the equipment has sufficient accuracy and repeatability to meet Section XI requirements.

Item 3

A revised Relief Request was submitted on December 28, 1992, to address the SER comments. By letter dated 11/2/93, the NRC granted this relief request.

Item 4

This Relief Request was withdrawn by letter dated December 28, 1992. By letter dated 11/2/93, the NRC acknowledged this withdrawal.

Item 5

The IVSW System and valves served by this fluid block system are tested in accordance with Technical Specifications and 10CFR50, Appendix J requirements. No additional changes are required to comply with the provisions of the granted Relief Request.

Item 6

Relief Request GVRR-1 was submitted to address only those Containment Isolation Valves that are required to be leak tested under the rules of 10CFR50, Appendix J and are not served by the IVSW System. Valves fitting this category will be tested to the requirements of IWV-3426 and IWV-3427(a) according to Generic Letter 89-04, Position 10. It is understood that relief from the requirements of IWV-3427(b) applies only to Containment Isolation Valves requiring testing under 10CFR50, Appendix J rules and does not include other Category A Valves performing other isolation functions.

Item 7

Relief Request GVRR-2 applies only to Check Valves OPP-14 and OPP-15. These check valves are in the nitrogen line that supplies motive force for the Pressurizer Power Operated Relief Valves (PORVs). The PORVs are cycled at cold shutdown intervals to meet the requirements of Generic Letter 90-06. The Relief Request was written to clarify the check valve testing performed to meet the requirements of Generic Letter 89-04, Position 1, i.e., that quantitative flow through these valves is not measured. To meet the Position 1 requirement to pass "maximum required accident condition flow", the testing of these check valves relies on the PORVs stroking within the specified time of 2.5 seconds. If the PORVs stroke within 2.5 seconds, then "maximum required accident condition flow" has passed through Check Valves OPP-14 and OPP-15, individually.

Generic Letter 89-04, Position 1, was interpreted to infer that a quantitative flow rate be measured through check valves. Therefore, the Relief Request was submitted to clarify the testing performed and to inform the program reviewers that a quantitative flow measurement is not necessary to prove "maximum required accident condition flow" for these check valves. In absence of an established, quantitative design flow rate that can be measured, the testing performed ensures these valves are capable of fulfilling the design function of allowing PORV actuation within the specified time limit.

Disassembly of small check valves would probably increase the likelihood of failure and result in a decrease in safety. Furthermore, defining and attempting to verify maximum accident flow through the valves is not practicable and would not provide additional assurance of operability. Since the design function of these valves is to supply motive force for the PORV actuator, a quantitative flow rate for these valves is not specified, nor is a measurement of flow rate necessary to prove design function.

Item 8

This relief request was withdrawn by letter dated December 28, 1992. By letter dated 11/2/93, the NRC acknowledged this withdrawal.

Item 9

Valves SA-80 (Station Air System) and IA-525 (Instrument Air System) have no function to open either in a safe shutdown or in an accident condition (ref. UFSAR Section 9.3.1.3). Therefore the Station Air and Instrument Air Systems are classified as non-safety. Valve IA-525 is required to close to isolate the Instrument Air containment penetration should it become necessary to do so and is tested for this function in accordance with Section XI and 10CFR50, Appendix J.

The forward flow test for Valves SA-80 and IA-525 was included in the IST Program due to the role they could play in allowing air into the Containment Building (post-accident) for the purposes of hydrogen venting of the building. This venting operation relies on the non-safety Station and/or Instrument Air System components to supply the pressurized air source. Based on Section XI classification guidance, these systems are not categorized as Class 1, 2 or 3. However, these valves were included in this testing program to provide assurance that the venting operation could be accomplished if the non-safety air systems were in service post-accident. Treatment of these valves in this manner is in keeping with Section XI IWA-1320(e), Generic Letter 89-04 Position 11 and Question 53 of the Minutes of the Public Meetings on Generic Letter 89-04.

There is no established design air flow rate during the pressurization/venting operation specified for either of the check valves in question. To further strengthen the current testing requirements for Valves SA-80 and IA-525, procedures have been revised to ensure a continuous discharge of pressurized air is emitted when the associated vent valves (V12-24A and V12-24B) are cycled open. Testing in this manner will verify acceptable operation of these check valves and prove the capability of performing the design function under the guidance of Generic Letter 89-04, Position 1.

Position 1 of Generic Letter 89-04 was interpreted to infer that a quantitative flow rate be measured through check valves. Therefore, the Relief Request was submitted to clarify the testing performed and to inform the program reviewers that a quantitative flow measurement is not necessary to prove "maximum required accident condition flow" for these check valves. In absence of an established, quantitative design flow rate that can be measured, the testing performed ensures these valves are capable of passing air into the Containment Building at a pressure and resultant flow rate adequate to provide a positive pressure for hydrogen venting.

Check Valves IVSW-68A, IVSW-68B, IVSW-68C and IVSW-68D are required to open to provide nitrogen pressure to the IVSW Tank. This nitrogen pressure supplies the motive force to fill certain containment isolation valve innerspaces with water in a post-accident situation. The design function of these valves is to regulate pressure, not pass a minimum design flow rate. These valves will open only when a differential pressure exists across the valve, in which case, the valve is only required to open far enough to re-establish tank pressure. Therefore, full stroke of these check valves during accident conditions may not be required. Defining and trying to verify maximum accident flow through these check valves would not provide additional assurance of the associated component's operability. Disassembly of these check valves is not considered practical due to the 3/8" size, and would probably increase the likelihood of their failure and result in a decrease in safety.

OM-10, Paragraph 4.3.2.2 requires that check valves be exercised to the closed, full open, or partially open position required to fulfill their safety function. Therefore, because a partial stroke of these valves meets the OM-10 requirements, verification of the ability to maintain IVSW Tank pressure verifies proper operation of the valves.

To further enhance the testing performed on these valves, an additional test has been added to record the time required to re-pressurize the IVSW Tank after the cover gas pressure has been lowered. This test will allow for trending and will provide additional assurance that the valves are capable of performing the design function of maintaining IVSW Tank pressure.

Item 10

This issue was clarified and Relief Request IVSW-VRR-1 was revised by letter dated December 28, 1992. By letter dated 11/2/93, the NRC acknowledged that valves PCV-1922A and PCV-1922B have been removed from Relief Request IVSW-VRR-1. Valves PCV-1922A and PCV-1922B are now tested at cold shutdown intervals.

Item 11

This Relief Request is withdrawn. Stroke time testing of solenoid valves EV-1963A-1, EV-1963A-2, EV-1963B-1 and EV-1963B-2 is performed at quarterly intervals.

Item 12

This issue was clarified and Relief Request SI-VRR-1 was revised to remove reference to SI-849 by letter dated December 28, 1992. By letter dated 11/2/93, the NRC acknowledged that SI-849 had been removed from Relief Request SI-VRR-1. Testing of SI-849 is performed at cold shutdown intervals.

Item 13

This Relief Request is withdrawn. Valves SI-875A, SI-875B and SI-875C are disassembled on a rotating basis each refueling as specified in Generic Letter 89-04, Position 2. This issue was also addressed by letters dated December 28, 1992, and September 20, 1993. By letter dated 11/2/93, the NRC acknowledged that disassembly pursuant to Generic Letter 89-04, Position 2 was an acceptable alternative test.

Item 14

Full flow testing has been performed, individually, for Valves SI-874A and SI-874B. Full flow testing verification for each valve will continue at refueling intervals. By letter dated 11/2/93, the NRC acknowledged full flow testing at refueling intervals as an acceptable alternative test.

Item 15

This Relief Request is withdrawn. Verification of valve travel and proper operation for each air solenoid valve in question is performed at quarterly intervals.

Item 16

Position verification has been performed for these valves and procedures have been revised to ensure this testing is performed in accordance with the frequency specified in Section XI, ASME code. This relief request has been withdrawn.