

ATTACHMENT A TO L-77-291

RESPONSE TO NRC QUESTIONS OF

MAY 24, 1977

- (1)a. NRC, Q-1 states that the Table, Item (6), of Section I. C. List of Definitions of Attachment B, is not equivalent to the Sub-Section IWV-ASME Section XI thru Summer 1975 Addenda, Requirements.

Response:

The Table represents a list of valve test requirements which are essentially excerpts from the above applicable Code, except for references to "Active" and "Passive" terms whose definitions are identified in Section I.C.(4) and I.C.(5), respectively.

- (1)b. NRC, Q-1 requested justification for the parts of the Table, specifically for Code Category (A) passive valves, which are not in agreement with the ASME Section XI Code.

Response:

By our assigning the terms "Active" and "Passive" (Ref. (1)a. above) in the Table, does not change the test requirements from that of the ASME Section XI Code. Therefore, the Table is considered in agreement with the Code.

In the context of these requirements, Code Category (A) valves are classified as "Active" valves (I.C.4) when they are required to change position either by opening, closing, or opening and re-closing to either safely shutdown the reactor, or mitigate the consequences of an accident; whereas, "Passive" valves (I.C.5) are not required to change position to either safely shutdown the reactor or mitigate the consequences of an accident.

The valve exercise test requirements of IWV-3410 of the ASME Section XI Code implies that these tests only apply to those valves which are required to change position to fulfill their function. It is important to recognize that there are many valves that are not required to change position to fulfill their function (I.C.5). Consequently, these valves are already in their proper position and therefore, classified as Code Category (A) "Passive" valves. Accordingly, the Table does not require these valves to be exercised per IWV-3410 (b)(1), but requires these valves to be seat leakage tested per IWV-3420.

- (2) NRC, Q-2 requested justification for not testing at the three month interval during plant operation, all Code Category A, B and C valves, which are specified to be tested at cold shutdown intervals in Table I of Attachment B.

Response:

Sub-section IWV-3410(a) of the Code requires that Code Category A and B valves be exercised once every 3 months, with exceptions as defined in IWV-3410(b)(1), (e) and (f). IWV-3520(a) requires that Code Category C valves be exercised once every 3 months, with exceptions as defined in IWV-3520(b). In the above cases of exceptions, the Code permits the valves to be tested at cold shutdown where:

- (a) It is not practical to exercise the valves to the position required to fulfill their function during plant operation.
- (b) It is not practical to observe the operation of the valves (with fail-safe actuators) upon loss of actuator power.

- 3) NRC, Q-3 requested a definition of EF-6 for Code Category "C" valves listed in Table I of Attachment B.

Response:

Item EF-6 was defined in Section I.E. of Attachment B for Code Category A-B Valves, but this definition was inadvertently omitted for Code Category C Valves. Accordingly, we have revised the ISI test requirements for the Code Category "C" valves listed in Table I of Attachment B that specified Item EF-6 to conform to the legend for Table I, Category "C" Valves, Section I.E., Attachment B.

- (4)a. NRC, Q-4 requested a definition of OC-1, for Code Category (B) valves, as used in Table I for valves V3659 and V3660.

Response:

Our classification of Code Category (B) valves, as used for valves V3659 and V3660, is a typographical error. These should be classified as Code Category (E) valves.

- (4)b. NRC, Q-4 requested justification for testing valves V3659 and V3660 at refueling instead of Code IWV-3410 Code Category (B) valve requirements.

Response:

The proper classification of these valves, as denoted in (4)a above, negates the justification for the testing of these valves as erroneously reported.

- (5) NRC, Q-5 requested information for the exact test interval, for Code Category A, B and C valves listed in Table I, which are referenced with the number (3), defined in the Table legend as "Operation", under the test period.

Response:

The test interval for these code category valves, which is referenced with the number 3 (Operation) is defined as follows:
Code - 3 months or less.

- (6) NRC, Q-6. Supply a detailed description, to justify the exceptions requested from Section XI Subsection IWV, for all valves in Table II of Attachment B that reference Item (E-5).

Response:

An evaluation of the results of a comprehensive fluid system analysis concluded that it was impractical to perform the tests required by IWV-3520(b)(1) and (2) on the valves listed in Table II of Appendix B that reference (E-5) because the location, alignment, and orientation of the valves in the fluid system does not provide means for positive confirmation that either the valve disk has moved promptly off its seat or the valve disk is on its seat as required for the check valve to fulfill its function.

The use of appropriate pressure indications in the fluid system or by other positive means to provide positive confirmation of appropriate valve disk position during the performance of required tests were considered as alternate methods. It was concluded that these alternate methods were impractical.

Further, the design of the check valves does not provide for either visual observation of valve disk position by a positive indicating device or by an electrical signal initiated by a position indicating device.

- (7) NRC, Q-7 requested justification for the exceptions to Code for all valves in Table II of Attachment B which reference Item (E-4).

Response:

A system re-analysis was performed of the valves in Table II of Attachment B which utilize (E-4) as a basis for seat leakage test exceptions. Coupled with a better understanding of the philosophies to be considered in addressing the Code requirements for the classification of Category (A) valves, the analysis showed that we had improperly classified these valves. These valves are in interconnected process systems and serve as quality group classification boundary valves (i.e., Class 1, 2 and 3).

In fulfillment of its function, the seat leakage of the valve(s) is inconsequential to the safety of any of the safety related systems required to safely shut down the reactor or mitigate the consequences of an accident.

Therefore, the Category (A) valves in Table II of Attachment B with (E-4) exceptions were reclassified to Category (B) valves and placed in Table I. The proper classifications of these valves therefore negates the justification for the exceptions taken for these valves as previously reported.

- (8) NRC, Q-8: Justify, for each valve in Table II of Attachment B referenced with Item (E-11), that a failure of this valve will not obstruct the operation of any safety related systems.

Response:

The valves listed in Table II, Attachment B, referenced with Item (E-11) are either pressure regulating valve(s) that control flow distribution within interconnected systems or temperature regulating valve(s) that control flow distribution within an interconnected system. These valves are either in continuous service or ready for service, during normal plant operation. Any failure of a valve would normally be detected either by observing off-normal system pressure or temperature indications or by the actuation of an off-normal condition alarm.

Since these valves are installed within interconnected systems, the failure of a valve would not obstruct the operation of any safety related system required to safely shutdown the reactor or to mitigate the consequences of an accident.

- (9) NRC, Q-9: Clarify the exception requested for valve V2101 of Table II Attachment B, which asks for an exception to Section XI requirements for leak rate testing. This is not a requirement of Section XI for Code Category "C" valves. Also provide the ISI test, on this valve, that you intend to perform and the reasons to justify any exception.

Response:

Valve V2101 of Table II Attachment B was inadvertently referenced with item (E-4). The exemption requested for Valve V2101 was to the test requirements of IWV-3520 Check Valve tests. Therefore, the exemption requested should have been referenced with Item (E-5). Table II has been revised to address this error.

The bases for the exemption (E-5) requested for Valve V2101 is provided in our response to NRC, Q-6.

- (10) NRC, Q-10: Clarify the exceptions requested to Section XI Subsection IWV-3420, referenced with Item (E-3) in Table II of Attachment B, as used for some valves like HCV-3617.

Response:

The valves in Table II of Attachment B with HCV designations which reference (E-3), also reference (E-4), as a basis for exceptions. In addressing (E-4), which is provided in our response to NRC, Q-7, the disposition of these valves in Table I negates the exceptions requested for these valves.

Other valves in Table II of Attachment B which reference (E-3) require that they be tested during Test Period 1 (i.e., with reactor vessel head-off) to avert an overpressure condition when the HPSI pumps are operating with the flow paths to the loops.

- (11) NRC, Q-11: Discuss in detail the "loss of system function" all valves in Table II referenced with ISI test (E-1) and justify why these valves cannot be tested at cold shutdown.

Response:

For clarification pertaining to this question, the valves in Table II of Attachment B reference (E-1) as a basis for exception; whereas, the ISI tests column denotes the code test requirements. Some valves which reference (E-1) are required to be in service during cold shutdown conditions. Therefore, performance of the tests required by IWV-3410 would cause a loss of system function, if the valve failed in a non-conservative position during the tests. Consequently, these valves are required to be tested during refueling with the reactor vessel head-off.

Other valves in Table II with reference to (E-1) were determined to be testable during cold shutdown and were placed in Table I.

- (12) NRC, Q-12: Discuss in detail the function of the valves in Table II.A of Attachment B and justify that they do not fulfill any safety related function.

Response:

We have reviewed the design function of the valves listed in Table II.A and concluded that these valves, although not essential for safe shutdown of the reactor or to mitigate the consequences of an accident, should be reclassified according to their design function.

Therefore, the valves listed in Table II.A of Attachment B have been assigned to Table I, II, or III according to the design function of the valve. Thus, Table II.A has been eliminated from the valve test program.

- (13) NRC, Q-13: Describe the methods you intend to use to establish reference values for the required parameter measurements and the methods used to obtain the inservice values for the pump testing program.

Response:

Reference values for each of the pumps listed in Table IV of Appendix B will be established by the performance of special inservice tests using the same flow path that will be used for the performance of the inservice pump tests required by Section XI Subsection IWP-3100. The test results will be evaluated to ensure that these reference values represent acceptable pump performance.

The flow path used for pumps that are normally in service, or ready for service, is the normal system flow path. System conditions will be selected to provide for tests to be performed under readily duplicated test conditions. Test quantities shown in Table IWP-3100-1 will be measured or observed as directed in this subsection.

Recirculation flow loops are used for testing pumps, such as the high pressure safety injection (HPSI) pump, that cannot be tested in their normal flow paths when the reactor is in power operation. Test quantities shown in Table IWP-3100-1 will be measured or observed as directed in this subsection.

The variable speed turbine driven pump listed in Table IV of Appendix B will be tested at a rotative speed that can be readily duplicated. Pump rotative speed will be measured during the performance of special inservice tests to establish a reference value as specified in Section XI Subsection IWP-3100. Rotative speed of the turbine driven pump will be adjusted to the established reference value for the performance of inservice pump tests.

- (14) NRC, Q-14: Provide a list of the pumps where an exception to Section XI is requested and a detailed justification for each exception requested. When an exception is requested due to high radiation levels, include the radiation level at the test location. Also discuss any equivalent alternative testing techniques considered and the reasons why they were determined to be impractical.

Response:

No specific exception to Section XI is requested for the pumps listed in Table IV of Attachment B.

- (15) NRC, Q-15: Provide justification for not installing pressure taps on the inlet side of the pumps, where they do not currently exist, to measure inlet pressure, or for not measuring the flow rate where inlet pressure cannot be measured.

Response:

Pressure taps have been installed on the inlet sides of the pumps listed in Table IV of Attachment B, except for the Intake Cooling Water Pumps. The suction head for these pumps will be determined by measuring the water level in the intake wells.

- (16) NRC, Q-16: Table 3.6-2 of the Technical Specification lists containment isolation valves which are testable during plant operation such as valves V5741 and I-FCV-26-2. The proposed valve test program identifies a number of these valves as not testable during plant operation. Provide an explanation for this apparent discrepancy.

Response:

We have reviewed the valves listed in Table 3.6-2 and have concluded that performance of the engineered safety system surveillance tests will satisfy the requirements of Section XI Subsection IWV-3410 valve exercising requirements.

