REFERENCE: SO123-VI-1.0.1 Submittal No. _____ (If applicable)

9508000339

TEMPORARY CHANGE NOTICE

Page 1 of 4

NOTES: 1) If the Document is QA Program Affecting, then a Technical Specification Violation will occur if CFDM final approval is not obtained within 14 days from TCN date of issuance.
2) If only Editorial Corrections are required, then form PF(123) 111 should be used (refer to SO123-VI-1.0.1).

Part A – *For CDM Use Only:*
Issuance Date AUG 25 1995 Single Use TCN Cancels On Feeds TCN No. 9-2
Copy forwarded to the Nuclear Safety Group. PERFORMED BY: _____ Date AUG 25 1995

Part B
1. Document No. SO23V-3.5 Revision No. 9 Single Use TCN: Yes ☐ No ☒
Document Title Inservice Testing of Valves Program
Document Author/Originator Paul Croy (PRINT OR TYPE NAME) 89341 (PAX) 8/21/95 (DATE) Technical (ORGANIZATION)
2. If required, TCN Deviation Approval: APPROVED BY: N/A (CFDM (or designee)) (SIGNATURE / IF BY TELECON, PRINT NAME AND SO STATE) (DATE/TIME)
3. Check appropriate box: ☒ Entire Document Attached ☐ Affected Page(s) Attached RECEIVED COM
Superseded/Incorporated TCN(s)/EC(s) 9-1 (NUMBER (IF NONE, SO STATE)) (Not applicable for Single Use TCNs)
4. This change cannot wait until the next revision of the Document and is required: AUG 25 1995
a. ☐ To implement facility design change (DCP, MMP, TFM, etc.)
Facility design change identifier SITE FILE COPY / (INDICATE DCP, MMP, PFC, TFM, ETC.) (IDENTIFIER)
Implementation of the facility design change has been determined. Yes ☐ No ☐
(If No, then a TCN cannot be approved until the facility design change has been implemented.)
b. ☒ Other (e.g., CAR, NRC Commitments) Specific Reason: See ATTACHED
NECESSARY TO MEET NRC DEADLINE FOR SER RESPONSE.
Description of Change(s) (Use Reverse Side If Required) See ATTACHED
5. Could implementation of this change pose adverse environmental effects of any type directly or indirectly? Yes ☐ No ☒
(If Yes, then a TCN is not authorized until a review from Environmental Protection is obtained. Refer to SO123-VI-1.3)
6. Review requested from other organizations/disciplines? (If Yes PF(123) 110A, or equivalent documentation, may be attached.) Yes ☐ No ☒

Part C
7. Is the document being TCN'd QA Program Affecting or Level 1 QA Program Affecting? Yes ☒ No ☐
Answer No only if document is classified as Not QA Program Affecting. This is indicated on the Table of Contents page of the document.
If Yes, complete this section; then proceed to Part D. If No, then proceed to Part D. (See * below for initial approval. If time permits, obtain initial and final approvals.)
a. Is the document to be changed an Emergency Operating Instruction? Yes ☐ No ☒
b. Is the intent of the original document altered? Yes ☐ No ☒
(If the answer to a or b is Yes, then a TCN is not authorized. A revision is required; see SO123-VI-0.9 and SO123-VI-1.)
10 CFR 50.59 Consideration:
c. Has the proposed change already been evaluated for 50.59 consideration or a 7 question Safety Evaluation prepared using an approved process? (Examples of approved processes are: DCP, MMP/TFM/NCR/Technical Specification change, associated procedure Safety Evaluation [7 questions], etc.)
Yes ☐ Enter identifier and associated no. No ☒ Attach PF(123) 109-1 or 50.59 Safety Evaluation (7 questions). (Refer to SO123-VI-1.3.)
NOTE: If YES, the proposed change must be addressed in the 50.59 documentation already generated.
(INDICATE DCP, MMP, TFM, NCR, TECH. SPEC., PROCEDURE AND NO.)
NOTE: Both YES and NO may be checked, if applicable.

Part D – *INITIAL APPROVAL – REVIEWED and APPROVED BY:* **
1. NA (PLANT MANAGEMENT STAFF—UNIT 1) (DATE) (TIME)
Could this TCN affect or does it represent a change to a plant operation in progress? Yes*** ☐ No ☐
2. [signature] (PLANT MANAGEMENT STAFF—UNITS 2&3) 8/24/95 (DATE) 0945 (TIME)
Could this TCN affect or does it represent a change to a plant operation in progress? Yes*** ☐ No ☒
3. NA (CFH—UNIT 1) (DATE) (TIME)
4. [signature] (SRO—UNITS 2&3) 8/24/95 (DATE) 1417 (TIME)

Part E – *FINAL APPROVAL – REVIEWED and APPROVED BY:* **
5. [signature] (COGNIZANT FUNCTIONAL DIVISION MANAGER) 8/24/95 (DATE)
6. _____ (QUALITY ASSURANCE—UNITS 1, 2 AND 3) (DATE)

* If Level 1 QA Program Affecting or Not QA Program Affecting, then obtain approval from the Cognizant Supervisor(s) on the affected Unit(s) [signs Plant Management Staff line(s)] and enter N/A on SRO/CFH lines prior to submittal to CDM. QA approval may be required for Level 1 QA Program Affecting TCNs.
** If QA Program Affecting, then approval shall be by one member of the Plant Management staff, and one SRO/CFH Licensed on the unit or units affected. (For TCN approval, members of the Plant Management Staff are defined as the supervisor in charge of the shift, or as designated in writing by the CFDM, exercising responsibility in the specific area and unit(s) addressed by the change.)
*** If Yes, then the Shift Superintendent/Shift Supervisor shall provide the required SRO/CFH approval.

Part F – *(Optional)* The entire document was reviewed in conjunction with this TCN and found to be acceptable as written. This constitutes an annual/biennial review disposition of Acceptable As Written-Extend (SO123-VI-1.0.2).
REVIEWED and APPROVED BY: N/A (COGNIZANT FUNCTIONAL DIVISION MANAGER OR DESIGNEE) (DATE)

Part G – *For NPG Use Only:*
Is QA/QC Review/Approval Required? NOTE: Use the computer system or QA/QC Review Not Required Report (Waiver List) to respond. Yes ☒ No* ☐
* If No, enter N/A on the Quality Assurance Review/Approval line in Part E.
Has a 50.59 Safety Evaluation (7 questions) been attached? If Yes, forward a copy of the PF(123)109-1 and 50.59 Safety Evaluation to Nuclear Licensing, as applicable (Refer to SO123-VI-1.3). Yes ☐ No ☒
PERFORMED BY: Mark D. Tomlinson 8/24/95
NPG
SCE PF(123) 110 REV. 5 2/96 NUCLEAR PROCEDURES GROUP (NPG) (DATE)

UNREVIEWED SAFETY QUESTION (10 CFR 50.59) SCREENING CRITERIA

DOCUMENT NO. S023-V-3.5 REV. NO. 9 TCN. NO. 9-2 (if applicable)

PART I) 10 CFR 50.59 REVIEW (Refer to S0123-VI-1.3)

1. *Does this new procedure/procedure change alter system/component performance or the design configuration of a system important to safety?* Yes___ No ✓
2. *Does this new procedure/procedure change alter the calibration of a system important to safety?* Yes___ No ✓
3. *Does this new procedure/procedure change alter the required actions as a result of not meeting the acceptance criteria or alter Technical Specification numerical data of a system important to safety?* Yes___ No ✓
4. *Does this new procedure/procedure change reduce the level of approval required for a plant activity?* Yes___ No ✓
5. *Does this new procedure/procedure change alter processes for handling, processing, monitoring, or releasing licensed radioactive material not contained in plant systems?* Yes___ No ✓
6. *Does this new procedure/procedure change violate the provisions of the Technical Specifications?* Yes___ No ✓

Remarks: _____

(If required, use reverse side or attach additional sheets.)

PREPARED BY: Paul A. Cross DATE 8.22.95
Cognizant Individual

APPROVED BY: [signature] DATE 8/22/95
Cognizant Supervisor

If "Yes" is the answer to any question in Part I), then STOP document processing. Coordinate Part II) completion with Cognizant Supervisor, or contact Nuclear Procedures Group (NPG) to coordinate Part II) completion with Supervisor, Technical Support, or contact Supervisor, Technical Support directly; during off-hours contact the on-duty Station Technical Advisor (STA).

PART II) 50.59 SAFETY EVALUATION DETERMINATION (Required when YES checked in PART I)

Area/Individual Assigned: _____ DATE _____
(Please Print)

Is a 50.59 Safety Evaluation required based on the new procedure/procedure change? (Refer to S0123-VI-1.3, Attachment 1) Yes*___ No**___

* If YES, complete 50.59 Safety Evaluation per established procedures and attach. STOP document processing if YES answer indicated on 50.59 Safety Evaluation.

** If NO, provide justification (indicate resources consulted, as applicable):

_____

_____

_____

(If required, use reverse side or attach additional sheets.)

PREPARED BY: _____ DATE _____
Cognizant Individual/STA

APPROVED BY: _____ DATE _____
CFDM or Designee

NPG: 1) If YES in Part II), then notify NPG supervision; forward a copy of this form and associated 50.59 Safety Evaluation (7 questions) to Nuclear Licensing.

2) If YES answer is indicated on 50.59 Safety Evaluation (7 questions), then STOP document processing and notify NPG supervision; forward a copy of this form, 50.59 Safety Evaluation, and document to Nuclear Licensing and Nuclear Safety Group.

Description of Changes (Continued)

1. Throughout the procedure, minor typographical errors have been corrected where found, including job title changes, valve code class entries as well as other minor, similar corrections throughout the entire procedure.

   Reason: Editorial improvement.

2. Reference 2.1.1, change to delete "Rev. 0".

   Reason: Editorial. This paragraph already lists "latest version".

3. Delete reference 2.1.14.

   Reason: Old reference is no longer in use. 90055 (reference 2.1.1) was substituted to replace this item.

4. Add a note following paragraph 6.6.5.2.1 to read:

   NOTE: Seat leakage limits that appear in the requirements records of the ISTM computer application for Appendix J tests, test type AJ, are maintenance threshold limits only and do not necessarily reflect the test pass/fail limits determined using the calculation in the above paragraph.

   Reason: Clarifies the distinction between the Appendix J acceptance limits identified in the ISTM requirements records.

5. Attachment 2, add new General Note 6 as follows:

   GENERAL NOTE NO. 6 - For test type AJ, a 25% test interval extension is not allowed. Accordingly, a maximum test interval of 730 days is used for these tests when the nominal interval specified in this attachment is "RR", and, a maximum test interval of 92 days is used for these tests when the nominal interval specified in this attachment is "OP". (See Appendix J and the Technical Specifications.)

   Reason: Clarifies the distinction between the OM-10 interval guidelines and those of Appendix J.

6. Attachment 2, note 1, change the last line to read, "See References 2.1.1 (Document M-90055) and 2.5.3 (NUREG 1482), Section 3.4."

   Reason: Old reference is no longer in use. 90055 (reference 2.1.1) was substituted to replace this item.

7. Attachment 2, note 7, change to read, "The closed stroke test was added at the recommendation of INPO to mitigate an inter-system LOCA in the RCP heat exchanger even though this test is not identified as required in reference 2.1.1."

   Reason: Old reference is no longer in use. 90055 (reference 2.1.1) was substituted to replace this item.

8. Attachment 2, notes 14 and 22 change "References 2.1.14" to read "References 2.1.1".

   Reason: Old reference is no longer in use. 90055 (reference 2.1.1) was substituted to replace this item.

9. Attachment 2, note 12, change the last line to read, "See References 2.1.1 (Document M-90055) and 2.5.3 (NUREG 1482), Section 3.4."

   Reason: Old reference is no longer in use. 90055 (reference 2.1.1) was substituted to replace this item.

10. Attachment 2, note 21, change the last line to read, "See Technical Specifications, Paragraph 4.7.5 and References 2.1.1 (Document M-90055).

    Reason: Old reference is no longer in use. 90055 (reference 2.1.1) was substituted to replace this item.

Description of Changes (Continued)

11. Attachment 2, note 23, change to read,

    23. Reference 2.1.1 calls for a Position Indication Test (PIT) on 2(3)HCV9918 and 2(3)HCV9945 and on S2(3)1312MU037 and S2(3)1312MU038. These valves are locked in their safety position at all times when they are required by plant mode to perform their safety function. As a consequence, no actual PIT test is required. See SO23-0-17, "Locking of Safety-Related Critical Valves and Breakers." Note that if the locking requirement is removed, a PIT test will be required.

    Reason: Old references are no longer in use. 90055 (reference 2.1.1) was substituted to replace this item.

12. Attachment 2, Under **Fuel Storage Pool and Refueling**, delete S2(3)1204MU028 from the table.

    Reason: Testing no longer required. See DCN # 11 to SO23-IST-1204.

13. Attachment 3, paragraphs 10.2.5 and 16.4.4, "References 2.1.14" to read "References 2.1.1".

    Reason: Old reference is no longer in use. 90055 (reference 2.1.1) was substituted to replace this item.

pac:TCN35R.w61
August 22, 1995

INSERVICE TESTING OF VALVES PROGRAM

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INSERVICE TESTING OF VALVES PROGRAM

1.0 OBJECTIVES AND GENERAL INFORMATION

1.1 To establish the requirements for preservice and inservice testing to assess the operational readiness of valves and pressure relief devices (and their actuating and position indicating systems) in accordance with Reference 2.1.5. See discussion in Section 3 of Reference 2.5.1.

NOTE: Test results are used in assessing operational readiness of valves during their service life to perform a specific function in shutting down the reactor, bringing it to cold shutdown or in mitigating the consequences of an accident.

1.2 To establish test intervals, parameters to be measured and evaluated, acceptance criteria and requirements for corrective action, and records. [Reference 2.1.3, Para. 1.1]

1.3 To meet the requirements of References 2.1.1, 2.5.1, 2.1.3 and 2.1.4.

NOTE: Organizational responsibilities for meeting References 2.1.1, 2.5.1, 2.1.3 and 2.1.4 are described in Reference 2.2.1.

1.4 Scope

1.4.1 This program is applicable to safety related components including, but not limited to ASME Class 1, 2 and 3. Certain non-ASME components are included in this program as recommended and discussed in Reference 2.1.9, Position 11, IST Program Scope.

NOTE: For some non-ASME Section III valves, testing is not in full conformance with OM-10. Where testing departs from the OM-10 rules the testing is consistent with the safety significance of the non-code valve and consistent with Reference 2.5.2, Question 53, and Reference 2.5.3, Section 2.2. See the valve-by-valve discussion of these cases in Attachment 3.

1.4.2 The active or passive valves covered in this program procedure are those which are required to perform a specific function in shutting down a reactor to the cold shutdown condition, in maintaining the cold shutdown condition, or in mitigating the consequences of an accident.

1.4.3 The pressure relief devices covered are those identified in accordance with the M-90055 document, Reference 2.1.1.

1.4.4 This Procedure may include the testing of components in addition to those listed in References 2.1.1, 2.5.1 and 2.1.4 (Paragraph IWA-1200), but shall, as a minimum, require testing of at least all of the components (meeting the above scope description) in those references.

1.4.5 The Check Valve Program, and its interrelationship with the IST Program are defined in the Station Order addressing the Check Valve Program, Reference 2.2.2.

1.5 Exclusions

1.5.1 The following are excluded from the scope of this program provided that the valves are not required to perform a specific function as specified above (Reference 2.1.3, Para. 1.2]:

.1 Valves used only for operating convenience such as vent, drain, instrument, and test valves;

.2 Valves used only for system control, such as pressure regulating valves;

.3 Valves used only for system or component maintenance.

1.5.2 External control and protection systems responsible for sensing plant conditions and providing signals for valve operation are excluded from the requirements of this program.

1.6 General Information

1.6.1 The Inservice Testing of Valves Program delineated herein covers a ten (10) year interval commencing on August 18, 1993 and terminating on August 17, 2003. The date for implementing the second 10 year interval was extended until April 1, 1994.

1.6.2 In accordance with Reference 2.2.1, the Manager, Technical Division, is responsible for this program and its implementation at the San Onofre Site.

1.6.3 Administrative requirements are identified in this program procedure where appropriate. These requirements are necessary for the orderly execution and documentation of program operations. Administrative requirements also provide for documenting program changes and for management of the implementing procedures.

1.6.4 The collection and review of data trends to detect component degradation is governed by Reference 2.3.1.

2.0 REFERENCES

2.1 NRC Commitment(s)

2.1.1 M-90055, Selection of Valves and Determination of Valve Inservice Testing, latest version

2.1.2 OM-1, ASME/ANSI OM-1987, Operation and Maintenance of Nuclear Power Plants, Part 1, Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices

2.1.3 OM-10, ASME/ANSI OM-1987, Operation and Maintenance of Nuclear Power Plants, Part 10, Inservice Testing of Valves in Light-Water Reactor Power Plants (including ASME/ANSI OMA-1988 ADDENDUM)

2.1.4 ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition with no addenda (July 1, 1989), Rules for Inservice Inspection of Nuclear Power Plant Components

2.1.5 Units 2 and 3 Technical Specification 4.0.5, Surveillance Requirements for inservice inspection and testing of ASME Code Class 1, 2 and 3 components

2.1.6 Technical Specifications, Units 2 and 3, Section 1.0, Definitions

2.1.7 Topical Quality Assurance Manual (TQAM), Chapter 7, ASME Code Program Scope, Responsibilities and Program Controls, latest revision

2.1.8 Updated Final Safety Analysis Report (UFSAR)

2.1.9 NRC Generic Letter 89-04, Guidance on Developing Acceptable Inservice Testing programs, April 3, 1989

2.1.10 10CFR50, § 50.55a, Codes and Standards

2.1.11 10CFR50, § 50.55a(f), Inservice Testing Requirements

2.1.12 10CFR50, Appendix J, Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors

2.1.13 Generic Letter 91-18, Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability, November 7, 1991

2.2 Orders

2.2.1 SO123-IN-1, Inservice Inspection Program

2.2.2 SO123-CV-1, Check Valve Program

2.3 Procedures

2.3.1 SO123-V-5.15, Inservice Testing (IST) Coordination and Trending

2.3.2 SO123-XV-5, Nonconforming Material, Parts or Components

2.3.3 SO123-XXI-1.11.11, Engineering Training and Qualification Program Description

2.3.4 SO123-XXIV-10.9, Design Process Flow and Controls, SONGS 1, 2 & 3

2.3.5 SO123-XXIV-10.16, Development, Review, Approval and Release of Conceptual Engineering Packages (CEPs) and Design Change Packages (DCPs), SONGS 1, 2 & 3

2.3.6 SO23-V-3.13, Containment Penetration Leak Rate Testing

2.3.7 SO23-XV-6, Technical Specification Response Time Surveillance Implementing Procedure Master List

2.3.8 SO123-V-5.22, Supplemental Check Valve Program

2.4 Operating Instructions

2.4.1 SO123-O-20, Use of Procedures

2.4.2 SO123-O-23, Control of System Alignments

2.5 Other

2.5.1 Inservice Testing Topical Report, Design Bases Document, DBD-SO23-TR-IS2, latest revision

2.5.2 Letter, J. G. Partlow, NRC, to All Licensees, etc, Minutes of the Public meetings on Generic Letter 89-04, October 25, 1989

2.5.3 NUREG 1482, Guidelines for Inservice Testing at Nuclear Power Plants, April 1995

2.5.4 Letter, T. R. Quay [NRC], to H. B. Ray [SCE], Second 10-Year Interval for Inservice Testing of Pumps and Valves [Safety Evaluation Report (SER)], August 31, 1994

3.0 PREREQUISITES

NOTE: Reference to SDMS, ON-LINE, with a PC is the preferred method to verify which version of the Procedure and TCNs are current.

CAUTION CDM-SONGS Controlled copies are updated as soon as their resources permit, however, this might sometimes mean that controlled copies in the Technical Library, for example, are updated several days after the new TCN or revision is issued. This is not the case with the on-line SDMS system.

3.1 Before using this document, verify the revision and any issued TCNs and/or ECs (Editorial Corrections) are current by using one of the following methods:

3.1.1 Access the San Onofre Document Management System (SDMS) [San Onofre local area network (SLAN) or online system] (preferred methods).

3.1.2 Check it against a Corporate Documentation Management-SONGS (CDM-SONGS) controlled copy and any issued TCNs/ECs.

3.1.3 Contact CDM-SONGS by telephone or through counter inquiry.

3.1.4 Obtain a user-controlled copy of this procedure from CDM-SONGS or SDMS SLAN.

4.0 PRECAUTIONS

4.1 Testing required in this program procedure shall not be conducted in Modes or under conditions that place the Plant in an unsafe condition. Likewise, care shall be exercised that no test will be conducted so a failure of the test would put the plant in an unsafe condition.

4.2 Special care must be exercised to ensure that the allowed test interval is not exceeded. With the exception of Appendix J tests, a test interval extension is allowed. This extension shall not exceed twenty-five percent of the test interval. See Technical Specification 4.0.5 (Reference 2.1.5). The twenty-five percent (25%) interval extension is allowed to accommodate plant conditions that may not be suitable for conducting a surveillance (such as transient conditions or other surveillance in progress). It also provides flexibility for refueling interval surveillance.

5.0 CHECKLIST(S)

5.1 None

6.0 PROCEDURE

6.1 Determination of Program Scope

6.1.1 The Nuclear Engineering Design Organization (NEDO) is responsible for determining the scope of the Inservice Testing Program. This responsibility is accomplished using documented methods for design engineers such as Reference 2.1.1, and the documents identifying the results of the analysis required thereby.

6.1.2 Additional guidance for establishment of Program Scope is included in References 2.5.1, 2.1.3, 2.1.8, 2.1.9, 2.5.2 and 2.1.6.

6.2 Terminology

NOTE: Many of the definitions in this section are derived from Reference 2.1.3. Consistency with this Reference provides a common basis for understanding among (a) ourselves, as the owner, (b) the ASME documents with which we must comply and (c) the individuals who audit our program, such as the NRC, ANII, etc.

active valves - valves which are required to change obturator position to accomplish the required function(s) as specified in this program procedure, above.

cold shutdown - The Code uses Cold Shutdown "CS" for all modes other than Operating and Refueling and therefore ("CS" as used in the IST Program) includes Technical Specification Modes 3, 4 or 5. All valves identified for Cold Shutdown testing are not testable in all modes. Accordingly, applicable implementing procedures (Operating Instructions) will specify which valves can be tested in a given Mode. (For additional information, see the NOTE following step 6.6.2.4.)

exercising - the demonstration based on direct visual or indirect positive indications that the moving parts of a valve function.

full-stroke time - the time interval from initiation of the actuating signal to the indication of the end of the operating stroke.

Inservice Testing Coordinator - an individual appointed by the Manager, Technical Division to coordinate the procedures, program and testing associated with the inservice testing program in accordance with Reference 2.3.1.

nonintrusive test methods - testing methods or technologies (such as acoustic emission, magnetic flux measurement, ultrasonic examination, or radiography) used in place of disassembly to satisfy exercise requirements.

plant operation - the conditions of startup, operation at power, hot standby, and reactor cooldown, as defined by the plant Technical Specifications.

obturator - valve closure member (disk, gate, plug, ball, etc.)

operational readiness - the ability of a valve to perform its intended function.

passive valves - valves which maintain obturator position and are not required to change obturator position to accomplish and required function(s), as specified under 1.4, above.

preservice test period - the period of time following completion of construction activities related to the valve and prior to first electrical generation by nuclear heat in which component and system testing takes place.

reactor coolant system pressure isolation - that function which prevents inter-system over-pressurization between the reactor coolant system and connected low-pressure systems.

reference values - one or more values of test parameters measured or determined when the equipment is known to be operating acceptably.

SRO Operations Supervisor - Any Operations individual holding an SRO license (active or inactive) who has qualified to the position of Shift Superintendent or Control Room Supervisor [See Reference 2.4.1, Attachment 1, Definitions].

Test Interval - This program uses the same test interval definitions as those used in the Technical Specifications, namely, one month is defined as 31 days and one quarter is defined as 92 days [Reference 2.1.6].

6.3 Categories of Valves

6.3.1 Valves within the scope of this program shall be placed in one or more of the following categories.

NOTE: When more than one distinguishing category characteristic is applicable, all requirements of each of the individual categories are applicable, although duplication or repetition of common testing requirements is not necessary. [Reference 2.1.3, Para. 1.4]

Category A - valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their required function(s), as specified in 1.4, above.

Category B - valves for which seat leakage in the closed position is inconsequential for fulfillment of the required function(s), as specified in 1.4, above.

Category C - valves which are self actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves) for fulfillment of the required function(s), as specified in 1.4, above.

NOTES: 1. Category D is defined in the Code, however there are no Category D valves at San Onofre and therefore this program procedure omits all discussion thereof.

2. The listing of valves in this program and the Section XI category applicable to each valve is provided in Attachment 2.

Category AC - All check valves are Category "C"; however, some require that their seat leakage be limited to a specific amount. In these cases they are categorized as Category "AC".

NOTE: The categorization of a check valve is not dependent solely on the function performed by the valve, such as whether it is a containment isolation valve. If any of the considerations from Reference 2.1.1 indicate that Category "C" testing may not be adequate, the check valve may be assigned Category "AC" and receive a seat leak test as required by this program [See Reference 2.5.2, Question 107].

6.4 Responsibilities

6.4.1 This program procedure lists testing required to be performed under various implementing procedures. When this program procedure is changed, implementing procedures should be updated to reflect these changes prior to the next due date for the affected testing in the plant, or within one month, whichever is later.

.1 The Technical Division shall be responsible for the update and issuance of changes to this program procedure.

.2 The Operations, Technical and Maintenance Divisions shall be responsible for update and issuance of implementing procedures applicable to the testing for which they are responsible, including such documents as Operating Instructions and Repetitive Maintenance Orders [Reference 2.2.1].

6.4.2 Following the issuance of each significant change to the inservice testing program, the IST Coordinator shall alert Nuclear Licensing with a request that they transmit the change to the NRC. (See Reference 2.5.2, page 3 ,

NOTE: The Inservice Testing Program is updated at 120 month intervals. The current interval ends August 17, 2003.

6.4.3 When the edition and addendum of the Code are adopted by SONGS such as at the beginning of a new ten year interval, the following individuals and agencies shall be notified and provided a copy of the new program: NRC, State of California (See Reference 2.1.7) and the ANII. In addition, the following documents may need updating and shall be reviewed and updated as necessary: UFSAR (Reference 2.1.8), Valves Relief Requests, TQAM (Reference 2.1.7), and the Technical Specifications (Reference 2.1.5).

6.4.4 Other Owner's Responsibilities:

.1 The Technical Division or NEDO shall specify acceptance criteria and required test conditions. [Reference 2.1.3, Para. 2.]

.1.1 For each valve to be tested under the IST Program, Attachment 2 identifies the Code Class, Section XI Category and testing requirements. Attachment 2 reflects the detailed implementation of the IST Program (see IST Topical Report DBD, Reference 2.5.1) as discussed in paragraph 1.0, above.

.1.2 Acceptance Criteria and test conditions are specified in the implementing procedures and the ISTM computer application.

.2 The Technical and Nuclear Engineering Design Divisions shall assure that the design and arrangement of system components includes allowances for adequate access and clearances for conduct of the examination and tests [Reference 2.1.4, Para. IWA-1400(b)].

.2.1 Procedures used by the design organizations reflect the detailed implementation of requirements imposed by the IST Program. See References 2.3.4 and 2.3.5.

.3 Reference 2.2.1 identifies the responsibility of each station organization for performance of inservice testing under this program. For their scope of work, each division shall be responsible for planning and scheduling their own tests, including quarterly testing, cold shutdown testing and reactor refueling testing. [Reference 2.1.4, Para. IWA-1400(b)].

6.4.4.4 Implementing procedures identifying the methods of testing and the components to be tested shall be prepared, issued and controlled by the responsible Divisions for their testing [Reference 2.1.4, Para. IWA-1400(d)].

.5 Qualification of personnel who perform the Inservice Testing shall be verified by the responsible Divisions for their testing [Reference 2.1.4, Para. IWA-1400(e) and Reference 2.3.3].

.6 Each Division shall perform the required Inservice Testing for which their Division is responsible [Reference 2.1.4, Para. IWA-1400(g) and Reference 2.2.1].

.7 Each Division shall record their Inservice Testing results such that the results provide a basis for evaluation and facilitate comparison with the results of subsequent Inservice Testing [Reference 2.1.4, Para. IWA-1400(e)].

.8 Each Division shall provide evaluation of the Inservice Testing results for which they are responsible [Reference 2.1.4, Para. IWA-1400(i)].

NOTE: The Technical Division Cognizant Engineers, Supervisors and the IST Coordinator may be called upon to assist in the evaluation of valve operability when test results indicate a potential problem. See step 6.6.4 below.

.9 Maintenance of adequate Inservice Testing records, such as test data and description of procedures used and evidence of personnel qualifications, shall be the responsibility of each Division for the testing under its responsibility [Reference 2.1.4, Para. IWA-1400(k)].

.10 Each Division responsible for the creation of the records required by this program procedure shall be responsible for formally transmitting these records to CDM on a timely basis for CDM retention.

.11 Corporate Document Management Center (CDM) shall retain Inservice Testing records for the service lifetime of the components [Reference 2.1.4, Para. IWA-1400(l)].

6.5 Testing Requirements

6.5.1 Preservice Testing

NOTES: 1. This program procedure applies to the second 120 month interval for San Onofre Units 2 and 3. The initial preservice test period is past for the valves in this program. Accordingly, many of the valves will not have a reference value for stroke time from a preservice examination stroke test. In these cases, a reference stroke time is identified from past test data when the valves were known to be operating properly. This reference value will be noted in the records.

2. Preservice Examination for our plant is conducted on newly installed components as a result of plant design modifications.

.1 Each valve shall be tested during the preservice test period as required by Reference 2.1.3. These tests shall be conducted under conditions as near as practical to those expected during subsequent inservice testing. Only one preservice test of each valve is required except in the following cases [Reference 2.1.3, Para. 3.1]:

.1.1 Any valve that has undergone maintenance that could affect its performance after the preservice test shall be tested in accordance with 6.5.4, below;

.1.2 Safety and relief valves shall meet the preservice test requirements of IST Topical Report DBD, Reference 2.5.1.

6.5.2 Inservice Testing

.1 Inservice testing in accordance with this program procedure shall commence when the valves are required to be operable to fulfill their required function(s), as specified in 1.4, above. [Reference 2.1.3., Para. 3.2]

6.5.3 Reference Values

.1 Reference values shall be determined from the results of preservice testing or from the results of inservice testing. These tests shall be performed under conditions as near as practicable to those expected during subsequent inservice testing.

6.5.3.2 When reference values are changed, the reason shall be documented, a statement of the adequacy of the new value shall be provided, as well as appropriate level of review and approval of the new value before it is used for valve stroke time evaluation.

.3 When Reference values are initially established or changed, they shall be documented in a controlled manner.

NOTE: The new reference value may be used as soon as the record discussed in paragraphs 6.5.3.2 and 6.5.3.3 (which includes an explanation of the reasons for the new value) is approved.

.4 Reference values shall only be established when the valve is known to be operating acceptably. If the particular parameter being measured can be significantly influenced by other related conditions, then these conditions shall be analyzed.

6.5.4 Effect of Valve or Actuator Replacement, Repair, and Maintenance on Reference Values

NOTE: Adjustments, removal or replacement of stem packing, limit switches, control system valves, bonnet, stem assembly, actuator, obturator, or other control system components are examples of maintenance that could affect valve performance parameters such as stroke time.

.1 When a valve or its control system has been replaced, repaired, or has undergone maintenance that could affect the valve's performance, then a new reference value shall be determined or the previous value reconfirmed by an inservice test run prior to the time it is returned to service or immediately if not removed from service, to demonstrate that performance parameters which could be affected by the replacement, repair, or maintenance are within acceptable limits.

.2 Deviations between the previous and new reference values shall be identified and analyzed.

.3 Verification that the new values represent acceptable operation shall be documented in the record of tests.

.4 Safety and Relief valves shall be tested as required by the replacement, repair, and maintenance requirements of IST Topical Report DBD, Reference 2.5.1.
[Reference 2.1.3, Para. 3.4]

6.5.5 Establishing an Additional Set of Reference Values

.1 If it is necessary or desirable for some reason, other than stated in paragraph 6.5.4, to establish additional references values, an inservice test shall first be run at the conditions of an existing set of reference values, or, if impractical, at the conditions for which the new reference values are required, and the results analyzed.

.2 If operation is acceptable in accordance with 6.6.2.6 and 6.6.3, a second test shall be performed under the new conditions as soon as practical. The results of the second test shall establish the additional reference values.

.3 Whenever additional reference values are established, the reasons for doing so shall be justified and documented in the record of tests. [Reference 2.1.3., Para. 3.5]

6.5.6 Inservice Test Requirements

.1 Active and passive valves in the categories defined under Section 6.3, shall be tested in accordance with the sections specified in the following Table [Reference 2.1.3, Para. 3.6]:

TABLE 1

INSERVICE TEST REQUIREMENTS

NOTE: When more than one distinguishing category characteristic is applicable, all requirements of each of the individual categories are applicable, although duplication or repetition of common testing requirements is not necessary.

Category	Valve Function	Leakage Test Procedure	Exercise Test Procedure	Position Indication Verification
A	Active	See 6.6.5, below.	See 6.6.5, below.	See 6.6.1, below.
A	Passive		None	
B	Active	None	See 6.6.2, below.	
B	Passive		None	
C (Safety and Relief)	Active	See 6.6.6.1, below.	See 6.6.6.1, below.	
C (Check valves)	Active		See 6.6.6, below.	

6.5.7 Establishing or Revising Valve Stroke Time Limits:

NOTE: The "Acceptance Limit Change Record", Attachment 5, is used for both modifications and new additions to acceptance criteria on the valve list.

.1 New stroke time limits are established and documented using Attachment 5, "Acceptance Limit Change Record". They are recorded and controlled in the ISTM in accordance with the requirements of that system. An independent verification by a second engineer is required to assure correctness of the change and the basis used.

.2 Periodically, limits are reassessed and modified as necessary following review by engineering of the historical trends for stroke time. This is accomplished approximately biennially and the objective of the Engineering review is to establish reasonable stroke time limits based on historical performance where this is appropriate. Guidance in Reference 2.1.9 is used as the basis of this review.

.3 Affected valves and their safety analysis or Technical Specification limits for stroke time are listed in Attachment 4 to this procedure. These "protected" limits may not be exceeded. See Reference 2.1.8 and 2.3.7.

6.6 Testing Methods

6.6.1 Valve Position Verification

.1 Valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated.

.2 Where practicable, this local observation should be supplemented by other indications such as use of flow meters or other suitable instrumentation to verify obturator position. These observations need not be concurrent.

.3 Where local observation is not possible, other indications shall be used for verification of valve operation.

6.6.2 Inservice Tests for Category A and B Valves

.1 **Exercising Test Frequency.** Active Category A and B valves shall be tested nominally every 3 months, except as discussed in Attachments 2 and 3 [Reference 2.1.3, Para. 4.2.1.1].

NOTE: "Every 3 months" is the same as quarterly, or every 92 days, see Reference 2.1.6.

.2 **Exercising Requirements.** Valves shall be tested as follows [Reference 2.1.3, Para. 4.2.1.2, and Reference 2.5.3, Section 3.1.1]:

.2.1 Full Stroke during plant operation to the position(s) required to fulfill its function(s);

.2.2 If full stroke exercising during plant operations is not practicable, it may be limited to part stroke during plant operation and full stroke during cold shutdowns;

.2.3 If exercising is not practicable during plant operation, it may be limited to full stroke exercising during cold shutdowns;

.2.4 If exercising is not practicable during plant operation and full stroke during cold shutdowns is also not practicable, it may be limited to part stroke during cold shutdowns, and full stroke during refueling outages;

.2.5 If exercising is not practicable during plant operation or cold shutdowns, it may be limited to full stroke during refueling outages;

.2.6 Valves full stroked at cold shutdowns shall be exercised during each cold shutdown, except as specified in the following paragraph. Such exercise is not required if the time period since the previous full stroke exercise is less than 3 months.

NOTE: Three months means 1 quarter or 92 days, see Paragraph 6.2, above.

.3 **Cold Shutdown Testing:** Valve exercising during cold shutdowns shall commence within 48 hours of achieving cold shutdown, and continue until all testing is complete or the plant is ready to return to power. For extended outages, testing need not be commenced in 48 hours provided all valves required to be tested during cold shutdown will be tested prior to plant startup. However, it is not the intent of this requirement to keep the plant in cold shutdown in order to complete cold shutdown testing.

6.6.2.4 **Refueling Interval Testing:** All valve testing required to be performed during a refueling outage shall be completed prior to returning the plant to operation.

NOTE: Before beginning power ascension, Responsible Divisions normally complete the tests of those valves tested at each refueling outage. However, to test any valves that can only be tested during power ascension, we raise power level and change modes in accordance with our Technical Specification requirements and test the applicable valves when the plant conditions allow testing. If maintenance has been performed on a valve during the outage, we are required to consider the valve inoperable until completing post-maintenance testing in accordance with the operability requirements our Technical Specifications. See Reference 2.5.3, Para. 3.1.1.2.

.5 **Valve Obturator Movement:** The necessary valve obturator movement shall be determined by exercising the valve while observing an appropriate indicator, such as indicating lights which signal the required change of obturator position, or by observing other evidence, such as changes in system pressure, flow rate, level, temperature, or nonintrusive examination techniques which reflect change of obturator position. [Reference 2.1.3, Para. 4.2.1.3]

.6 **Power-Operated Valve Stroke Testing**

.6.1 Where applicable, requirements records of the ISTM computer application identify the limiting value(s) of full-stroke time of each power-operated valve. Criteria are established in accordance with paragraph 6.5.7, above.

.6.2 The stroke time of all power-operated valves shall be measured to at least the nearest second.

.6.3 The valve stroke time is measured with a stopwatch or appropriate timing device. The timing device is started when the valve is actuated and stopped when the back light for the desired valve position is the only one illuminated.

.6.4 The testing organization (typically the Operations Division) shall record any abnormality or erratic action and evaluate the valve stroke regarding the need for corrective action. The Technical Division may be called upon to assist in this evaluation. [Reference 2.1.3, Para. 4.2.1.4]

6.6.2.7 **Valves in Regular Use:** Valves which operate in the course of plant operation at a frequency which would satisfy the exercising requirements of this Program Procedure need not be additionally exercised, provided that the observations otherwise required for testing are made and analyzed during such operation and are recorded in the plant records at intervals no greater than specified under 6.6.2.1, above. [Reference 2.1.3, Para. 4.2.1.5]

.8 **Fail-Safe Valves.** Valves with fail-safe actuators shall be tested by observing the operation of the actuator upon loss of valve actuating power in accordance with the exercising frequency specified under 6.6.2.1, above. [Reference 2.1.3, Para. 4.2.1.6]

.8.1 Fail-safe testing is required only for those valves which are required to be (a) stroke tested, and, (b) for which the fail-safe feature is a required safe function of the valve.

.9 **Valves in Systems Out of Service.** For a valve in a system declared inoperable or not required to be operable, the exercising test schedule need not be followed. Within 3 months prior to placing the system in an operable status, the valves shall be exercised and the schedule followed thereafter in accordance with this program procedure. [Reference 2.1.3, Para. 4.2.1.7]

6.6.3 **Stroke Time Acceptance Criteria.** Stroke test results shall be compared to the initial reference values or reference values established in accordance with 6.6.2.2 or 6.5.7, above. [Reference 2.1.3, Para. 4.2.1.8]

.1 Electric-motor-operated valves with reference stroke times greater than 10 seconds shall exhibit no more than ± 15 % change in stroke time when compared to the reference value.

.2 Other power-operated valves with reference stroke times greater than 10 seconds shall exhibit no more than ± 25 % change in stroke time when compared to the reference value.

.3 Electric-motor-operated valves with reference stroke times less than or equal to 10 seconds shall exhibit no more than ± 25 % or ± 1 second change in stroke time, whichever is greater, when compared to the reference value.

.4 Other power-operated valves with reference stroke times less than or equal to 10 seconds shall exhibit no more than ± 50 % change in stroke time when compared to the reference value.

6.6.3.5 Valves that stroke in less than 2 seconds are exempted from 6.6.3.3 and 6.6.3.4 above. In such cases the maximum limiting stroke time shall be 2 seconds. This is summarized in the following table:

TABLE 2

SUMMARY OF REFERENCE RANGE LIMITS FOR VALVE STRIKE TIME TESTING

Valve Actuator Type	Reference Stroke Time [T] Range	Limits of Reference Range
Electric-Motor Operated	T > 10 sec	± 15 % of T
Other Power Operated	T > 10 sec	± 25 % of T
Electric-Motor Operated	2 ≤ T ≤ 10 sec	± 25 % of T
Other Power Operated	2 ≤ T ≤10 sec	± 50 % of T
Any Operator Type	T < 2 sec	2 sec

6.6.4 Corrective Action

NOTE: The requirements to initiate a Nonconformance Report (NCR) apply to the IST Program. See Reference 2.3.2 for NCR initiation criteria.

.1 **Stroke Time Exceeding the Limiting Value:** If a valve fails to exhibit the required change of obturator position or exceeds the limiting values of full-stroke time, see 6.6.2.6, above, the valve shall be immediately declared inoperable and a Nonconformance Report shall be initiated by the Division discovering the inoperability. [Reference 2.1.3, Para. 4.2.1.9(a)]

.1.1 The NCR shall be validated, the operability assessment completed and Operations notified as required by Reference 2.3.2.

.2 **Stroke Time Outside the Reference Range:** Valves with measured stroke times which do not meet the acceptance criteria discussed under 6.6.3, above, but are less than the maximum stroke time limit, shall be immediately retested or declared inoperable. An NCR shall be initiated by the Division discovering the inoperability.

6.6.4.2.1 If the valve is retested and the second set of data also does not meet the acceptance criteria, the data shall be analyzed within 96 hours to verify that the new stroke time represents acceptable valve operation, or the valve shall be declared inoperable. Although 96 hours is allowed, our policy is to complete the analysis as soon as is practical. See discussion in Section 6.7

.2.2 If the second set of data meets the acceptance criteria, the cause of the initial deviation shall be analyzed and the results documented in the record of tests by referencing the NCR containing the evaluation and data. [Reference 2.1.3, Para. 4.2.1.9(b)]

.3 Valves declared inoperable may be repaired, replaced, or the data may be analyzed to determine the cause of the deviation and to show the valve to be operating acceptably. [Reference 2.1.3, Para. 4.2.1.9(c)]

.3.1 If valve operability is based upon analysis, the results of the analysis shall be in the record of tests by referencing the NCR number containing the evaluation and data. [Reference 2.1.3, Para. 4.2.1.9(d)]

.3.2 When corrective action is required as a result of tests made during cold shutdown, the condition shall be corrected before startup.

.4 **Post-Maintenance Testing:** Prior to returning a repaired or replacement valve to service, a test demonstrating satisfactory operation shall be performed. [Reference 2.1.3, Para. 4.2.1.9(e)]

6.6.5 Valve Seat Leakage Rate Test

.1 **Scope.** Category A valves shall be leakage tested, except valves which function in the course of plant operation in a manner that demonstrates functionally adequate seat leak-tightness need not be additionally leakage tested. In such cases, the valve record shall provide the basis for the conclusion that operational observations constitute satisfactory demonstration. [Reference 2.1.3, Para. 4.2.2.1].

.2 **Containment Isolation Valves.** Category A valves, which are containment isolation valves, shall be tested in accordance with Federal Regulation 10CFR50, Appendix J (Reference 2.1.12). Containment isolation valves which also provide a reactor coolant system pressure isolation function shall additionally be tested in accordance with 6.6.5.3, below. [Reference 2.1.3, Para. 4.2.2.2].

6.6.5.2.1 Leakage rate measurements will be compared with previous measurements and with the permissible leakage rates specified using Reference 2.3.6. The acceptance criterion (permissible Leak Rate) for each valve can be determined by taking the "0.6La" and subtracting the leak rates of all penetrations in the Appendix J Program except the valve under test. These are available from the records created in accordance with Reference 2.1.12. The result is the seat leakage acceptance criterion of the valve under test in standard cubic centimeters per minute or other appropriate units.

NOTE: Seat leakage limits that appear in the requirements records of the ISTM computer application for Appendix J tests, test type "AJ", are maintenance threshold limits only and do not necessarily reflect the test pass/fail limits determined using the calculation in the above paragraph.

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.2.2 The test medium used for Appendix J, Containment Penetration leak rate tests, will be specified in Reference 2.3.6.

.2.3 [Reference 2.1.10, Paragraph (b)(2)(vii), *Inservice Testing of Containment Isolation Valves*] "When using subsection IWV in the 1988 Addenda or the 1989 Edition of section XI, Division 1, of the ASME Boiler and Pressure Vessel Code, leakage rates for Category A containment isolation valves that do not provide a reactor coolant system pressure isolation function must be analyzed in accordance with paragraph 4.2.2.3(e) of part 10" [see paragraph 6.6.5.3.5, below], "and corrective actions for these valves must be made in accordance with paragraph 4.2.2.3(f) of part 10 of ASME/ANSI OMA-1988 Addenda to ASME/ANSI OM-1987". [See paragraph 6.6.5.4, below.]

.3 **Leakage Rate for Other Than Containment Isolation Valves.** Category A valves, which perform a function other than containment isolation, shall be seat leakage tested to verify their leak-tight integrity. Valve closure prior to seat leakage testing shall be by using the valve operator with no additional closing force applied. [Reference 2.1.3, Para. 4.2.2.3]

.3.1 *Frequency.* Valve Seat Leakage tests shall be conducted at least once every 2 years [Reference 2.1.3, Para. 4.2.2.3(a)].

.3.2 *Differential Test Pressure.* Valve seat leakage tests shall be made with the pressure differential in the same direction as when the valve is performing its function, with the following exceptions [Reference 2.1.3, Para. 4.2.2.3(b)]:

6.6.5.3.2.1 Globe-type valves may be tested with pressure under the seat.

.3.2.2 Butterfly valves may be tested in either direction, provided their seat construction is designed for sealing against pressure on either side.

.3.2.3 Double-disk gate valves may be tested by pressurizing between the disks.

.3.2.4 Leakage tests involving pressure differentials lower than function pressure differentials are permitted in those types of valves in which service pressure will tend to diminish the overall leakage channel opening, as by pressing the disk into or onto the seat with greater force. When leakage tests are made in such cases using pressures lower than function maximum pressure differential, the observed leakage shall be adjusted to the function maximum pressure differential value. This adjustment shall be made by calculation appropriate to the test media and the ratio between test and function pressure differential, assuming leakage to be directly proportional to the pressure differential to the one-half power. Gate valves, check valves, and globe-type valves, having function pressure differential applied over the seat, are examples of valve applications satisfying this requirement.

.3.2.5 Valves not qualifying for reduced pressure testing as defined above shall be tested at full maximum functional pressure differential.

.3.3 *Seat Leakage Measurement.* Valve seat leakage shall be determined by one of the following methods [Reference 2.1.3, Para. 4.2.2.3(c)]:

.3.3.1 measuring leakage through a downstream telltale connection while maintaining test pressure on one side of the valve; or

.3.3.2 measuring the feed rate required to maintain test pressure in the test volume or between two seats of a gate valve, provided the total apparent leakage rate is charged to the valve or valve combination or gate valve seat being tested, and that the conditions required by 6.6.5.3.2, above, are satisfied; or

.3.3.3 determining leakage by measuring pressure decay in the test volume, provided the total apparent leakage rate is charged to the valve or valve combination or gate valve seat being tested, and that the conditions required by 6.6.5.3.2, above, are satisfied.

6.6.5.3.4 *Test Medium.* The test medium shall be specified by the Test Implementing Procedure, in those cases where it is not obvious, such as in system piping where either gas and water may be present during normal system operation [Reference 2.1.3, Para. 4.2.2.3(d)].

.3.5 *Analysis of Leakage Rates.* Leakage rate measurements shall be compared with the permissible leakage rates specified by the implementing procedure for a specific valve or valve combination. If leakage rates are not otherwise determined, for implementing procedures, the following rates shall be used [Reference 2.1.3, Para. 4.2.2.3(e)]:

a) for water 0.5D gpm or 5 gpm, whichever is less at function pressure differential;

b) for air, at function pressure differential, 7.5D standard cu ft/day

WHERE: D = nominal valve size, in.

.4 *Corrective Action.* Valves or valve combinations with leakage rates exceeding the values specified by the above criteria (or the implementing procedure for the leakage test) shall be declared inoperable and either repaired or replaced.

.5 A retest demonstrating acceptable operation shall be performed following any required corrective action before the valve is returned to service [Reference 2.1.3, Para. 4.2.2.3(f)].

.6 *Establish or Revising Valve Leakage Rate Limits.* New leak rate limits are established and documented using Attachment 5, "Acceptance Limit Change Record". They are recorded and controlled in the ISTM in accordance with the requirements of that system. An independent verification by a second engineer is required to assure correctness of the change and the basis used.

6.6.6 Inservice Tests for Category C Valves

.1 **Safety Valve and Relief Valve Tests.** Safety and Relief Valves listed in Attachment 2 to this program procedure shall be tested in accordance with the inservice testing requirements of the IST DBD Topical Report, Reference 2.5.1.

.2 **Exercising Test Frequency.** Check Valves listed in Attachment 2 shall be exercised nominally every 3 months, except as discussed in Attachments 2 and 3 [Reference 2.1.3, Para. 4.3.2.1]. "Three months" means one quarter or 92 days, see paragraph 6.2, earlier in this program procedure.

6.6.6.3 **Exercising Requirements.** During plant operation, each check valve shall be exercised or examined in a manner which verifies obturator travel to the closed, full-open or partially open position required to fulfill its function [Reference 2.1.3, Para. 4.3.2.2(a)].

.3.1 If full-stroke exercising during plant operation is not practicable, exercising may be limited to part-stroke during plant operation and full-stroke during cold shutdowns [Reference 2.1.3, Para. 4.3.2.2(b)].

.3.2 If exercising is not practicable during plant operation, it may be limited to full-stroke exercising during cold shutdowns [Reference 2.1.3, Para. 4.3.2.2(c)].

.3.3 If exercising is not practicable during plant operation and full-stroke during cold shutdowns is also not practicable, exercising may be limited to part-stroke during cold shutdowns, and full-stroke during refueling outages [Reference 2.1.3, Para. 4.3.2.2(d)].

.3.4 If exercising is not practicable during plant operation or cold shutdowns, it may be limited to full-stroke during refueling outages [Reference 2.1.3, Para. 4.3.2.2(e)].

.3.5 Valves full-stroke exercised at cold shutdowns shall be exercised during each cold shutdown, except as specified below. Such exercise is not required if the time period since the previous full-stroke exercise is less than 3 months [Reference 2.1.3, Para. 4.3.2.2(f)].

.3.6 The rules of paragraph 6.6.2.3 shall apply to check valve testing at cold shutdown intervals [Reference 2.1.3, Para. 4.3.2.2(g)].

.3.7 All valve testing required to be performed during a refueling outage shall be completed prior to returning the plant to operation [Reference 2.1.3, Para. 4.3.2.2(h)].

.4 **Valves in Regular Use.** The rules of Paragraph 6.6.2.7 shall apply to check valve testing for check valve in regular use. [Reference 2.1.3, Para. 4.3.2.3].

.5 **Valve Obturator Movement**

.5.1 The necessary valve obturator movement shall be demonstrated by exercising the valve and observing that either the obturator travels to the seat on cessation or reversal of flow, or opens to the position required to fulfill its function [Reference 2.1.3, Para. 4.3.2.4(a)].

6.6.6.5.1.1 Observation may be by a direct indicator such as a position indicating device, or by other indicator(s) such as changes in system pressure, flow rate, level, temperature, seat leakage testing, nonintrusive examination techniques, or other positive means.

NOTE: Currently there are no check valves in this program that use a mechanical exerciser.

.5.2 **Disassembly Testing:** As an alternative to the testing in the above paragraph, disassembly every refueling outage to verify operability of check valves may be used [Reference 2.1.3, Para. 4.3.2.4(c)]. A sampling program is also available, see paragraph 6.6.6.6, below.

.5.2.1 For valves identified in Attachments 2 and 3 that are to be tested by disassembly, the internals shall be visually inspected for worn or corroded parts, and the valve disks shall be manually exercised. It shall be verified that the valve is capable of full-stroking and that the internals of the valve are structurally sound. This testing shall be conducted at each refueling outage (or at refueling outages on a rotating basis, see paragraph 6.6.6.6, below).

.5.2.2 One valve of each disassembly group (a group is identified as all the valves of the same manufacturer, size, model and service) will be tested each successive refueling outage, until the entire group has been tested.

NOTE: Refer to Attachment 1 for the population of each of the identified valve groups in the IST Program.

.5.2.3 If the disassembled valve is not capable of being full-stroke exercised or there is binding or failure of the valve internals, the remaining valves in the disassembly group shall also be disassembled, inspected, and manually full-stroke exercised during the same outage. If possible, a partial flow test shall be performed on the disassembled valve following reassembly, but before it is returned to service.

.6 **SAMPLING DISASSEMBLY PROGRAM FOR CHECK VALVES:** When the IST Coordinator determines it is burdensome to disassemble and inspect all applicable valves each refueling outage, a sample disassembly and inspection plan for groups of identical valves in similar applications may be employed in accordance with References 2.1.3 and 2.1.9, Position 2, "Alternative to Full Flow Testing of Check valves".

6.6.6.6.1 The sample disassembly and inspection program involves grouping similar valves and testing one valve in each group durir , each refueling outage.

.6.2 The sampling technique requires that each valve in the group be the same design (manufacturer, size, model number, and materials of construction) and have the same service conditions including valve orientation. Additionally, at each disassembly it shall be verified that the disassembled valve is capable of full-stroking and that the internals of the valve are structurally sound (no loose or corroded parts). Also if the disassembly is to verify the full-stroke capability of the valve, the disk should be manually exercised.

.6.3 A different valve of each group is required to be disassembled, inspected, and manually full-stroke exercised at each successive refueling outage, until the entire group has been tested.

.6.4 If the disassembled valve is not capable of being full-stroke exercised or there is binding or failure of valve internals, the remaining valves in that group must also be disassembled, inspected and manually full-stroke exercised during the same outage. Once this is completed, the sequence of disassembly must be repeated unless extension of the interval can be justified.

.6.5 Extension of the valve disassembly/inspection interval to one valve every other refueling outage or expansion of the group size above four valves should only be considered in cases of extreme hardship where the extension is supported by actual in-plant data from previous testing. Considerations and methodology for justifying this testing is addressed in Generic Letter 89-04 Position 2 (Reference 2.1.9).

.6.6 **Disassembly Group Size Reassessment:** When disassembly/ inspection data for a valve group show a greater than 25% failure rate, a determination will be made and documented (for example, in a memo) by the Cog. Supervisor, assisted by the Cog. Engineer and IST Coordinator, whether the group size should be decreased or whether more valves from the group should be disassembled during every refueling outage (Reference 2.1.9, Position 2).

.7 **Valves in Systems Out of Service.** Paragraph 6.6.2.9, above applies to check valves in system out of service. [Reference 2.1.3, Para. 4.3.2.5].

.8 **Open Stroke Testing of Check Valves Using Flow.** Full Stroke testing (open) of check valves is normally done using flow.

6.6.6.8.1 The flow test shall be designed such that degradation of check valve performance can be detected. This means that rather than specifying only the minimum flow for the test (example: "greater than 2000 gpm"), a range of acceptable flow shall be used (examples: "2000 + 150 gpm", or, "1850 to 2150 gpm").

.9 **Non-Intrusive (NI) Testing**

.9.1 NI Testing is considered as an acceptable (and preferred) alternative to disassembly for determining the capability to open, close, and fully stroke. (Reference 2.5.3, Section 4.1.2).

.9.2 When using non-intrusive testing techniques in a sampling plan, similar valves may be grouped for testing purposes, not to exceed four valves in a single group, as described in NUREG 1482 (draft) (Reference 2.5.3) Section 4.1.2 and Generic Letter 89-04 (Reference 2.1.9) Position 2.

.9.3 Additional guidance on NI testing techniques is provided in SO123-V-5.22 (Reference 2.3.8).

.10 **Corrective Action:** If a check valve fails to exhibit the required change of obturator position, it shall be declared inoperable. A retest showing acceptable performance shall be run following any required corrective action before the valve is returned to service [Reference 2.1.3, Para. 4.3.2.6].

.11 When corrective action is required as a result of testing during cold shutdown, the condition shall be corrected before startup.

NOTE: The requirements to initiate an NCR apply to the IST Program. See Reference 2.3.2 for NCR initiation criteria.

6.6.7 Inservice Tests for Category D Valves

.1 Not applicable. There are no safety-related or important-to-safety Category D valves at SONGS.

6.7 Acceptance Criteria and Corrective Action

6.7.1 Acceptance criteria and corrective actions for Category A, B and C valve testing are contained in the implementing procedures, and as described in this program procedure, in the above sections 6.6.3, 6.6.4, 6.6.5.3.5, 6.6.5.4, 6.6.6.10 and 6.6.6.11. [Reference 2.1.3, Para. 5].

6.7.2 During a test, anomalous data with no clear indication of the cause must be attributed to the valve under test. When data is recognized as anomalous, a prompt determination of operability is appropriate with follow-on corrective action as necessary. *Recalibrating test instruments and then repeating valve tests is an acceptable alternative to the corrective action of repair or replacement, but is not an action that can be taken before declaring the valve inoperable.* However, if during a test it is obvious a test instrument is malfunctioning, the test may be halted and the instruments promptly recalibrated or replaced. [See NRC Generic Letter 91-18, "Information to Licensees Regarding ... Operability."]

6.7.3 It is appropriate to validate the data prior to declaring a valve inoperable. **Validation** (verifying the test was conducted using the required system lineup, instruments were not obviously out-of-calibration, a second check of calculations, etc.) **must be completed as soon as practical following completion of data gathering phase of the test when it is probable that the test results do not meet the limiting values for operability.** The validation period is provided to obtain management concurrence that the Inservice Test results are valid and entry into an applicable action statement is required. A retest using recalibrated instrumentation is not allowed as a validation step.

6.7.4 If supervision and the assigned tester conclude that the test is invalid, the test may be invalidated and the test records not used. **IN THIS CASE, A VALID TEST SHOULD BE COMPLETED ON THE VALVE IN QUESTION AS SOON AS POSSIBLE TO CONFIRM VALVE OPERABILITY.** Performing an invalid test in no way absolves those responsible from compliance with the surveillance requirements and schedules of the Technical Specifications (e.g., IST requirements) as they apply to the components under test.

NOTE: NRC POSITION: The NRC guidance on Technical Specification Clock Policy states that when a test result fails to meet the acceptance criterion, regardless of whether the limit is equal to or more conservative than the Technical Specification limit, the valve must be immediately declared inoperable and the Technical Specification Action Statement for the associated system must be entered. In cases where the required action range limit is more conservative than its corresponding Technical Specification limit, the corrective action may not be limited to replacement or repair, but rather it may consist of an analysis to demonstrate that the specific performance degradation does not impair operability and that the valve will still fulfill its function, such as delivering the required flow. A new REFERENCE RANGE and OPERABILITY LIMIT [as necessary] may be established after such analysis which would then allow a new determination of operability.

"The durations specified by the Code for analyzing test results have not been accepted by the NRC for postponing entering a Technical Specification Action Statement. As soon as the data are recognized exceeding the OPERABILITY LIMIT of full-stroke time for valves, the associated component must be declared inoperable and, if subject to the Technical Specification, the Allowed Outage Time (AOT) specified in the action statement must be started at the time the component was declared inoperable." (See Reference 2.1.13.)

6.7.5 If supervision determines that the test was valid and the data are outside of the REFERENCE RANGE or exceed the OPERABILITY LIMIT, then supervision shall immediately assure an NCR is initiated and validated (including an operability assessment) and notify the SRO Operations Supervisor.

6.8 Instrumentation

6.8.1 Instrumentation used during valve inservice testing shall be selected with range and accuracy suitable to the measurements to be made and shall be in the calibration program here at SONGS, with an appropriate recall date for recalibration.

6.8.2 Instrumentation shall not be used for Inservice testing if the recall date has expired.

6.8.3 Instrumentation requirements for safety and relief valve testing are provided in the IST Topical (Reference 2.5.1).

7.0 RECORDS AND REPORTS

7.1 Valve Records

7.1.1 It is the responsibility of the record originator to provide the record to CDM for retention. For vendor supplied records and similar non-SCE generated records, the Division in receipt of the record is responsible for providing the record to CDM for retention.

7.1.2 The Corporate Document Management Division (CDM) shall maintain a record which shall include the following for each valve tested under this program procedure [Reference 2.1.3, Para. 6.1]:

.1 The manufacturer and manufacturer's model and serial or other unique identification number.

.2 A copy or summary of the manufacturer's acceptance test report if available.

.3 Preservice test results.

NOTE: Limiting value of full stroke time is identified in the ISTM computer application. See Section 6.5.7 for more information.

7.2 Test Plans (Program and Implementation Procedures)

7.2.1 CDM shall maintain a record of test plans (Program and Implementation Procedures).

NOTE: Implementing Procedures for the Inservice Testing Program should be consistent with the requirements of References 2.4.1 and 2.4.2.

7.2.2 The test plans shall include this program procedure and implementing procedures from each Division for the valve(s) under its responsibility.

7.2.3 Attachment 2 identifies all valves subject to test, the Section XI category of each valve, the tests to be performed. Attachment 3 provides justifications for testing at other than quarterly intervals. [Reference 2.1.3, Para. 6.2]

7.2.4 Documentation of changes in acceptance criteria shall be made using Attachment 5, "Acceptance Limit Change Record." When this record is completed and implemented, it shall be transmitted to CDM for permanent retention.

7.0 RECORDS AND REPORTS (Continued)

7.3 Records of Tests

7.3.1 CDM shall maintain a record of each test.

7.3.2 Each Division shall (for the valves under its responsibility) include the following in its records of tests sent to CDM valve identification (including unit 2, common or 3), date of test, reason for test (e.g., post maintenance, routine inservice test establishing reference values, etc.), values of measured parameters, identification of instruments used, comparisons with allowable ranges of test values and analysis of deviations, requirement for corrective action, signature of the person or persons responsible for conducting and analyzing the test. [Reference 2.1.3, Para. 6.3]

7.4 Record of Corrective Action

NOTES: 1. The Nonconformance Report (NCR) is the normal vehicle for documenting the record of corrective action.

2. The requirements to initiate an Nonconformance Report (NCR) apply to the IST Program. See Reference 2.3.2 for NCR initiation criteria.

7.4.1 CDM shall maintain records of corrective action for cases where it is not on secure electronic media (such as the NCRs, see Reference 2.3.2).

7.4.2 Each Division shall provide a record of corrective action that includes a summary of the corrections made and the subsequent inservice tests and confirmation of operation adequacy and the signature of the individual responsible for corrective action and verification of results [Reference 2.1.3, Para. 6.4].

LISTING - CHECK VALVE AND RELIEF VALVE GROUPS (VALVES GROUPED FOR TESTING)

NOTES: 1. Check valves are grouped on the basis of make/model, size, system, service, orientation and other factors as appropriate to individual systems. Pressure relief/safety valves are grouped similarly. These groupings are used to determine and justify testing and/or disassembly intervals.

2. Each group consists of one group of Unit 2 valves and one group of Unit 3 valves unless otherwise noted.

GROUP 1: SAFETY INJECTION SYSTEM CHECK VALVES

S21204MU001, RW Tank T005 to Spray Pump P012 Suction Header,
S21204MU002, RW Tank T006 to Spray Pump P013 Suction Header,
S31204MU001, RW Tank T005 to Spray Pump P012 Suction Header, and
S31204MU002, RW Tank T006 to Spray Pump P013 Suction Header.

NOTE: This is a single group consisting of valves from both Unit 2 and Unit 3. The grouping is based on criteria provided in Reference 2.1.9 and Reference 2.5.3, Section 4.1. That is, the four valves in this group are essentially identical with respect to age, size, model, service, etc.

GROUP 2: SAFETY INJECTION SYSTEM CHECK VALVES

S21204MU003, Outlet Check Valve - Containment Emergency Sump
S21204MU004, Outlet Check Valve - Containment Emergency Sump
S31204MU003, Outlet Check Valve - Containment Emergency Sump
S31204MU004, Outlet Check Valve - Containment Emergency Sump

NOTE: This is a single group consisting of valves from both Unit 2 and Unit 3. The grouping is based on criteria provided in Reference 2.1.9 and Reference 2.5.3, Section 4.1. That is, the four valves in this group are essentially identical with respect to age, size, model, service, etc.

GROUP 3: SAFETY INJECTION SYSTEM CHECK VALVES

S2(3)1204MU040, Safety Injection Tank T008 Outlet Check Valve,
S2(3)1204MU041, Safety Injection Tank T007 Outlet Check Valve,
S2(3)1204MU042, Safety Injection Tank T009 Outlet Check Valve, and
S2(3)1204MU043, Safety Injection Tank T010 Outlet Check Valve.

GROUP 4: SAFETY INJECTION SYSTEM CHECK VALVES

S2(3)1204MU077, LPSI Pump P016 Suction Header Check Valve,
S2(3)1204MU084, LPSI Pump P015 Suction Check Valve,
S2(3)1204MU199, LPSI Pump P016 Suction Header Check Valve, and
S2(3)1204MU201, LPSI Pump P015 Suction Header Check Valve.

LISTING - CHECK VALVE AND RELIEF VALVE GROUPS (VALVES GROUPED FOR TESTING)

GROUP 5: CONTAINMENT SPRAY SYSTEM CHECK VALVES

S2(3)12[illegible]1004, Containment Isolation Stop Check Valve - Spray Header #1, and
S2(3)1[illegible]U006, Containment Isolation Stop Check Valve - Spray Header #2.

GROUP 6: MAIN STEAM SYSTEM CHECK VALVES

S2(3)1301MU003, Steam Supply - S/G E088 to AFP Turbine K007 Check Valve, and,
S2(3)1301MU005, Steam Supply - S/G E089 to AFP Turbine K007 Check Valve.

NOTE: We disassemble and inspect both S2(3)1301MU003 and S2(3)1301MU005 every refueling. This change in interval was made as the result of poor valve performance trends.

GROUP 7: CONDENSATE AND FEEDWATER SYSTEM CHECK VALVES

S2(3)1305MU036, Main Feed Check at Steam Generator E089, and,
S2(3)1305MU129, Main Feed Check at Steam Generator E088.

GROUP 8: REACTOR COOLANT SYSTEM VALVES

2(3)PSV0200, Pressurizer Safety Valve, and,
2(3)PSV0201, Pressurizer Safety Valve

GROUP 9: MAIN STEAM RELIEF VALVES

2(3)PSV8401, 2(3)PSV8402, 2(3)PSV8403, 2(3)PSV8404, 2(3)PSV8405, 2(3)PSV8406,
2(3)PSV8407, 2(3)PSV8408, 2(3)PSV8409, 2(3)PSV8410, 2(3)PSV8411, 2(3)PSV8412,
2(3)PSV8413, 2(3)PSV8414, 2(3)PSV8415, 2(3)PSV8416, 2(3)PSV8417, 2(3)PSV8418

GROUP 10: SAFETY INJECTION SYSTEM RELIEF VALVE

2(3)PSV9349, Shutdown Cooling System Relief Valve From RCS Loop No. 2

NOTE: Although this group consists of a single valve, it is considered a group for purposes of the Code rules for testing of safety/relief valves.

LISTING - CHECK VALVE AND RELIEF VALVE GROUPS (VALVES GROUPED FOR TESTING)

GROUP 11: NITROGEN GAS RELIEF VALVES

2(3)PSV5403, Nitrogen Gas Relief Valve, Train "A" CCW Surge Tank 2(3)T003
2(3)PSV5404, Nitrogen Gas Relief Valve, Train "B" CCW Surge Tank 2(3)T004

NOTES: 1. Although these are non-ASME Section III Valves, they will be tested in accordance with OM-1 requirements for Class 2 and 3 Pressure Relief Devices.

2. The Unit 2 valves and the Unit 3 valves are treated as two separate groups.

GROUP 12: NITROGEN GAS RELIEF VALVES

2(3)PSV6414, Train "A" Backup Nitrogen Header Relief Valve, CCW Surge Tank
2(3)PSV6420, Train "B" Backup Nitrogen Header Relief Valve, CCW Surge Tank

NOTES: 1. Although these are non-ASME Section III Valves, they will be tested in accordance with OM-1 requirements for Class 2 and 3 Pressure Relief Devices.

2. The Unit 2 valves and the Unit 3 valves are treated as two separate groups.

GROUP 13: CONTAINMENT SPRAY SYSTEM VALVES

S31206MU012, Spray Pump 3P012 Discharge Stop Check Valve, and,
S31206MU014, Spray Pump 3P013 Discharge Stop Check Valve.

GROUP 14: CONTAINMENT SPRAY SYSTEM VALVES

S31206MU029, Spray Pump 3P012 Discharge Check Valve to SDCS. and,
S31206MU030, Spray Pump 3P013 Discharge Check Valve to SDCS.

GROUP 15: CHILL WATER SYSTEM RELIEF VALVES

2/3PSV9887A, (ME336) Emergency Chilled Water Loop "A" Makeup Water Relief
2/3PSV9887B, (ME335) Emergency Chilled Water Loop "B" Makeup Water Relief

NOTE: This group consists of two valves total in the common section of the Chill Water System.

GROUP 16: CCW SYSTEM RELIEF VALVES

2(3)PSV6356, CCW SURGE TANK T003 RELIEF
2(3)PSV6359, CCW SURGE TANK T004 RELIEF

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM

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(Continued)

GENERAL NOTES

GENERAL NOTE NO. 1 - Values of the acceptance criteria, such as stroke time limits and seat leakage criteria, are recorded and controlled in the ISTM application. This application is operated under the jurisdiction of the Quality Assurance Program. Additionally, Attachment 4 provides a list of valves with protected stroke time limits.

GENERAL NOTE NO. 2 - Certain valves are grouped for testing in accordance with this program and the Code (Reference 2.1.3). Attachment 1 to this Program Procedure, **Listing - Check Valve and Relief Valve Groups (Valves Grouped for Testing)**, identifies the valves in each group. Uses of these groupings are discussed in the provisions of Section 6 of this Program Procedure.

GENERAL NOTE NO. 3 - Definition of Test Types used in the Valve IST Listing:

Abbreviation	Definition
AJ	Appendix J Seat Leakage Test
AT	Seat Leakage Test
BMO	Manual Stroke Open
BMC	Manual Stroke Closed
BMPO	Partial Manual Stroke Open
BMPC	Partial Manual Stroke Closed
BTO	Stroke Test Open
BTC	Stroke Test Closed
BTPO	Partial Stroke Test Open
BTPC	Partial Stroke Test Closed
CVTO	Check Valve Stroke Test Open
CVTC	Check Valve Stroke Test Closed
CVPO	Partial Check Valve Stroke Test Open
FSTO	Fail Safe Test Open
FSTC	Fail Safe Test Closed
PIT	Position Indication Test
RVT	Relief Valve Test

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

GENERAL NOTES (Continued)

GENERAL NOTE NO. 4 - Definition of Test Intervals used in the Valve IST Listing:

Abbreviation	Definition
OP	Quarterly (At Least every 92 days)
CS	Cold Shutdown
RR	Reactor Refueling

- See Section 6.6.2.3 for a discussion of Cold Shutdown intervals and testing rules applicable to the cold shutdown interval.
- The nominal interval for Reactor Refueling is every two years. Specific tests are governed by the Technical Specifications, Appendix J, or OM-10. Exceptions (and the bases therefore) to the two year interval are identified in this attachment and accompanying notes.

GENERAL NOTE NO. 5 - Many of the valves in the listing of this attachment indicate that the Code Class is "NA". These valves are non-Code valves that have a safety function and therefore require periodic surveillance. They are listed here in the IST Program for convenience, however, a missed or failed surveillance will not constitute a violation of Technical Specification 4.0.5. See Reference 2.5.2, Response to Question #53, and Reference 2.5.3, Section 2.2.

GENERAL NOTE NO. 6 - For test type "AJ", a 25% test interval extension is not allowed. Accordingly, a maximum test interval of 730 days is used for these tests when the nominal interval specified in this attachment is "RR", and a maximum test interval of 92 days is used for these tests when the nominal interval specified in this attachment is "OP". (See Appendix J and the Technical Specifications.) TCN

SPECIFIC NOTES USED IN THE VALVE IST TABLE

1. This is a control valve. Operability is verified during the IST of pump P140. Turbine speed is measured during the test which indicates that this valve is controlling turbine speed. No Code (OM-10) tests are required. See References 2.1.1 (Document M-90055) and 2.5.3 (NUREG 1482), Section 3.4. TCN

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2. These pressure relief devices are tested at the frequency stated in OM-1 (Reference 2.1.2.) Pressure Relief valve groups are identified in Attachment 1.

3. The maximum stroke times associated with these valves are protected values and may only be changed under certain circumstances. See Attachment 4 for a summary of the safety analysis and technical specification stroke time limits for valves in this program. If a valve stroke time exceeds the safety analysis or technical specification limit, it shall be considered inoperable and the Technical Specification action statements implemented immediately. On the other hand, if a valve exceeds a required action stroke time limit even if it is less than the Technical Specification limit, an NCR shall be generated and the valve evaluated for operability in accordance with the NCR program, see Reference 2.3.2. For valves that do not appear in Attachment 4, the limit shown in ISTM is the only limit and if a valve exceeds this limit, it shall be considered inoperable.

4. The maximum allowable stroke times for valves 2(3)HV4705, 2(3)HV4706, 2(3)HV4715, 2(3)HV4716 and 2(3)HV4730 are protected values and may not be relaxed without revision to the disposition of Non-conformance Report (NCR) G-992.

5. This valve cannot be partially stroke exercised during Plant operation.

6. See General Note No. 5. "Autovent" valves S2(3)1413MW458, 459, 460 and 461 are tested by verifying that no continuous water flow issues form the 6" open ended SWCS Pump Vent Pipe, when the associated pump is in operation.

7. The closed stroke test was added at the recommendation of INPO to mitigate an inter-system LOCA in the RCP heat exchanger even though this test is not identified as required in Reference 2.1.1. TCN

8. Reactor Coolant Pumps need not be stopped for cold shutdown valve testing. That is, affected valves may be tested during plant outages when reactor coolant pumps are stopped for a sufficient period of time and on a refueling outage schedule, but not more often than once every 92 days. See Reference (NUREG 1482), Paragraph 3.1.1.4.

9. NOT USED.

10. A "Verify Closed" test is called out for these valves in Reference 2.1.1 in addition to the Seat Leakage Test. Stroke testing (exercise testing) is not required. The leak test is itself verification of "valve closed" and no additional testing need be specified. Verifying closure in conjunction with the Appendix "J" Seat Leakage Test at refueling intervals is consistent with Reference 2.5.3, Section 4.1.4.

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

11. In addition to the tests called out in the following table, additional testing of the atmospheric dump valves shall comply with Technical Specification 4.7.1.6.

12. Stroke timing not required. The successful exercise testing of the associated isolation valve (HV4714 or HV4731) confirms the operability of these solenoid valves. See References 2.1.1 (Document M-90055) and 2.5.3 (NUREG 1482), Section 3.4. TCN

13. The seat leakage testing for these valves is controlled and conducted in accordance with Technical Specification Surveillance requirement 4.4.5.2.2.

14. The IST Program requires only specific tests of these valves in accordance with the analysis provided in Reference 2.1.1. [*Note: OM-10, Reference 2.1.3, if used alone, would exempt these valves from testing as passive, category "B." Accordingly, all Code testing is not necessarily required for each of these valves.*]

15. Test pressure relief valve 2(3)PSV9349 at the frequency stated in the Technical Specifications.

16. Valves S31208MU094, S31206MU012 (NCR 92010186), S31206MU014 (NCR 92010188), S31206MU029 (NCR 92010189), and S31206MU030 (NCR 92010190) require nonintrusive examination at reactor refueling intervals to satisfy the closed exercise test as they do not have vent valves like the same valves at Unit 2. Technical Division is responsible for the completion of the Unit 3 tests. Operations uses conventional methods to test the corresponding Unit 2 valves.

17. See General Note 5. These valves are non-code skid mounted valves located in the lube oil, fuel oil, starting air, or other diesel generator systems. Proper operation is verified during regularly scheduled "loaded run" surveillance. This is in agreement with Reference 2.5.3, Section 3.4.

18. This check valve is required to undergo a partial stroke test (as a minimum) using flow following disassembly, inspection and reassembly. See GL 89-04, Reference 2.1.9.

19. The manual stroke test specified for these valves is only required to be a partial stroke to the extent necessary to demonstrate the operation of the valve manually, including the ability to engage the clutch.

20. NOT USED.

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

21. Stroke time is not required for Chilled Water system valves 2/3HYJ888A, Emerg. Chiller Water Loop A - Chiller E336, 2/3TV9720, Control Room Complex Emerg A/C E-419 Coil Temp Cont Valve and 2/3TV9749, Control Room Complex Emerg A/C E-418 Coil Temp Cont Valve. Operability of these valves is confirmed in conjunction with the Technical Specification testing of the chiller. See Technical Specifications, Paragraph 4.7.5, and Reference 2.1.1 (Document M-90055). TCN

22. This requires close verification only per Reference 2.1.1. Stroke testing (or exercise testing) is not required.

23. Reference 2.1.1 calls for a Position Indication Test (PIT) on 2(3)HCV9918, 2(3)HCV9945 and S2(3)1312MU037 and S2(3)1312MU038. These valves are locked in their safety position at all times when they are required by plant mode to perform their safety function. As a consequence, no actual PIT test is required. See SO23-0-17, "Locking of Safety-Related Critical Valves and Breakers." Note that if the locking requirement is removed, a PIT test will be required. TCN

24. In formulating a response to Reference 2.5.4, it was determined that the test interval for these valves should be revised from Cold Shutdown/ Refueling to Quarterly. The transition to Quarterly is scheduled for full implementation within 92 days following the Unit 3 Cycle 8 refueling outage (Close of Breakers).

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

INSERVICE TESTING PROGRAM SYSTEM VALVE LIST: UNITS 2 AND 3

AIR CONDITIONING SYSTEM

2(3)HCV9918, Hydrogen Purge Exhaust Control Valve (Code/Category 2/A)
(6" Butterfly/Manual) Dwg 40172B
AJ/RR (Note: 23)

2(3)HCV9945, Hydrogen Purge Unit A-080 Discharge Valve (Code/Category 2/A)
(6" Butterfly/Manual) Dwg 40172B
AJ/RR (Note: 23)

2(3)HV9917, Containment Hydrogen Purge Outlet Valve (Code/Category 2/A)
(6" Butterfly/Motor) Dwg 40172B
AJ/RR
PIT/RR

2(3)HV9946, Containment Hydrogen Purge Inlet (Code/Category 2/A)
(6" Butterfly/Motor) Dwg 40172B
AJ/RR
PIT/RR

S2(3)1500MU038 (3/4-038-C-396), ILRT Pressurization Connection
(Code/Category 2/A) (3/4" Globe/Manual) Dwg 40171B
AJ/RR

S2(3)1500MU039 (3/4-039-C-396), ILRT Pressurization Connection
(Code/Category 2/A) (3/4" Globe/Manual) Dwg 40171B
AJ/RR

AUXILIARY BOILER SYSTEM

S2(3)1312MU037 (2-037-C-387), Auxiliary Steam Inside Containment Isolation
Valve (Code/Category 2/A) (2" Gate/Manual) Dwg 40169C
AJ/RR (Note: 23)

S2(3)1312MU038 (2-038-C-387), Auxiliary Steam Outside Containment Isolation
Valve (Code/Category 2/A) (2" Gate/Manual) Dwg 40169C
AJ/RR (Note: 23)

AUXILIARY FEEDWATER

2(3)HV4705, AFW Control Valve - Steam Generator E088 (Code/Category 3/B)
(4" Globe/Motor) Dwg 40160A
AT/RR
BTC/OP (Notes: 3&4)
BTO/OP (Notes: 3&4)
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV4706, AFW Control Valve - Steam Generator E089 (Code/Category 3/B) (4" Globe/Motor) Dwg 40160A
AT/RR
BTC/OP (Notes: 3&4)
BTO/OP (Notes: 3&4)
PIT/RR

2(3)HV4712, AFW Pump 2P504 Discharge to Steam Generators (Code/Category 3/B) (4" Globe/Motor) Dwg 40160A
BTC/OP (Note: 3)
BTO/OP (Note: 3)
PIT/RR

2(3)HV4713, AFW Pump 2P141 Discharge to Steam Generators (Code/Category 3/B) (4" Globe/Motor) Dwg 40160A
BTC/OP (Note: 3)
BTO/OP (Note: 3)
PIT/RR

2(3)HV4714, AFW Isolation Valve to Steam Generator E088 (Code/Category 2/B) (6" Globe/Electro Hydraulic) Dwg 40160A
BTC/OP (Note: 3)
BTO/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV4715, AFW Isolation Valve to Steam Generator E089 (Code/Category 2/B) (6" Globe/Motor) Dwg 40160A
BTC/OP (Notes: 3&4)
BTO/OP (Notes: 3&4)
PIT/RR

2(3)HV4716, AFW Pump Turbine Trip and Throttle Valve (Code/Category NA/B) (4" Globe/Motor) Dwg 40160B
BTC/OP (Note: 3)
BTO/OP (Notes: 3&4)
PIT/RR

2(3)HV4730, AFW Isolation Valve to Steam Generator E088 (Code/Category 2/B) (6" Globe/Motor) Dwg 40160A
BTC/OP (Notes: 3&4)
BTO/OP (Notes: 3&4)
PIT/RR

2(3)HV4731, AFW Isolation Valve to Steam Generator E089 (Code/Category 2/B) (6" Globe/Electro Hydraulic) Dwg 40160A
BTC/OP (Note: 3)
BTO/OP (Note: 3)
FSTC/OP
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV4762, E/H Bypass Valve for AFW Valve HV4712 (Code/Category 3/B) (4" Globe/Electro Hydraulic) Dwg 40160A
BTC/OP (Note: 3)
PIT/RR

2(3)HV4763, E/H Bypass Valve for AFW Valve HV4713 (Code/Category 3/B) (4" Globe/Electro Hydraulic) Dwg 40160A
BTC/OP (Note: 3)
PIT/RR

2(3)HY47142, AFW HV4714 Energize to Open Solenoid Valve (Code/Category NA/B) (1/4" 3-Way/Solenoid) Dwg 40160C
BTC/OP (Note: 12)
BTO/OP
FSTC/OP

2(3)HY47311, AFW HV4731 Energize to Open Solenoid Valve (Code/Category NA/B) (1/4" 3-Way/Solenoid) Dwg 40160C
BTC/OP (Note: 12)
BTO/OP
FSTC/OP

2(3)SV4700, AFW Pump K007 Speed Controller (Code/Category NA/B) (4" Globe/Electro Hydraulic) Dwg 40160B
BTO/OP (Note: 1)
FSTO/OP

S2(3)1305MU088 (8-088-D-212), Drain Valve From Condensate Storage Tank T121 to T120 Sump (Code/Category 3/B) (8" Gate/Manual) Dwg 40150D
BMO/CS

S2(3)1305MU121 (6-121-D-598), AFW Pump P140 Supply to Steam Generator E089 (Code/Category 3/C) (6" Check/Self Actuated) Dwg 40160A
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1305MU126 (6-126-D-598), AFW Pump P141 Discharge Check Valve (Code/Category 3/C) (6" Check/Self Actuated) Dwg 40160A
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1305MU468 (8-468-D-212), AFP P140 Suction Isolation Valve (Code/Category 3/B) (8" Gate/Manual) Dwg 40160A
BMC/OP (Note: 24)

S2(3)1305MU469 (8-469-D-212), AFP P141 Suction Isolation Valve (Code/Category 3/B) (8" Gate/Manual) Dwg 40160A
BMC/OP (Note: 24)

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1305MU496 (1/2-496-D-617), Ammonia Discharge Check to AFP P140 Suction (Code/Category 3/C) (1/2" Check/Self Actuated) Dwg 40160A
CVTC/OP

S2(3)1305MU497 (1/2-497-D-617), Hydrazine Pump P037 Discharge Check to AFP P140 (Code/Category 3/C) (1/2" Check/Self Actuated) Dwg 40160A
CVTC/OP

S2(3)1305MU498 (1/2-498-D-617), Ammonia Discharge Check to AFP P141 Suction (Code/Category 3/C) (1/2" Check/Self Actuated) Dwg 40160A
CVTC/OP

S2(3)1305MU499 (1/2-499-D-617), Hydrazine Pump P037 Discharge Check to AFP P141 (Code/Category 3/C) (1/2" Check/Self Actuated) Dwg 40160A
CVTC/OP

S2(3)1305MU532 (6-532-D-598), AFW Pump P504 Discharge Check Valve (Code/Category 3/C) (6" Check/Self Actuated) Dwg 40160A
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1305MU538 (8-538-D-212), AFW Pump P504 Suction Isolation Valve (Code/Category 3/B) (8" Gate/Manual) Dwg 40160A
BMC/OP (Note: 24)

S2(3)1305MU539 (1/2-539-D-617), Ammonia Discharge Check to AFP P504 Suction (Code/Category 3/C) (1/2" Check/Self Actuated) Dwg 40160A
CVTC/OP

S2(3)1305MU541 (1/2-541-D-617), Hydrazine Pump P037 Discharge Check to AFP P504 (Code/Category 3/C) (1/2" Check/Self Actuated) Dwg 40160A
CVTC/OP

S2(3)1305MU547 (6-547-D-598), AFW Pump P140 Discharge Check Valve (Code/Category 3/C) (6" Check/Self Actuated) Dwg 40160A
CVTC/CS
CVTO/CS (Note: 5)

BORIC ACID MAKEUP

2(3)FV9253, Makeup Water to Volume Control Tank (Code/Category 3/B) (3" Globe/Air) Dwg 40125B
BTC/OP
FSTC/OP
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV9231, Boric Acid Makeup Pump P175 Recirculation to Tank T072 (Code/Category 3/B) (2" Globe/Air) Dwg 40125A
BTC/OP
FSTC/OP
PIT/RR

2(3)HV9235, BAMU Tank T072 to Gravity Feed to Charging Pump Suction (Code/Category 3/B) (3" Gate/Motor) Dwg 40125A
BMPO/CS (Note: 19)
BTO/CS (Note: 5)
PIT/RR

2(3)HV9236, Boric Acid Makeup Pump P174 Recirculation to Tank T071 (Code/Category 3/B) (2" Globe/Air) Dwg 40125A
BTC/OP
FSTC/OP
PIT/RR

2(3)HV9240, BAMU Tank T071 to Charging Pump Suction Header Control Valve (Code/Category 3/B) (3" Gate/Motor) Dwg 40125A
BMPO/CS (Note: 19)
BTO/CS (Note: 5)
PIT/RR

2(3)HV9247, BAMU Pump to Charging Pump Suction Control Valve (Code/Category 3/B) (3" Gate/Motor) Dwg 40125B
BMPO/CS (Note: 19)
BTO/CS (Note: 5)
PIT/RR

S2(3)1218MU033 (3-033-D-675), BAMU Pump P175 Discharge Check Valve (Code/Category 3/C) (3" Check/Self Actuated) Dwg 40125B
CVTC/OP
CVTO/CS

S2(3)1218MU035 (3-035-D-676), BAMU Pump P174 Discharge Check Valve (Code/Category 3/C) (3" Check/Self Actuated) Dwg 40125B
CVTC/OP
CVTO/CS

S2(3)1218MU046 (3-046-Y-675), Demineralized Water to Boric Acid Mixing Tee (Code/Category 2/C) (3" Check/Self Actuated) Dwg 40125B
CVTC/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

CHEMICAL AND VOLUME CONTROL

2(3)HV9200, Charging Pumps to Regenerative Heat Exchanger E063 (Code/Category 2/A) (2" Globe/Air) Dwg 40123A
- AJ/RR
- BTC/CS (Note: 5)
- BTO/CS
- FSTO/CS
- PIT/RR

2(3)HV9205, Regenerative Heat Exchanger to Letdown Heat Exchanger (Code/Category 2/A) (2" Globe/Air) Dwg 40123A
- AJ/RR
- BTC/CS (Notes: 3&5)
- FSTC/CS
- PIT/RR

2(3)LV0227B, VCT Outlet Valve (Code/Category 2/A) (4" Gate/Motor) Dwg 40124A
- AT/RR
- BTC/CS (Note: 5)
- PIT/RR

2(3)TV9267, Letdown Containment Isolation Valve (Code/Category 2/A) (3" Gate/Motor) Dwg 40123A
- AJ/RR
- BTC/CS (Notes: 3&5)
- PIT/RR

S2(3)1201MU031 (3-031-C-170), Purification Valve - Letdown Return to Shutdown Cooling (Code/Category 2/A) (3" Gate/Manual) Dwg 40112B
- AT/RR

S2(3)1208MU005 (2-005-C-036), CVCS to No. 2 HPSI Header Isolation Valve (Code/Category 2/B) (2" Gate/Manual) Dwg 40112C
- BMO/OP

S2(3)1208MU015 (4-015-C-675), VCT to Charging Pump Suction Check Valve (Code/Category 2/AC) (4" Check/Self Actuated) Dwg 40124A
- AT/RR
- CVTC/CS

S2(3)1208MU017 (2-017-C-554), Charging Pump P192 Discharge Check Valve (Code/Category 2/C) (2" Check/Self Actuated) Dwg 40124B
- CVTO/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1208MU045 (1/2-045-C-611), Chemical Addition Tank T001 to Charging Pump Suction Header (Code/Category 2/C) (1/2" Check/Self Actuated) Dwg 40124B
CVTC/CS (Note: 22)

S2(3)1208MU065 (2-065-C-036), Charging Pump Combination Discharge Valve to HPSI Header (Code/Category 2/B) (2" Gate/Manual) Dwg 40124B
BMO/OP

S2(3)1208MU066 (2-066-C-554), Charging Pump Combined Discharge Valve to HPSI Header (Code/Category 2/C) (2" Check/Self Actuated) Dwg 40124B
CVTO/CS

S2(3)1208MU067 (2-067-C-554), Charging Pump P190 Discharge Check Valve (Code/Category 2/C) (2" Check/Self Actuated) Dwg 40124B
CVTO/OP

S2(3)1208MU069 (2-069-C-554), Charging Pump P191 Discharge Check Valve (Code/Category 2/C) (2" Check/Self Actuated) Dwg 40124B
CVTO/OP

S2(3)1208MU082 (3-082-C-675), Gravity Feed - BAMU Tanks to Charging Pump P190 Suction (Code/Category 2/C) (3" Check/Self Actuated) Dwg 40124B
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1208MU083 (3-083-C-675), BAMU Pumps to Charging Pumps Suction Header (Code/Category 2/C) (3" Check/Self Actuated) Dwg 40124B
CVTO/CS (Note: 5)

S2(3)1208MU084 (2-084-C-334), Charging Pump Discharge to Regen Heat Exchanger (Code/Category 2/B) (2" Globe/Manual) Dwg 40123A
BMC/CS

S2(3)1208MU094 (1 1/2-094-C-611), Coolant Polishing Demineralizer to Charging Pump Suct Header (Code/Category 2/C) (1-1/2" Check/Self Actuated) Dwg 40124A
CVTC/CS (Notes: 16&22)

S2(3)1208MU122 (2-122-C-554), Charging Pumps Check Valve to Regen Heat Exchanger E063 (Code/Category 2/AC) (2" Check/Self Actuated) Dwg 40123A
AJ/RR
CVTC/RR
CVTO/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1208MU130 (2-130-C-334), Contmt Isol - Chg Pump Disch to Aux Spray Regen HX Bypass (Code/Category 2/A) (2" Globe/Manual) Dwg 40123A
AJ/RR
BMC/CS
BMO/CS
PIT/RR

CHILLED WATER

2(3)HV9900, Containment Cooling Supply Isolation Valve Penetration 45 (Code/Category 2/A) (8" Butterfly/Motor) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV9920, Containment Isolation Valve - Cooling Supply (Code/Category 2/A) (8" Butterfly/Air) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV9921, Containment Isolation Valve - Cooling Return (Code/Category 2/A) (8" Butterfly/Air) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV9971, Containment Isolation Valve - Cooling Return, Pen 46 (Code/Category 2/A) (8" Butterfly/Motor) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
PIT/RR

2/3HYJ888A, Emergency Chiller Water Loop A - Chiller E336 (Code/Category NA/B) (1" Gate/Solenoid) Dwg 40179A
BTO/OP (Note: 21)

2/3PSV9887A, (ME336) Emergency Chilled Water Loop "A" Makeup Water Relief (Code/Category 3/C) (1-1/2" Safety/Self Actuated) Dwg 40179A
RVT/RR (Note: 2)

2/3PSV9887B, (ME335) Emergency Chilled Water Loop "B" Makeup Water Relief (Code/Category 3/C) (1-1/2" Safety/Self Actuated) Dwg 40180A
RVT/RR (Note: 2)

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2/3TV9720, Control Room Complex Emerg A/C E-419 Coil Temp Cont Valve (Code/Category 3/B) (4" 3-Way/Electro Hydraulic) Dwg 40180B
BTC/OP (Note: 21)
BTO/OP

2/3TV9749, Control Room Complex Emerg A/C E-418 Coil Temp Cont Valve (Code/Category 3/B) (4" 3-Way/Electro Hydraulic) Dwg 40179B
BTC/OP (Note: 21)
BTO/OP

SA1417MU136 (1-136-D-639), (ME 335) Check Valve to Prevent Leakage and BackFlow on NSW (Code/Category 3/AC) (1" Check/Self Actuated) Dwg 40180A
AT/RR
CVTC/RR

SA1417MU138 (1-138-D-639), (ME 336) Check Valve to Prevent Leakage and BackFlow on NSW (Code/Category 3/AC) (1" Check/Self Actuated) Dwg 40179A
AT/RR
CVTC/RR

SA1513MU830 (1 1/8-830-D-*), Aux Bldg Emerg Chiller E336 Oil Cooler Outlet Check Valve (Code/Category 3/C) (1-1/8" Check/Self Actuated) Dwg 40179E
CVTO/OP

SA1513MU835 (1 1/8-835-D-*), Aux Bldg Emerg Chiller E335 Oil Cooler Outlet Check Valve (Code/Category 3/C) (1-1/8" Check/Self Actuated) Dwg 40180D
CVTO/OP

COMPONENT COOLING WATER

2(3)HV6211, Containment Isolation Valve - CCW Non-Critical Loop (Code/Category 2/A) (10" Butterfly/Motor) Dwg 40127F
AJ/RR
BMPO/CS (Notes: 5&19)
BTC/CS (Note: 3)
BTO/CS
PIT/RR

2(3)HV6212, CCW from Heat Exchanger E001A to Non-Critical Loop (Code/Category 3/A) (28" Butterfly/Air) Dwg 40127D
AT/RR
BMPO/CS (Note: 19)
BTC/CS (Note: 3)
BTO/CS
FSTC/CS
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV6213, Component Cooling Discharge to Non-Critical Loop (Code/Category 3/A) (28" Butterfly/Air) Dwg 40127D
AT/RR
BMPO/CS (Note: 19)
BTC/CS (Note: 3)
BTO/CS
FSTC/CS
PIT/RR

2(3)HV6216, Containment Isolation - CCW Non-Critical Loop Return (Code/Category 2/A) (10" Butterfly/Motor) Dwg 40127F
AJ/RR
BMPO/CS (Notes: 5&19)
BTC/CS (Note: 3)
BTO/CS
PIT/RR

2(3)HV6218, Component Cooling Water Pump Suction From Non-Critical Loop (Code/Category 3/A) (28" Butterfly/Air) Dwg 40127A
AT/RR
BMPO/CS (Notes: 5&19)
BTC/CS (Note: 3)
BTO/CS
FSTC/CS
PIT/RR

2(3)HV6219, Component Cooling Water Pump Suction From Non-Critical Loop (Code/Category 3/A) (28" Butterfly/Air) Dwg 40127A
AT/RR
BMPO/CS (Notes: 5&19)
BTC/CS (Note: 3)
BTO/CS
FSTC/CS
PIT/RR

2(3)HV6220, CCW Pump P025 Miniflow Block Valve to Critical Loop "A" Hdr (Code/Category 3/A) (10" Butterfly/Motor) Dwg 40127A
AT/RR

2(3)HV6221, CCW Pump P025 Miniflow Block Valve to Critical Loop "B" Hdr (Code/Category 3/A) (10" Butterfly/Motor) Dwg 40127A
AT/RR

2(3)HV6222A, CCW Pump P025 Suction from Critical Loop "A" Return Header (Code/Category 3/A) (28" Butterfly/Motor) Dwg 40127A
AT/RR

2(3)HV6222B, CCW Pump P025 Suction from Critical Loop "A" Return Header (Code/Category 3/A) (28" Butterfly/Motor) Dwg 40127A
AT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV6223, Containment Isolation - CCW Non-Critical Loop Supply (Code/Category 2/A) (10" Butterfly/Motor) Dwg 40127F
AJ/RR
BMPO/CS (Notes: 5&19)
BTC/CS (Note: 3)
BTO/CS
PIT/RR

2(3)HV6224A, CCW Pump P025 Suction from Critical Loop "B" Return Header (Code/Category 3/A) (28" Butterfly/Motor) Dwg 40127A
AT/RR

2(3)HV6224B, CCW Pump P025 Suction from Critical Loop "B" Return Header (Code/Category 3/A) (28" Butterfly/Motor) Dwg 40127A
AT/RR

2(3)HV6226A, CCW Pump P025 Train "A" Discharge Valve (Code/Category 3/A) (28" Butterfly/Motor) Dwg 40127A
AT/RR

2(3)HV6226B, CCW Pump P025 Train "A" Discharge Valve (Code/Category 3/A) (28" Butterfly/Motor) Dwg 40127A
AT/RR

2(3)HV6227, CCW Critical Loop "A" Supply to CCW Pump P025 Motor (Code/Category 3/A) (3" Gate/Motor) Dwg 40127A
AT/RR

2(3)HV6228A, CCW Pump P025 Train "B" Discharge Valve (Code/Category 3/A) (28" Butterfly/Motor) Dwg 40127A
AT/RR

2(3)HV6228B, CCW Pump P025 Train "B" Discharge Valve (Code/Category 3/A) (28" Butterfly/Motor) Dwg 40127A
AT/RR

2(3)HV6229, CCW Critical Loop "B" Supply to CCW Pump P025 Motor (Code/Category 3/A) (3" Gate/Motor) Dwg 40127A
AT/RR

2(3)HV6236, Containment Isolation - CCW Non-Critical Loop Return (Code/Category 2/A) (10" Butterfly/Motor) Dwg 40127F
AJ/RR
BMPO/CS (Notes: 5&19)
BTC/CS (Note: 3)
BTO/CS
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV6293A, Letdown Heat Exchanger E062 CCW Return to Critical Loop "A"
(Code/Category 3/A) (8" Butterfly/Air) Dwg 40127E
AT/RR
FSTC/OP

2(3)HV6293B, Letdown Heat Exchanger E062 CCW Supply Fm Critical Loop "A"
(Code/Category 3/A) (8" Butterfly/Air) Dwg 40127D
AT/RR
FSTC/OP

2(3)HV6366, Component Cooling Water to Emergency Cooling Unit E-401
(Code/Category 2/A) (8" Gate/Motor) Dwg 40172B
AJ/RR
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV6367, Component Cooling Water to Emergency Cooling Unit E-401
(Code/Category 2/A) (8" Gate/Motor) Dwg 40172B
AJ/RR
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV6368, Component Cooling Water to Emergency Cooling Unit E-400
(Code/Category 2/A) (8" Gate/Motor) Dwg 40172B
AJ/RR
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV6369, Component Cooling Water to Emergency Cooling Unit E-400
(Code/Category 2/A) (8" Gate/Motor) Dwg 40172B
AJ/RR
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV6370, Component Cooling Water to Emergency Cooling Unit E-399
(Code/Category 2/A) (8" Gate/Motor) Dwg 40172B
AJ/RR
BTC/OP
BTO/OP (Note: 3)
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV6371, Component Cooling Water Ret. from Emerg Cooling Unit E-399
(Code/Category 2/A) (8" Gate/Motor) Dwg 40172B
AJ/RR
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV6372, Component Cooling Water to Emergency Cooling Unit E-402
(Code/Category 2/A) (8" Gate/Motor) Dwg 40172B
AJ/RR
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV6373, Component Cooling Water to Emergency Cooling Unit E-402
(Code/Category 2/A) (8" Gate/Motor) Dwg 40172B
AJ/RR
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV6500, Component Cooling Water from SDCS Heat Exchanger E003
(Code/Category 3/B) (18" Butterfly/Air) Dwg 40127E
BTO/CS (Notes: 3&5)
FSTO/CS
PIT/RR

2(3)HV6501, Component Cooling Water from SDCS Heat Exchanger E004
(Code/Category 3/B) (18" Butterfly/Air) Dwg 40127E
BTO/CS (Notes: 3&5)
FSTO/CS
PIT/RR

2(3)HV6522A, Letdown Heat Exchanger E062 CCW Return to Critical Loop "B"
(Code/Category 3/A) (8" Butterfly/Air) Dwg 40127E
AT/RR
FSTC/OP

2(3)HV6522B, Letdown Heat Exchanger E062 CCW Supply Fm Critical Loop "B"
(Code/Category 3/A) (8" Butterfly/Air) Dwg 40127C
AT/RR
FSTC/OP

2(3)HV6551, CCW Pump P025 Miniflow Block Valve to Critical Loop "A" Hdr
(Code/Category 3/A) (10" Butterfly/Motor) Dwg 40127A
AT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV6552, CCW Pump P025 Miniflow Block Valve to Critical Loop "B" Hdr (Code/Category 3/A) (10" Butterfly/Motor) Dwg 40127A
AT/RR

2(3)HV6569, PPMU to CCW Loop "B" Makeup Discharge Valve (Code/Category 2/B) (1" Ball/Air) Dwg 40127J
BTC/OP
BTO/OP (Note: 3)
FSTO/OP
PIT/RR

2(3)HV6570, PPMU to CCW Loop "A" Makeup Discharge Valve (Code/Category 2/B) (1" Ball/Air) Dwg 40127J
BTC/OP
BTO/OP (Note: 3)
FSTO/OP
PIT/RR

2(3)PCV6358, CCW Surge Tank T003A Nitrogen Back-Pressure Regulator (Code/Category 3/A) (1" Globe/Air) Dwg 40127B
AT/RR
BTC/RR

2(3)PCV6361, CCW Surge Tank T004B Nitrogen Back-Pressure Regulator (Code/Category 3/A) (1" Globe/Air) Dwg 40127B
AT/RR
BTC/RR

2(3)PSV6356, CCW Surge Tank T003 Relief (Code/Category 3/C) (1x2" Safety/Self Actuated) Dwg 40127B
RVT/RR (Note: 2)

2(3)PSV6359, CCW Surge Tank T004 Relief (Code/Category 3/C) (1x2" Safety/Self Actuated) Dwg 40127B
RVT/RR (Note: 2)

2(3)TV9144, CCW From RCP P001 Seal Heat Exchanger (Code/Category 3/B) (1 1/2" Globe/Motor) Dwg 40130A
BMPO/CS (Notes: 8&19)
BTC/CS (Note: 7)
BTO/CS

2(3)TV9154, CCW From RCP P003 Seal Heat Exchanger (Code/Category 3/B) (1 1/2" Globe/Motor) Dwg 40130B
BMPO/CS (Notes: 8&19)
BTC/CS (Note: 7)
BTO/CS

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)TV9164, CCW From RCP P004 Seal Heat Exchanger (Code/Category 3/B) (1 1/2" Globe/Motor) Dwg 40130D
BMPO/CS (Notes: 8&19)
BTC/CS (Note: 7)
BTO/CS

2(3)TV9174, CCW From RCP P002 Seal Heat Exchanger (Code/Category 3/B) (1 1/2" Globe/Motor) Dwg 40130C
BMPO/CS (Notes: 8&19)
BTC/CS (Note: 7)
BTO/CS

S2(3)1203MU001 (8-001-D-801), CCW Supply to Control Room Emergency Chiller E336 (Code/Category 3/A) (8" Ball/Manual) Dwg 40179A
AT/RR

S2(3)1203MU003 (8-003-D-801), CCW Return from Control Room Emergency Chiller E336 (Code/Category 3/A) (8" Ball/Manual) Dwg 40179A
AT/RR

S2(3)1203MU007 (8-007-D-801), CCW Return from Control Room Emergency Chiller E335 (Code/Category 3/A) (8" Ball/Manual) Dwg 40180A
AT/RR

S2(3)1203MU101 (28-101-D-725), CCW Pump P024 Discharge Check Valve (Code/Category 3/C) (28" Split Disc Check/Self Actuated) Dwg 40127A
CVPO/OP
CVTC/OP
CVTO/CS

S2(3)1203MU102 (28-102-D-725), CCW Pump P026 Discharge Check Valve (Code/Category 3/C) (28" Split Disc Check/Self Actuated) Dwg 40127A
CVPO/OP
CVTC/OP
CVTO/CS

S2(3)1203MU103 (28-103-D-725), CCW Pump P025 Discharge Check Valve (Code/Category 3/C) (28" Split Disc Check/Self Actuated) Dwg 40127A
CVPO/OP
CVTC/OP
CVTO/CS

S2(3)1203MU104 (1 1/2-104-D-387), CCW Pump P024 to Chemical Feeder W009 Isolation Valve (Code/Category 3/A) (1-1/2" Globe/Manual) Dwg 40127A
AT/RR

S2(3)1203MU105 (1 1/2-105-D-387), CCW Pump P026 to Chemical Feeder W009 Isolation Valve (Code/Category 3/A) (1-1/2" Globe/Manual) Dwg 40127A
AT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1203MU106 (1 1/2-106-D-387), CCW Pump P025 to Chemical Feeder W009 Isolation Valve (Code/Category 3/A) (1-1/2" Globe/Manual) Dwg 40127A
AT/RR

S2(3)1203MU108 (2-108-D-387), CCW Critical Loop "B" From Chem Feeder W009 Isolation Valve (Code/Category 3/A) (2" Globe/Manual) Dwg 40127B
AT/RR

S2(3)1203MU109 (2-109-D-387), CCW Critical Loop "A" From Chem Feeder W009 Isolation Valve (Code/Category 3/A) (2" Globe/Manual) Dwg 40127B
AT/RR

S2(3)1203MU124 (3-124-D-221), CCW Surge Tank MT-003 Drain (Code/Category 3/B) (3" Gate/Manual) Dwg 40127B
BMO/OP

S2(3)1203MU125 (3-125-D-221), CCW Surge Tank MT-004 Drain (Code/Category 3/B) (3" Gate/Manual) Dwg 40127B
BMO/OP

S2(3)1203MU180 (8-180-D-801), CCW Supply to Control Room Emergency Chiller E335 (Code/Category 3/A) (8" Ball/Manual) Dwg 40180A
AT/RR

S2(3)1203MU181 (8-181-D-801), CCW Return from Control Room Emergency Chiller E335 (Code/Category 3/A) (8" Ball/Manual) Dwg 40180A
AT/RR

S2(3)1203MU185 (8-185-D-801), CCW Supply to Control Room Emergency Chiller E336 (Code/Category 3/A) (8" Ball/Manual) Dwg 40179A
AT/RR

S2(3)1203MU186 (8-186-D-801), CCW Return from Control Room Emergency Chiller E336 (Code/Category 3/A) (8" Ball/Manual) Dwg 40179A
AT/RR

S2(3)1203MU231 (2-231-D-387), Isolation Valve - CCW Ret From HPSI P018 to Loop "B" Header (Code/Category 3/A) (2" Globe/Manual) Dwg 40127E
AT/RR

S2(3)1203MU232 (2-232-D-387), Isolation Valve - CCW Ret From HPSI P018 to Loop "A" Header (Code/Category 3/A) (2" Globe/Manual) Dwg 40127E
AT/RR

S2(3)1203MU243 (8-243-D-801), CCW Supply to Control Room Emergency Chiller E335 (Code/Category 3/A) (8" Ball/Manual) Dwg 40180A
AT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1203MU258 (2-258-D-387), Isolation Valve - CCW Supply to HPSI P018 (Code/Category 3/A) (2" Globe/Manual) Dwg 40127D
AT/RR

S2(3)1203MU259 (2-259-D-387), Isolation Valve - CCW Supply to HPSI P018 (Code/Category 3/A) (2" Globe/Manual) Dwg 40127D
AT/RR

S2(3)1203MU268 (1-268-D-627), Nuclear Plant Service Water Supply to CCW Loop A (Code/Category 3/AC) (3" Check/Self Actuated) Dwg 40127B
AT/RR
CVTC/CS

S2(3)1203MU269 (1-269-D-627), Nuclear Plant Service Water Supply to CCW Loop B (Code/Category 3/AC) (3" Check/Self Actuated) Dwg 40127B
AT/RR
CVTC/CS

S2(3)1203MU280 (1 1/2-280-D-554), Check Valve - CCW to RCP P001 Seals (Code/Category 3/C) (1-1/2" Check/Self Actuated) Dwg 40130A
CVTC/CS (Notes: 7&8)
CVTO/OP

S2(3)1203MU281 (1 1/2-281-D-554), Check Valve - CCW to RCP P002 Seals (Code/Category 3/C) (1-1/2" Check/Self Actuated) Dwg 40130B
CVTC/CS (Notes: 7&8)
CVTO/OP

S2(3)1203MU282 (1 1/2-282-D-554), Check Valve - CCW to RCP P003 Seals (Code/Category 3/C) (1-1/2" Check/Self Actuated) Dwg 40130C
CVTC/CS (Notes: 7&8)
CVTO/OP

S2(3)1203MU283 (1 1/2-283-D-554), Check Valve - CCW to RCP P004 Seals (Code/Category 3/C) (1-1/2" Check/Self Actuated) Dwg 40130D
CVTC/CS (Notes: 7&8)
CVTO/OP

S2(3)1203MU305 (3-305-D-681), CCW Emergency Makeup Check Valve (Code/Category 3/AC) (3" Check/Self Actuated) Dwg 40127B
AT/RR
CVTC/OP
CVTO/OP

S2(3)1203MU307 (3-307-D-681), CCW Emergency Makeup Check Valve - Tank MT004 (Code/Category 3/AC) (3" Check/Self Actuated) Dwg 40127B
AT/RR
CVTC/OP
CVTO/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1203MU736 (1 1/2-736-D-617), PPMU to CCW Train "A" Makeup Discharge (Code/Category 3/AC) (1 1/2" Check/Self Actuated) Dwg 40127J
AT/RR
CVTC/OP
CVTO/OP

S2(3)1203MU737 (1 1/2-737-D-617), PPMU to CCW Train "B" Makeup Discharge (Code/Category 3/AC) (1 1/2" Check/Self Actuated) Dwg 40127J
AT/RR
CVTC/OP
CVTO/OP

S2(3)1203MU740 (1-740-D-108), CCW Makeup Pump P1018 Test Loop Inlet Isolation Valve (Code/Category 3/A) (1" Gate/Manual) Dwg 40127J
AT/RR

S2(3)1203MU741 (1-741-D-108), CCW Makeup Pump P1019 Test Loop Inlet Isolation Valve (Code/Category 3/A) (1" Gate/Manual) Dwg 40127J
AT/RR

CONDENSATE AND FEEDWATER

2(3)HV1105, Feedwater Bypass Valve for Steam Generator E089 (Code/Category NA/B) (6" Gate/Air) Dwg 40156B
BTC/CS (Note: 3)
FSTC/CS
PIT/RR

2(3)HV1106, Feedwater Bypass Valve for Steam Generator E088 (Code/Category NA/B) (6" Gate/Air) Dwg 40156B
BTC/CS (Note: 3)
FSTC/CS
PIT/RR

2(3)HV4047, Feedwater Block Valve - Steam Generator E088 (Code/Category NA/B) (16" Gate/Electro Hydraulic) Dwg 40156B
BTC/CS (Notes: 3&5)
FSTC/CS
PIT/RR

2(3)HV4048, Feedwater Isolation Valve - Steam Generator E088 (Code/Category 2/B) (16" Gate/Electro Hydraulic) Dwg 40156B
BTC/CS (Notes: 3&5)
FSTC/CS
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV4051, Feedwater Block Valve - Steam Generator E089 (Code/Category NA/B) (16" Gate/Electro Hydraulic) Dwg 40156B
BTC/CS (Notes: 3&5)
FSTC/CS
PIT/RR

2(3)HV4052, Feedwater Isolation Valve - Steam Generator E089 (Code/Category 2/B) (16" Gate/Electro Hydraulic) Dwg 40156B
BTC/CS (Notes: 3&5)
FSTC/CS
PIT/RR

2(3)HV5715, Condensate Tank T120 Isolation Valve (Code/Category NA/B) (6" Butterfly/Manual) Dwg 40150D
BMC/OP

S2(3)1305MU036 (20-036-C-609), Main Feed Check at Steam Generator E089 (Code/Category 2/C) (20" Check/Self Actuated) Dwg 40141A
CVTC/RR (Note: 18)

S2(3)1305MU124 (4-124-C-599), AFW Check Valve at Steam Generator E089 (Code/Category 2/C) (4" Check/Self Actuated) Dwg 40141A
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1305MU129 (20-129-C-609), Main Feed Check at Steam Generator E088 (Code/Category 2/C) (20" Check/Self Actuated) Dwg 40141A
CVTC/RR (Note: 18)

S2(3)1305MU448 (4-448-C-599), AFW Check Valve at Steam Generator E088 (Code/Category 2/C) (4" Check/Self Actuated) Dwg 40141A
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1305MU476 (8-476-D-212), Header Supply to and from Condensate Storage Tank T121 (Code/Category 3/B) (8" Gate/Manual) Dwg 40150D
BMO/OP

S2(3)1414MU092 (8-092-W-212), Makeup Block Valve to Cond Storage Tanks T120 and T121 (Code/Category NA/B) (8" Gate/Manual) Dwg 40150D
BMC/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

CONTAINMENT HVAC (NORMAL)

2(3)HV9821, Containment Isolation Valve - Minipurge Supply (Code/Category 2/A) (8" Butterfly/Air) Dwg 40171A
AJ/OP
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV9823, Containment Isolation Valve - Minipurge Supply (Code/Category 2/A) (8" Butterfly/Air) Dwg 40171A
AJ/OP
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV9824, Containment Isolation Valve - Minipurge Exhaust (Code/Category 2/A) (8" Butterfly/Air) Dwg 40171A
AJ/OP
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV9825, Containment Isolation Valve - Minipurge Exhaust (Code/Category 2/A) (8" Butterfly/Air) Dwg 40171A
AJ/OP
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV9948, Containment Purge Supply (Code/Category 2/A) (42" Butterfly/Air) Dwg 40171A
AJ/OP
BTC/CS (Note: 3)
FSTC/CS
PIT/RR

2(3)HV9949, Containment Purge Supply (Code/Category 2/A) (42" Butterfly/Motor) Dwg 40171A
AJ/OP
BTC/CS (Note: 3)
PIT/RR

2(3)HV9950, Containment Purge Exhaust (Code/Category 2/A) (42" Butterfly/Motor) Dwg 40171A
AJ/OP
BTC/CS (Note: 3)
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV9951, Containment Purge Exhaust (Code/Category 2/A) (42" Butterfly/Air) Dwg 40171A
AJ/OP
BTC/CS (Note: 3)
FSTC/CS
PIT/RR

CONTAINMENT SPRAY

2(3)HV8150, Isolation Valve - SDCS HX E004 to LPSI Header (Code/Category 2/B) (10" Globe/Motor) Dwg 40114B
BTC/CS
BTO/CS
PIT/RR

2(3)HV8151, Isolation Valve - SDCS HX E003 to LPSI Header (Code/Category 2/B) (10" Globe/Motor) Dwg 40114B
BTC/CS
BTO/CS
PIT/RR

2(3)HV9367, Containment Isolation Valve - Spray Header #1 (Code/Category 2/A) (8" Gate/Motor) Dwg 40114B
AJ/RR
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9368, Containment Isolation Valve - Spray Header #2 (Code/Category 2/A) (8" Gate/Motor) Dwg 40114B
AJ/RR
BTC/OP
BTO/OP (Note: 3)
PIT/RR

S2(3)1206MU004 (8-004-C-406), Containment Isolation Stop Check Valve - Spray Header #1 (Code/Category 2/AC) (8" Stop Check/Self Actuated) Dwg 40114B
AJ/RR
CVPO/RR (Notes: 5&18)
CVTC/RR
CVTO/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1206MU006 (8-006-C-406), Containment Isolation Stop Check Valve - Spray Header #2 (Code/Category 2/AC) (8" Stop Check/Self Actuated) Dwg 40114B
AJ/RR
CVPO/RR (Notes: 5&18)
CVTC/RR
CVTO/RR

S2(3)1206MU010 (2-010-C-329), Pump P012 Miniflow Stop Check Valve (Code/Category 2/C) (2" Stop Check/Self Actuated) Dwg 40114A
CVTC/CS
CVTO/OP

S2(3)1206MU011 (2-011-C-329), Pump P013 Miniflow Stop Check Valve (Code/Category 2/C) (2" Stop Check/Self Actuated) Dwg 40114A
CVTC/CS
CVTO/OP

S2(3)1206MU012 (8-012-C-406), Spray Pump P012 Discharge Stop Check Valve (Code/Category 2/C) (8" Stop Check/Self Actuated) Dwg 40114A
CVTC/CS (Note: 16)
CVTO/CS (Note: 5)

S2(3)1206MU014 (8-014-C-406), Spray Pump P013 Discharge Stop Check Valve (Code/Category 2/C) (8" Stop Check/Self Actuated) Dwg 40114A
CVTC/CS (Note: 16)
CVTO/CS (Note: 5)

S2(3)1206MU029 (8-029-C-645), Spray Pump P012 Discharge Check Valve to SDCS HX E004 (Code/Category 2/C) (8" Check/Self Actuated) Dwg 40114A
CVTC/CS (Note: 16)
CVTO/CS (Note: 5)

S2(3)1206MU030 (8-030-C-645), Spray Pump P013 Discharge Check Valve to SDCS HX E003 (Code/Category 2/C) (8" Check/Self Actuated) Dwg 40114A
CVTC/CS (Note: 16)
CVTO/CS (Note: 5)

DIESEL AIR START

2(3)HV5931A, Diesel Generator G002, 20 Cyl., Air Start Relay Valve (Code/Category NA/B) (1-1/2" Globe/Air) Dwg 40110A
BTC/OP (Note: 17)
BTO/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV5931B, Diesel Generator G002, 16 Cyl., Air Start Relay Valve
(Code/Category NA/B) (1-1/2" Globe/Air) Dwg 40110B
BTC/OP (Note: 17)
BTO/OP

2(3)HV5931C, Diesel Generator G002, 20 Cyl., Air Start Relay Valve
(Code/Category NA/B) (1-1/2" Globe/Air) Dwg 40110A
BTC/OP (Note: 17)
BTO/OP

2(3)HV5931D, Diesel Generator G002, 16 Cyl., Air Start Relay Valve
(Code/Category NA/B) (1-1/2" Globe/Air) Dwg 40110B
BTC/OP (Note: 17)
BTO/OP

2(3)HV5931E, Diesel Generator G003, 20 Cyl., Air Start Relay Valve
(Code/Category NA/B) (1-1/2" Globe/Air) Dwg 40110C
BTC/OP (Note: 17)
BTO/OP

2(3)HV5931F, Diesel Generator G003, 16 Cyl., Air Start Relay Valve
(Code/Category NA/B) (1-1/2" Globe/Air) Dwg 40110D
BTC/OP (Note: 17)
BTO/OP

2(3)HV5931G, Diesel Generator G003, 20 Cyl., Air Start Relay Valve
(Code/Category NA/B) (1-1/2" Globe/Air) Dwg 40110C
BTC/OP (Note: 17)
BTO/OP

2(3)HV5931H, Diesel Generator G003, 16 Cyl., Air Start Relay Valve
(Code/Category NA/B) (1-1/2" Globe/Air) Dwg 40110D
BTC/OP (Note: 17)
BTO/OP

2(3)HY5955A1, Air Start Sol. - Diesel Generator G002, 20 Cyl., Right Bank
(Code/Category NA/B) (3/8" 3-Way/Solenoid) Dwg 40110A
BTC/OP (Note: 17)
BTO/OP

2(3)HY5955B1, Air Start Sol. - Diesel Generator G002, 16 Cyl., Left Bank
(Code/Category NA/B) (3/8" 3-Way/Solenoid) Dwg 40110B
BTC/OP (Note: 17)
BTO/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HY5955C1, Air Start Sol. - Diesel Generator G002, 20 Cyl., Left Bank (Code/Category NA/B) (3/8" 3-Way/Solenoid) Dwg 40110A
BTC/OP (Note: 17)
BTO/OP

2(3)HY5955D1, Air Start Sol. - Diesel Generator G002, 16 Cyl., Right Bank (Code/Category NA/B) (3/8" 3-Way/Solenoid) Dwg 40110B
BTC/OP (Note: 17)
BTO/OP

2(3)HY5955E2, Air Start Sol. - Diesel Generator G003, 20 Cyl., Right Bank (Code/Category NA/B) (3/8" 3-Way/Solenoid) Dwg 40110C
BTC/OP (Note: 17)
BTO/OP

2(3)HY5955F2, Air Start Sol. - Diesel Generator G003, 16 Cyl., Left Bank (Code/Category NA/B) (3/8" 3-Way/Solenoid) Dwg 40110D
BTC/OP (Note: 17)
BTO/OP

2(3)HY5955G2, Air Start Sol. - Diesel Generator G003, 20 Cyl., Left Bank (Code/Category NA/B) (3/8" 3-Way/Solenoid) Dwg 40110C
BTC/OP (Note: 17)
BTO/OP

2(3)HY5955H2, Air Start Sol. - Diesel Generator G003, 16 Cyl., Right Bank (Code/Category NA/B) (3/8" 3-Way/Solenoid) Dwg 40110D
BTC/OP (Note: 17)
BTO/OP

DIESEL FUEL OIL

S2(3)2421MU039 (2-039-D-627), Diesel Fuel Oil Transfer Pump P096 Discharge Check Valve (Code/Category 3/C) (2" Check/Self Actuated) Dwg 40116A
CVTC/OP
CVTO/OP

S2(3)2421MU048 (2-048-D-627), Diesel Fuel Oil Transfer Pump P093 Discharge Check Valve (Code/Category 3/C) (2" Check/Self Actuated) Dwg 40116A
CVTC/OP
CVTO/OP

S2(3)2421MU054 (2-054-D-627), Diesel Fuel Oil Transfer Pump P095 Discharge Check Valve (Code/Category 3/C) (2" Check/Self Actuated) Dwg 40116A
CVTC/OP
CVTO/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)2421MU063 (2-063-D-627), Diesel Fuel Oil Transfer Pump P094 Discharge Check Valve (Code/Category 3/C) (2" Check/Self Actuated) Dwg 40116A
CVTC/OP
CVTO/OP

DIESEL GENERATOR

S2(3)2420MU120 (*-120-P-*), Engine Sump Turbo Supply Check Valve (Code/Category NA/C) (3/4" Check/Self Actuated) Dwg 40110B
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU121 (*-121-P-*), Engine Sump Turbo Supply Check Valve (Code/Category NA/C) (3/4" Check/Self Actuated) Dwg 40110B
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU126 (*-126-D-*), Right Bank Air Supply Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40110B
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU127 (*-127-D-*), Air Supply 3-Way Valve (Code/Category NA/B) (3/8" 3-Way/Air) Dwg 40110C
BTC/OP (Note: 17)
BTO/OP

S2(3)2420MU128 (*-128-D-*), Left Bank Air Supply Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40110C
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU130 (*-130-D-*), Fuel Priming Pump Supply Header Check Valve (Code/Category NA/AC) (5/8" Check/Self Actuated) Dwg 40110B
AT/RR
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU132 (*-132-D-*), Engine Driven Pump Discharge Header Check Valve (Code/Category NA/C) (5/8" Check/Self Actuated) Dwg 40110B
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU134 (*-134-D-*), Right Bank Air Supply Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40110C
CVTC/OP (Note: 17)
CVTO/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)2420MU135 (1-1/2-135-Z-*), Diesel Air Receiver T-338 Air Inlet Check Valve (Code/Category NA/C) (1 1/2" Check/Self Actuated) Dwg 40110F
CVTC/OP

S2(3)2420MU136 (*-136-P-*), Engine Sump Turbo Supply Check Valve (Code/Category NA/C) (3/4" Check/Self Actuated) Dwg 40110D
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU137 (*-137-D-*), Air Supply 3-Way Valve (Code/Category NA/B) (3/8" 3-Way/Air) Dwg 40110B
BTC/OP (Note: 17)
BTO/OP

S2(3)2420MU138 (*-138-D-*), Left Bank Air Supply Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40110B
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU139 (*-139-D-*), Air Supply 3-Way Valve (Code/Category NA/B) (3/8" 3-Way/Air) Dwg 40110D
BTC/OP (Note: 17)
BTO/OP

S2(3)2420MU140 (*-140-P-*), Engine Sump Turbo Supply Check Valve (Code/Category NA/C) (3/4" Check/Self Actuated) Dwg 40110A
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU141 (*-141-P-*), Engine Sump Turbo Supply Check Valve (Code/Category NA/C) (3/4" Check/Self Actuated) Dwg 40110A
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU145 (*-145-P-*), Engine Sump Turbo Supply Check Valve (Code/Category NA/C) (3/4" Check/Self Actuated) Dwg 40110D
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU146 (1 1/2-146-Z-*), Diesel Air Receiver T-335 Air Inlet Check Valve (Code/Category NA/C) (1 1/2" Check/Self Actuated) Dwg 40110E
CVTC/OP

S2(3)2420MU150 (*-150-D-*), Fuel Priming Pump Supply Header Check Valve (Code/Category NA/AC) (5/8" Check/Self Actuated) Dwg 40110A
AT/RR
CVTC/OP (Note: 17)
CVTO/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)2420MU152 (*-152-D-*), Engine Driven Pump Discharge Header Check Valve (Code/Category NA/C) (5/8" Check/Self Actuated) Dwg 40110A
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU155 (*-155-D-*), Right Bank Air Supply Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40110D
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU157 (*-157-D-*), Air Supply 3-Way Valve (Code/Category NA/B) (3/8" 3-Way/Air) Dwg 40110A
BTC/OP (Note: 17)
BTO/OP

S2(3)2420MU158 (*-158-D-*), Left Bank Air Supply Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40110A
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU159 (*-159-D-*), Right Bank Air Supply Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40110A
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU160 (1 1/2-160-Z-*), Diesel Air Receiver T-336 Air Inlet Check Valve (Code/Category NA/C) (1 1/2" Check/Self Actuated) Dwg 40110E
CVTC/OP

S2(3)2420MU161 (*-161-D-*), Left Bank Air Supply Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40110D
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU162 (*-162-P-*), Engine Sump Turbo Supply Check Valve (Code/Category NA/C) (3/4" Check/Self Actuated) Dwg 40110C
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU163 (*-163-P-*), Engine Sump Turbo Supply Check Valve (Code/Category NA/C) (3/4" Check/Self Actuated) Dwg 40110C
CVTC/OP (Note: 17)
CVTO/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)2420MU167 (*-167-D-*), Fuel Priming Pump Supply Header Check Valve (Code/Category NA/AC) (5/8" Check/Self Actuated) Dwg 40110D
AT/RR
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU168 (1 1/2-168-Z-*), Diesel Air Receiver T-337 Air Inlet Check Valve (Code/Category 3/C) (1 1/2" Check/Self Actuated) Dwg 40110F
CVTC/OP

S2(3)2420MU170 (*-170-D-*), Engine Driven Pump Discharge Header Check Valve (Code/Category NA/C) (5/8" Check/Self Actuated) Dwg 40110D
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU172 (*-172-D-*), Fuel Priming Pump Supply Header Check Valve (Code/Category NA/AC) (5/8" Check/Self Actuated) Dwg 40110C
AT/RR
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU174 (*-174-D-*), Engine Driven Pump Discharge Header Check Valve (Code/Category NA/C) (5/8" Check/Self Actuated) Dwg 40110C
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU289 (*-289-D-*), Downstream Check Valve, DC Auxiliary Turbo Pump P495 (Code/Category NA/C) (1" Check/Self Actuated) Dwg 40110B
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU290 (*-290-D-*), Downstream Check Valve, Y-Strainer MF1334 (Code/Category NA/C) (1" Check/Self Actuated) Dwg 40110B
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU291 (*-291-D-*), Downstream Check Valve, AC Lub Oil Turbo Pump P1015 (Code/Category NA/C) (1" Check/Self Actuated) Dwg 40110B
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU292 (*-292-D-*), Downstream Check Valve, DC Auxiliary Turbo Pump P494 (Code/Category NA/C) (1" Check/Self Actuated) Dwg 40110A
CVTC/OP (Note: 17)
CVTO/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)2420MU293 (*-293-D-*), Downstream Check Valve, Y-Strainer MF1333 (Code/Category NA/C) (1" Check/Self Actuated) Dwg 40110B
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU294 (*-294-D-*), Downstream Check Valve, AC Lube Oil Turbo Pump P1014 (Code/Category NA/C) (1" Check/Self Actuated) Dwg 40110A
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU295 (*-295-D-*), Downstream Check Valve, DC Auxiliary Turbo Pump P497 (Code/Category NA/C) (1" Check/Self Actuated) Dwg 40110D
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU296 (*-296-D-*), Downstream Check Valve, Y-Strainer MF1336 (Code/Category NA/C) (1" Check/Self Actuated) Dwg 40110D
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU297 (*-297-D-*), Downstream Check Valve, AC Lube Oil Turbo Pump P1017 (Code/Category NA/C) (1" Check/Self Actuated) Dwg 40110D
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU298 (*-298-D-*), Downstream Check Valve, DC Auxiliary Turbo Pump P496 (Code/Category NA/C) (1" Check/Self Actuated) Dwg 40110C
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU299 (*-299-D-*), Downstream Check Valve, Y-Strainer MF1335 (Code/Category NA/C) (1" Check/Self Actuated) Dwg 40110C
CVTC/OP (Note: 17)
CVTO/OP

S2(3)2420MU300 (*-300-D-*), Downstream Check Valve, AC Lube Oil Turbo Pump P1016 (Code/Category NA/C) (1" Check/Self Actuated) Dwg 40110C
CVTC/OP (Note: 17)
CVTO/OP

ESFAS

2(3)HV0352A, Containment Pressure Sensing Line Isolation Valve (Code/Category 2/B) (3/4" Globe/Solenoid) Dwg 40172A
BTC/OP
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV0352B, Containment Pressure Sensing Line Isolation Valve
(Code/Category 2/B) (3/4" Globe/Solenoid) Dwg 40172A
BTC/OP
PIT/RR

2(3)HV0352C, Containment Pressure Sensing Line Isolation Valve
(Code/Category 2/B) (3/4" Globe/Solenoid) Dwg 40172A
BTC/OP
PIT/RR

2(3)HV0352D, Containment Pressure Sensing Line Isolation Valve
(Code/Category 2/B) (3/4" Globe/Solenoid) Dwg 40172A
BTC/OP
PIT/RR

FIRE PROTECTION

2(3)HV5686, Contmt Isolation Valve, Outside - Fire Prot. System Water
(Code/Category 2/A) (3" Gate/Motor) Dwg 40184B
AJ/RR
BTC/OP (Notes: 3 and 24)
PIT/RR

SA2301MU061 (4-061-C-681), Unit 2 Fire Protection Isolation Valve - Inside
Containment (Code/Category 2/AC) (4" Check/Self Actuated) Dwg 40184B
AJ/RR (Note: 10)

SA2301MU095 (4-095-C-681), Unit 3 Fire Protection Isolation Valve - Inside
Containment (Code/Category 2/AC) (4" Check/Self Actuated) Dwg 40189BS03
AJ/RR (Note: 10)

FUEL STORAGE POOL AND REFUELING

2(3)LV0227C, RWST To Charging Pump Suction (Code/Category 2/B)
(3" Gate/Motor) Dwg 40124B
BMPO/CS (Note: 19)
BTO/CS (Note: 5)
PIT/RR

TCN

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1219MU052 (6-052-C-675), RWST T006 to Charging Pump Suction Header (Code/Category 2/C) (6" Check/Self Actuated) Dwg 40124B
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1219MU070, Outlet Valve from T006 Refueling Tank to P011 Spent Fuel Pool Makeup Pump (Code/Category 2/C) (4" Gate/Manual) Dwg 40122B
BMC/OP

S2(3)1219MU100 (10-100-C-212), Refueling Pool Outlet Inside Containment (Code/Category 2/A) (10" Gate/Manual) Dwg 40122A
AJ/RR
PIT/RR

S2(3)1219MU101 (10-101-C-212), Refueling Pool Outlet Outside Containment to Pump P014 (Code/Category 2/A) (10" Gate/Manual) Dwg 40122A
AJ/RR
PIT/RR

GAS RADWASTE

2(3)HV7258, Containment Isolation - Waste Gas to Surge Tank (Code/Category 2/A) (3" Gate/Motor) Dwg 40131A
AJ/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV7259, Containment Isolation - Safety Injection Tank Vent Header (Code/Category 2/A) (3" Gate/Air) Dwg 40131A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

LIQUID RADWASTE

2(3)HV7512, RCDT Pump Discharge from Containment to Radwaste (Code/Category 2/A) (3" Globe/Motor) Dwg 40131A
AJ/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV7513, Containment Isolation - RCS Drain to Radwaste (Code/Category 2/A) (3" Globe/Air) Dwg 40131A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1901MU321 (2-321-C-376), Isolation Valve - Coolant Polishing Demin to Quench Tank (Code/Category 2/A) (2" Globe/Manual) Dwg 40111C
AJ/RR
PIT/RR

S2(3)1901MU573 (2-573-C-611), Check Valve - Coolant Polishing Demin to Quench Tank (Code/Category 2/A) (2" Check/Self Actuated) Dwg 40111C
AJ/RR (Note: 10)

NITROGEN GAS

2(3)HV5434, Nitrogen to Safety Injection Tanks (Code/Category 2/A) (2" Globe/Air) Dwg 40192C
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV5437, Nitrogen Supply to Containment (Code/Category 2/A) (3/4" Globe/Air) Dwg 40192C
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)PSV5403, Nitrogen Gas Relief Valve, Train "A" CCW Surge Tank T003 (Code/Category NA/C) (3x1-1/2" Safety/Self Actuated) Dwg 40127B
RVT/RR (Note: 2)

2(3)PSV5404, Nitrogen Gas Relief Valve, Train "B" CCW Surge Tank T004 (Code/Category NA/C) (3x1-1/2" Safety/Self Actuated) Dwg 40127B
RVT/RR (Note: 2)

2(3)PSV6414, Train "A" Backup Nitrogen Header Relief, CCW Surge Tank (Code/Category NA/C) (3x1-1/2" Safety/Self Actuated) Dwg 40127H
RVT/RR (Note: 2)

2(3)PSV6420, Train "B" Backup Nitrogen Header Relief, CCW Surge Tank (Code/Category NA/C) (3x1-1/2" Safety/Self Actuated) Dwg 40127H
RVT/RR (Note: 2)

S2(3)2418MU002 (3/4-002-C-611), Nitrogen Supply to Containment (Code/Category 2/AC) (3/4" Check/Self Actuated) Dwg 40192C
AJ/RR
CVTC/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)2418MU108 (2-108-C-627), Nitrogen Supply to Safety Injection Tanks
(Code/Category 2/AC) (2" Check/Self Actuated) Dwg 40192C
AJ/RR
CVTC/RR

S2(3)2418MU356 (3/8-356-P-913), Backup Nitrogen Cylinder MV-057 Check Valve
(Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU358 (3/8-358-P-913), Backup Nitrogen Cylinder MV-058 Check Valve
(Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU360 (3/8-360-P-913), Backup Nitrogen Cylinder MV-059 Check Valve
(Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU362 (3/8-362-P-913), Backup Nitrogen Cylinder MV-060 Check Valve
(Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU364 (3/8-364-P-913), Backup Nitrogen Cylinder MV-061 Check Valve
(Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU366 (3/8-366-P-913), Backup Nitrogen Cylinder MV-062 Check Valve
(Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU368 (3/8-368-P-913), Backup Nitrogen Cylinder MV-062 Check Valve
(Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU371 (3/8-371-P-913), Backup Nitrogen Cylinder MV-064 Check Valve
(Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU373 (3/8-373-P-913), Backup Nitrogen Cylinder MV-065 Check Valve
(Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU375 (3/8-375-P-913), Backup Nitrogen Cylinder MV-066 Check Valve
(Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU377 (3/8-377-P-913), Backup Nitrogen Cylinder MV-067 Check Valve
(Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)2418MU379 (3/8-379-P-913), Backup Nitrogen Cylinder MV-068 Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU387 (3/8-387-P-913), Backup Nitrogen Cylinder MV-069 Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU389 (3/8-389-P-913), Backup Nitrogen Cylinder MV-070 Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU398 (1-398-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T004B (Code/Category NA/AC) (1" Check/Self Actuated) Dwg 40127B
AT/RR
CVTC/RR

S2(3)2418MU402 (1-402-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T003A (Code/Category NA/AC) (1" Check/Self Actuated) Dwg 40127B
AT/RR
CVTC/RR

S2(3)2418MU406 (3/8-406-P-913), Backup Nitrogen Cylinder MV-102 Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU408 (3/8-408-P-913), Backup Nitrogen Cylinder MV-103 Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU410 (3/8-410-P-913), Backup Nitrogen Cylinder MV-104 Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU412 (3/8-412-P-913), Backup Nitrogen Cylinder MV-105 Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU414 (3/8-414-P-913), Backup Nitrogen Cylinder MV-106 Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

S2(3)2418MU416 (3/8-416-P-913), Backup Nitrogen Cylinder MV-107 Check Valve (Code/Category NA/C) (3/8" Check/Self Actuated) Dwg 40127H
CVTO/CS

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

NUCLEAR SAMPLING

2(3)HV0500, Post LOCA Hydrogen Monitor (Code/Category 2/A)
(1" Gate/Solenoid) Dwg 40172A
AJ/RR
BTC/OP
BTO/OP
FSTC/OP
PIT/RR

2(3)HV0501, Post LOCA Hydrogen Monitor (Code/Category 2/A)
(1" Gate/Solenoid) Dwg 40172A
AJ/RR
BTC/OP
BTO/OP
FSTC/OP
PIT/RR

2(3)HV0502, Post LOCA Hydrogen Monitor (Code/Category 2/A)
(1" Gate/Solenoid) Dwg 40172A
AJ/RR
BTC/OP
BTO/OP
FSTC/OP
PIT/RR

2(3)HV0503, Post LOCA Hydrogen Monitor (Code/Category 2/A)
(1" Gate/Solenoid) Dwg 40172A
AJ/RR
BTC/OP
BTO/OP
FSTC/OP
PIT/RR

2(3)HV0508, Containment Isolation - RCS Hot Leg (Code/Category 2/A)
(3/4" Globe/Motor) Dwg 40134A
AJ/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV0509, Containment Isolation - RCS Hot Leg (Code/Category 2/A)
(1" Globe/Air) Dwg 40134A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV0510, Containment Isolation - Pressurizer Vapor Sample Line
(Code/Category 2/A) (3/4" Globe/Motor) Dwg 40134A
AJ/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV0511, Containment Isolation - Pressurizer Vapor Sample Line
(Code/Category 2/A) (3/4" Globe/Air) Dwg 40134A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV0512, Containment Isolation - Pressurizer Surge Line Sample
(Code/Category 2/A) (3/4" Globe/Motor) Dwg 40134A
AJ/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV0513, Containment Isolation - Pressurizer Surge Line Sample
(Code/Category 2/A) (3/4" Globe/Air) Dwg 40134A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV0514, Isolation Valve - Quench Tank to Waste Gas System
(Code/Category 2/A) (3/4" Globe/Motor) Dwg 40111C
AJ/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV0515, Isol. Valve - Quench Tank/RCDT to Waste Gas Sampling System
(Code/Category 2/A) (3/4" Globe/Air) Dwg 40111C
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV0516, Isolation Valve - RCDT to Waste Gas Sampling System
(Code/Category 2/A) (3/4" Globe/Motor) Dwg 40111C
AJ/RR
BTC/OP (Note: 3)
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV0517, RCS Hot Leg #2 Sample Isolation Valve (Code/Category 2/A) (3/4" Globe/Motor) Dwg 40134A
AJ/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV0588B, Safety Injection Pump Recirc Line Emergency Sample Valve (Code/Category 2/A) (1" Globe/Solenoid) Dwg 40134D
AT/RR
BTC/OP
FSTC/OP

2(3)HV7800, Containment Airborne Rad Monitor Train "A" Isol (Pen 30B) (Code/Category 2/A) (3/4" Globe/Solenoid) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV7801, Containment Airborne Rad Monitor Train "A" Isol (Pen 30B) (Code/Category 2/A) (3/4" Globe/Solenoid) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV7802, Containment Airborne Rad Monitor Train "A" Isol (Pen 30A) (Code/Category 2/A) (3/4" Globe/Solenoid) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV7803, Containment Airborne Rad Monitor Train "B" Isol (Pen 3A) (Code/Category 2/A) (3/4" Globe/Solenoid) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV7805, Containment Isolation - Airborne Rad Monitor Train "B" (Code/Category 2/A) (3/4" Globe/Solenoid) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV7806, Containment Isolation - Airborne Rad Monitor Train "B" (Code/Category 2/A) (3/4" Globe/Solenoid) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV7810, Containment Airborne Rad Monitor Train "B" Isol (Pen 16C) (Code/Category 2/A) (3/4" Globe/Solenoid) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV7811, Containment Airborne Rad Monitor Train "B" Isol (Pen 27C) (Code/Category 2/A) (3/4" Globe/Solenoid) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV7816, Contmt Isolation - Airborne Rad Monitor Emergency Sample (Code/Category 2/A) (3/4" Globe/Solenoid) Dwg 40170A
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

S2(3)1212MU010 (1/2-010-C-335), Isolation Valve - SI System to Central Liquid Sample System (Code/Category 2/A) (1/2" Globe/Manual) Dwg 40134D
AT/RR
BMC/OP

S2(3)1212MU261 (1-261-C-556), SI System Loop B to Central Liquid Sample System Check Valve (Code/Category 2/AC) (1" Check/Self Actuated) Dwg 40114D
AT/RR
CVTC/RR

S2(3)1212MU262 (1-262-C-556), SI System Loop A to Central Liquid Sample System Check Valve (Code/Category 2/AC) (1" Check/Self Actuated) Dwg 40114D
AT/RR
CVTC/RR

S2(3)1212MU580 (1-580-C-556), Nuclear Service Water to Liquid Sample System Check Valve (Code/Category 2/AC) (1" Check/Self Actuated) Dwg 40134D
AT/RR
CVTC/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

NUCLEAR SERVICE WATER

2(3)HV7911, Containment Isolation - Nuclear Service Water (Code/Category 2/A) (3" Globe/Air) Dwg 40140B
AJ/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

S2(3)1415MU236 (3-236-C-675), Containment Isolation Check Valve - Nuclear Service Water (Code/Category 2/AC) (3" Check/Self Actuated) Dwg 40140B
AJ/RR
CVTC/RR

REACTOR COOLANT

2(3)HV0296A, Reactor Head Vent (Code/Category 2/B) (1" Globe/Solenoid) Dwg 40111C
BTC/CS
BTO/CS
FSTC/CS
PIT/RR

2(3)HV0296B, Reactor Head Vent (Code/Category 2/B) (1" Globe/Solenoid) Dwg 40111C
BTC/CS
BTO/CS
FSTC/CS
PIT/RR

2(3)HV0297A, Pressurizer Vent Valve (Code/Category 2/B) (1" Globe/Solenoid) Dwg 40111C
BTC/CS
BTO/CS
FSTC/CS
PIT/RR

2(3)HV0297B, Pressurizer Vent Valve (Code/Category 2/B) (1" Globe/Solenoid) Dwg 40111C
BTC/CS
BTO/CS
FSTC/CS
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV0298, Vent to Contmt from Reactor Head/Pressurizer (Code/Category 2/B) (1" Globe/Solenoid) Dwg 40111C
BTC/CS
BTO/CS
FSTC/CS
PIT/RR

2(3)HV0299, Quench Tank Inlet from Reactor Head/Pressurizer Vent (Code/Category 2/B) (1" Globe/Solenoid) Dwg 40111C
BTC/CS
BTO/CS
FSTC/CS
PIT/RR

2(3)HV9201, Regenerative Heat Exchanger E063 to Auxiliary Spray (Code/Category 1/B) (2" Globe/Motor) Dwg 40123A
BTC/CS (Note: 5)
BTO/CS
PIT/RR

2(3)HV9202, Regenerative Heat Exchanger E063 to RCS Loop 2A (Code/Category 1/B) (2" Globe/Motor) Dwg 40123A
BTC/CS
BTO/CS

2(3)HV9203, Regenerative Heat Exchanger E063 to RCS Loop 1A (Code/Category 1/B) (2" Globe/Motor) Dwg 40123A
BTC/CS
BTO/CS

2(3)HV9204, RCS Loop 2B Letdown to Regenerative Heat Exchanger (Code/Category 1/B) (2" Globe/Air) Dwg 40123A
BTC/CS (Note: 5)
FSTC/CS
PIT/RR

2(3)HV9217, Reactor Coolant System Bleed Off to Volume Control Tank (Code/Category 2/A) (3/4" Globe/Motor) Dwg 40124A
AJ/RR
BTC/CS (Notes: 3&5)
BTO/CS
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV9218, RCS Bleed Off to VCT Isolation Valve Inside Containment (Code/Category 2/A) (1" Globe/Air) Dwg 40124A
AJ/RR
BTC/CS (Notes: 3&5)
BTO/CS
FSTC/CS
PIT/RR

2(3)PSV0200, Pressurizer Safety Valve (Code/Category 1/C) (6" Safety/Self Actuated) Dwg 40111B
RVT/RR (Note: 2)

2(3)PSV0201, Pressurizer Safety Valve (Code/Category 1/C) (6" Safety/Self Actuated) Dwg 40111B
RVT/RR (Note: 2)

2(3)TV0221, Letdown Isolation Valve (Code/Category 1/B) (2" Globe/Air) Dwg 40123A
BTC/CS (Note: 5)
FSTC/CS
PIT/RR

2(3)XCV9219, Thermal Relief of Regenerative Heat Exchanger (Code/Category 1/C) (2" Check/Self Actuated) Dwg 40123A
CVTO/CS

S2(3)1201MU019 (2-019-A-554), Auxiliary Spray Check Valve (Code/Category 1/C) (2" Check/Self Actuated) Dwg 40123A
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1201MU020 (2-020-A-554), Charging Line Check Valve to RCS Loop 2A (Code/Category 1/C) (2" Check/Self Actuated) Dwg 40123A
CVTC/CS
CVTO/CS

S2(3)1201MU021 (2-021-A-554), Charging Line Check Valve to RCS Loop 1A (Code/Category 1/C) (2" Check/Self Actuated) Dwg 40123A
CVTC/CS
CVTO/CS

S2(3)1201MU129 (2-129-A-554), Auxiliary Spray to RCS from Charging Pumps (Code/Category 1/AC) (2" Check/Self Actuated) Dwg 40123A
AJ/RR
CVTC/CS
CVTO/CS

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1201MU200 (14-200-C-645), Pump P016 Suction Check Valve (Code/Category 2/C) (14" Check/Self Actuated) Dwg 40112B
CVTC/CS
CVTO/CS

S2(3)1201MU202 (14-202-C-645), Pump P015 Suction Check Valve (Code/Category 2/C) (14" Check/Self Actuated) Dwg 40112B
CVTC/CS
CVTO/CS

S2(3)1201MU976 (4-976-A-*), Check Valve - Pressurizer Spray Line from RCS Loop "1A" (Code/Category 1/C) (4" Check/Self Actuated) Dwg 40111D
CVTC/CS

S2(3)1201MU977 (4-977-A-*), Check Valve - Pressurizer Spray Line from RCS Loop "1B" (Code/Category 1/C) (4" Check/Self Actuated) Dwg 40111D
CVTC/CS

RESPIRATOR AND SERVICE AIR SYSTEM

2(3)HV5388, Containment Isolation Valve - Instrument Air (Code/Category 2/A) (1-1/2" Globe/Air) Dwg 40191G
AJ/RR
BTC/CS (Note: 3)
FSTC/CS
PIT/RR

S2(3)2417MU016 (1-1/2-016-C-617), Instrument Air Contmt Isol Check - Inside Containment (Code/Category 2/AC) (1-1/2" Check/Self Actuated) Dwg 40191G
AJ/RR
CVTC/RR

S2(3)2423MU017 (2-017-C-627), Containment Isolation Valve - Service Air (Code/Category 2/AC) (2" Check/Self Actuated) Dwg 40191E
AJ/RR (Note: 10)

S2(3)2423MU055 (2-055-C-387), Containment Isolation Valve - Service Air (Code/Category 2/A) (2" Globe/Manual) Dwg 40191E
AJ/RR

SAFETY INJECTION

2(3)HV0396, Flow Control Valve - LPSI Pumps to Shutdown Cooling System (Code/Category 2/B) (10" Globe/Motor) Dwg 40112B
BMPC/CS (Note: 19)
BTO/CS
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV8152, Isolation Valve - SDCS Heat Exchanger E004 Inlet (Code/Category 2/B) (12" Gate/Motor) Dwg 40112B
BMPO/CS (Note: 19)
BTC/CS
BTO/CS
PIT/RR

2(3)HV8153, Isolation Valve - SDCS Heat Exchanger E003 Inlet (Code/Category 2/B) (12" Gate/Motor) Dwg 40112B
BMPO/CS (Note: 19)
BTC/CS
BTO/CS
PIT/RR

2(3)HV8160, Flow Control Valve - SDCS Heat Exchanger Bypass (Code/Category 2/B) (10" Globe/Motor) Dwg 40112B
BMPC/CS (Note: 19)
BTC/CS
PIT/RR

2(3)HV8161, Block Valve - SDCS Heat Exchanger Bypass to LPSI (Code/Category 2/B) (14" Gate/Motor) Dwg 40112B
BMPO/CS (Note: 19)
BTC/CS
PIT/RR

2(3)HV8162, LPSI Pump P015 Miniflow Block Valve (Code/Category 2/A) (3" Gate/Motor) Dwg 40112B
AT/RR
BMPC/OP (Notes: 19 and 24)
BTC/OP (Note: 24)
PIT/RR

2(3)HV8163, LPSI Pump P016 Miniflow Block Valve (Code/Category 2/A) (3" Gate/Motor) Dwg 40112B
AT/RR
BMPC/OP (Notes: 19 and 24)
BTC/OP (Note: 24)
PIT/RR

2(3)HV9300, East Refueling Water Tank Outlet Valve (Code/Category 2/B) (24" Gate/Motor) Dwg 40112A
BTC/OP (Note: 24)
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV9301, West Refueling Water Tank Outlet Valve (Code/Category 2/B) (24" Gate/Motor) Dwg 40112A
BTC/OP (Note: 24)
PIT/RR

2(3)HV9302, Control Valve - Contmt Emergency Sump to Spray Pump P013 (Code/Category 2/B) (24" Butterfly/Motor) Dwg 40112A
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9303, Control Valve - Contmt Emergency Sump to Spray Pump P012 (Code/Category 2/B) (24" Butterfly/Motor) Dwg 40112A
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9304, Control Valve - Containment Emergency Sump Outlet (Code/Category 2/B) (24" Butterfly/Motor) Dwg 40112A
BTO/OP (Note: 3)
PIT/RR

2(3)HV9305, Control Valve - Containment Emergency Sump Outlet (Code/Category 2/B) (24" Butterfly/Motor) Dwg 40112A
BTO/OP (Note: 3)
PIT/RR

2(3)HV9306, Isolation Valve - SI Recirculation to RWST T005 (Code/Category 2/A) (3" Gate/Motor) Dwg 40114D
AT/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV9307, Isolation Valve - SI Recirculation to RWST T005 (Code/Category 2/A) (3" Gate/Motor) Dwg 40114D
AT/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV9322, Control Valve - LPSI Header to RCS Loop 1A (Code/Category 2/B) (8" Globe/Motor) Dwg 40112D
BTC/OP
BTO/OP (Note: 3)
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV9323, Control Valve - HPSI Header #2 to RCS Loop 1A (Code/Category 2/B) (2" Globe/Motor) Dwg 40112C
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9324, Control Valve - HPSI Header #1 to RCS Loop 1A (Code/Category 2/B) (2" Globe/Motor) Dwg 40112C
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9325, Control Valve - LPSI Header to RCS Loop 1B (Code/Category 2/B) (8" Globe/Motor) Dwg 40112D
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9326, Control Valve - HPSI Header #2 to RCS Loop 1B (Code/Category 2/B) (2" Globe/Motor) Dwg 40112C
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9327, Control Valve - HPSI Header #1 to RCS Loop 1B (Code/Category 2/B) (2" Globe/Motor) Dwg 40112C
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9328, Control Valve - LPSI Header to RCS Loop 2A (Code/Category 2/B) (8" Globe/Motor) Dwg 40112D
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9329, Control Valve - HPSI Header #2 to RCS Loop 2A (Code/Category 2/B) (2" Globe/Motor) Dwg 40112C
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9330, Control Valve - HPSI Header #1 to RCS Loop 2A (Code/Category 2/B) (2" Globe/Motor) Dwg 40112C
BTC/OP
BTO/OP (Note: 3)
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV9331, Control Valve - LPSI Header to RCS Loop 2B (Code/Category 2/B) (8" Globe/Motor) Dwg 40112D
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9332, Control Valve - HPSI Header #2 to RCS Loop 2B (Code/Category 2/B) (2" Globe/Motor) Dwg 40112C
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9333, Control Valve - HPSI Header #1 to RCS Loop 2B (Code/Category 2/B) (2" Globe/Motor) Dwg 40112C
BTC/OP
BTO/OP (Note: 3)
PIT/RR

2(3)HV9334, Containment Isolation - SI Tank Drain Header to RWST T005 (Code/Category 2/A) (2" Globe/Motor) Dwg 40114D
AJ/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV9336, Isolation Valve - SDCS to LPSI Pump Suction (Code/Category 2/B) (16" Gate/Motor) Dwg 40112D
BMPO/CS (Note: 19)
BTC/OP
BTO/OP
PIT/RR

2(3)HV9337, Isolation Valve - SDCS to LPSI Pump Suction (Code/Category 1/A) (16" Gate/Motor) Dwg 40112D
AT/RR (Note: 13)
BTC/CS (Note: 5)
BTO/CS
PIT/RR

2(3)HV9339, Isolation Valve - SDCS from RCS Loop 2 (Code/Category 1/A) (16" Gate/Motor) Dwg 40112D
AT/RR (Note: 13)
BTC/CS (Note: 5)
BTO/CS
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV9340, Safety Injection Tank T008 Outlet Valve to RCS Loop 1A (Code/Category 1/B) (8" Gate/Motor) Dwg 40113A
BTC/CS
BTO/CS (Note: 5)
PIT/RR

2(3)HV9341, Safety Injection Tank T008 Drain Isolation Valve (Code/Category 1/A) (1" Globe/Air) Dwg 40113A
AT/RR
BTC/CS (Note: 3)
FSTC/CS
PIT/RR

2(3)HV9345, Safety Injection Tank T008 Vent Valve (Code/Category 2/A) (1" Globe/Solenoid) Dwg 40113A
AT/RR
BTO/CS (Note: 5)
FSTC/CS
PIT/RR

2(3)HV9347, Safety Injection Recirc Return to RWST T005 Isolation Valve (Code/Category 2/A) (3" Gate/Motor) Dwg 40114D
AT/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV9348, Safety Injection Recirc Return to RWST T005 Isolation Valve (Code/Category 2/A) (3" Gate/Motor) Dwg 40114D
AT/RR
BTC/OP (Note: 3)
PIT/RR

2(3)HV9350, Safety Injection Tank T009 Outlet Valve to RCS Loop 1B (Code/Category 1/B) (8" Gate/Motor) Dwg 40113A
BTC/CS
BTO/CS (Note: 5)
PIT/RR

2(3)HV9351, Safety Injection Tank T007 Drain Isolation Valve (Code/Category 1/A) (1" Globe/Air) Dwg 40113A
AT/RR
BTC/CS (Note: 3)
FSTC/CS
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV9353, Isolation Valve Shutdown System Recirculation (Code/Category 2/B) (6" Gate/Motor) Dwg 40112D
BTO/CS
PIT/RR

2(3)HV9355, Safety Injection Tank T007 Vent Valve (Code/Category 2/A) (1" Globe/Solenoid) Dwg 40113A
AT/RR
BTO/CS (Note: 5)
FSTC/CS
PIT/RR

2(3)HV9359, Shutdown Cooling Warm-Up Valve (Code/Category 2/B) (6" Gate/Motor) Dwg 40112D
BTO/CS
PIT/RR

2(3)HV9360, Safety Injection Tank T009 Outlet Valve to RCS Loop 2A (Code/Category 1/B) (8" Gate/Motor) Dwg 40113B
BTC/CS
BTO/CS (Note: 5)
PIT/RR

2(3)HV9361, Safety Injection Tank T009 Drain Isolation Valve (Code/Category 1/A) (1" Globe/Air) Dwg 40113B
AT/RR
BTC/CS (Note: 3)
FSTC/CS
PIT/RR

2(3)HV9365, Safety Injection Tank T009 Vent Valve (Code/Category 2/A) (1" Globe/Solenoid) Dwg 40113B
AT/RR
BTO/CS (Note: 5)
FSTC/CS
PIT/RR

2(3)HV9370, Safety Injection Tank T010 Outlet Valve to RCS Loop 2B (Code/Category 1/B) (8" Gate/Motor) Dwg 40113B
BTC/CS
BTO/CS (Note: 5)
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV9371, Safety Injection Tank T010 Drain Isolation Valve (Code/Category 1/A) (1" Globe/Air) Dwg 40113B
AT/RR
BTC/CS (Note: 3)
FSTC/CS
PIT/RR

2(3)HV9375, Safety Injection Tank T009 Vent Valve (Code/Category 2/A) (1" Globe/Solenoid) Dwg 40113B
AT/RR
BTO/CS (Note: 5)
FSTC/CS
PIT/RR

2(3)HV9377, SDCS Bypass to LPSI Suction Isolation Valve (Code/Category 1/A) (8" Gate/Motor) Dwg 40112D
AT/RR (Note: 13)
BTC/CS (Note: 5)
BTO/CS
PIT/RR

2(3)HV9378, SDCS Bypass to LPSI Suction Isolation Valve (Code/Category 1/A) (8" Gate/Motor) Dwg 40112D
AT/RR (Note: 13)
BTC/CS (Note: 5)
BTO/CS
PIT/RR

2(3)HV9379, SDCS Bypass to LPSI Suction Isolation Valve - Seal (Code/Category 2/B) (8" Gate/Motor) Dwg 40112D
BMPO/CS (Note: 19)
BTC/OP
BTO/OP
PIT/RR

2(3)HV9420, Control Valve - HPSI Header #1 to RCS Loop 2 Hot Leg (Code/Category 2/A) (3" Globe/Motor) Dwg 40112C
AJ/RR
BTO/CS
PIT/RR

2(3)HV9433, Reactor Coolant Loop 1B Hot Leg Injection Drain Valve (Code/Category 1/A) (1" Globe/Air) Dwg 40112C
AT/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV9434, Control Valve - HPSI Header #2 to RCS Loop 1 Hot Leg
(Code/Category 2/A) (3" Globe/Motor) Dwg 40112C
AJ/RR
BTO/CS
PIT/RR

2(3)HV9437, Reactor Coolant Loop 1A Hot Leg Injection Drain Valve
(Code/Category 1/A) (1" Globe/Air) Dwg 40112C
AT/RR
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)PSV9349, Shutdown Cooling System Relief Valve From RCS Loop No. 2
(Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40112D
RVT/RR (Note: 15)

S2(3)1201MU015 (14-015-C-173), Shutdown Cooling Line to LPSI P015
(Code/Category 2/B) (14" Gate/Manual) Dwg 40112B
PIT/RR (Note: 14)

S2(3)1201MU018 (14-018-C-173), Shutdown Cooling Line to LPSI P016
(Code/Category 2/B) (14" Gate/Manual) Dwg 40112B
PIT/RR (Note: 14)

S2(3)1204MR433 (V-433), LPSI 016 Casing Vent (Code/Category 2/B)
(1/2" Globe/Manual) Dwg 40112B
BMO/OP (Note: 14)

S2(3)1204MU001 (24-001-C-724), RWST T005 to Spray Pump P012 Suction Header
(Code/Category 2/C) (24" Split Disc Check/Self Actuated) Dwg 40112A
CVPO/OP
CVTC/RR
CVTO/RR (Note: 18)

S2(3)1204MU002 (24-002-C-724), RWST T006 to Spray Pump P013 Suction Header
(Code/Category 2/C) (24" Split Disc Check/Self Actuated) Dwg 40112A
CVPO/OP
CVTC/RR
CVTO/RR (Note: 18)

S2(3)1204MU003 (24-003-C-724), Outlet Check Valve - Containment Emergency
Sump (Code/Category 2/C) (24" Split Disc Check/Self Actuated) Dwg 40112A
CVPO/RR (Note: 5)
CVTO/RR (Note: 18)

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1204MU004 (24-004-C-724), Outlet Check Valve - Containment Emergency Sump (Code/Category 2/C) (24" Split Disc Check/Self Actuated) Dwg 40112A
CVPO/RR (Note: 5)
CVTO/RR (Note: 18)

S2(3)1204MU006 (10-006-C-675), HPSI Pumps P017 and P018 Suction Check Valve (Code/Category 2/C) (10" Check/Self Actuated) Dwg 40112A
CVPO/OP
CVTO/RR

S2(3)1204MU008 (10-008-C-675), HPSI Pumps P018 and P019 Suction Check Valve (Code/Category 2/C) (10" Check/Self Actuated) Dwg 40112A
CVPO/OP
CVTO/RR

S2(3)1204MU012 (4-012-C-358), HPSI Pump P017 Discharge Check Valve (Code/Category 2/C) (4" Stop Check/Self Actuated) Dwg 40112A
CVTC/CS (Note: 5)
CVTO/CS

S2(3)1204MU015 (4-015-C-358), HPSI Pump P019 Discharge Check Valve (Code/Category 2/C) (4" Stop Check/Self Actuated) Dwg 40112A
CVTC/CS (Note: 5)
CVTO/CS

S2(3)1204MU016 (4-016-C-358), HPSI Pump P018 Discharge Check Valve (Code/Category 2/C) (4" Stop Check/Self Actuated) Dwg 40112A
CVTC/CS (Note: 5)
CVTO/CS

S2(3)1204MU017 (4-017-C-553), HPSI Pumps P018 and P019 to #2 High Pressure Header (Code/Category 2/C) (4" Check/Self Actuated) Dwg 40112A
CVTC/CS (Note: 5)
CVTO/CS

S2(3)1204MU018 (3-018-A-551), HPSI Combined Header to RCS Loop 1A Check Valve (Code/Category 1/AC) (3" Check/Self Actuated) Dwg 40112C
AT/RR (Note: 13)
CVTC/CS (Note: 5)
CVTO/CS

S2(3)1204MU019 (3-019-A-551), HPSI Combined Header to RCS Loop 1B Check Valve (Code/Category 1/AC) (3" Check/Self Actuated) Dwg 40112C
AT/RR (Note: 13)
CVTC/CS (Note: 5)
CVTO/CS

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1204MU020 (3-020-A-551), HPSI Combined Header to RCS Loop 2A Check Valve (Code/Category 1/AC) (3" Check/Self Actuated) Dwg 40112C
AT/RR (Note: 13)
CVTC/CS (Note: 5)
CVTO/CS

S2(3)1204MU021 (3-021-A-551), HPSI Combined Header to RCS Loop 2B Check Valve (Code/Category 1/AC) (3" Check/Self Actuated) Dwg 40112C
AT/RR (Note: 13)
CVTC/CS (Note: 5)
CVTO/CS

S2(3)1204MU024 (10-024-C-406), LPSI Pump P015 Discharge Stop Check Valve (Code/Category 2/C) (10" Stop Check/Self Actuated) Dwg 40112B
CVTC/CS (Note: 5)
CVTO/CS

S2(3)1204MU025 (10-025-C-406), LPSI Pump P016 Discharge Stop Check Valve (Code/Category 2/C) (10" Stop Check/Self Actuated) Dwg 40112B
CVTC/CS
CVTO/CS

S2(3)1204MU027 (12-027-A-551), Safety Injection Headers to RCS Loop 1A (Code/Category 1/AC) (12" Check/Self Actuated) Dwg 40113A
AT/RR (Note: 13)
CVTC/CS (Note: 5)
CVTO/CS

S2(3)1204MU029 (12-029-A-551), Safety Injection Headers to RCS Loop 1B (Code/Category 1/AC) (12" Check/Self Actuated) Dwg 40113A
AT/RR (Note: 13)
CVTC/CS (Note: 5)
CVTO/CS

S2(3)1204MU031 (12-031-A-551), Safety Injection Headers to RCS Loop 2A (Code/Category 1/AC) (12" Check/Self Actuated) Dwg 40113B
AT/RR (Note: 13)
CVTC/CS (Note: 5)
CVTO/CS

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1204MU033 (12-033-A-551), Safety Injection Headers to RCS Loop 2B (Code/Category 1/AC) (12" Check/Self Actuated) Dwg 40113B
AT/RR (Note: 13)
CVTC/CS (Note: 5)
CVTO/CS

S2(3)1204MU034 (2-034-C-329), HPSI P017 Miniflow (Code/Category 2/C) (2" Stop Check/Self Actuated) Dwg 40112A
CVTC/RR
CVTO/OP

S2(3)1204MU035 (2-035-C-329), HPSI P019 Miniflow (Code/Category 2/C) (2" Stop Check/Self Actuated) Dwg 40112A
CVTC/RR
CVTO/OP

S2(3)1204MU036 (2-036-C-329), HPSI P018 Train "A" Miniflow (Code/Category 2/C) (2" Stop Check/Self Actuated) Dwg 40112A
CVTC/RR
CVTO/OP

S2(3)1204MU037 (2-037-C-329), LPSI Pump P015 Miniflow Stop Check Valve (Code/Category 2/C) (2" Stop Check/Self Actuated) Dwg 40112B
CVTC/RR
CVTO/OP

S2(3)1204MU040 (12-040-A-551), Safety Injection Tank T008 Outlet Check Valve (Code/Category 1/AC) (12" Check/Self Actuated) Dwg 40113A
AT/RR (Note: 13)
CVPO/CS (Note: 5)
CVTC/CS
CVTO/RR

S2(3)1204MU041 (12-041-A-551), Safety Injection Tank T007 Outlet Check Valve (Code/Category 1/AC) (12" Check/Self Actuated) Dwg 40113A
AT/RR (Note: 13)
CVPO/CS (Note: 5)
CVTC/CS
CVTO/RR

S2(3)1204MU042 (12-042-A-551), Safety Injection Tank T009 Outlet Check Valve (Code/Category 1/AC) (12" Check/Self Actuated) Dwg 40113B
AT/RR (Note: 13)
CVPO/CS (Note: 5)
CVTC/CS
CVTO/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1204MU043 (12-043-A-551), Safety Injection Tank T010 Outlet Check Valve (Code/Category 1/AC) (12" Check/Self Actuated) Dwg 40113B
AT/RR (Note: 13)
CVPO/CS (Note: 5)
CVTC/CS
CVTO/RR

S2(3)1204MU063 (2-063-C-329), LPSI Pump P016 Miniflow Stop Check Valve (Code/Category 2/C) (2" Stop Check/Self Actuated) Dwg 40112B
CVTC/RR
CVTO/OP

S2(3)1204MU072 (8-072-A-552), LPSI Check Valve to RCS Loop 1A (Code/Category 1/AC) (8" Check/Self Actuated) Dwg 40112D
AT/RR (Note: 13)
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1204MU073 (8-073-A-552), LPSI Check Valve to RCS Loop 1B (Code/Category 1/AC) (8" Check/Self Actuated) Dwg 40112D
AT/RR (Note: 13)
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1204MU074 (8-074-A-552), LPSI Check Valve to RCS Loop 2A (Code/Category 1/AC) (8" Check/Self Actuated) Dwg 40112D
AT/RR (Note: 13)
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1204MU075 (8-075-A-552), LPSI Check Valve to RCS Loop 2B (Code/Category 1/AC) (8" Check/Self Actuated) Dwg 40112D
AT/RR (Note: 13)
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1204MU077 (16-077-C-645), LPSI Pump P016 Suction Header Check Valve (Code/Category 2/C) (16" Check/Self Actuated) Dwg 40112A
CVPO/OP
CVTC/RR (Note: 16)
CVTO/RR

S2(3)1204MU084 (16-084-C-645), LPSI Pump P015 Suction Check Valve (Code/Category 2/C) (16" Check/Self Actuated) Dwg 40112A
CVPO/OP
CVTC/RR (Note: 16)
CVTO/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1204MU087 (16-087-C-675), Spray Pump P013 Suction Check Valve (Code/Category 2/C) (16" Check/Self Actuated) Dwg 40114A
CVPO/OP
CVTO/CS

S2(3)1204MU088 (16-088-C-675), Spray Pump P012 Suction Check Valve (Code/Category 2/C) (16" Check/Self Actuated) Dwg 40114A
CVPO/OP
CVTO/CS

S2(3)1204MU099 (2-099-C-334), Containment Isolation, SI Tank to Drain Header to RWST T005 (Code/Category 2/A) (2" Globe/Manual) Dwg 40114D
AJ/RR

S2(3)1204MU104 (2-104-C-329), HPSI P018 Train "B" Miniflow (Code/Category 2/C) (2" Stop Check/Self Actuated) Dwg 40112A
CVTC/RR
CVTO/OP

S2(3)1204MU132 (1/2-132-D-279), LPSI P015 Casing Vent (Code/Category 2/B) (1/2" Gate/Manual) Dwg 40112B
BMO/OP (Note: 14)

S2(3)1204MU152 (3-152-A-551), To #2 HPSI Header (Code/Category 1/AC) (3" Check/Self Actuated) Dwg 40111A
AT/RR (Note: 13)
CVTC/CS
CVTO/CS

S2(3)1204MU154 (2-154-C-036), CVCS to RCS Loop 2 Hot Leg Injection (Code/Category 2/B) (2" Gate/Manual) Dwg 40112C
BMO/OP

S2(3)1204MU155 (3-155-C-551), HPSI Header #1 to RCS Loop 2 Hot Leg (Code/Category 2/C) (3" Check/Self Actuated) Dwg 40112C
CVTO/CS (Note: 5)

S2(3)1204MU156 (3-156-A-551), HPSI Header #1 to RCS Loop 2 Hot Leg Inlet Check Valve (Code/Category 1/AC) (3" Check/Self Actuated) Dwg 40112D
AT/RR (Note: 13)
CVTC/CS
CVTO/CS (Note: 5)

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1204MU157 (3-157-A-550), HPSI Header #2 to RCS Loop 1 Hot Leg
(Code/Category 1/AC) (3" Check/Self Actuated) Dwg 40112C
AJ/RR
AT/RR
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1204MU158 (3-158-A-550), HPSI Header #1 to RCS Loop 2 Hot Leg
(Code/Category 1/AC) (3" Check/Self Actuated) Dwg 40112C
AJ/RR
AT/RR
CVTC/CS
CVTO/CS (Note: 5)

S2(3)1204MU199 (16-199-C-645), LPSI Pump P016 Suction Header Check Valve
(Code/Category 2/C) (16" Check/Self Actuated) Dwg 40112A
CVPO/OP
CVTC/RR (Note: 16)
CVTO/RR

S2(3)1204MU201 (16-201-C-645), LPSI Pump P015 Suction Header Check Valve
(Code/Category 2/C) (16" Check/Self Actuated) Dwg 40112A
CVPO/OP
CVTC/RR (Note: 16)
CVTO/RR

SALT WATER COOLING

2(3)HV6200, Salt Water Cooling System Pump P112 Discharge Valve
(Code/Category 3/B) (30" Butterfly/Air) Dwg 40126A
BTO/OP (Note: 3)
FSTO/OP
PIT/RR

2(3)HV6201, Salt Water Cooling System Pump P113 Discharge Valve
(Code/Category 3/B) (30" Butterfly/Air) Dwg 40126A
BTO/OP (Note: 3)
FSTO/OP
PIT/RR

2(3)HV6202, Salt Water Cooling System Pump P307 Discharge Valve
(Code/Category 3/B) (30" Butterfly/Air) Dwg 40126B
BTO/OP (Note: 3)
FSTO/OP
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV6203, Salt Water Cooling System Pump P114 Discharge Valve (Code/Category 3/B) (30" Butterfly/Air) Dwg 40126B
BTO/OP (Note: 3)
FSTO/OP
PIT/RR

2(3)HV6376, Service Water to SWC Pump P112A Control Valve (Code/Category 3/B) (2" Globe/Solenoid) Dwg 40126A
BTO/OP
FSTO/OP
PIT/RR

2(3)HV6377, Service Water to SWC Pump P113B Control Valve (Code/Category 3/B) (2" Globe/Solenoid) Dwg 40126A
BTO/OP
FSTO/OP
PIT/RR

2(3)HV6378, Service Water to SWC Pump P307A Control Valve (Code/Category 3/B) (2" Globe/Solenoid) Dwg 40126B
BTO/OP
FSTO/OP
PIT/RR

2(3)HV6379, Service Water to SWC Pump P114B Control Valve (Code/Category 3/B) (2" Globe/Solenoid) Dwg 40126B
BTO/OP
FSTO/OP
PIT/RR

2(3)HV6495, Salt Water from CCW Heat Exchanger E002B (Code/Category 3/B) (30" Butterfly/Motor) Dwg 40127C
BTO/OP
PIT/RR

2(3)HV6497, Salt Water from CCW Heat Exchanger E001A (Code/Category 3/B) (30" Butterfly/Motor) Dwg 40127C
BTO/OP
PIT/RR

S2(3)1413MU009 (30-009-D-722), SWCS Pump P112 Discharge Check Valve (Code/Category 3/C) (30" Split Disc Check/Self Actuated) Dwg 40126A
CVTC/OP
CVTO/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1413MU010 (30-010-D-722), SWCS Pump P113 Discharge Check Valve (Code/Category 3/C) (30" Split Disc Check/Self Actuated) Dwg 40126A
CVTC/OP
CVTO/OP

S2(3)1413MU011 (30-011-D-722), SWCS Pump P307 Discharge Check Valve (Code/Category 3/C) (30" Split Disc Check/Self Actuated) Dwg 40126B
CVTC/OP
CVTO/OP

S2(3)1413MU012 (30-012-D-722), SWCS Pump P114 Discharge Check Valve (Code/Category 3/C) (30" Split Disc Check/Self Actuated) Dwg 40126B
CVTC/OP
CVTO/OP

S2(3)1413MU013 (1-013-D-691), SWCS Pump P112 Recirculation to Cyclone Separator (Code/Category 3/C) (1" Check/Self Actuated) Dwg 40126A
CVTO/OP

S2(3)1413MU016 (1-016-D-691), SWCS Pump P113 Recirculation to Cyclone Separator (Code/Category 3/C) (1" Check/Self Actuated) Dwg 40126A
CVTO/OP

S2(3)1413MU021 (1-021-D-691), SWCS Pump P307 Recirculation to Cyclone Separator (Code/Category 3/C) (1" Check/Self Actuated) Dwg 40126B
CVTO/OP

S2(3)1413MU024 (1-024-D-691), SWCS Pump P114 Recirculation to Cyclone Separator (Code/Category 3/C) (1" Check/Self Actuated) Dwg 40126B
CVTO/OP

S2(3)1413MU047 (1-047-D-691), Check Valve Service Water Supply to Salt Water Pump P112 (Code/Category 3/C) (1" Check/Self Actuated) Dwg 40126A
CVTC/OP

S2(3)1413MU048 (1-048-D-691), Check Valve Service Water Supply to Salt Water Pump P113 (Code/Category 3/C) (1" Check/Self Actuated) Dwg 40126A
CVTC/OP

S2(3)1413MU049 (1-049-D-691), Check Valve Service Water Supply to Salt Water Pump P307 (Code/Category 3/C) (1" Check/Self Actuated) Dwg 40126B
CVTC/OP

S2(3)1413MU050 (1-050-D-691), Check Valve Service Water Supply to Salt Water Pump P114 (Code/Category 3/C) (1" Check/Self Actuated) Dwg 40126B
CVTC/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1413MW458 (1-458-D-691), Vent Float Valve to Atmosphere for P112 Salt Water Pump (Code/Category NA/C) (6" Check/Self Actuated) Dwg 40126A
CVTC/OP (Note: 6)

S2(3)1413MW459 (1-459-D-691), Vent Float Valve to Atmosphere for P113 Salt Water Pump (Code/Category NA/C) (6" Check/Self Actuated) Dwg 40126A
CVTC/OP (Note: 6)

S2(3)1413MW460 (1-460-D-691), Vent Float Valve to Atmosphere for P307 Salt Water Pump (Code/Category NA/C) (6" Check/Self Actuated) Dwg 40126B
CVTC/OP (Note: 6)

S2(3)1413MW461 (1-461-D-691), Vent Float Valve to Atmosphere for P114 Salt Water Pump (Code/Category NA/C) (6" Check/Self Actuated) Dwg 40126B
CVTC/OP (Note: 6)

STEAM

2(3)HV4053, Blowdown Isolation Valve - Steam Generator E089 (Code/Category 2/B) (6" Globe/Air) Dwg 40141A
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV4054, Blowdown Isolation Valve - Steam Generator E088 (Code/Category 2/B) (6" Globe/Air) Dwg 40141A
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV4057, Sample Isolation Valve - Steam Generator E089 (Code/Category 2/B) (1" Globe/Air) Dwg 40141A
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV4058, Sample Isolation Valve - Steam Generator E088 (Code/Category 2/B) (1" Globe/Air) Dwg 40141A
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV8200, Steam from Steam Generator E089 to AFW Pump P140 (Code/Category 2/B) (4" Globe/Air) Dwg 40141C
BMPC/CS (Note: 19)
BTC/OP
BTO/OP (Note: 3)
FSTO/OP
PIT/RR

2(3)HV8201, Steam from Steam Generator E088 to AFW Pump P140 (Code/Category 2/B) (4" Globe/Air) Dwg 40141D
BMPC/CS (Note: 19)
BTC/OP
BTO/OP (Note: 3)
FSTO/OP
PIT/RR

2(3)HV8202, Steam Generator E089 Main Steam Isolation Valve Bypass (Code/Category 2/B) (4" Globe/Air) Dwg 40141E
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV8203, Steam Generator E088 Main Steam Isolat'on Valve Bypass (Code/Category 2/B) (4" Globe/Air) Dwg 40141D
BTC/OP (Note: 3)
FSTC/OP
PIT/RR

2(3)HV8204, Steam Generator E089 Main Steam Isolation Valve (Code/Category 2/B) (30" Gate/Hydraulic) Dwg 40141C
BTC/CS (Note: 3)
FSTC/CS
PIT/RR

2(3)HV8205, Steam Generator E088 Main Steam Isolation Valve (Code/Category 2/B) (30" Gate/Hydraulic) Dwg 40141D
BTC/CS (Note: 3)
FSTC/CS
PIT/RR

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)HV8419, Main Steam Dump to Atmosphere (Code/Category 2/B)
(8" Angle/Air) Dwg 40141D
BMC/RR (Note: 11)
BMO/RR
BTC/CS (Note: 3)
BTO/CS
BTPO/OP
FSTC/CS
PIT/RR

2(3)HV8421, Main Steam Dump to Atmosphere (Code/Category 2/B)
(8" Angle/Air) Dwg 40141C
BMC/RR (Note: 11)
BMO/RR
BTC/CS (Note: 3)
BTO/CS
BTPO/OP
FSTC/CS
PIT/RR

2(3)HY8419B, Main Steam Dump to Atmosphere Solenoid Valve (Code/Category 2/A) (3/4" 3-Way/Solenoid) Dwg 40141D
AT/RR

2(3)HY8419C, Main Steam Dump to Atmosphere Solenoid Valve (Code/Category 2/A) (3/4" 3-Way/Solenoid) Dwg 40141D
AT/RR

2(3)HY8419D, Main Steam Dump to Atmosphere Solenoid Valve (Code/Category NA/A) (3/4" 3-Way/Solenoid) Dwg 40141D
AT/RR

2(3)HY8421B, Main Steam Dump to Atmosphere Solenoid Valve (Code/Category 2/A) (3/4" 3-Way/Solenoid) Dwg 40141C
AT/RR

2(3)HY8421C, Main Steam Dump to Atmosphere Solenoid Valve (Code/Category 2/A) (3/4" 3-Way/Solenoid) Dwg 40141C
AT/RR

2(3)HY8421D, Main Steam Dump to Atmosphere Solenoid Valve (Code/Category 2/A) (3/4" 3-Way/Solenoid) Dwg 40141C
AT/RR

2(3)PCV8463, Nitrogen Supply to Main Steam Dump Valve HV8419 (Code/Category NA/B) (1/4" Globe/Air) Dwg 40141D
BTO/CS

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)PCV8465, Nitrogen Supply to Main Steam Dump Valve HV8421 (Code/Category NA/B) (1/4" Globe/Air) Dwg 40141C
BTO/CS

2(3)PSV8401, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141D
RVT/RR (Note: 2)

2(3)PSV8402, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141D
RVT/RR (Note: 2)

2(3)PSV8403, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141D
RVT/RR (Note: 2)

2(3)PSV8404, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141D
RVT/RR (Note: 2)

2(3)PSV8405, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141D
RVT/RR (Note: 2)

2(3)PSV8406, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141D
RVT/RR (Note: 2)

2(3)PSV8407, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141D
RVT/RR (Note: 2)

2(3)PSV8408, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141D
RVT/RR (Note: 2)

2(3)PSV8409, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141D
RVT/RR (Note: 2)

2(3)PSV8410, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141C
RVT/RR (Note: 2)

2(3)PSV8411, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141C
RVT/RR (Note: 2)

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

2(3)PSV8412, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141C
RVT/RR (Note: 2)

2(3)PSV8413, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141C
RVT/RR (Note: 2)

2(3)PSV8414, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141C
RVT/RR (Note: 2)

2(3)PSV8415, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141C
RVT/RR (Note: 2)

2(3)PSV8416, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141C
RVT/RR (Note: 2)

2(3)PSV8417, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141C
RVT/RR (Note: 2)

2(3)PSV8418, Main Steam Relief Valve (Code/Category 2/C) (6" Safety/Self Actuated) Dwg 40141C
RVT/RR (Note: 2)

S2(3)1301MU003 (4-003-D-620), Steam Supply - S/G E088 to AFP Turbine K007 Check Valve (Code/Category 3/C) (4" Check/Self Actuated) Dwg 40141C
CVPO/OP (Note: 18)
CVTC/RR
CVTO/CS

S2(3)1301MU005 (4-005-D-620), Steam Supply - S/G E089 to AFP Turbine K007 Check Valve (Code/Category 3/C) (4" Check/Self Actuated) Dwg 40141C
CVPO/OP (Note: 18)
CVTC/RR
CVTO/CS

S2(3)1301MU021 (3/4-021-P-145), Nitrogen Supply Isolation Valve to HV8421 (Code/Category NA/B) (3/4" Globe/Manual) Dwg 40141C
BMC/CS

S2(3)1301MU027 (3/4-027-P-636), Instrument Air Supply Check Valve for HV8419 (Code/Category NA/AC) (3/4" Check/Self Actuated) Dwg 40141D
AT/RR
CVTC/OP

LIST OF VALVES WITHIN THE INSERVICE TESTING PROGRAM
(Continued)

S2(3)1301MU034 (3/4-034-P-636), Instrument Air Supply Check Valve for HV8421 (Code/Category NA/AC) (3/4" Check/Self Actuated) Dwg 40141C
AT/RR
CVTC/OP

S2(3)1301MU1264 (3/8-1264-P-*), Valve HV8419 Equalizing Valve (Code/Category NA/B) (3/8" Ball/Manual) Dwg 40141D
BMO/CS

S2(3)1301MU1265 (3/8-1265-P-*), Valve HV8421 Equalizing Valve (Code/Category NA/B) (3/8" Ball/Manual) Dwg 40141C
BMO/CS

S2(3)1301MU1328 (3/4-1328-P-145), Nitrogen Supply Isolation Gate Valve to HV8419 (Code/Category NA/B) (3/4" Gate/Manual) Dwg 40141D
BMC/CS

SUMPS AND DRAINS

2(3)HV5803, Containment Sump to Radwaste Sump (Code/Category 2/A) (3" Gate/Motor) Dwg 40117A
AJ/RR
BTC/OP (Notes: 3&5)
PIT/RR

2(3)HV5804, Containment Sump to Radwaste Sump Isolation Valve (Code/Category 2/A) (3" Gate/Air) Dwg 40117A
AJ/RR
BTC/OP (Notes: 3&5)
FSTC/OP
PIT/RR

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL

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(Continued)

1.0 AUXILIARY FEEDWATER

1.1 **S2(3)1305MU088, Drain Valve from Condensate Storage Tank T121 to T120 Sump**

1.1.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

1.1.2 Alternate Test this valve at cold shutdown intervals.

1.1.3 This valve is closed at all times except when crosstie between T121 and T120 enclosure is required. Valve provides access to the assured water inventory in T120 as part of the design basis of the condensate storage and transfer system and is deemed necessary for safe operation of the plant. NRC Branch Technical Position (BTP) Reactor System Branch (RSB) 5-1, states this must be a seismic Category I source of supply and available with either loss of offsite or onsite power. Access to the condensate in T120 is based on gravity feeding through MU476, gravity feed valve from T120 Demineralizer Header to T121, as documented in Emergency Operating Instructions (EOI) SO23-12-9. Access to that portion of the assured contents of T120 which would spill into the T120 enclosure, should T120 rupture following a DBE is assured by gravity feeding through MU088.

1.1.4 Technical Specification 3.7.1.3, Condensate Storage Tanks, invokes an action statement of four hours if either condensate tank is inoperable. The MU088 exercise test involves installing a plug on tank T121 outlet rendering the tank inoperable. Both tanks T120 and T121 provide the water for Auxiliary Feedwater Pump suction. Isolating these tanks from each other renders the makeup water supply and therefore the AFW system inoperable for the duration of the test. Hence, the exercise test for this valve is deemed to be not practical during plant operation.

1.2 **S2(3)1305MU121, AFP P140 Supply to S/G E089,**
S2(3)1305MU126, AFW Pump P141 Discharge Check Valve,
S2(3)1305MU532, AFW Pump P504 Discharge Check Valve and
S2(3)1305MU547, AFW Pump P140 Discharge Check Valve

1.2.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

1.2.2 Alternate Testing: Test the valves at cold shutdown. This avoids injecting cold water into hot feedwater piping and consequent thermal stresses.

1.2.3 These check valves prevent backflow of feedwater from Steam Generators to the discharge of Auxiliary Feedwater Pumps. They also prevent bypassing the flow from a running Auxiliary Feedwater Pump backwards through an idle Auxiliary Feedwater Pump.

1.2.4 Exercising these valves while the plant is at power requires injection of Auxiliary Feedwater into the Steam Generators. This flow places unnecessary and deleterious thermal stresses on the feedwater piping and could result in premature failure of this piping. The connection between the Auxiliary Feedwater Pump discharge piping and the main feed piping usually has a steady-state temperature of ≥ 350°F, however, the Auxiliary Feedwater Pumps inject condensate directly from the condensate storage tanks. Consequently, during the test of these valves at power, the piping experiences a rapid cooldown to approximately 70°F. Over the life of the plant, if the testing were conducted quarterly, the resulting fatigue from thermal cycling would exceed the original design assumptions from such a source. Accordingly, testing at this damaging frequency is considered impractical.

2.0 BORIC ACID MAKEUP (BAMU)

2.1 **2(3)HV9235, BAMU Tank T072 to Gravity Feed to Charging Pump Suction,**
2(3)HV9240, BAMU Tank T071 to Charging Pump Suction Header Control Valve, and,
2(3)HV9247, BAMU Pump to Charging Pump Suction Control Valve.

2.1.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

2.1.2 Alternate Testing: Test the valves at cold shutdown. This avoids uncontrolled boration and consequent reactor shutdown.

2.1.3 These valves are normally closed to block concentrated boric acid to the charging pump suction. When open, the contents of the boric acid system is directed to the Regenerative Heat Exchanger via the charging pumps and directly into the Reactor Coolant System.

2.1.4 Opening these valves during plant operation would result in injecting concentrated boric acid into the reactor coolant system, causing plant shutdown.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

2.2 **S2(3)1218MU033, BAMU Pump 2(3)P175 Discharge Check Valve, and, S2(3)1218MU035, BAMU Pump 2(3)P174 Discharge Check Valve**

2.2.1 Test Requirement: OM-10, Para. 4.3.2, Exercise check valves open quarterly.

2.2.2 Alternate Testing: Test the valves at cold shutdown. This avoids uncontrolled boration and consequent reactor shutdown.

2.2.3 These valves close to prevent backflow through an idle Boric Acid Transfer Pumps thus preventing bypass of the discharge of the running pump and open to allow flow from the associated BAMU pump to the Charging pump suction.

2.2.4 The only flow path through these valves which will allow test flow is into the Volume Control Tank (VCT) or to the suction of the Charging Pumps (See P&ID 40125B). The only source of water to open these valves is from the BAMU Pumps and is concentrated boric acid. As a result, exercising of these valves during power operation would result in uncontrolled boration of the reactor coolant system and the effect would be reactor plant shutdown.

3.0 CHEMICAL AND VOLUME CONTROL

3.1 **2(3)HV9200, Charging Pumps to Regenerative Heat Exchanger E063**

3.1.1 Test Requirement: OM-10, Para. 4.2.1.1, Active Category A and B valves shall be tested nominally every 3 months.

3.1.2 Alternate Testing: Test the valve at cold shutdown. This shifts the testing to a period during which is allowed by the Technical Specifications and avoids Reactor Coolant System pressure and boration control problems or complications.

3.1.3 This valve is the Containment Isolation for the Charging Pump Discharge into the Containment, where it goes to the Regenerative Heat Exchanger. It must open to allow normal charging flow and close if there is a need to isolate this line from the regenerative hear exchanger. It is in series with a check valve inside the containment (MU122) which also closes to isolate backflow from the Regenerative Heat Exchanger.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

3.1.4 Exercising HV9200 while the plant is at power would isolate normal charging to the Reactor Coolant System. This would result in a **non-compliance with Technical Specification 3.1.2.2**, which requires two flow paths for boration during power operation. In addition, exercising this air operated valve during plant power operation **would require securing letdown and charging entirely**. This is a **lengthy plant evolution** as is the restoration of letdown following the exercise test. Further, stopping charging and letdown flow imposes a large **thermal transient** on the components in the charging/letdown path which would eventually damage components such as the letdown heat exchanger and the regenerative heat exchanger.

3.2 **2(3)HV9205, Regenerative Heat Exchanger to Letdown Heat Exchanger, and,**
2(3)TV9267, Letdown Containment Isolation Valve

3.2.1 Test Requirement: OM-10, Para. 4.2.1.1, Active Category A and B valves shall be tested nominally every 3 months.

3.2.2 Alternate Testing: Test these valves at cold shutdown.

3.2.3 These valves block letdown flow from the Regenerative Heat Exchanger to the Letdown Heat Exchanger. Exercising these valves during power operation would result in interruption of flow and allow the associated heat exchanger temperatures to equalize for a short period. Later, upon restoration of flow as the valves are opened, the hot reactor coolant flow through the Regenerative Heat Exchanger would result in return to the former "equilibrium" temperatures. This would result in damaging thermal stress transients on the regenerative heat exchanger and reactor coolant system charging nozzles. Exercising these valves at cold shutdown shifts the testing to a period during which temperatures are much closer to ambient on both sides of the heat exchanger. As a result, the thermal transients from momentary interruption of flow are almost completely avoided.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

3.3 **2(3)LV0227B, VCT Outlet Valve, and,**
S2(3)1208MU015, VCT to Charging Pump Suction Check Valve

3.3.1 Test Requirement: OM-10, Para. 4.2.1.1, Active Category A and B valves shall be tested nominally every 3 months, and Para. 4.3.2.1, check valves shall be exercised nominally every 3 months.

3.3.2 Alternate Testing: Test these valves at cold shutdown.

3.3.3 LV0227B regulates the Volume Control Tank (VCT) Level by throttling the outlet to the Charging Pumps. Check valve MU015 prevents backflow into the VCT from the Charging pump suction piping.

3.3.4 Exercising these valves closed requires shifting charging pump suction and injecting highly concentrated boric acid into the Reactor Coolant System, causing plant shutdown. Exercising these valves at cold shutdown avoids the uncontrolled and unwanted boration during the period these valves and the associated VCT are out of service for their closed stroke test.

3.4 **S2(3)1208MU045, Chemical Addition Tank T001 to Charging Pump Suction Header**

3.4.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

3.4.2 Alternate Testing: Verify closure at cold shutdown intervals.

3.4.3 This valve provides the pressure boundary between safety related and non-safety related piping. Valve is normally closed and required to remain closed during accident mitigation when pressure boundary integrity is required to be maintained.

3.4.4 This test requires a backpressure from the charging pump suction header that can only be achieved when the charging pumps are secured for a period of time, thus requiring Modes 5 and 6. Additionally, an exercise test would result in unnecessary/undesirable dilution of the Reactor Coolant System if performed during power operation.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

3.5 **S2(3)1208MU066, Charging Pumps Combined Discharge Valve to HPSI Header**

3.5.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

3.5.2 Alternate Testing: Open stroke test at cold shutdown intervals.

3.5.3 This valve is normally closed and is isolated by one normally closed valve upstream, 1208MU065 and two normally closed valves downstream, 1204MU154 and 1208MU005. This valve prevents backflow from the HPSI header to the charging pump discharge header. Valve is located in the auxiliary charging path used for mitigating a high energy line break (HELB) of the charging line inside containment and re-establishing charging flow.

3.5.4 When valve is stroked open using the auxiliary charging path, cold borated water will be injected into the reactor coolant system via the HPSI header because the regenerative heat exchanger is bypassed. This results in extreme thermal shock, and consequent damage to the associated system connection/nozzles.

3.6 **S2(3)1208MU082, Gravity Feed - BAMU Tanks to Charging Pump P190 Suction, and,**
S2(3)1208MU083, BAMU Pumps to Charging Pumps Suction Header

3.6.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

3.6.2 Alternate Testing: Test the valves at cold shutdown. This avoids uncontrolled boration and consequent reactor shutdown.

3.6.3 These valves block backflow from the charging pump suction to the boric acid system. When open, the contents of the boric acid system is directed to the charging pump suction and via to the Regenerative Heat Exchanger directly into the Reactor Coolant System. Both valves are normally closed. They open to provide flow from the BAMU tanks through the gravity feed valves during safety injection upon failure of BAMU pumps or if the BAMU pumps are operating during safety injection, MU082 remains closed to prevent flow diversion back to the BAMU tanks.

3.6.4 Testing these valves in the open direction would result in injecting concentrated boric acid into the reactor coolant system, causing plant shutdown.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

3.7 **S2(3)1208MU084, Charging Pump Discharge to Regenerative Heat Exchanger**

3.7.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

3.7.2 Alternate Testing: Test the valve during cold shutdown.

3.7.3 Manual isolation valve upstream of HV9200 *(Charging Pumps to Regenerative Heat Exchanger E063)*. HV9200 and this valve are locked open during normal operation. This valve is unlocked and throttled during shutdown operation from outside the Control Room. See Abnormal Operating Instruction (AOI) Nos. S023-13-2 and S023-13-21.

3.7.4 Exercising MU084 while the plant is at power would isolate normal charging to the Reactor Coolant System. This would result in a **non-compliance with Technical Specification 3.1.2.2,** which requires two flow paths for boration during power operation. In addition, exercising this manually operated valve during plant power operation **would require securing letdown and charging entirely.** This is a **lengthy plant evolution** as is the restoration of letdown following the exercise test. Further, stopping charging and letdown flow imposes a large **thermal transient** on the components in the charging/letdown path which would eventually damage components such as the letdown heat exchanger and the regenerative heat exchanger.

3.8 **S2(3)1208MU094, Check valve - Coolant Polishing Demineralizer to Charging Pump Suction Header**

3.8.1 Test Requirement: OM-10, Para. 4.3.2, Active Category A and B valves shall be tested nominally every 3 months.

3.8.2 Alternate Testing: Test this valve at cold shutdown intervals. This will avoid unplanned dilutions and potential power excursions.

3.8.3 This valve provides the pressure boundary between Safety Related and Non-Safety Related piping. Valve is normally closed and required to remain closed during accident mitigation when pressure boundary integrity is required to be maintained. Additionally, this valve will cause an unplanned dilution of the Reactor Coolant System if a exercise test is performed during power operation.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

3.8.4 The Unit 2 valve and the Unit 3 valve are tested differently. The Unit 2 valve has a test tee located upstream, and valve closure is verified by measuring leakage past the valve. Performing these tests at Cold Shutdown intervals while measuring leakage is consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.4.

3.8.5 A test tee does not exist in Unit 3, and the valve is verified CLOSE using radiography. Performing radiography at Cold Shutdown intervals is consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.2.

3.9 **S2(3)1208MU122, Charging Pumps Check Valve to Regenerative Heat Exchanger E063**

3.9.1 Test Requirement: OM-10, Paragraph 4.3.2, exercise this valve every three months.

3.9.2 Alternate Testing: This valve will be verified closed during refueling outages while performing Appendix "J" testing. The check valve open (CVTO) test is quarterly during routine inservice testing of the charging pumps.

3.9.3 This containment isolation valve opens to allow normal charging flow to the reactor coolant system. It is located inside containment and is in constant use. Closing this valve during power operation (or any time reactor charging flow is required) results in cessation of flow through the regenerative heat exchanger and results in an extreme thermal transient. Additionally, the system arrangement provides no source of backflow or pressure to provide for a CVTC other than the containment penetration leak rate testing connections. Accordingly, to complete the CLOSE stroke test (CVTC), the reactor refueling interval seat leakage test is used as the verification of valve closure. This is consistent with the requirements of OM-10, Section 4.3.2.2.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

3.10 **S2(3)1208MU130, Containment Isolation - Charging Pump Discharge to Aux Spray Regenerative Heat Exchanger Bypass**

3.10.1 Test Requirement: OM-10, Para. 4.2.1.1, Active Category A and B valves shall be tested nominally every 3 months.

3.10.2 Alternate Testing: Stroke test this valve open and closed at cold shutdown intervals. During cold shutdown the extreme temperature difference between the normal spray flow and the charging pump discharge is avoided.

3.10.3 This valve provides the containment isolation (outside containment) for the charging pump discharge to the pressurizer auxiliary spray.

3.10.4 Exercising this valve during power operation results in admission of cold charging pump discharge to the pressurizer spray and an unnecessary thermal transient and stress on the pressurizer spray nozzle.

4.0 CHILLED WATER

4.1 **SA1417MU136, Check Valve to Prevent Leakage and Backflow on NSW**
SA1417MU138, Check Valve to Prevent Leakage and Backflow on NSW

4.1.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

4.1.2 Alternative Testing: These valves will be verified closed at Refueling intervals. The only way to verify closure of these valves is by disassembling an upstream valve and measuring leakage past MU136 (MU138). This creates an unnecessary burden on Maintenance and introduces the possibility of human error during disassembly and reassembly of the upstream valve. Performing the CLOSE tests in conjunction with the LEAKAGE tests at refueling intervals is consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.4.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

5.0 COMPONENT COOLING WATER

5.1 **2(3)HV6211, Containment Isolation Valve - CCW Non-Critical Loop,
2(3)HV6212, CCW from Heat Exchanger E001A to Non-Critical Loop,
2(3)HV6213, Component Cooling Discharge to Non-Critical Loop,
2(3)HV6216, Containment Isolation - CCW Non-Critical Loop Return,
2(3)HV6218, Component Cooling Water Pump Suction From Non-Critical Loop,
2(3)HV6219, Component Cooling Water Pump Suction From Non-Critical Loop,
2(3)HV6223, Containment Isolation - CCW Non-Critical Loop Supply,
2(3)HV6236, Containment Isolation - CCW Non-Critical Loop Return,
2(3)HV6500, Component Cooling Water from Shutdown Cooling System Heat Exchanger E003, and,
2(3)HV6501, Component Cooling Water from Shutdown Cooling System Heat Exchanger E004**

5.1.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

5.1.2 Alternate Testing: Stroke these valves at cold shutdown intervals to avoid damage to plant equipment which can result from interruption of CCW flow.

5.1.3 HV6211 and HV6216 are the CCW non-critical loop supply and return containment isolation valves (outside). HV6223 and HV6236 are the CCW non-critical loop supply and return containment isolation valves (inside). They provide isolation of the containment CCW header. They are closed upon receipt of a containment isolation actuation signal [CIAS].

5.1.4 HV6212 and HV6213 isolate the non-critical loop supply from the discharge of CCW heat exchanger 1A and 2B.

5.1.5 HV6218 and HV6219 isolate the non-critical loop return flow from CCW critical loops respectively "A" and "B" return piping.

5.1.6 HV6500 and HV6501 isolate the shutdown cooling heat exchanger outlets from the CCW pump sections.

5.1.7 Exercising HV6211, HV6216, HV6223, and HV6236 during operation would secure or direct cooling water flow from RCP seals, which could result in seal damage and plant shutdown. Similarly, exercising HV6212 and HV6213 would isolate the non-critical loop supply from the discharge of CCW heat exchanger 1A and 2B and secure CCW flow to the RCP seals with the same result.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

5.1.8 Exercising HV6218 and HV6219 would isolate the non-critical loop return flow from CCW critical loops return piping and have the same effect.

5.1.9 Exercising HV6500 and HV6501 would initiate flow in the shutdown cooling heat exchanger and therefore bypass flow intended for the normal CCW heat loads momentarily.

5.2 **2(3)PCV6358, CCW Surge Tank T-003 Nitrogen Backpressure Regulator, and 2(3)PCV6361, CCW Surge Tank T-004 Nitrogen Backpressure Regulator**

5.2.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

5.2.2 Alternate Testing: Test at Refueling Intervals.

5.2.3 These valves maintain CCW surge tank maximum pressure at 41 psig and valve closes when tank pressure drops below 41 psig. They remain closed and leak tight to prevent loss of Nitrogen inventory and/or consequent loss of adequate CCW pump suction pressure.

5.2.4 During plant refueling, each CCW train is taken out of service for maintenance and these valves can be tested at that time.

5.2.5 Closure of these valves is verified by measuring leakage past the valves. The test involves installation of a test rig similar to that used for LLRTs and measuring leakage flow past the valves. Performing the CLOSE test of these valves in conjunction with the LEAKAGE test at refueling intervals is consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.4.

5.3 **2(3)TV9144, CCW from RCP P001 Seal Heat Exchanger**
2(3)TV9154, CCW from RCP P003 Seal Heat Exchanger
2(3)TV9164, CCW from RCP P004 Seal Heat Exchanger
2(3)TV9174, CCW from RCP P002 Seal Heat Exchanger

5.3.1 Test Requirement: OM-10, Para. 4.2.1.1, exercise open and closed nominally every three months.

5.3.2 Alternate Testing: Remote manually test valves at cold shutdown intervals and manually stroke valves when plant conditions allow containment entry at cold shutdowns of a long enough duration.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

5.3.3 In order to stroke open the valve remotely from the Control Room, valves will first have to be closed and then stroked open interrupting flow to the reactor coolant pump (RCP) seal. The closure would result in seal damage. Accordingly, these valves can only be exercised when the RCPs are secured (at cold shutdown).

5.3.4 Containment entry is required to manually open stroke these valves.

5.4 **S2(3)1203MU101, CCW Pump P024 Discharge Check Valve**
S2(3)1203MU102, CCW Pump P026 Discharge Check Valve
S2(3)1203MU103, CCW Pump P025 Discharge Check Valve

5.4.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

5.4.2 Alternate Testing: Test partially open quarterly and full open at cold shutdown intervals.

5.4.3 These check valves are in the discharge of each CCW pump and prevent backflow through an idle pump when the associated parallel pump is operating.

5.4.4 Stroke at cold shutdown intervals when plant conditions allow adjustment of CCW flow without the complexity represented by the Mode 1 configuration. To achieve full flow to stroke these check valves open (restoration of normal CCW flow is equally complicated) requires a tedious and complicated adjustment of the flow balance between numerous CCW loads. This usually results in high temperature alarms in the control room and results in a thermal cycle on the components serviced by CCW.

5.5 **S2(3)1203MU268, Nuclear Plant Service Water Supply to CCW Loop A,**
S2(3)1203MU269, Nuclear Plant Service Water Supply to CCW Loop B

5.5.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

5.5.2 Alternate Testing: Stroke at cold shutdown intervals when plant conditions allow CCW loops to be inoperable without rendering several Technical Specification required components inoperable.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

5.5.3 These check valves provide water makeup to the CCW surge tanks. To achieve a close stroke of these check valves, the upstream volume of the associated piping must be isolated and depressurized. The CLOSE test is performed by measuring leakage past the valve. This renders the associated CCW surge tank and therefore the associated CCW loop to be inoperable. The result is entry into multiple Technical Specification LCO Action Statements if done during plant operation. Performing the CLOSE tests via LEAKAGE tests at cold shutdown intervals is consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.4.

5.6 **S2(3)1203MU280, Check Valve CCW to RCP P001 Seals**
S2(3)1203MU281, Check Valve CCW to RCP P002 Seals
S2(3)1203MU282, Check Valve CCW to RCP P003 Seals
S2(3)1203MU283, Check Valve CCW to RCP P004 Seals

5.6.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

5.6.2 Alternate Testing: Stroke at cold shutdown intervals when plant conditions allow Containment entry for valve testing and RCPs are secured.

5.6.3 These valves close to prevent backflow in the non-critical loop supply line providing cooling water to RCP Seal Heat Exchangers. MU280 through MU283 were originally put in the system to provide a barrier between the Reactor Coolant System and CCW in the event the RCP seal heat exchanger catastrophically failed.

5.6.4 In order to exercise these check valves both OPEN and CLOSED, interrupting flow to the reactor coolant pump (RCP) seal. The closure would result in seal damage. Accordingly, these valves can only be exercised when the RCPs are secured (at cold shutdown). Additionally, testing these valves requires a containment entry.

6.0 CONDENSATE AND FEEDWATER

6.1 **2(3)HV1105, Feedwater Bypass Valve for Steam Generator E089, and,**
2(3)HV1106, Feedwater Bypass Valve for Steam Generator E088

6.1.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

6.1.2 Alternate Testing: Test these valves at cold shutdown intervals.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

6.1.3 These valves serve to isolate the bypass line around the main feedwater regulation valves.

6.1.4 These valves cannot be full stroke exercised during power operation as this would disturb steam generator level control, which could result in plant shutdown.

6.2 **2(3)HV4047, Feedwater Block Valve - Steam Generator E088,**
2(3)HV4048, Feedwater Isolation Valve - Steam Generator E088,
2(3)HV4051, Feedwater Block Valve - Steam Generator E089, and,
2(3)HV4052, Feedwater Isolation Valve - Steam Generator E089

6.2.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

6.2.2 Alternate Testing: Test these valves at cold shutdown intervals.

6.2.3 These valves block feed flow in the main feed lines entering containment. They are all outside the containment. Valves 2(3)HV4048 and 2(3)HV4052 are containment Isolation valves.

6.2.4 Full stroke exercising these valves during power operation would result in loss of feedwater flow to the steam generator, which could result in a plant shutdown.

6.3 **S2(3)13O5MU036, Main Feed Check at Steam Generator E089**
S2(3)13O5MU129, Main Feed Check at Steam Generator E088

6.3.1 Test Requirement: OM-10, Paragraph 4.3.2, exercise these valves every three months.

6.3.2 Alternate Testing: At each refueling outage, test the valves by partial disassembly, inspection and manual stroking.

6.3.3 These valves are in the main feedwater supply to the steam generators, and are normally full open while main feedwater is supplied to the steam generators. To exercise these valves CLOSE would require securing main feedwater to the steam generators. During a loss of feedwater accident, these check valves close isolating the main feedwater piping from auxiliary feedwater flow.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

6.3.4 Closure of these valves is verified by disassembly and hand-stroking the valves. The use of non-intrusive test techniques to verify closure have been considered, and determined to be impractical at this point. The valves are located in containment, and performance of magnetic and/or acoustics would require working in containment at power, which would increase radiation exposure. Ultrasonics have been attempted in the past, but were unsuccessful because ultrasonics depend upon water as a medium, and the water drains from these valves upon shutdown. Radiography may be feasible, but would require securing access to the refueling deck during the outage, thus impacting the critical path of the outage. Also, valve degradation has been observed in these valves, and as a result all valves are disassembled each outage to inspect for continued degradation. Thus, no additional impact (e.g., human error) is introduced in performing the hand-stroke to credit the IST.

6.3.5 A full open stroke of the valves is performed upon return to power.

6.3.6 OM-10, Section 4.3.2.2, Exercising Requirements, Paragraph (e) stipulates if exercising is not practicable during plant operations or cold shutdowns, it may be limited to full stroke during refueling outages.

6.3.7 Section 4.3.2.4(c), Valve Obturator Movement, further states, "As an alternative to the testing in (a) or (b) above, disassembly every refueling outage to verify operability of check valves may be used."

6.3.8 Disassembly and inspection is performed in accordance with, and does not deviate from, OM-10, Para 4.3.2.4, and GL 89-04, Position 2.

6.4 **S2(3)1305MU124, AFW Check Valve at Steam Generator E089, and, S2(3)1305MU448, AFW Check Valve at Steam Generator E088**

6.4.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

6.4.2 Alternate Testing: Test these valves at cold shutdown intervals.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

6.4.3 These valves prevent backflow out of the steam generators in the event of an auxiliary feed line rupture. This provides protection from pipe whip and jet impingement and loss of the steam generator in the loss of auxiliary feed line accident.

6.4.4 Exercising these valves while the plant is at power would result in placing unnecessary thermal stresses on the feedwater piping, which could result in premature failure of this piping.

7.0 CONTAINMENT HVAC (NORMAL)

7.1 **2(3)HV9948, Containment Purge Supply,**
2(3)HV9949, Containment Purge Supply,
2(3)HV9950, Containment Purge Exhaust, and,
2(3)HV9951, Containment Purge Exhaust

7.1.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

7.1.2 Alternate Testing: Test these valves at cold shutdown intervals.

7.1.3 Containment isolation for the main ventilation piping into and out of containment.

7.1.4 These valves are passive except in Modes 5 and 6, at which time they are tested. In addition, exercising these valves during plant power operation would result in non-compliance with the Technical Specifications.

8.0 CONTAINMENT SPRAY

8.1 **2(3)HV8150, Isolation Valve - Shutdown Cooling System Heat Exchanger E004 to LPSI Header, and,**
2(3)HV8151, Isolation Valve - Shutdown Cooling System Heat Exchanger E003 to LPSI Header

8.1.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

8.1.2 Alternate Testing: Test these valves at cold shutdown intervals.

8.1.3 These valves provide isolation between the outlet of the Shutdown Cooling System (SDCS) heat exchanger and the LPSI discharge header to the Reactor Coolant System. They are opened for Shutdown Cooling System operation and must remain closed during power operation.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

8.1.4 For ECCS system operability (in plant Modes 1, 2 and 3) the Technical Specifications (Surveillance 4.5.2.a) require verification at least once per twelve hours that HV8150 and HV8151 are closed and power to the valve operators is removed.

8.1.5 Testing these valves at a cold shutdown interval is consistent with NUREG-1482, Para. 3.1.1. Removing these valves from power lockout, restoring power and opening them in Modes 1, 2 or 3 involves a hardship; i.e., repositioning of a breaker from "off" to "on", and closing the manual isolation valves for HV8150 and HV8151. Manual action would be required to restore the ECCS if an accident occurred while the test was in progress.

8.1.6 This risk outweighs the benefits achieved with a quarterly test in light of the facts that (1) these valves are in the idle shutdown cooling loops that are not used except when the plant is placed in cold shutdown, (2) being in power lockout, these valves have a minimal probability of failure. They are idle (potential sources of failure are very limited), and, (3) the realignment of the system for the exercise tests in question invalidates the assumptions in the Safety Analysis (see the Technical Specification Bases, Section B 3/4.5.2).

8.2 **S2(3)1206MU004, Containment Isolation Stop Check Valve - Spray Header #1 (Code & Category: 2/AC)**
S2(3)1206MU006, Containment Isolation Stop Check Valve - Spray Header #2 (Code & Category: 2/AC)

8.2.1 Test Requirement: OM-10, Paragraph 4.3.2, exercise these valves every three months.

8.2.2 Alternate Testing: At each refueling outage, (1) test the valves by partial disassembly, inspection and manual stroking on a rotating basis (one valve per refueling), and, (2) perform a partial stroke test (OPEN) of each valve using system flow.

8.2.3 During partial disassembly the valve internals shall be visually inspected for worn or corroded parts, and the valve disks will be manually exercised. If it is found that the full stroke capability of the disassembled valve is in question, the other valve will be similarly disassembled and inspected and manually full stroked during the same outage.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

8.2.4 Following reassembly and prior to return to service, these valves will be tested by partial stroking using system flow.

8.2.5 FULL FLOW TESTING

.1 These valves open to allow a flow of water from the containment spray pump discharge into the containment spray ring headers. They are inside the containment building in the line leading from the Containment penetration to the riser supplying the ring headers and spray nozzles. As a consequence full-stroke exercising these valves through this flow path using the containment spray pumps would result in a containment spray-down and consequent potential equipment damage as well as create additional liquid radwaste to be removed from the Containment Building sump.

8.2.6 PARTIAL FLOW TESTING

.1 The riser inside the containment building is drained each refueling and refilled prior to returning the plant to service. When the riser is being filled with water, the water can be put in the system upstream of each stop check valve. Therefore, this flow through the Spray Header Containment Isolation Stop Check Valves during the filling of the riser would result in a partial stroke of these valves. Other methods to achieve a partial open stroke are also available.

8.2.7 NON-INTRUSIVE TESTING

.1 The use of non-intrusive test techniques to verify full open capability has been considered, and determined to be impractical at this point. Acoustics were attempted to determine whether the valves went full open at a reduced flow, but no opening impact could be detected.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

8.2.8 CONCLUSION

.1 NRC Generic Letter 89-04, Attachment 1, Position 2, identifies partial disassembly and inspection as an acceptable alternative for stroking a valve when it is impractical to use flow. In this case, there is no way to stroke these valves with the existing system design using flow. The Code required full-stroke testing using flow could only be performed after considerable modification of the system design, such as installation of an instrumented test loop. The high costs of the necessary design changes involved would not be justified by the improvement of the valve testing. Further, the additional valves, piping, supports and penetrations could result in reduced plant reliability.

8.2.9 TEST SCHEDULE

.1 Each valve is disassembled and inspected each refueling outage which requires additional draining of the associated system piping over and above draining the riser as previously discussed. This generates a significant amount of radioactive liquid waste. In addition, considerable radiation exposure can be received by personnel performing the partial disassembly, hand stroking and inspection. As a consequence, there is a clear advantage in reducing the number of these tests required in each refueling.

.2 GL 89-04 allows development of staggered testing of like components by establishing an inspection plan for similar groups of valves. This is stated in position 2 of the Generic Letter. Disassembly and inspection is performed in accordance with, and does not deviate from, OM-10, Para 4.3.2.4, and GL 89-04, Position 2.

8.3 **S2(3)1206MU010, Pump 2(3)P012 Miniflow Stop Check Valve,**
S2(3)1206MU011, Pump 2(3)P013 Miniflow Stop Check Valve

8.3.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

8.3.2 Alternate Testing: Test these valves at cold shutdown intervals.

8.3.3 These stop-check valves direct miniflow recirculation from the Containment Spray pumps back to the Refueling Water Storage Tanks.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

8.3.4 Providing flow or pressure to verify completion of the closed stroke requires placing the miniflow line out of service for the HPSI, LPSI and Containment Spray Systems. This renders those systems inoperable and is therefore only practical in modes during which these systems are not required to be operable under the Technical Specifications.

8.4 **S2(3)1206MU012, Spray Pump 2(3)P012 Discharge Stop Check Valve,**
S2(3)1206MU014, Spray Pump 2(3)P013 Discharge Stop Check Valve,
S2(3)1206MU029, Spray Pump 2(3)P012 Discharge Check Valve to Shutdown Cooling System Heat Exchanger E004,
S2(3)1206MU030, Spray Pump 2(3)P013 Discharge Check Valve to Shutdown Cooling System Heat Exchanger E003

8.4.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

8.4.2 Alternate Testing: Test these valves at cold shutdown or reactor refueling intervals as explained below.

8.4.3 Provide check valves to prevent back-flow through idle spray pumps and associated loss of flow and pressure from the outlet of the operating spray pump.

8.4.4 The OPEN EXERCISE test for these valves requires a flow rate of 2300-2750 gpm. The flow path for this test involves establishing flow through S2(3)1204MU162 to the RWST. The line-up uses a portion of the common LPSI header for the flow path. Aligning the Containment Spray (CSS) and LPSI systems in this manner renders one train of containment spray and both trains of LPSI inoperable. With the LPSI and CSS aligned to support this testing, LPSI flow from both trains is diverted to the RWST. This constitutes a loss of LPSI system function and places the plant in a condition which is outside the licensing basis. Because of this loss of system function, MU012, 014, 029 and 030 are excluded from quarterly testing consistent with the guidance in NUREG-1482, Para. 3.1.1(1).

8.4.5 The EXERCISE CLOSED test is also done at cold shutdown intervals. There is a difference between the CLOSE tests for Unit 2 and for Unit 3. Unit 2 has a vent between valve pairs that allow the CLOSE tests to be performed by measuring leakage using a test rig. Performing these tests at refueling intervals while measuring leakage is consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.4.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

8.4.6 This vent does not exist in Unit 3, and the valves are verified CLOSE using radiography. The radiography is performed at refueling intervals on a rotating basis consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.2.

8.4.7 As an additional argument to CLOSE test the valves at refueling intervals, OM-10, paragraph 1.3 defines ***exercising*** as "the demonstration based on direct visual or indirect positive indications that the moving parts of a valve function." Since it is not possible to OPEN EXERCISE test these valves at a quarterly interval, verifying the valves CLOSED at a quarterly interval would not satisfy the code requirement to exercise the valves. Therefore, the interval for the CLOSED EXERCISE test is set at the same interval as the OPEN EXERCISE test.

9.0 FUEL STORAGE POOL AND REFUELING

9.1 **2(3)LV0227C, RWST To Charging Pump Suction, and,**
S2(3)1219MU052, RWST TO06 to Charging Pump Suction Header

9.1.1 Test Requirement: OM-10, Paras. 4.2.1.1 and 4.3.2, test nominally every three months.

9.1.2 Alternate Testing: Test these valves at cold shutdown intervals.

9.1.3 These valves provide flow of boric acid from the RWST into the suction of the charging pumps.

9.1.4 Opening these valves would result in injecting highly concentrated boric acid into the reactor coolant system, causing plant shutdown.

10.0 NITROGEN GAS

10.1 **S2(3)2418MU002, Nitrogen Supply to Containment, and,**
S2(3)2418MU108, Nitrogen Supply to Safety Injection Tanks

10.1.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

10.1.2 Alternate Testing: Test these valves at refueling intervals.

10.1.3 Containment isolation inside containment for nitrogen supply to various components.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

10.1.4 The CVTC is performed in conjunction with the 10 CFR 50, Appendix J seat leakage test. Testing of these valves requires utilization of LLRT test equipment and containment entry. NUREG-1482 (Reference 2.5.3) Section 4.1.4 allows performance of such tests at refueling intervals.

10.2 S2(3)2418MU356, Backup Nitrogen Cylinder MV-057 Check Valve Testing,
S2(3)2418MU358, Backup Nitrogen Cylinder MV-058 Check Valve,
S2(3)2418MU360, Backup Nitrogen Cylinder MV-059 Check Valve,

S2(3)2418MU362, Backup Nitrogen Cylinder MV-060 Check Valve,
S2(3)2418MU364, Backup Nitrogen Cylinder MV-061 Check Valve,
S2(3)2418MU366, Backup Nitrogen Cylinder MV-062 Check Valve,

S2(3)2418MU368, Backup Nitrogen Cylinder MV-062 Check Valve,
S2(3)2418MU371, Backup Nitrogen Cylinder MV-064 Check Valve,
S2(3)2418MU373, Backup Nitrogen Cylinder MV-065 Check Valve,

S2(3)2418MU375, Backup Nitrogen Cylinder MV-066 Check Valve,
S2(3)2418MU377, Backup Nitrogen Cylinder MV-067 Check Valve,
S2(3)2418MU379, Backup Nitrogen Cylinder MV-068 Check Valve,

S2(3)2418MU387, Backup Nitrogen Cylinder MV-069 Check Valve,
S2(3)2418MU389, Backup Nitrogen Cylinder MV-070 Check Valve,
S2(3)2418MU406, Backup Nitrogen Cylinder MV-102 Check Valve,

S2(3)2418MU408, Backup Nitrogen Cylinder MV-103 Check Valve,
S2(3)2418MU410, Backup Nitrogen Cylinder MV-104 Check Valve,
S2(3)2418MU412, Backup Nitrogen Cylinder MV-105 Check Valve,

S2(3)2418MU414, Backup Nitrogen Cylinder MV-106 Check Valve, and
S2(3)2418MU416, Backup Nitrogen Cylinder MV-107 Check Valve

10.2.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

10.2.2 Alternate Testing: Test at cold shutdown intervals in a plant mode that permits the associated CCW train to be inoperable.

10.2.3 These valves open to admit backup nitrogen to the CCW surge tanks from the individual nitrogen storage bottles. They close to prevent depressurization in the event a bottle is removed for replacement.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

10.2.4 These valves require placing the associated Component Cooling Water Loop OOS. This can only be done in a mode in which the Technical Specifications permit one CCW Loop to be inoperable.

10.2.5 These are non-code valves. See General Note #5 in Attachment 2. The analyses provided in Reference 2.1.1 specifies the type(s) of tests which must be performed. A Cold Shutdown interval has been determined to be sufficient to provide assurance of operability for these valves, and is consistent with Reference 2.5.2, Response to Questions 53 and 110, and Reference 2.5.3 Section 3.4.

10.3 **S2(3)2418MU398, Nitrogen Supply to Component Cooling Water Surge Tank T004B, and,**
S2(3)2418MU402, Nitrogen Supply to Component Cooling Water

10.3.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

10.3.2 Alternate Testing: Stroke at refueling intervals.

10.3.3 These check valves provide nitrogen makeup to the CCW surge tanks. To achieve a CLOSE stroke of these check valves, the upstream volume of the associated piping must be isolated and depressurized. This renders the associated CCW surge tank and therefore the associated CCW loop to be inoperable. The result is entry into multiple Technical Specification LCO Action Statements if done during plant operation.

10.3.4 The test involves installation of a flowmeter on a test tee and measuring leakage flow past the valves. Performing the CLOSE test of these valves in conjunction with the LEAKAGE test at refueling intervals is consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.4.

11.0 NUCLEAR SAMPLING

11.1 **S2(3)1212MU261, SI System Loop B to Central Liquid Sample System Check Valve**
S2(3)1212MU262, SI System Loop A to Central Liquid Sample System Check Valve
S2(3)1212MU580, Nuclear Service Water to Liquid Sample System Check Valve

11.1.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

11.1.2 Alternative Testing: These valves will be verified closed at Refueling intervals. The only way to verify closure of these valves is to measure leakage into a test volume upstream of the check valves using a hydro pump. The closed tests are performed in conjunction with the leakage tests on MU261, MU262, MU580, MU010, and HV0588B. The elaborate valve line-up, test equipment required, and high man-hours required to perform this test make it impractical to perform on a more frequent basis. Performing the CLOSE tests in conjunction with the LEAKAGE tests at refueling intervals is consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.4.

12.0 NUCLEAR SERVICE WATER

12.1 **S2(3)1415MU236, Containment Isolation Check Valve - Nuclear Service Water**

12.1.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

12.1.2 Alternate Testing: Test this valve at cold shutdown intervals.

12.1.3 This valve provides containment isolation for the penetration conveying Nuclear Service Water into the containment for use during maintenance, system fill, refueling, etc.

12.1.4 The CLOSE stroke verification requires containment access. This is only practical during plant shutdown.

13.0 REACTOR COOLANT

13.1 **2(3)HV0296A, Reactor Head Vent,**
2(3)HV0296B, Reactor Head Vent,
2(3)HV0297A, Pressurizer Vent Valve,
2(3)HV0297B, Pressurizer Vent Valve,
2(3)HV0298, Vent to Containment from Reactor Head/Pressurizer, and,
2(3)HV0299, Quench Tank Inlet from Reactor Head/Pressurizer Vent

13.1.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

13.1.2 Alternate Testing: Stroke these valves open and closed at cold shutdown intervals.

13.1.3 The function of these valves is to vent various components in the Reactor Coolant System (RCS).

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

13.1.4 Power is normally removed from these solenoid valves because they are part of the RCS boundary and opening them while the RCS is pressurized would release RCS to the vent system. Both the very restrictive Action Statement in the Technical Specification (4 hours) and the risk of a potential accident, dictate against the quarterly IST interval in Modes 1 through 4.

.1 Technical Specification 3.4.10, Reactor Coolant Gas Vent System, requires the valves listed all remain closed in Modes 1 through 4. If any of these valves are inoperable or open, the Action Statement must be completed within 4 hours.

.2 The design redundancy of the RCS Gas Vent System serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure of a vent valve, or control system does not prevent isolation of the vent path (from Technical Specification basis, Paragraph 3/4.4.10). If, in Modes 1 through 4, a valve were to remain open during an exercise IST, the potential for a Loss of Coolant Accident (LOCA) would exist.

13.2 **2(3)HV9201, Regenerative Heat Exchanger E063 to Auxiliary Spray,**
S2(3)1201MU019, Auxiliary Spray Check Valve, and,
S2(3)1201MU129, Auxiliary Spray to Reactor Coolant System from Charging Pumps

13.2.1 Test Requirement: OM-10, Paras. 4.2.1.1 and 4.3.2, test nominally every three months.

13.2.2 Alternate Testing: Stroke the valves at cold shutdown intervals.

13.2.3 These valves provide flow to the auxiliary spray into the pressurizer, either through the regenerative heat exchanger, or bypassing the regenerative heat exchanger.

13.2.4 Exercising would result in unnecessary severe thermal transients and stress on the pressurizer spray nozzle.

13.3 **2(3)HV9202, Regenerative Heat Exchanger E063 to Reactor Coolant System Loop 2A, and,**
2(3)HV9203, Regenerative Heat Exchanger E063 to Reactor Coolant System Loop 1A

13.3.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

13.3.2 Alternate Testing: Stroke the valves open and closed at cold shutdown intervals.

13.3.3 These valves block the charging line from the Regenerative Heat Exchanger to the Reactor Coolant System when they close. They are located in the line between these two components.

13.3.4 These valves must remain open during power operation in order to ensure consistency with assumptions made regarding system flow to the RCS cold legs in the accident analysis and to comply with the intent of LCO 3.5.2. In addition to Technical Specification action statement entry, exercising either air operated valve during plant power operation **would require securing letdown and charging entirely**. This is a **lengthy plant evolution** as is the restoration of letdown following the exercise test. Further, stopping charging and letdown flow imposes a **large thermal transient** on the components in the charging/letdown path which would eventually damage these components such as the letdown heat exchanger and the regenerative heat exchanger.

13.4 **2(3)HV9204, Reactor Coolant System Loop 2B Letdown to Regenerative Heat Exchanger, and,**
2(3)TV0221, Letdown Isolation Valve

13.4.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

13.4.2 Alternate Testing: Stroke the valves closed at cold shutdown intervals.

13.4.3 These valves are in the letdown line from the Reactor Coolant System to the Regenerative Heat Exchanger and close to block flow through these lines.

13.4.4 Exercising these valves during power operation would result in unnecessary thermal stress transients on the regenerative heat exchanger and reactor coolant system charging nozzles.

13.5 **2(3)HV9217, Reactor Coolant System Bleed Off to Volume Control Tank, and,**
2(3)HV9218, Reactor Coolant System Bleed Off to VCT Isolation Valve Inside Containment

13.5.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

13.5.2 Alternate Testing: Stroke the valves closed at cold shutdown intervals.

13.5.3 These valves are the containment isolation valves for the reactor coolant pump seal leakoff line to the Volume Control Tank (VCT).

13.5.4 Exercising these valves could result in Reactor Coolant Pump (RCP) seal failure and subsequent reactor shutdown. Operation of the RCP mechanical seals depends on steady bleed-off flow to maintain proper staging and seal cooling. Without continuous bleed-off the seals very quickly overheat and are destroyed. Because of historical performance problems with our RCP seals, great care is exercised to avoid even momentary fluctuation or interruption of seal bleed-off flow. Exercising these valves while the RCPs are in operation interrupts the seal bleed-off flow and consequently, HV9217 and HV9218 cannot be shut while the RCPs are in operation without the risk of destruction of the RCP seals.

13.6 **2(3)XCV9219, Thermal Relief of Regenerative Heat Exchanger**

13.6.1 Test Requirement: OM-10, Para. 4.3.2.1, test nominally every three months.

13.6.2 Alternate Testing: Test at Cold Shutdown Intervals.

13.6.3 This is a spring loaded check valve used as a thermal relief valve in the event charging is isolated (Closure of 2(3)HV9202 and 2(3)HV9203 without isolating letdown. This bypass line can be credited as the boration flow path required by Technical Specifications 3.1.2.1 and 3.1.2.2. As such, normally this normally closed valve is required to open.

13.6.4 This valve is tested OPEN by closing 2(3)HV9202 and 2(3)HV9203 and ensuring that flow still exists. The justification for not closing 2(3)HV9202 and 2(3)HV9203 quarterly (i.e., testing at Cold Shutdown intervals) is provided in Section 13.3. 2(3)XCV9219 is tested in conjunction with the closure of these valves. Additionally, 2(3)XCV9219 is only required as a flow path when the Unit is in a shutdown condition, and is tested prior to placing it into service for this purpose.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

13.7 **S2(3)1201MU020, Charging Line Check Valve to Reactor Coolant System Loop 2A**

13.7.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

13.7.2 Alternate Testing: Test valve at cold shutdown frequency.

13.7.3 This valve prevents backflow from the Reactor Coolant System to the Regenerative Heat Exchanger when it closes upon reversal of pressure/flow in the charging line to the Reactor Coolant System. The valve is located in the line between these two components.

13.7.4 This valve cannot be tested without closing HV9203 (discussed elsewhere in this Attachment).

13.8 **S2(3)1201MU021, Charging Line Check Valve to Reactor Coolant System Loop 1A**

13.8.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

13.8.2 Alternate Testing: Test valve at cold shutdown frequency.

13.8.3 This valve prevents backflow from the Reactor Coolant System to the Regenerative Heat Exchanger when it closes upon reversal of pressure/flow in the charging line to the Reactor Coolant System. The valve is located in the line between these two components.

13.8.4 This valve cannot be tested without closing HV9202 (discussed elsewhere in this table).

13.9 **S2(3)1201MU200, Pump 2(3)P016 Suction Check Valve, and,**
S2(3)1201MU202, Pump 2(3)P015 Suction Check Valve

13.9.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

13.9.2 Alternate Testing: Test these valves at cold shutdown intervals.

13.9.3 These check valves provide flow into the suction of the respective LPSI pumps and prevent backflow from the pump into the lines from the RWST, etc.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

13.9.4 These are check valves on the shutdown cooling (SDC) line to the LPSI pump suctions. The suction from this line comes from the RCS, on the hot leg injection line inside the first pressure isolation valve. The only flow path that would open these valves during plant operation would require taking suction from the RCS and pumping it into the RWST on miniflow, which is not practical. The only practical method of opening these valves is on shutdown cooling, and so the valves must be tested at cold shutdown intervals.

13.9.5 Closure of these valves is verified by measuring leakage past the valves. OM-10, Paragraph 1.3 defines **exercising** as "the demonstration based on direct visual or indirect positive indications that the moving parts of a valve function." Since it is not possible to OPEN exercise test these valves at a quarterly interval, verifying the valve closed at a quarterly interval would not satisfy the code requirement to exercise the valve. Once the valve has been verified closed, there is no mechanism to open the valve once SDC is secured, and hence no benefit on re-verifying closure on a quarterly basis. Therefore, the interval for the CLOSE exercise test is set at the same interval as the OPEN exercise test. This position is further supported by NUREG-1482 (Reference 2.5.3) Section 4.1.4, which recognizes the difficulty in performing a seat leakage test to satisfy a CLOSE test, and provides the extension of the test interval for testing of this nature is appropriate.

13.10 **S2(3)1201MU976, Check Valve Pressurizer Spray Line from Reactor Coolant Loop 1A**
S2(3)1201MU977, Check Valve Pressurizer Spray Line from Reactor Coolant Loop 1B

13.10.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

13.10.2 Alternate Testing: Test valve at cold shutdown frequency.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

13.10.3 Valves open to allow pressurizer spray flow. Valves are held partially open during normal operation by flow. To minimize thermal shock of the nozzles, the pressurizer spray control valves PV0100A & B provide about 2 gpm of continuous flow to maintain the pressurizer spray nozzles at approximately Reactor Coolant System cold leg temperature. Valves MU976 and MU977 must close to prevent flow diversion back to the Reactor Coolant System from the Chemical & Volume Control System should PV0100A fail to close. AOI (Abnormal Operating Instruction) SO23-13-2 directs charging pump discharge to the Chemical and Volume Control System auxiliary pressurizer spray line instead of the normal pressurizer spray path through PV0100A and PV0100B. If these valves were to stick open, it would bypass this auxiliary spray flow to the Reactor Coolant System and disable the spray function in the pressurizer.

13.10.4 During normal plant operation, Reactor Coolant System pressure is maintained via pressurizer spray with flow through these valves. To CLOSE stroke MU976 and MU977 would require closing the upstream pressurizer spray control valve and isolating the pressurizer spray line. This would place the plant in an unsafe condition due to loss of spray flow and consequent pressurizer level and pressure control. Also the CLOSE stroke test can only be performed at cold shutdown intervals because the valves are inside the Containment and require a Containment entry to the perform test. Nuclear service water is used to stroke these valves closed.

14.0 RESP. & SERVICE AIR SYSTEM

14.1 **2(3)HV5388, Containment Isolation Valve - Instrument Air**

14.1.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

14.1.2 Alternate Testing: Test this valve at cold shutdown intervals.

14.1.3 This valve provides isolation for the penetration that conveys instrument air into the containment building.

14.1.4 Exercising this valve during plant power operation isolates instrument air to the Containment and could result in a plant shutdown.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

14.2 **S2(3)2417MU016, Instrument Air Containment Isolation Check - Inside Containment**

14.2.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

14.2.2 Alternate Testing: Test this valve at refueling intervals.

14.2.3 This valve provides isolation for the penetration that conveys instrument air into the containment building.

14.2.4 There is no way to place a back pressure on this valve without losing control of the Safety Injection Tank Drain Valves, hence this valve can only be tested when SIT Tanks are not required (i.e., Modes 5 and 6).

15.0 SAFETY INJECTION

15.1 **2(3)HV8152, Isolation Valve - Shutdown Cooling System Heat Exchanger E004 Inlet,**
2(3)HV8153, Isolation Valve - Shutdown Cooling System Heat Exchanger E003 Inlet,

15.1.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

15.1.2 Alternate Testing: Test these valves at cold shutdown intervals.

15.1.3 2(3)HV8152 and 2(3)HV8153 are in the Shutdown Cooling System (SDCS). They are employed in directing SDCS flow into the SDCS heat exchanger.

15.1.4 For ECCS system operability, the Technical Specifications (Surveillance 4.5.2.a) require verification at least once per twelve hours that these valves are closed and power to the valve operators is removed.

15.1.5 Testing these valves at a cold shutdown interval is consistent with NUREG-1482, Para. 3.1.1. Removing these valves from power lockout, restoring power and repositioning them in Modes 1, 2 or 3 involves a hardship; i.e., repositioning of a breaker from "off" to "on" (and closing the manual isolation valves for HV8152 and HV8153). Manual action would be required to restore the ECCS if an accident occurred while the test was in progress.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.1.6 This risk outweighs the benefits achieved with a quarterly test in light of the facts that (1) these valves are in the idle shutdown cooling loops that are not used except when the plant is placed in cold shutdown, (2) being in power lockout, these valves have a minimal probability of failure. They are idle (potential sources of failure are very limited), and, (3) the realignment of the system for the exercise tests in question invalidates the assumptions in the Safety Analysis (see the Technical Specification Bases, Section B 3/4.5.2).

15.2 **2(3)HV9420, Control Valve - HPSI Header #1 to Reactor Coolant System Loop 2 Hot Leg, and,**
2(3)HV9434, Control Valve - HPSI Header #2 to Reactor Coolant System Loop 1 Hot Leg

15.2.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

15.2.2 Alternate Testing: Test these valves at cold shutdown intervals.

15.2.3 For ECCS system operability, the Technical Specifications (Surveillance 4.5.2.a) require verification at least once per twelve hours that these valves are closed and power to the valve operators is removed.

15.2.4 Testing these valves at a cold shutdown interval is consistent with NUREG-1482, Para. 3.1.1. Removing these valves from power lockout, restoring power and repositioning them in Modes 1, 2 or 3 involves a hardship; i.e., repositioning of a breaker from "off" to "on". Manual action would be required to restore the ECCS if an accident occurred while the test was in progress.

15.2.5 This risk outweighs the benefits achieved with a quarterly test in light of the facts that: (1) being in power lockout, these valves have a minimal probability of failure. They are idle (potential sources of failure are very limited); and, (2) the realignment of the system for the exercise tests in question invalidates the assumptions in the Safety Analysis (see the Technical Specification Bases, Section B 3/4.5.2).

15.3 **2(3)HV0396, Flow Control Valve - LPSI Pumps to Shutdown Cooling System**
2(3)HV8160, Flow Control Valve - Shutdown Cooling System Heat Exchanger Bypass,
2(3)HV8161, Block Valve - Shutdown Cooling System Heat Exchanger Bypass to LPSI,

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.3.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

15.3.2 Alternate Testing: Test these valves at cold shutdown intervals.

15.3.3 These valves are used in establishing and controlling the flow path when the Shutdown Cooling System is in operation and the plant is shutdown.

15.3.4 For ECCS system operability, the Technical Specifications (Surveillance 4.5.2.a) require verification at least once per twelve hours that these valves are closed and power to the valve operators is removed.

15.3.5 Testing these valves at a cold shutdown interval is consistent with NUREG-1482, Para. 3.1.1. Removing these valves from power lockout, restoring power and repositioning them in Modes 1, 2 or 3 involves a hardship; i.e., repositioning of a breaker from "off" to "on". Manual action would be required to restore the ECCS if an accident occurred while the test was in progress.

15.3.6 This risk outweighs the benefits achieved with a quarterly test in light of the facts that; (1) being in power lockout, these valves have a minimal probability of failure. They are idle (potential sources of failure are very limited); and, (2) the realignment of the system for the exercise tests in question invalidates the assumptions in the Safety Analysis (see the Technical Specification Bases, Section B 3/4.5.2).

15.3.7 Also, with regard to 2(3)HV8160 and 2(3)HV8161, being in the common LPSI header, repositioning either of these valves also renders both trains of LPSI inoperable since they are in the common discharge line for the LPSI system. Because of this loss of system function, 2(3)HV8160 and 2(3)HV8161 are excluded from quarterly testing consistent with the guidance in NUREG-1482, Para. 3.1.1(1).

15.4 **2(3)HV9336, Isolation Valve - SDCS to LPSI Pump Suction,**
2(3)HV9379, SDCS Bypass to LPSI Suction Isolation Valve - Seal

15.4.1 Test Requirement: Manually stroke in addition to exercising with the power operator in accordance with OM-10, Para. 4.2.1.1, test nominally every three months.

15.4.2 Alternate Testing: Manually exercise at cold shutdown intervals.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.4.3 The manual stroke test is a non-Code required test. These valves are used in establishing the Shutdown Cooling System flow path when the plant is shutdown. The manual stroke test specified for these valves is only required to be a partial stroke to the extent necessary to demonstrate the operation of the valve manually, including the ability to engage the clutch.

15.5 **2(3)HV9337, Isolation Valve - Shutdown Cooling System to LPSI Pump Suction, and,**
2(3)HV9339, Isolation Valve - Shutdown Cooling System from Reactor Coolant System Loop 2
2(3)HV9377, Shutdown Cooling System Bypass to LPSI Suction Isolation Valve, and,
2(3)HV9378, Shutdown Cooling System Bypass to LPSI Suction Isolation Valve

15.5.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

15.5.2 Alternate Testing: Test these valves at cold shutdown intervals.

15.5.3 These valves are used in establishing the Shutdown Cooling System flow path when the plant is shutdown.

15.5.4 These valves are required by Technical Specification 3/4.5.2 to be interlocked to prevent opening whenever reactor coolant system pressure exceeds 376 psia.

15.6 **2(3)HV9340, Safety Injection Tank T008 Outlet Valve to Reactor Coolant System Loop 1A,**
2(3)HV9350, Safety Injection Tank T009 Outlet Valve to Reactor Coolant System Loop 1B,
2(3)HV9360, Safety Injection Tank T009 Outlet Valve to Reactor Coolant System Loop 2A, and,
2(3)HV9370, Safety Injection Tank T010 Outlet Valve to Reactor Coolant System Loop 2B

15.6.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

15.6.2 Alternate Testing: Test these valves at cold shutdown intervals.

15.6.3 These valves block the discharge path of the Safety Injection Tanks into the Reactor Coolant System when closed.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.6.4 Restoring power to these valves or closing these valves while the plant is at power would result in non-compliance with the Technical Specifications. Closing the SIT outlet valve isolates and renders the SIT inoperable. Technical Specification 3.5.1 is very restrictive, requiring action within one hour if the SIT is rendered inoperable. NUREG-1482, (April 1995) Para. 3.1.1, recognizes entry into very restrictive LCOs as a valid basis for deferral of the stroke test to cold shutdown.

15.7 **2(3)HV9341, Safety Injection Tank T008 Fill and Drain Line Isolation Valve**
2(3)HV9351, Safety Injection Tank T007 Fill and Drain Line Isolation Valve
2(3)HV9361, Safety Injection Tank T009 Fill and Drain Line Isolation Valve
2(3)HV9371, Safety Injection Tank T010 Fill and Drain Line Isolation Valve

15.7.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

15.7.2 Alternate Testing: Close stroke test these valves at cold shutdown intervals.

15.7.3 These valves are normally closed during plant operations and are opened to fill the Safety Injection tanks. These valves are closed upon receipt of a SIAS. They are Reactor Coolant System boundary valves.

15.7.4 During plant operations, the lines downstream of these valves are depressurized and the valves are closed. In order to close stroke each valve, it must be opened and then stroked closed. Opening these valves causes the associated Safety Injection Tank to depressurize, contrary to the requirements of Technical Specification 3/4.5.1. This results in a 1 hour Action Statement.

15.8 **2(3)HV9345, Safety Injection Tank T008 Vent Valve,**
2(3)HV9355, Safety Injection Tank T007 Vent Valve,
2(3)HV9365, Safety Injection Tank T009 Vent Valve, and,
2(3)HV9375, Safety Injection Tank T009 Vent Valve

15.8.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

15.8.2 Alternate Testing: Test these valves at cold shutdown intervals.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.8.3 These valves provide a means of depressurizing the Safety Injection Tanks.

15.8.4 During power operation, Technical Specifications require power to be locked out for these valves. This prevents inadvertent depressurization of the Safety Injection Tanks.

15.9 **2(3)HV9353, Shutdown Cooling warm-up valve**
2(3)HV9359, Shutdown Cooling warm-up valve

15.9.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

15.9.2 Alternate Testing: Test these valves at cold shutdown frequency when shutdown cooling is placed in service.

15.9.3 These valves are normally closed during plant operation and are used to regulate the amount of water that bypasses the core to limit cooldown. These valves are credited as active components in the FSAR but are not required to open in order to bring the plant to a safe shutdown according to the Failure Modes and Effects Analysis (FMEA) in the FSAR.

15.9.4 These valves are closed during plant operation and are placed in service when shutdown cooling is required. To stroke these valves open during normal plant operation would required entry into a one hour Action Statement under the Technical Specifications. This is because both trains of LPSI are put out of service for this stroke. Opening these valves will cause Safety Injection flow diversion from Reactor Coolant System Loop 2A back to LPSI pump suction.

15.10 **S2(3)1204MU001, RWST 2(3)T005 to Spray Pump 2(3)P012 Suction Header**
S2(3)1204MU002, RWST 2(3)T005 to Spray Pump 2(3)P013 Suction Header

15.10.1 Test Requirement: OM-10, Paragraph 4.3.2, exercise these valves open and closed every three months.

15.10.2 Alternate Testing: Quarterly, perform a partial stroke test (OPEN) of each valve using system flow. At each refueling outage, test the valves by partial disassembly, inspection and manual stroking on a rotating basis (one valve per refueling).

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.10.3 During partial disassembly, the valves' internals will be visually inspected for worn or corroded parts, and the valves' disk will be manually exercised. If it is found the full stroke capability of the disassembled valve is in question, the remaining valves in the group will be similarly disassembled and inspected and manually full stroked during the same outage in the case of the valve in the unit undergoing refueling and at the very next refueling outage for the valves in the opposite unit. Following reassembly, the valve will be tested by partial stroking using system flow.

15.10.4 These valves prevent back-flow from the High Pressure Safety Injection Suction Header, Low Pressure Safety Injection Suction Header and Spray Pump Suction header to the Refueling Water Storage Tanks (RWSTs).

15.10.5 INTRODUCTION

.1 The source of flow to these valves is borated water from the RWSTs. Pumps that produce flow through these valves are the High pressure Safety Injection (HPSI), Low Pressure Safety Injection (LPSI) and Containment Spray pumps. They discharge into the Reactor Coolant System (Reactor Coolant System) or containment building spray headers.

.2 These safety injection system check valves prevent post accident recirculation flow from escaping the normal flow path into the RWST. Plant conditions can be grouped into three test situations with respect the these valves: (1) Reactor Coolant System Pressurized and at normal operating temperature, (2) Reactor Coolant System depressurized and cooled down, and, (3) Reactor Coolant System open during refueling. These conditions are discussed below:

(1) REACTOR COOLANT SYSTEM PRESSURIZED AND AT NORMAL OPERATING TEMPERATURE

These valves cannot be full-stroked using flow during power operation, for the following reasons:

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.10.5.2(1) a. The HPSI (shutoff head 1500 psi) and LPSI (shutoff head 200 psi) pumps are unable to overcome Reactor Coolant System pressure (nominal operating pressure ≈ 2000 psi). There is no full flow recirculation to the RWST from either pump.

As a result, only pump recirculation through the miniflow line is produced using these pumps while the Reactor Coolant System is pressurized. Although this is sufficient for a partial stroke test, flow for a full-stroke test is not available.

b. A quarterly test at power, using the only available flow path, would either inject borated water into the Reactor Coolant System or spray down the containment building, or both. If injection were possible during operation, the test would not be performed because the result would be an immediate, uncontrolled and complete reactor shutdown (as a result of the borated water) and/or flooding and resultant degradation of the components and systems located in the containment building (as a result of the containment building spray down).

c. The containment spray pumps cannot be utilized to full-stroke these valves using flow, as the only full flow path during plant operation is through the containment spray header and nozzles.

(2) REACTOR COOLANT SYSTEM DEPRESSURIZED AND COOLED DOWN

These valves cannot be full-stroked using flow during cold shutdown for the following reasons:

a. TESTING WITH ALL PUMPS IN A LOOP: Sufficient flow to full-stroke the RWST outlet check valves is not achievable in this condition. Return flow from the HPSI and LPSI pump discharge lines is very limited, consisting of mini-flow recirculation lines and Reactor Coolant System vent lines.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.10.5.2(2)

b. TESTING WITH THE CONTAINMENT SPRAY PUMP: The containment Spray (CS) pumps have a 6" recirculation line to the RWSTs, but these pumps by themselves cannot develop full-stroke flow for the RWST outlet check valves.

c. TESTING WITH THE LPSI PUMPS: Stroking the RWST outlet check valves with flow from the LPSI pumps is prohibited by the Technical Specifications in Cold Shutdown because the LPSI pumps must be aligned to take suction from the Reactor Coolant System to provide shutdown cooling during this mode of operation. The LPSI pumps cannot, therefore, take a suction through the RWST outlet check valves.

d. TESTING WITH THE HPSI PUMPS: The equivalent of the combined Containment Spray, LPSI, and HPSI flow rate cannot be developed with the HPSI pump alone. The HPSI pumps cannot be used to exercise these valves during cold shutdown because of the risk of exceeding cooldown rate limits. The borated water in the RWST is normally at an ambient temperature of ≈ 65°F and the cooled down Reactor Coolant System is nominally at ≈ 135°F.

e. CONCLUSION: The Code required testing of the RWST outlet check valves while the plant is in Cold Shutdown could only be performed after significant redesign of the system, such as the addition of an instrumented full flow test line.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.10.5.2(3) REACTOR COOLANT SYSTEM OPEN DURING REFUELING

a. FLOW PATH:

The RWST outlet check valves are in the 24" supply line to the suction headers of the HPSI, LPSI and Containment Spray Pumps. To full-stroke the RWST outlet check valves using flow during refueling with the Reactor Vessel head removed would require that the system achieve a total flow of approximately 6500 gpm (full accident flow). There is one check valve for each of the two trains of pumps. Full flow from the RWST through the check valves of interest is only achieved with all of the pumps in one train running at the same time (one HPSI pump, one LPSI pump and one Spray pump).

A large flow could be achieved in the refueling mode during refueling cavity fill. The HPSI, LPSI and containment Spray pumps could take a suction from the RWST and discharge to the Reactor Coolant System. With the Reactor Pressure Vessel head removed, flow would first fill and then overflow the Reactor Pressure Vessel into the Refueling Cavity.

b. COOLDOWN LIMITS:

The only discharge path that exists for this flow is into the core through the safety injection headers to the cold legs and/or the 6" recirculation line from the Containment Spray pump discharge to the RWST (this 6" line alone has insufficient capacity for the full-stroke of the RWST outlet check valves using flow). The borated water in the RWST is normally at an ambient temperature of ≈ 65°F and the Cooled down Reactor Coolant System is nominally at ≈ 136°F.

Injection of the borated RWST water could result in a cool-down rate in violation of the Technical Specifications (see Figure 3.4-5, Reactor Coolant System Maximum Allowable Cool-Down Rates) for the reactor vessel.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.10.6 CONCLUSION

.1 From the above discussion, it can be seen that no allowable flow path exists in any plant mode for a full-stroke of the RWST outlet check valves using flow. Testing of these valves could only be accomplished after significant redesign of the system, such as installation of a fully instrumented full flow test loop. NRC Generic Letter 89-04, Attachment 1, Position 2, identifies partial disassembly and inspection as an acceptable alternative for stroking a valve when it is impractical to use flow. In this case, there is no way to stroke these valves with the existing system design using flow.

.2 Non-intrusive techniques have been considered. However, because a flow path cannot be constructed which will fully stroke the valves, there is no non-intrusive technique such as magnetics or acoustics that can be utilized to verify the valves achieve full stroke capability. Although it is conceivable radiography could be utilized to verify closure, the valve must be disassembled anyway to verify the open capability, and so there is no additional value in verifying closure through non-intrusive techniques.

15.10.7 TEST SCHEDULE

.1 To disassemble and inspect all four of these valves each refueling outage requires the associated piping to be drained. This generates a significant amount of liquid radioactive waste. In addition, considerable radiation exposure can be received by personnel performing the partial disassembly, hand stroking and inspection. As a consequence, there is a clear advantage in reducing the number of partial disassembly and hand stroking tests required in each refueling.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.10.7.2 This is an approved code exception in accordance with NRC Generic Letter 89-04 (GL 89-04), Attachment 1, Position 2, Alternative to full flow testing of check valves. This section specifies for valves which cannot be full flow tested, the NRC staff position is valve disassembly and inspection can be used as a positive means of determining whether a valve's disk will full-stroke exercise open or of verifying closure capability. If possible, partial valve stroking quarterly or during cold shutdowns, or after re-assembly must be performed.

.3 OM-10, Paragraph 4.3.2 allows that a valve may be disassembled as an alternative to full flow testing.

.4 GL 89-04, Position 2, allows development of staggered testing of like components by establishing an inspection plan for similar groups of valves. Disassembly and inspection is performed in accordance with, and does not deviate from, OM-10, Para 4.3.2.4, and GL 89-04, Position 2.

15.11 **S2(3)1204MU003, Outlet Check Valve - Containment Emergency Sump**
S2(3)1204MU004, Outlet Check Valve - Containment Emergency Sump

15.11.1 Test Requirement: OM-10, Paragraph 4.3.2, exercise these valves every three months.

15.11.2 Alternate Testing: The valves will be partially disassembled, inspected and manually full stroked at each refueling outage on a rotating basis (one valve per refueling). During partial disassembly, the valves' internals will be visually inspected for worn or corroded parts, and the valves' disk will be manually exercised. If it is found that the full stroke capability of the disassembled valve is in question, the remaining valves in the group will be similarly disassembled and inspected and manually full stroked during the same outage in the case of the valve in the unit undergoing refueling and at the very next refueling outage for the valves in the opposite unit.

15.11.3 A method of partial flow testing will be developed and used following the partial disassembly and prior to returning the valve(s) to service.

15.11.4 These valves open to provide recirculation flow from the containment sump to the suction piping of the HPSI, LPSI and Containment Spray pumps.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.11.5 Test Methodology

.1 NORMAL PLANT OPERATION

The only source of water to the inlet of the containment sump outlet check valves is the containment building sump. During normal plant operation this sump is required to be kept dry and the isolation valves shut. This system lineup precludes either full-stroke or partial stroke of these check valves using flow in this mode.

.2 COLD SHUTDOWN AND REFUELING MODES

.2.1 In cold shutdown or reactor refueling modes, part stroke exercising of these valves is possible with flow from the containment sump, however, the sump is not maintained at a cleanliness level consistent with the internals of the Safety Injection or Reactor Coolant system piping. The cleanup of the containment sump to a cleanliness level consistent with the internals of the Safety Injection or Reactor Coolant system would be labor intensive.

.2.2 If part stroke exercising were conducted by filling the sump with water and flow testing these valves, this would potentially contaminate the safety injection systems, the refueling water storage tank, and/or the reactor coolant system with low quality water. This contamination of the systems would cause accelerated corrosion and degradation. Extensive flushing and cleanup following such testing would therefore be required.

.3 CONCLUSION

.3.1 The Code required testing could only be performed after significant system modifications involving considerable costs. These system modifications would involve additional containment penetrations and long runs of large diameter piping with associated supports and isolation valves. NRC Generic Letter 89-04, Attachment 1, Position 2, identifies partial disassembly and inspection as an acceptable alternative for stroking a valve when it is impractical to use flow. In this case, there is no practical way to full-stroke these check valves using flow with the existing system design.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.11.5.3.2 Non-intrusive techniques have been considered. However, because a flow path cannot be constructed which will fully stroke the valves, there is no non-intrusive technique such as magnetics or acoustics that can be utilized to verify the valves achieve full stroke capability. Although it is conceivable radiography could be utilized to verify closure, the valve must be disassembled anyway to verify the open capability, and so there is no additional value in verifying closure through non-intrusive techniques.

.4 TEST SCHEDULE

.4.1 To disassemble and inspect all four of these valves each refueling outage requires the associated system piping to be drained. This generates a significant amount of liquid radioactive waste. In addition, considerable radiation exposure can be received by personnel performing the partial disassembly, hand stroking and inspection. As a consequence, there is a clear advantage in reducing the number of these tests required in each refueling.

.4.2 This Alternate Testing is an approved Code exception in accordance with NRC Generic Letter 89-04 (GL 89-04), Attachment 1, Position 2, Alternative to full flow testing of check valves. This section specifies that valves which cannot be full flow tested the NRC staff's position is: valve disassembly and inspection can be used as a positive means of determining a valve's disk will full-stroke exercise open or of verifying closure capability. If possible, partial valve stroking quarterly or during cold shutdowns, or after re-assembly must be performed.

.4.3 OM-10, Paragraph 4.3.2 allows that a valve may be disassembled as an alternative to full flow testing.

.4.4 GL 89-04, Position 2, allows development of staggered testing of like components by establishing an inspection plan for similar groups of valves. Disassembly and inspection is performed in accordance with, and does not deviate from, OM-10, Para 4.3.2.4, and GL 89-04, Position 2.

15.12 **S2(3)1204MU006, HPSI Pumps 2(3)P017 and 2(3)P018 Suction Check Valve**
S2(3)1204MU008, HPSI Pumps 2(3)P018 and 2(3)P019 Suction Check Valve

15.12.1 Test Requirement: OM-10, Paragraph 4.3.2, exercise these valves every three months.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.12.2 Alternate Testing: These valves will be full stroke exercised at each refueling, while using the high pressure safety injection pumps to fill the refueling pool canal, and part stroke exercised quarterly during routine inservice testing of the HPSI pumps.

15.12.3 These valves open to allow a flow of water into the suction piping of the high pressure safety injection pumps.

15.12.4 These check valves cannot be full stroke exercised during power operations because the high pressure safety injection pumps cannot overcome reactor coolant system pressure. During cold shutdown full stroke exercising these valves could result in a low temperature over-pressurization of the reactor coolant system.

15.12.5 OM-10 Section 4.3.2.2, Exercising Requirements, paragraph (e) stipulates if exercising is not practicable during plant operation or cold shutdowns, it may be limited to full stroke during refueling outages.

15.13 **S2(3)1204MU012, HPSI Pump 2(3)P017 Discharge Check Valve,**
S2(3)1204MU015, HPSI Pump 2(3)P019 Discharge Check Valve,
S2(3)1204MU016, HPSI Pump 2(3)P018 Discharge Check Valve, and,
S2(3)1204MU017, HPSI Pumps 2(3)P018 & 2(3)P019 to #2 High Pressure Header,

15.13.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

15.13.2 Alternate Testing: Test these valves at cold shutdown intervals.

15.13.3 These valves are in the flow path from HPSI directly to the RCS. The CVTO cannot be performed during operation because shutoff head of the HPSI pump is less than RCS pressure. Exercising the valves with full accident flow requires ~875 gpm, which is not possible during plant operation. There is no alternate flow path that will support the requisite flow rate during operation.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.13.4 The EXERCISE CLOSED test is also done at cold shutdown intervals. Closure of these valves is verified by measuring leakage past the valves. OM-10, paragraph 1.3 defines ***exercising*** as "the demonstration based on direct visual or indirect positive indications that the moving parts of a valve function." Since it is not possible to OPEN EXERCISE test these valves at a quarterly interval, verifying the valves closed at a quarterly interval would not satisfy the code requirement to exercise the valves. Therefore, the interval for the CLOSED EXERCISE test is set at the same interval as the OPEN EXERCISE test. Performing the CLOSED tests at Cold Shutdown intervals by measuring leakage is consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.4.

15.14 **S2(3)1204MU018, HPSI Combined Header to Reactor Coolant System Loop 1A Check Valve,**
S2(3)1204MU019, HPSI Combined Header to Reactor Coolant System Loop 1B Check Valve,
S2(3)1204MU020, HPSI Combined Header to Reactor Coolant System Loop 2A Check Valve, and,
S2(3)1204MU021, HPSI Combined Header to Reactor Coolant System Loop 2B Check Valve

15.14.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

15.14.2 Alternate Testing: Test these valves at cold shutdown intervals.

15.14.3 These valves direct flow into the Reactor Coolant System from the HPSI pumps.

15.14.4 Exercising these valves while the plant is at power would result in non-compliance with Technical Specification 3/4.5.2. In any event, during power operation there is no full flow path available to stroke test these valves. LPSI or HPSI pumps cannot overcome the Reactor Coolant System pressure.

15.14.5 Since the OPEN stroke test can only be accomplished at cold shutdown intervals, the CLOSE stroke exercise test is the same interval. Without being able to open the valves, exercising, that is moving the obturator, cannot be accomplished.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.15 **S2(3)1204MU024, LPSI Pump 2(3)P015 Discharge Stop Check Valve, and, S2(3)1204MU025, LPSI Pump 2(3)P016 Discharge Stop Check Valve**

15.15.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

15.15.2 Alternate Testing: Test these valves at cold shutdown intervals.

15.15.3 These valves are on the discharge of the LPSI pumps and prevent backflow through an idle LPSI pump in the event the other pump is operating.

15.15.4 These valves are in the flow path from LPSI directly to the RCS. The CVTO cannot be performed during operation because shutoff head of the HPSI pump is less than RCS pressure. Exercising the valves to the full open position requires 5000 - 5300 gpm, which is not available. There is no alternate flow path that will support the requisite flow rate during operation.

15.15.5 The EXERCISE CLOSED test is also done at cold shutdown intervals. OM-10, paragraph 1.3 defines ***exercising*** as "the demonstration based on direct visual or indirect positive indications that the moving parts of a valve function." Since it is not possible to OPEN EXERCISE test these valves at a quarterly interval, verifying the valves closed at a quarterly interval would not satisfy the code requirement to exercise the valves. Therefore, the interval for the CLOSED EXERCISE test is set at the same interval as the OPEN EXERCISE test. Performing the CLOSED tests at Cold Shutdown intervals by measuring leakage is consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.4.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.16 **S2(3)1204MU027, Safety Injection Headers to Reactor Coolant System Loop 1A, and,**
S2(3)1204MU029, Safety Injection Headers to Reactor Coolant System Loop 1B,
S2(3)1204MU031, Safety Injection Headers to Reactor Coolant System Loop 2A, and,
S2(3)1204MU033, Safety Injection Headers to Reactor Coolant System Loop 2B

15.16.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

15.16.2 Alternate Testing: Test these valves at cold shutdown intervals.

15.16.3 These valves direct flow into the Reactor Coolant System from the LPSI and HPSI pumps.

15.16.4 During power operation there is no full flow path available to stroke test these valves. LPSI or HPSI pumps cannot overcome the Reactor Coolant System pressure. Requires 2000 GPM for full Stroke.

15.17 **S2(3)1204MU034, HPSI 2(3)P017 Miniflow**
S2(3)1204MU035, HPSI 2(3)P019 Miniflow,
S2(3)1204MU036, HPSI 2(3)P018 Train "A" Miniflow,
S2(3)1204MU037, LPSI Pump 2(3)P015 Miniflow Stop Check Valve,
S2(3)1204MU063, LPSI Pump 2(3)P016 Miniflow Stop Check Valve,
S2(3)1204MU104, HPSI 2(3)P018 Train "B" Miniflow

15.17.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

15.17.2 Alternate Testing: Test these valves at refueling intervals.

15.17.3 These stop-check valves direct miniflow recirculation from the HPSI, LPSI pumps back to the Refueling Water Storage Tanks.

15.17.4 Providing flow or pressure to verify completion of the closed stroke requires placing the miniflow line out of service for the HPSI, LPSI and Containment Spray Systems. These pumps may run for a prolonged time during a small break LOCA and rely upon the miniflow for pump cooling. The pumps may be damaged if this cooling is not available. Thus, placing the miniflow line out of service renders those systems inoperable and is only practical in modes during which these systems are not required to be operable under the Technical Specifications.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.17.5 The only way to verify closure of these valves is to measure leakage into a test volume upstream of the check valves using a hydro pump. The elaborate valve line-up, test equipment required, and high man-hours required to perform this test make it impractical to perform on a more frequent basis. Performing the CLOSE test of these valves in conjunction with the LEAKAGE test at refueling intervals is consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.4.

15.18 **S2(3)1204MU040, Safety Injection Tank T008 Outlet Check Valve**
S2(3)1204MU041, Safety Injection Tank T007 Outlet Check Valve
S2(3)1204MU042, Safety Injection Tank T009 Outlet Check Valve
S2(3)1204MU043, Safety Injection Tank T010 Outlet Check Valve

15.18.1 Test Requirement: OM-10, Paragraph 4.3.2, exercise these valves every three months.

15.18.2 Alternate Testing: These valves will have stroke capability verified using non-intrusive (NI) testing at each refueling outage on a rotating basis in accordance with NUREG-1482 (Reference 2.5.3, Section 4.1.2). This test utilizes a dump of the SITs to achieve the flow necessary to full stroke the valves, and magnetic and acoustic sensors to verify full open stroke of the obturator. This testing is done during filling of the refueling cavity. If the NI testing does not provide adequate results, alternative techniques, including a determination of the "K-value" of the system, and/or a calculation of flow velocity through the valves calculated using changing tank levels, will be utilized to determine a successful stroke. The justification required for these alternative techniques (if necessary) is provided in Memorandum for File by P. Schofield, dated 3/31/95, subject: Justification of Alternate Testing of SIT Discharge Check Valves. If the alternative techniques are also unsuccessful, disassembly and hand-stroking will be performed in accordance with Generic Letter 89-04 (Reference 2.1.9).

15.18.3 Full closure of the valves is ensured by leak testing the valves to the limits specified in Technical Specification 4.4.5.2.2 after they have been exercised but prior to Mode 2.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.18.4 These valves open to allow a flow of water from the Safety Injection Tanks into the Safety Injection Header of each Primary loop. Opening these valves during power operation is not possible against normal Reactor Coolant System operating pressure. OM-10 Section 4.3.2.2(d) stipulates, "If exercising is not practicable during plant operation and full-stroke during cold shutdowns is also not practicable, it may be limited to part stroke during cold shutdowns, and full-stroke during refueling outages."

15.19 **S2(3)1204MU072, LPSI Check Valve to Reactor Coolant System Loop 1A,**
S2(3)1204MU073, LPSI Check Valve to Reactor Coolant System Loop 1B,
S2(3)1204MU074, LPSI Check Valve to Reactor Coolant System Loop 2A,
and,
S2(3)1204MU075, LPSI Check Valve to Reactor Coolant System Loop 2B

15.19.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

15.19.2 Alternate Testing: Test these valves at cold shutdown intervals.

15.19.3 These check valves direct LPSI flow into the Reactor Coolant System whenever the Reactor Coolant System pressure drops below LPSI pump discharge pressure. There is no flow path to exercise these valves during power operation. LPSI pumps cannot overcome Reactor Coolant System Pressure while the plant is at power.

15.20 **S2(3)1204MU077, LPSI Pump 2(3)P016 Suction Header Check Valve**
S2(3)1204MU084, LPSI Pump 2(3)P015 Suction Check Valve
S2(3)1204MU199, LPSI Pump 2(3)P016 Suction Header Check Valve
S2(3)1204MU201, LPSI Pump 2(3)P015 Suction Header Check Valve

15.20.1 Test Requirement: OM-10, Paragraph 4.3.2, exercise these valves every three months.

15.20.2 Alternate Testing: Quarterly, part-stroke exercise these valves. Full stroke exercise using flow at reactor refueling intervals.

15.20.3 A flow path exists during the filling of the refueling canal with the LPSI pumps in plant Mode 6 (refueling). The suction of the LPSI pumps can be aligned to the RWST and the discharge to the LPSI header or shutdown cooling header. Flow could then be directed through the LPSI Suction Header Check Valves at full flow (LPSI Pump Design Flow is 4150 gpm at 400 psid) for a short period of time sufficient to full-stroke these valves with flow.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.20.4 These valves open to allow a flow of water from the refueling water storage tank (RWST) into the suction piping of the Low Pressure Safety Injection (LPSI) pumps.

15.20.5 The refueling interval for the Check Valve Stroke Test Closed is required due the impracticability of erecting scaffolding and handling the heavy radiography apparatus in the vicinity of the Safety Injection equipment. The radiography is performed at refueling intervals on a rotating basis consistent with NUREG-1482 (Reference 2.5.3) Section 4.1.2.

15.20.6 DURING POWER OPERATION

.1 Full-stroke exercising of the LPSI pump suction check valves with flow requires the passage of the maximum required accident flow rate through the valves. The LPSI suction checks are in the suction lines of the associated LPSI pumps and deliver borated water to these pumps from the RWSTs. The pumps in turn discharge to the Reactor Coolant System, Shutdown Cooling heat exchanger and the mini-flow recirculation lines (returning the flow to the RWSTs).

.2 These valves cannot be full-stroke exercised using flow during power operation, for the following reasons:

a. The mini-flow recirculation lines cannot provide enough flow through the LPSI pump suction check valves, as the maximum flow achievable through this path is less than required accident flow. Although this is sufficient for a partial stroke test, flow for a full-stroke is not available.

b. During power operation, the Shutdown Cooling System is isolated and cannot be used as a flow path because it must remain isolated due to interlocks controlled by Technical Specification 3.4.5.2.d.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.20.6.2 c. Injecting water into the Reactor Coolant System during power operation is not possible. The Low Pressure Safety Injection (LPSI) pumps (shutoff head ≈ 200 psi) are unable to overcome Reactor Coolant System pressure (nominal operating pressure ≈ 2000 psi) and therefore there can be no flow into the Reactor Coolant System in this plant mode. If a test at power could be conducted, it would result in injection of borated water into the Reactor Coolant System. The result would be an immediate, uncontrolled and complete reactor shutdown (as a result of the borated water).

15.20.7 COLD SHUTDOWN

.1 The Technical Specifications require the LPSI pumps remain aligned to provide shutdown cooling at all times while the plant is in Cold Shutdown. The LPSI suction check valves are, accordingly, bypassed and cannot be full-stroke tested using flow. Compliance with the Code requirement to perform quarterly testing could only be accomplished after a major modification of the system design. The improvement of the testing in cold shutdown would not justify the high costs involved.

.2 OM-10 Section 4.3.2.2(d) stipulates, "If exercising is not practicable during plant operation and full-stroke during cold shutdowns is also not practicable, it may be limited to part stroke during cold shutdowns, and full-stroke during refueling outages."

.3 We meet this requirement by performing a partial stroke quarterly during operation and a full stroke during refueling outages.

NOTE: There is not a clear fit in the code for this condition. Section 4.3.2.2(d) allows for a partial stroke during cold shutdown, but not a quarterly stroke during operation. By doing the stroke quarterly we exceed the requirement of the code.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.21 **S2(3)1204MU087, Spray Pump 2(3)P013 Suction Check Valve, and, S2(3)1204MU088, Spray Pump 2(3)P012 Suction Check Valve**

15.21.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

15.21.2 Alternate Testing: Test these valves at cold shutdown intervals.

15.21.3 These valves are in the flow path of the Containment Spray Pumps.

15.21.4 No flow path exists to exercise these valves to the open position during plant operation without removing both trains of Containment Spray and LPSI from service.

15.22 **S2(3)1204MU152, To #2 HPSI Header**

15.22.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

15.22.2 Alternate Testing: Test this valve at cold shutdown intervals.

15.22.3 This valve directs the flow from #2 HPSI header into the Reactor Coolant System hot leg.

15.22.4 Valve cannot be stroked at power because the HPSI pumps cannot overcome Reactor Coolant System Pressure. Additionally, opening the HPSI Header Isolation valve during power operation would result in non-compliance with Technical Specification 3/4.5.2.

15.23 **S2(3)1204MU155, HPSI Header #1 to Reactor Coolant System Loop 2 Hot Leg,**
S2(3)1204MU156, HPSI Header #1 to Reactor Coolant System Loop 2 Hot Leg Inlet Check Valve,
S2(3)1204MU157, HPSI Header #2 to Reactor Coolant System Loop 1 Hot Leg, and,
S2(3)1204MU158, HPSI Header #1 to Reactor Coolant System Loop 2 Hot Leg

15.23.1 Test Requirement: OM-10, Para. 4.3.2, test nominally every three months.

15.23.2 Alternate Testing: Test these valves at cold shutdown intervals.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

15.23.3 These valves direct flow from the discharge of the HPSI headers into the Reactor Coolant System Hot legs.

15.23.4 Full or partial stroke exercising of these valves while the plant is at power would result in non-compliance with Technical Specification 3/4.5.2. In addition, while the plant is at power, HPSI pumps cannot overcome Reactor Coolant System pressure.

16.0 STEAM

16.1 **2(3)HV8200, Steam from Steam Generator E089 to AFW Pump 2(3)P140, 2(3)HV8201, Steam from Steam Generator E088 to AFW Pump 2(3)P140**

16.1.1 Test Requirement: Exercise quarterly in accordance with OM-10.

16.1.2 Alternate Testing: Manual stroke (partial) at cold shutdown in addition to normal testing.

16.1.3 These valves isolate the main steam leads coming out of the containment from the steam generators and going to the steam driven AFPs.

16.1.4 The manual stroke is a non-Code required test and a cold shutdown interval has been judged as adequate to show the valves can be manually actuated if necessary in accordance with the EOIs.

16.2 **2(3)HV8204, Steam Generator E089 Main Steam Isolation Valve 2(3)HV8205, Steam Generator E088 Main Steam Isolation Valve**

16.2.1 Test Requirement: OM-10, Paragraph 4.2.1: Full stroke exercise close at cold shutdown. Part stroke close quarterly when full stroke testing is impractical.

16.2.2 Alternate Testing: Perform a full stroke close test at cold shutdown. (Note: Stroke time is governed by Technical Specification 4.7.1.5).

16.2.3 These valves isolate the main steam leads coming out of the containment from the steam generators and going into the steam plant.

16.2.4 Close on Main Steam Isolation Signal (MSIS).

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

16.2.5 Full stroke exercising at full plant power would cause a loss of 50% of heat removal from the primary coolant system, a reactor trip on asymmetric power in the core and actuation of the steam and pressurizer (primary) reliefs.

16.2.6 The MSIVs must be open during power operation. Closure of one or both of the MSIVs during power operation will result in a reactor trip. A partial stroke test could result in an inadvertent closure of an MSIV and a reactor trip.

16.2.7 SCE performed a Probabilistic Risk Assessment (PRE 1-91-22) of the partial stroke test of the MSIVs and determined the risk to the health and safety of the public is reduced by approximately an order of magnitude by eliminating the quarterly partial stroke test of the MSIVs during power operation. The calculated offsite dose impact from inadvertent closure of an MSIV during the partial stroke testing is estimated to be 0.5 man-rem per year. The calculated offsite dose from failure of an MSIV to close during an accident due to eliminating the partial stroke testing is estimated to be 0.045 to 0.075 man-rem per year. As a result, the part stroke test during power operation is not performed. This is consistent with NUREG-1482 (Reference 2.5.3) Section 4.2.4.

16.3 **2(3)HV8419, Main Steam Dump to Atmosphere, and,**
2(3)HV8421, Main Steam Dump to Atmosphere

16.3.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

16.3.2 Alternate Testing: Test these valves at cold shutdown intervals, except for manual tests, which are done at refueling intervals.

16.3.3 These valves open to relieve main steam pressure in the main steam leads coming out of the containment at a pressure below the main steam relief valves. They therefore prevent the necessity for actuating the main steam relief valves. Full stroke exercising of these valves during power operation could result in a reactor plant transient due to energy released via the steam dump.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

16.3.4 NORMAL SYSTEM LINEUP

.1 The ADVs are rarely opened during power operation and are only used during plant heat up and cool downs when the condenser is not available. Therefore, the valves are normally in their MSIS actuated position, and there is generally no need to perform a full closed stroke test of the ADVs.

16.3.5 QUARTERLY FULL STROKE

.1 Fully opening an ADV without isolation of the steam flow path at power risks plant upset and trip as this allows a large steam release, approximately 5% of 3410 MW thermal, and a resultant pressure transient when the ADV is tripped closed. The pressure transient could result in Reactor Coolant System temperature excursions which could cause an Engineered Safety Feature (ESF) initiation with the associated reactor trip.

.2 There is a maintenance block valve upstream of the ADV. This valve could be closed to block steam flow to allow the ADV to be fully opened for test without releasing steam. However, an isolated ADV is unavailable to perform its function with the block valve closed necessitating entry into the action requirements of Technical Specification 3.7.1.6 and aggravating the unavailability of the ADVs from a plant reliability point of view.

16.3.6 PARTIAL STROKE TESTING WITH PRESSURE APPLIED

.1 A partial stroke of the ADV can be performed, while the ADV is experiencing full system pressure, by opening the valve to approximately 25%. The ADVs are designed with integral pilot valves which assist in opening the ADV when it is under pressure. The pilot valve equalizes pressure across the ADV (partially) during the open stroke.

.2 Partial stroke exercising with main steam pressure applied followed by closing the ADV in a similar manner as would an MSIS actuation, demonstrates the ADV and its pilot valve's ability to open and close under actual operating conditions.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

16.3.7 CONCLUSION

.1 This proposed alternative testing method would be analogous to actual design conditions for ADV operation and can be performed with minimal impact to plant operations. The pilot valve stroke length is the first 5% of the stem travel. This fully exercises the pilot valve and piston ring, and partially exercises the main plug.

.2 The pilot valve serves no function when the ADV is not under system pressure. The depressurized stroke test is an artificiality that does not demonstrate the ability of the ADV to function under design conditions.

16.3.8 The manual strokes are done at refueling intervals. Technical Specification 4.7.1.6.1.d requires verifying local manual operation will fully open and close each ADV at least once per refueling outage.

16.4 **2(3)PCV8463, ADV HV8419 Nitrogen Accumulator Pressure Control Valve**
2(3)PCV8465, ADV HV8421 Nitrogen Accumulator Pressure Control Valve

16.4.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

16.4.2 Alternate Testing: Test at cold shutdown intervals in conjunction with the testing of the associated ADV.

16.4.3 These valves open to maintain pressure in their respective ADV actuator nitrogen supply header upon loss of instrument air. These valves are normally closed since the downstream air pressure is maintained above 100 psig and the regulator valve is set at 80 psig. Nitrogen backup is required for small break LOCA when manual operation of the ADV is not possible. These valves are designed to fail open.

16.4.4 These valves are not Code valves, however, they have been included in the IST program to assure functionality. See General Note #5 in Attachment 2. The analysis in Reference 2.1.1 requires only certain tests for these valves. The stroke time of these control valves verifies the open stroke. These valves are open stroked during IST of the ADVs at cold shutdown intervals. Therefore the practical test frequency is cold shutdown in conjunction with the ADV IST.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

16.5 **S2(3)1301MU1264, HV8419 Equalizing Ball Valve**
S2(3)1301MU1265, HV8421 Equalizing Ball Valve

16.5.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

16.5.2 Alternate Testing: Test these valves at cold shutdown intervals.

16.5.3 These valves are normally closed and are opened to equalize the pneumatic pressure across the valve actuator to permit manual operation of the atmospheric dump valve. If these valves remain closed, actuator pressure would not be equalized, and manual operation would be difficult. This could delay manual operation of the ADV's. Local manual operation of the ADV is used when the ADV cannot be operated from the Control Room during: a steam generator tube rupture; main steam line break outside containment; feed water line break; fire and control room evacuation.

16.5.4 These valves are not Code valves, however, they have been included in the IST program to assure functionality. See General Note #5 in Attachment 2. MU1264 and MU1265 are open and closed stroked during IST of the associated ADV at cold shutdown intervals. In order to stroke the valve closed, the associated ADV must be declared inoperable because normal control air must be isolated. Therefore the practical test frequency is cold shutdown in conjunction with the ADV IST. The response to Question 53 in Reference 2.5.2 is followed for guidance in these cases.

16.6 **S2(3)1301MU021, HV8421, Nitrogen Supply Isolation Valve**
S2(3)1301MU1328, HV8419, Nitrogen Supply Isolation Valve

16.6.1 Test Requirement: OM-10, Para. 4.2.1.1, test nominally every three months.

16.6.2 Alternate Testing: Test these valves at cold shutdown intervals.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

16.6.3 These valves are maintained in the open position to provide a source of nitrogen to the ADV in case there is a loss of instrument air. MU1328 and MU021 are required to be closed to isolate nitrogen supply to the ADV actuators during manual operation of the ADVs. Manual operation of the ADV is required if the ADV cannot be operated from the control room during: steam generator tube rupture, main steam line break outside containment, feed water line break, fire and control room evacuation. These valves are also closed to crosstie nitrogen accumulators if one ADV is inoperable or only one ADV is to be used. No credit is taken for closure during an accident. These valves are opened and closed during IST of ADV at cold shutdown intervals when the ADVs are stroked open manually.

16.6.4 The ADV is inoperable when the backup nitrogen source is isolated. MU1328 and MU021 are not Code valves; however, they have been included in the IST program to ensure functionality. See General Note #5 in Attachment 2. These valves are opened and closed during IST of the associated ADVs at cold shutdown intervals. Therefore the practical test frequency is cold shutdown in conjunction with the ADV IST.

16.7 **S2(3)1301MU003, Steam Supply - S/G E088 to AFP Turbine K007 Check Valve**
S2(3)1301MU005, Steam Supply - S/G E089 to AFP Turbine K007 Check Valve

16.7.1 Test Requirement: OM-10, Paragraph 4.3.2, exercise the valves every three months.

16.7.2 Alternate Testing: Quarterly, perform a partial stroke test (open) of each valve using system flow. At each refueling outage, test the valves by partial disassembly, inspection and manual stroking.

16.7.3 During partial disassembly the valves' internals will be visually inspected for worn or corroded parts, and the valves' disks shall be manually exercised. Following reassembly and prior to return to service, the valves will be tested by partial stroking using system flow.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

16.7.4 The use of non-intrusive test techniques are being pursued, with some success, on these valves. Successful acoustic and magnetic traces have been obtained to verify both open and closure of these valves. Nevertheless, we conduct disassembly and inspection every outage because of past problems with these valves. If it is determined that disassembly and inspection is no longer required, the non-intrusive techniques may be implemented.

16.7.5 These valves are in the main steam supply to the turbine-driven auxiliary feedwater pump. In the event of a main steam line break, these valves close to isolate the opposite steam generator.

16.7.6 DURING PLANT OPERATION

.1 During normal plant operation, main steam pressure tends to open these valves. No pressure source exists to reverse this pressure in the steam line where these valves are located and allow detection of valve closure or valve leakage. Consequently, with the present system design, verifying the closure of the AFP Steam Supply check valves by leak testing or with reverse flow, while the plant is operating, is not practical. Although a temporary external pressure source could be connected to the down-stream piping and apply reverse pressure to these check valves, the required valve lineup would cause the associated auxiliary feedwater pump to be inoperable during the test.

16.7.7 DURING COLD SHUTDOWN OR REFUELING MODES

.1 Regardless of plant mode, there is no positive means of verifying that the valve disc travels to the closed position, with the possible exception of non-intrusive testing techniques. System connections, such as vents and drains (and appropriate line isolation valves) are not present in the system to allow verification of the existence of a pressure differential across the AFP Steam Supply check valves when they are in the closed position.

ALTERNATE TESTING JUSTIFICATION AND BASIS FOR OTHER THAN QUARTERLY TEST INTERVAL
(Continued)

16.7.8 CONCLUSION

.1 OM-10 and NRC Generic Letter 89-04, Attachment 1, Position 2, identifies partial disassembly and inspection as an acceptable alternative for stroking a valve when it is impractical to use flow. With the possible exception of non-intrusive testing techniques, there is no way to test these check valves closed with the existing system design using reverse flow or pressure. Testing of these valves could only be accomplished after significant redesign of the system, such as installation of additional isolation valves and appropriate vents and drains in the high pressure steam piping. The high costs of the necessary design changes involved would not be justified by the improvement of the valve testing. Further, the addition of valves, supports and necessary piping modifications could result in reduced plant reliability.

16.7.9 TEST SCHEDULE

.1 OM-10, Section 4.3.2.2, Exercising, Requirements, Paragraph (e) stipulates if exercising is not practicable during plant operations or cold shutdowns, it may be limited to full stroke during refueling outages.

.2 Section 4.3.2.4(c), Valve Obturator Movement, further states, "As an alternative to the testing in (a) or (b) above, disassembly every refueling outage to verify operability of check valves may be used."

.3 Disassembly and inspection is performed in accordance with, and does not deviate from, OM-10, Para 4.3.2.4, and GL 89-04, Position 2.

STROKE TIME ACCEPTANCE CRITERIA FOR VALVES REQUIRED TO STROKE AT OTHER THAN THEIR SAFETY ANALYSIS LIMITS

See Note 3 in Attachment 2 to this procedure. Valves with protected stroke times are:

Valve		Safety Analysis Stroke Limit in Seconds
2(3)HV0508	BTC	40
2(3)HV0509	BTC	40
2(3)HV0510	BTC	40
2(3)HV0511	BTC	40
2(3)HV0512	BTC	40
2(3)HV0513	BTC	40
2(3)HV0514	BTC	40
2(3)HV0515	BTC	40
2(3)HV0516	BTC	40
2(3)HV0517	BTC	40
2(3)HV1105	BTC	10
2(3)HV1106	BTC	10
2(3)HV4047	BTC	10
2(3)HV4048	BTC	10
2(3)HV4051	BTC	10
2(3)HV4052	BTC	10
2(3)HV4053	BTC	20
2(3)HV4054	BTC	20
2(3)HV4057	BTC	20
2(3)HV4058	BTC	20
2(3)HV4705	BTC	40
	BTO	41.5
2(3)HV4706	BTC	40
	BTO	41.5
2(3)HV4712	BTC	40
	BTO	41.5
2(3)HV4713	BTC	40
	BTO	41.5
2(3)HV4714	BTC	40
	BTO	41.5

STROKE TIME ACCEPTANCE CRITERIA FOR VALVES REQUIRED TO STROKE AT OTHER THAN THEIR SAFETY ANALYSIS LIMITS
(Continued)

Valve		Safety Analysis Stroke Limit in Seconds
2(3)HV4715	BTC	33.5
	BTO	35
2(3)HV4716	BTC	1.4
	BTO	20
2(3)HV4730	BTC	33.5
	BTO	35
2(3)HV4731	BTC	40
	BTO	41.5
2(3)HV4762	BTC	40
2(3)HV4763	BTC	40
2(3)HV5388	BTC	40
2(3)HV5434	BTC	40
2(3)HV5437	BTC	40
2(3)HV5686	BTC	40
2(3)HV5803	BTC	40
2(3)HV5804	BTC	40
2(3)HV6200	BTO	20
2(3)HV6201	BTO	20
2(3)HV6202	BTO	20
2(3)HV6203	BTO	20
2(3)HV6211	BTC	40
2(3)HV6212	BTC	19.7 sec.(1)
2(3)HV6213	BTC	19.7 sec.(1)
2(3)HV6216	BTC	19.7 sec.(1)
2(3)HV6218	BTC	19.7
2(3)HV6219	BTC	19.7 sec.(1)
2(3)HV6223	BTC	40
2(3)HV6236	BTC	40
2(3)HV6366	BTO	12
2(3)HV6367	BTO	12
2(3)HV6358	BTO	12

STROKE TIME ACCEPTANCE CRITERIA FOR VALVES REQUIRED TO STROKE AT OTHER THAN THEIR SAFETY ANALYSIS LIMITS
(Continued)

Valve		Safety Analysis Stroke Limit in Seconds
2(3)HV6369	BTO	12
2(3)HV6370	BTO	12
2(3)HV6371	BTO	12
2(3)HV6372	BTO	12
2(3)HV6373	BTO	12
2(3)HV6500	BTO	12
2(3)HV6501	BTO	12
2(3)HV6569	BTO	5
2(3)HV6570	BTO	5
2(3)HV7258	BTC	40
2(3)HV7259	BTC	40
2(3)HV7512	BTC	40
2(3)HV7513	BTC	40
2(3)HV7800	BTC	1
2(3)HV7801	BTC	1
2(3)HV7802	BTC	1
2(3)HV7803	BTC	1
2(3)HV7805	BTC	1
2(3)HV7806	BTC	1
2(3)HV7810	BTC	1
2(3)HV7811	BTC	1
2(3)HV7816	BTC	1
2(3)HV7911	BTC	40
2(3)HV8200	BTO	20
2(3)HV8201	BTO	20
2(3)HV8202	BTC	40
2(3)HV8203	BTC	40
2(3)HV8204	BTC	8
2(3)HV8205	BTC	8
2(3)HV8419	BTC	20

STROKE TIME ACCEPTANCE CRITERIA FOR VALVES REQUIRED TO STROKE AT OTHER THAN THEIR SAFETY ANALYSIS LIMITS
(Continued)

Valve		Safety Analysis Stroke Limit in Seconds
2(3)HV8421	BTC	20
2(3)HV9205	BTC	40
2(3)HV9217	BTC	40
2(3)HV9218	BTC	40
2(3)HV9302	BTO	39.5
2(3)HV9303	BTO	39.5
2(3)HV9304	BTO	39.5
2(3)HV9305	BTO	39.5
2(3)HV9306	BTC	40
2(3)HV9307	BTC	40
2(3)HV9322	BTO	30
2(3)HV9323	BTO	20
2(3)HV9324	BTO	20
2(3)HV9325	BTO	30
2(3)HV9326	BTO	20
2(3)HV9327	BTO	20
2(3)HV9328	BTO	30
2(3)HV9329	BTO	20
2(3)HV9330	BTO	20
2(3)HV9331	BTO	30
2(3)HV9332	BTO	20
2(3)HV9333	BTO	20
2(3)HV9334	BTC	40
2(3)HV9341	BTC	10
2(3)HV9347	BTC	40
2(3)HV9348	BTC	40
2(3)HV9351	BTC	10
2(3)HV9361	BTC	10
2(3)HV9367	BTO	12
2(3)HV9368	BTO	12

STROKE TIME ACCEPTANCE CRITERIA FOR VALVES REQUIRED TO STROKE AT OTHER THAN THEIR SAFETY ANALYSIS LIMITS
(Continued)

Valve		Safety Analysis Stroke Limit in Seconds
2(3)HV9371	BTC	10
2(3)HV9433	BTC	10
2(3)HV9437	BTC	10
2(3)HV9821	BTC	5
2(3)HV9823	BTC	5
2(3)HV9824	BTC	5
2(3)HV9825	BTC	5
2(3)HV9900	BTC	40
2(3)HV9920	BTC	40
2(3)HV9921	BTC	40
2(3)HV9948	BTC	12
2(3)HV9949	BTC	12
2(3)HV9950	BTC	12
2(3)HV9951	BTC	12
2(3)HV9971	BTC	40
2(3)TV9267	BTC	40

NOTES: [1]See NCR G-0852.

ACCEPTANCE LIMIT CHANGE RECORD

INSERVICE TESTING PROGRAM FOR VALVES

NOTES:

a. Use this Attachment to document a change in the acceptance criterion from the established value for any inservice test on a valve in this IST Program.

b. More than one limit and/or more than one valve may be addressed in one Change Record. Identify multiple limits with a "/", or equivalent. Any combination is acceptable provided the resulting record is clear. (Examples: "BTO/BTC" and "open 12 sec/close 13 sec", or, "2(3)HV9336/2(3)HV9367").

VALVE EQUIPMENT ID: _____
(Use ID as it appears in PEDMS.)

IST TEST TYPE(S): _____

DATE: _____ ENGINEER MAKING CHANGE: _____

BASIS AND REFERENCE DOCUMENT: _____

_____

_____

_____

_____

UPPER LIMIT:

OLD LIMIT: _____ NEW LIMIT: _____
(Number and Units) (Number and Units)

LOWER LIMIT (STROKE TIME ONLY):

OLD LIMIT: _____ NEW LIMIT: _____
(Number and Units) (Number and Units)

THE NEW LIMIT HAS BEEN VERIFIED TO BE WITHIN THE SAFETY ANALYSIS LIMIT OF _____ AND SOURCE _____
(Number and Units) (Example: Tech Spec No. 4.5.2)

NOTE: This change is not permitted if a safety analysis limits would be exceeded as a result.

Change Completed and Entered in ISTM: _____
Signature and Date

Independently verified and approved in ISTM: _____
Signature and Date

Distributed:

CDM (original)
IST Chron File
Operations Procedures Group
Operations Surveillance and Audits Group