INSERVICE TESTING PROGRAM PLAN

SECOND TEN-YEAR INSPECTION INTERVAL

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

NUCLEAR PLANT NO. 2

USNRC DOCKET NO. 50-397

FACILITY OPERATING LICENSE NO. NPF-21

COMMERCIAL OPERATION DATE: DECEMBER 13, 1984

Washington Public Power Supply System
Nuclear Plant No. 2

INSERVICE TESTING PROGRAM PLAN
Second Ten-Year Interval
(13 DEC 1994 through 12 DEC 2004)
Revision 1

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1.0 Table of Contents

2.0 Introduction

This Inservice Testing (IST) Program Plan is applicable to the WPPSS Nuclear Project No. 2, hereinafter referred to as WNP-2. A single unit Boiling Water Reactor (BWR), the power plant is located 11 miles north of Richland, Washington, on the Hanford Reservation. The plant employs a General Electric (GE) supplied nuclear steam supply system designated as BWR/5. The reactor is contained within an over-under drywell/wetwell containment vessel designated Mark II. The plant rated electrical output is 1,230 MWe.

This program plan is referenced in the WNP-2 FSAR, Section 3.9.6, and has been prepared as the controlling document governing Pump and Valve Inservice Testing at WNP-2. This IST Program Plan complies with the requirements of 10 CFR Part 50.55a(b)(2) and Part 50.55a(f). The 1989 edition of Section XI was incorporated by reference into paragraph 50.55a(b) by rulemaking on September 8, 1992. The 1989 edition specifies that the rules for the IST of pumps and valves are stated in the ASME/ANSI Operations and Maintenance (OM) Standards, Part 6, "Inservice Testing of Pumps in Light-Water Reactor Power Plants," and Part 10, "Inservice Testing of Valves in Light-Water Reactor Power Plants." Revision date for ASME/ANSI Part 6, and ASME/ANSI Part 10 shall be the OMa-1988 Addenda to the OM-1987 Edition. The scope of this plan encompasses the testing of safety-related ASME Section III Nuclear Class 1, 2 and 3 pumps and valves, as defined by ASME/ANSI Part 6 and Part 10. This program plan also complies with the recommendations of Generic Letter 89-04. Where conformance with certain Code requirements is impractical, relief requests are included in each section with supporting information and proposed alternatives. This is consistent with FSAR commitments and with federal requirements for component testing as stated in 10 CFR Part 50.55a(f).

This Program Plan is comprised of two subprograms -- the Pump Inservice Testing Program and the Valve Inservice Testing Program. The detailed description of the scope, implementation, and administration of these two programs is detailed in subsequent sections (3.0 and 4.0).

2.1 Program Administration

Responsibilities for development, maintenance, and implementation of the IST Program Plan are detailed in Supply System procedures.

Changes to the IST Program Plan that do not require a relief request for impractical Code requirements will be accomplished consistent with Generic Letter 89-04 and will be submitted to the Authorized Nuclear Inservice Inspector for concurrence prior to incorporation into the Program Plan.

Changes to the IST Program Plan involving a relief request from impractical Code requirements will be accomplished consistent with 10CFR50.55a, Generic Letter 89-04 and NUREG-1482.

Components failing to meet test requirements will be dispositioned by the Plant's Problem Evaluation Request (PER) program. Specific responsibilities are defined in the Plant procedures.

2.2 Program Database

The IST Program Plan for the second ten year interval was developed based on a review of pumps and valves at WNP-2 and the applicable Code inservice testing requirements. To provide added assurance that the IST Program described herein accurately reflected the current requirements, design basis, and licensing commitments, the existing IST Program database was enlarged and upgraded. Two independent reviews were utilized to identify which pumps and valves should be included in the IST Program. First, the flow diagrams of systems and components required to perform a safety function were reviewed and associated pumps and valves identified. The other review utilized MEL (Master Equipment List), a database with information on components installed at WNP-2. The total MEL population of pumps and valves was reduced to about 10,000 by eliminating pumps and valves that were not ASME Code Class 1, 2 or 3. Each pump and valve thus identified by these reviews were evaluated for inclusion in the IST Program. This evaluation addressed the identification of active and passive safety functions, categorization per Code requirements, required testing and test frequencies. Where compliance with specified test requirements were deemed impractical, relief from such requirements is requested.

The administrative process for design and configuration management requires changes be reviewed for impact on the IST Program. This will assure that potential changes affecting the commitments described herein are identified in a timely manner and allow for the associated database to be updated accordingly.

2.3 References

2.3.1 10 CFR 50.50a, Codes and Standards.

2.3.2 WNP-2 Technical Specifications Section 4.0.5.

2.3.3 FSAR Section 3.9.6.

2.3.4 10 CFR 50, Appendix J, Primary Reactor Containment Leakage Testing For Water-cooled Power Reactors.

2.3.5 ASME/ANSI Standard, Operations and Maintenance of Nuclear Power Plants, 1987 Edition through OMa-1988 Addenda.

2.3.6 ASME/ANSI OM Part 1, Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices.

2.3.7 ASME/ANSI OM Part 6, Inservice Testing of Pumps in Light-Water Reactor Power Plants.

2.3.8 ASME/ANSI OM Part 10, Inservice Testing of Valves in Light-Water Reactor Power Plants.

2.3.9 Generic Letter No. 89-04, Guidance on Developing Acceptable Inservice Testing Program, April 1989.

2.3.10 NRC Temporary Instruction 2515/110, Performance of safety-related check valves, November 1991.

2.3.11 NRC Temporary Instruction, 2515/114, Inspection Requirements for Generic Letter 89-04, Acceptable Inservice Testing Programs, January 1992.

2.3.12 Draft NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants, November 1993.

2.3.13 NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants, April 1995.

2.3.14 Safety Evaluation of WNP-2 Pump and Valve Inservice Testing Program by NRC dated May 7, 1991 (TAC NO. 60493) and September 30, 1993 (TAC NO. M84553).

2.3.15 ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition with no addenda, Rules for Inservice Inspection of Nuclear Power Plant Components

2.3.16 WNP-2 Final Safety Analysis Report (FSAR).

2.3.17 NOS-34, "Inservice Testing of Pumps and valves".

3.0 Pump Inservice Testing Program

3.1 Introduction

Highly reliable safety related equipment is a vital consideration in the operation of a nuclear generating station. To help assure operability, the WNP-2 Pump Inservice Testing Program has been developed. The program establishes the requirements for preservice and inservice testing to assess the operational readiness of safety related pumps. The Program is based on the requirements of the ASME/ANSI OM Standard, OMa-1988 Addenda, Part 6, "Inservice Testing of Pumps in Light-Water Reactor Power Plants." The Program complies with the specifications of the approved Codes (1), Regulations (2), and Generic Letters (3). This program includes those ASME pumps which are provided with an emergency power source and are required for shutting down the reactor to the cold shutdown condition, maintaining the cold shutdown condition, or mitigating the consequences of an accident.

The Program Plan establishes test intervals, parameters to be measured and evaluated, acceptance criteria, corrective actions, and records requirements. Where conformance with certain Code requirements is impractical, relief requests are included in Section 3.6 with supporting information and proposed alternatives.

References:

1) ASME/ANSI OM Standard, OMa-1988 Addenda, Part 6, "Inservice Testing of Pumps in Light-Water Reactor Power Plants."

2) 10CFR 50.55 a(f).

3) Generic Letter 89-04.

3.2 Program Implementation

3.2.1 Preservice Testing

Each pump shall be tested during the preservice test period. This testing shall be conducted under conditions as near as practicable to those expected during subsequent inservice testing. Preservice testing applies only to newly added components.

3.2.2 Inservice Testing

Inservice testing shall commence prior to when the pump(s) is required to be operable. Surveillance testing is performed for each pump listed in the program, nominally every 3 months. For pumps in systems out of service (declared inoperable or not required to be operable), the test is performed prior to placing the system in an operable status and the test schedule resumed. The WNP-2 Pump Inservice Testing Program is implemented as part of the Technical Specification required surveillance testing program.

3.2.3 Reference Values

Reference values are established and maintained in accordance with OM Part 6, paragraph 4.3. and measured in accordance with OM Part 6, paragraph 4.6. In most cases, test parameters are measured with permanently installed plant instrumentation. This approach simplifies the test program and promotes timely completion of surveillance testing. Where permanently installed instrumentation is not available, portable instrumentation is used to record the required parameters.

3.2.4 Instrumentation Accuracy

The limits for instrumentation accuracy are provided in Table 1 of OM Part 6. The WNP-2 instruments used for pump testing meet these requirements except where written relief has been requested.

3.2.5 Test Parameters

Speed (N) - Pump speed is only measured for variable speed pumps.

Differential Pressure (ΔP) - Differential pressure is calculated from suction and discharge pressure or obtained by direct differential pressure measurement.

Discharge Pressure (P) - Discharge pressure is measured for positive displacement pumps.

Flow Rate (Q) - Flow rate is measured using a rate or quantity meter installed in the pump test circuit.

Vibration (V) - Vibration measurements for centrifugal pumps, vertical line shaft pumps, and reciprocating pumps shall be taken at the locations specified in OM Part 6, paragraph 4.6.4. If a portable vibration indicator is used, the reference points are clearly identified on the pump to permit subsequent duplication in both location and plane.

3.2.6 Allowable Ranges For Test Parameters

Tables 3a and 3b of OM Part 6 provide the allowable ranges for pump testing parameters. When the allowable range is more restrictive in the Technical Specifications, or other similar governing document, the more restrictive ranges are used.

3.2.7 Testing Methods

During an inservice test, flow rate is normally selected as the independent test parameter and is set to match the reference flow rate. Then other hydraulic and mechanical test parameters are measured in accordance with OM Part 6, paragraph 4.6, and evaluated against the appropriate reference values in accordance with OM Part 6, paragraph 6. The results of such evaluations determine whether or not corrective action is required.

3.2.8 Test Procedure

Each pump in the Pump Testing Program is tested according to detailed test procedures. The procedure includes, as a minimum:

a) Statement of Test Purpose. Identification of test objectives, references applicable Technical Specifications and may note the operating modes for which the test is appropriate.

b) Prerequisites for Testing. System valve alignment, equipment for proper pump operation (cooling water, ventilation, etc.) and additional instrumentation (e.g., portable temperature or vibration monitors) is noted. Identification numbers, range and calibration verification of instrumentation are recorded.

c) Test Instructions. Directions are sufficiently detailed to assure completeness and uniformity of testing. Instructions include provisions for returning system to its normal standby configuration following testing. (For informational purposes, proposed flow paths are illustrated in Section 3.7).

d) Acceptance Criteria. The ranges within which test data is considered acceptable is established by the Supply System and included in the test procedure. In the event that the data fall outside the acceptable ranges, corrective actions are taken in accordance with OM Part 6, paragraph 6.1.

e) Test Instruments. A description of instruments used.

f) Reference Values.

3.2.9 Trending

Test parameters shown in OM Part 6, Table 1, except for fixed values, will be trended.

Finally, it is recognized that the Pump Inservice Testing Program sets forth minimum testing requirements. Additional testing will be performed, as required, after pump maintenance or as determined necessary by the Plant Staff.

3.3 Pump Reference List

This list gives a brief description of each pump identified in the Pump Inservice Test Table, Section 3.4.

DO-P-1A, 1B, 2

These pumps transfer diesel generator fuel oil from the subterranean storage tanks to the diesel's Day Tanks. Pump 2 is dedicated to the HPCS Diesel. The discharge lines of Pump 1A and 1B are cross tied, and each pump can supply fuel to either Diesel 1A or 1B.

FPC-P-1A, 1B

The Fuel Pool Circulation (FPC) pumps take suction on the spent fuel pool and discharge through the FPC heat exchangers and, during normal operation, through the Fuel Pool Filter/Demineralizers.

HPCS-P-1

The High Pressure Core Spray pump provides emergency cooling spray to the reactor core. It is capable of injecting coolant at pressures equal to or above normal reactor operating pressures. The pump can take suction from the Condensate Storage Tank or from the Suppression Pool.

HPCS-P-2

This pump is dedicated to providing cooling water to the HPCS Emergency Diesel Generator, the standby power source for the High Pressure Core Spray System. HPCS-P-2 is located in the Service Water Pump House and takes suction from the spray pond.

LPCS-P-1

A high capacity, low head pump, the Low Pressure Core Spray pump provides cooling spray to the reactor core. LPCS-P-1 takes suction from the suppression pool.

RCIC-P-1

The turbine driven Reactor Core Isolation Cooling pump supplies coolant to the core in the event of reactor vessel isolation. It can take suction from either the Condensate Storage Tank or from the suppression pool.

RHR-P-2A, 2B, 2C

The Residual Heat Removal pumps are high capacity, low head pumps which have multiple uses during normal and emergency plant conditions. Briefly the system:

a) In conjunction with other systems, restores and maintains reactor coolant inventory in the event of a LOCA

b) Removes decay heat after shutdown

c) Cools the suppression pool

d) Can provide cooling spray to upper and lower drywell and to the wetwell

e) Can assist in fuel pool cooling

f) Can provide a condensing spray to the reactor head

g) Provides a flow path for Standby Service Water in case containment flooding is required.

Pumps take suction from the suppression pool in the standby operating mode.

SLC-P-1A, 1B

The Standby Liquid Control pumps are used to inject negative reactivity (sodium pentaborate) into the reactor core independently of the control rod system. Suction is obtained from a storage tank containing the sodium pentaborate solution.

SW-P-1A, 1B

The Standby Service Water pumps supply cooling water to separate trains of safety related equipment. The pumps take suction on their respective spray ponds but discharge to the opposite pond. The two spray ponds constitute the ultimate heat sink.

3.4 Pump Inservice Test Table

The pumps included in the WNP-2 IST Program are listed in the Test Table. The information contained in this table identifies those pumps required to be tested to the requirements of ASME/ANSI OM Part 6, the testing parameters and frequency of testing, and associated relief requests.

Legend

Q = Quarterly (92 day interval) test

N/A = Not applicable. See Relief Requests

NR = Not required by Code

Pump Inservice Test Table

Pump Ident	Flow Diagram & Coord	ASME Code Class	Pump Type	Inlet Press	Disch Press	Diff Press	Flow	Vib Vel	Pump Speed	Relief Requests & Technical Positions
				Pi	Po	ΔP	Q	V	N	
DO-P-1A	M512-4 B10	3	Vertical Line Shaft	Q	Q	Q	Q	Q	NR	2,6 TP01
DO-P-1B	M512-4 G10	3	Vertical Line Shaft	Q	Q	Q	Q	Q	NR	2,6 TP01
DO-P-2	M512-4 C2	3	Vertical Line Shaft	Q	Q	Q	Q	Q	NR	2,6 TP01
FPC-P-1A	M526 D13	3	Centri-fugal	Q	Q	Q	Q	Q	NR	
FPC-P-1B	M526 C13	3	Centri-fugal	Q	Q	Q	Q	Q	NR	
HPCS-P-1	M520 B6	2	Vertical Line Shaft	Q	Q	Q	Q	Q	NR	4,5
HPCS-P-2	M524-1 G5	3	Vertical Line Shaft	N/A	Q	N/A	Q	Q	NR	1,3
LPCS-P-1	M520 B12	2	Vertical Line Shaft	Q	Q	Q	Q	Q	NR	4
RCIC-P-1	M519 D12	2	Centri-fugal	Q	Q	Q	Q	Q	Q	4
RHR-P-2A	M521-1 B11	2	Vertical Line Shaft	Q	Q	Q	Q	Q	NR	4,5
RHR-P-2B	M521-2 D4	2	Vertical Line Shaft	Q	Q	Q	Q	Q	NR	4,5
RHR-P-2C	M521-2 D6	2	Vertical Line Shaft	Q	Q	Q	Q	Q	NR	4,5
SLC-P-1A	M522 F6	2	Positive Displ.	NR	Q	NR	Q	Q	NR	7
SLC-P-1B	M522 D6	2	Positive Displ.	NR	Q	NR	Q	Q	NR	7
SW-P-1A	M524-1 G4	3	Vertical Line Shaft	N/A	Q	N/A	Q	Q	NR	1,3
SW-P-1B	M524-2 F5	3	Vertical Line Shaft	N/A	Q	N/A	Q	Q	NR	1,3

3.5 Technical Positions

Technical Position -- TP01

Pump	Code Class	P&ID Dwg. Number	System(s)
DO-P-1A	3	M512, SH 4	Diesel Oil Transfer
DO-P-1B	3	M512, SH 4	
DO-P-2	3	M512, SH 4	

Title

Use of tank level to calculate differential pressure of pumps DO-P-1A, DO-P-1B and DO-P-2

Issue Discussion

OM Part 6, paragraph 4.6.2.2, states that the differential pressure is the difference between the pressure at a point in the inlet pipe and the pressure at a point in the discharge pipe. NUREG-1482, section 5.5.3, states that when inlet pressure gauges are not installed in the inlet of a vertical line shaft pump, it is impractical to directly measure inlet pressure for use in determining differential pressure for the pump. The NRC staff recommends use of tank level to determine the suction pressure of vertical line shaft pumps and a relief request is not required. The method is in accordance with a determination of differential pressure allowed by the Code.

Position

Suction pressure is determined by measuring storage tank level before pump start. Storage tank level changes when the pump is running, so accurate suction pressure measurements cannot be determined while the pump is running. Suction pressure is calculated based on the height of the fluid level above pump suction and the reading scale for measuring the level and the calculational method yield Code required accuracy of $\pm$ 2%. This method yields the information needed for monitoring the hydraulic condition of the pumps without the need to install suction (inlet) pressure gauges which are not practical due to design limitations.

3.6 Relief Requests From Certain OM Part 6 Requirements

Relief Requests identify Code requirements which are impractical for WNP-2 and provide technical justification for the requested exception. Where appropriate, they also propose alternate testing to be performed in lieu of the Code required testing.

Relief Request -- **RP01**

Pump	Code Class	P & ID Dwg. No.	System(s)
SW-P-1A	3	M524, SH 1	Standby Service Water
SW-P-1B	3	M524, SH 2	
HPCS-P-2	3	M524, SH 1	

OM Part 6 Code Requirement for which Relief is Requested

Measure pump differential pressure, ΔP. (Paragraph 5.2, Table 2)

Basis for Relief

1) SW-P-1A, 1B, and HPCS-P-2 are vertical line shaft type pumps which are immersed in their water source. They have no suction line which can be instrumented.

2) Technical Specification states minimum allowable spray pond level to assure adequate NPSH and ultimate heat sink capability.

3) The difference between allowable minimum and overflow pond level is only twenty one (21) inches of water or 0.8 psi. This small difference will not be significant to the Test Program and suction pressure will be considered constant. Administratively, the pond level is controlled within a nine (9) inch band.

4) Acceptable flowrate and discharge pressure will suffice as proof of adequate suction pressure.

Alternate Testing to be Performed

Pump discharge pressure will be recorded during the testing of these pumps.

Quality/Safety Impact

The effect of setting the Code Acceptance Criteria on discharge pressure instead of differential pressure as specified in the Code will have no negative impact on detecting pump degradation. A review of the discharge pressure gauge reading, which is uncorrected for elevation, compared to differential pressure readings shows that basing corrective action on discharge pressure is slightly more conservative than basing it on differential pressure for these pump installations.

Relief Request -- **RP01** (Continued)

NRC Acceptance/SER Dated November 27, 1995

Relief granted provided that the discharge pressure is less than the calculated differential pressure considering the entire range of suction pressures, such that acceptance criteria assigned to the discharge pressure gives equivalent protection provided by the Code for differential pressure.

Maximum elevation of spray pond level is 434 feet 6 inches and minimum elevation of discharge piping for these pumps is 442 feet. Thus discharge pressure for these pumps will always be lower than the calculated differential pressure for the entire range of suction pressures. Assigning acceptance criteria to the discharge pressure for these pumps gives equivalent protection provided by the Code for differential pressure.

Relief Request -- RP02

Pump	Code Class	P&ID Dwg. No.	System(s)
DO-P-1A	3	M512, SH 4	Diesel Oil Transfer
DO-P-1B	3	M512, SH 4	
DO-P-2	3	M512, SH 4	

OM Part 6 Code Requirement For Which Relief is Requested

Paragraph 4.6.5. Flow rate shall be measured using a rate or quantity meter installed in the pump test circuit.

Basis for Relief

A rate or quantity meter is not installed in the test circuit. To have one installed would be costly and time consuming with few compensating benefits.

Alternate Testing to be Performed

Pump flow rate will be determined by measuring the volume of fluid pumped and dividing by the corresponding pump run time. The volume of fluid pumped will be determined by the difference in fluid level in the day tank at the beginning and end of the pump run (day tank fluid level corresponds to volume of fluid in the tank). The pump flow rate calculation methodology meets the accuracy requirements of OM Part 6, Table 1.

Quality/Safety Impact

The day tanks are horizontal cylindrical tanks with elliptical ends. The tank fluid volume is approximately 3,200 gallons. Fluid level measurement is accurate to an eighth inch which corresponds to an average volume error of approximately 11 gallons. The test methodology used to calculate pump flow rate will provide results consistent with Code requirements. This will provide adequate assurance of acceptable pump performance.

NRC Acceptance/SER Dated November 27, 1995

Relief granted provided the calculated methods are properly proceduralized and meet quality assurance requirements.

Calculation methods are specified in the surveillance procedures and meet the quality assurance requirements.

Relief Request -- **RP03**

Pump	Code Class	P&ID Dwg. Number	System(s)
SW-P-1A	3	M524, SH 1	Standby Service Water
SW-P-1B	3	M524, SH 2	Standby Service Water
HPCS-P-2	3	M524, SH 1	Standby Service Water, HPCS

OM Part 6 Code Requirements For Which Relief is Requested

Paragraph 5.2(b) requires that the system resistance be varied until either the measured differential pressure or measured flow rate equals the corresponding reference value. The quantities of Table 2 are then measured or observed and compared to the corresponding reference value.

Basis for Relief

1) Service Water systems are designed such that the total pump flow cannot be adjusted to one finite value for the purpose of testing without adversely affecting the system flow balance and Technical Specification operability requirements. Thus, these pumps must be tested in a manner that the Service Water loop remains properly flow balanced during and after the testing and each supplied load remains fully operable to maintain the required level of plant safety.

2) The Service Water system loops are not designed with a full flow test line with a single throttle valve. Thus the flow cannot be throttled to a fixed reference value. Total pump flow rate can only be measured using the total system flow indication installed on the common return header. There are no valves in any of the loops, either on the common supply or return lines, available for the purpose of throttling total system flow. Only the flows of the served components can be individually throttled. Each main loop of service water supplies 17-18 safety related loads, all piped in parallel with each other. The HPCS-P-2 pump loop supplies four loads, each in parallel. Each pump is independent from the others (ie.no loads are common between the pumps). Each load is throttled to a FSAR required flow range which must be satisfied for the loads to be operable. All loads are aligned in parallel, and all receive service water flow when the associated service water pump is running, regardless of whether the served component itself is in service. During power operation, all loops of service water are required to be operable per Technical Specifications. A loop of service water cannot be taken out of service for testing without entering an Action Statement for a Limiting Condition for Operation (LCO). Individual component flows outside of the FSAR mandated flow ranges also induce their own Technical Specification action statements that in turn can induce plant shutdown in as little as two hours, depending on the load in question.

Relief Request -- **RP03** (Continued)

3) Each loop of Service Water is flow balanced before exiting each refueling outage to ensure that all loads are adequately supplied. A flow range is specified for each load. Once properly flow balanced, very little flow adjustment can be made for any one particular load without adversely impacting the operability of the remaining loads (increasing flow for one load reduces flow for all the others). Each time the system is flow balanced, proper individual component flows are produced, but this in turn does not necessarily result in one specific value for total flow. Because each load has an acceptable flow range, overall system full flow (the sum of the individual loads) also has a range. Total system flow can conceivably be in the ranges of approximately 9,200 - 10,100 GPM for SW-P-1A and SW-P-1B pumps and approximately 1,050 - 1,160 GPM for HPCS-P-2 pump. Consequently, the requirement to quarterly adjust service water loop flow to one specific flow value for the performance of inservice testing conflicts with system design and component operability requirements (i.e., flow balance) as required by Technical Specification.

<u>Alternate Testing to be Performed</u>

As discussed above in the basis for relief section, it is extremely difficult or impossible to return to a specific value of flow rate or discharge pressure for testing of these pumps. Multiple reference points could be established according to the Code, but it would be impossible to obtain reference values at every possible point, even over a small range. An alternate to the testing requirements of Paragraph 5.2 is to base the acceptance criteria on a reference curve. Flow rate and discharge pressure are measured during inservice testing in the as found condition and compared to an established reference curve. Discharge pressure instead of differential pressure is used to determine pump operational readiness as described in Relief Request RP01. The following elements are used in developing and implementing the reference pump curves.

1) A reference pump curve (flow rate vs discharge pressure) has been established for SW-P-1A and SW-P-1B from data taken on these pumps when they were known to be operating acceptably. These pump curves represent pump performance almost identical to preoperational test data. The methodology employed for establishing a reference pump curve is similar to that for performing a comprehensive test proposed by the later edition of the OM Code.

2) Pump curves are based on seven or more test points beyond the flat portion of the curve (at flow rate greater than 4800 gpm). Rated capacity of these pumps is 12,000 gpm. Three or more test data points were at flow rate greater than 9,000 gpm. The pumps are being tested at or near full design flow rate.

Relief Request -- **RP03** (Continued)

3) To reduce the uncertainty associated with the pump curves and the adequacy of the acceptance criteria, special test gauges (± 0.5% full scale accuracy) were installed to take test data in addition to plant installed gauges and Transient Data Acquisition System (TDAS). All instruments used either met or exceeded the Code required accuracy.

4) For HPCS-P-2 pump, the reference pump curve is based on the manufacturer's pump curve as modified by preoperational test data.

5) Review of the pump hydraulic data trend plots indicates close correlation with the established pump reference curves, thus further validating the accuracy and adequacy of the pump curves to assess pump operational readiness.

6) The reference pump curves are based on flow rate vs discharge pressure. Acceptance criteria curves are based on differential pressure limits given in Table 3b. Setting the Code Acceptance Criteria on discharge pressure using differential limits is slightly more conservative for these pump installations with suction lift (Relief Request RP01). See the attached sample SW-P-1A pump Acceptance Criteria sheet. Area 1-2-5-6 is the acceptable range for pump performance. Area 3-4-5-6 defines the Alert Range, and the area outside 1-2-3-4 defines the required Action Range. These acceptance criteria limits do not conflict with Technical Specifications or FSAR criteria.

7) Only a small portion of the established reference curve is being used to accommodate flow rate variance due to flow balancing of various system loads.

8) Review of vibration data trend plots indicates that the change in vibration readings over the narrow range of pump curves being used is insignificant and thus only one fixed reference value has been assigned for each vibration measurement location.

9) After maintenance or repair that may affect the existing reference pump curve, a new reference pump curve shall be determined or the existing pump curve revalidated by an inservice test. A new reference pump curve shall be established based on at least 5 points beyond the flat portion of the pump curve.

Relief Request -- **RP03** (Continued)

Quality/Safety Impact

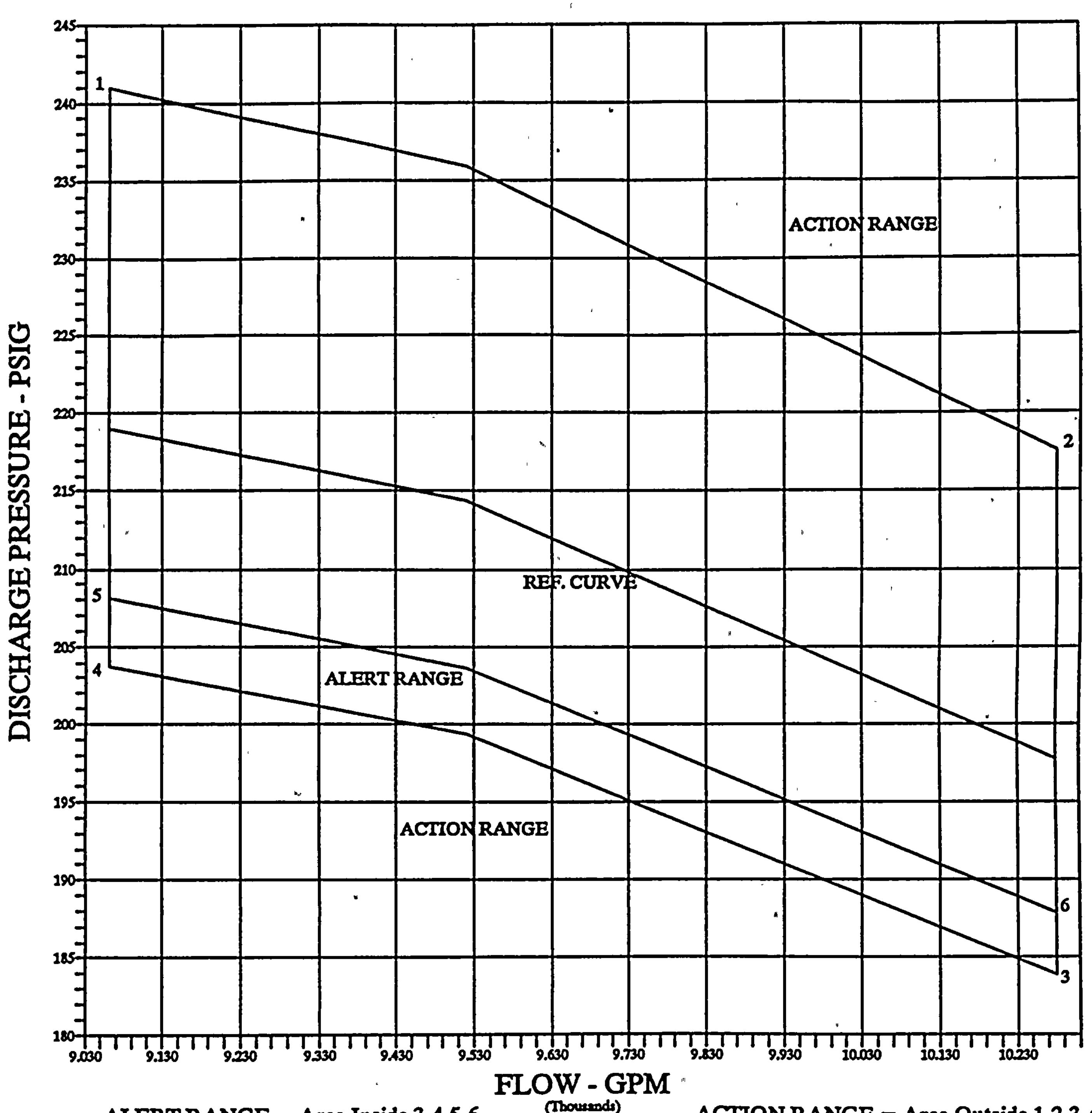
Design of the WNP-2 Service Water system and the Technical Specification requirements make it impractical to adjust system flow to a fixed reference value for inservice testing without adversely affecting the system flow balance and Technical Specification operability requirements. Proposed alternate Testing using a reference pump curve for each pump provides adequate assurance and accuracy in monitoring pump condition to assess pump operational readiness and shall adequately detect pump degradation. Alternate testing will have no adverse impact on plant and public safety.

NRC Acceptance/SER Dated November 27, 1995

Relief granted as requested.

Relief Request -- **RP03** (Continued)

SAMPLE DATA SHEET
SW-P-1A ACCEPTANCE CRITERIA



ALERT RANGE = Area Inside 3-4-5-6

ACTION RANGE = Area Outside 1-2-3-4

Relief Request -- **RP04**

Pump	Code Class	P&ID Dwg. Number	System(s)
LPCS-P-1	2	M520	Low Pressure Core Spray
RHR-P-2A	2	M521, SH 1	Residual Heat Removal
RHR-P-2B	2	M521, SH 2	
RHR-P-2C	2	M521, SH 2	
HPCS-P-1	2	M520	High Pressure Core Spray
RCIC-P-1	2	M519	Reactor Core Isolation Cooling

<u>OM Part 6 Code Requirements For Which Relief is Requested</u>

Paragraph 5.2(b) requires that the system resistance be varied until either the measured differential pressure or measured flow rate equals the corresponding reference value. The quantities of Table 2 are then measured or observed and compared to the corresponding reference value.

<u>Basis for Relief</u>

Reference values are defined as one or more fixed sets of values of quantities as measured or observed when the equipment is known to be operating acceptably. All subsequent test results are to be compared to these reference values. Based on operating experience, flow rate (independent variable during inservice testing) for these pumps cannot be readily duplicated with the existing flow control systems. Flow control for these systems can only be accomplished through the operation of relatively large motor operated globe valves as throttling valves. Because these valves are not equipped with position indicators which reflect percent open, the operator must repeatedly jog the motor operator to try to make even minor adjustments in flow rate. These efforts, to exactly duplicate the reference value, would require excessive valve manipulation which could ultimately result in damage to valves or motor operators.

Relief Request -- **RP04** (Continued)

<u>Alternate Testing to be Performed</u>

As discussed above in the basis for relief section, it is extremely difficult or impossible to return to a specific value of flow rate or differential pressure for testing of these pumps. Since the independent reference variable (flow rate) for these pumps is very difficult to adjust to a fixed reference value and requires excessive valve manipulation, the maximum variance shall be limited to ± 2% of the reference value. Thus, flow rate shall be adjusted to be within ± 2% of the reference flow rate and the corresponding differential pressure shall be measured and compared to the reference differential pressure value determined from the pump reference curve established for this narrow range of flow rate. Slope of the pump reference curve is not flat even over this narrow range of flow rate. Assuming the flow rate to be fixed over this narrow range can result in additional error in calculating the deviation between the measured and reference differential pressure and at times this deviation can be non-conservative. ASME Code allows establishing multiple reference points but does not specify any variance from the fixed reference values. Since the dependent variable (differential pressure) can be assumed to vary linearly with flow rate in this narrow range, establishing multiple reference points in this narrow range is similar to establishing a reference pump curve representing multiple reference points. This assumption of linearity between differential pressure and flow rate is supported by the manufacturer pump curves in the stable design flow rate region. For RCIC-P-1 pump both flow rate and speed are adjusted to be within ± 2% of their respective reference values and the differential pressure is measured. The following elements are used in developing and implementing these reference curves.

1) A reference pump curve (flow rate vs differential pressure) has been established for RHR pumps from data taken on these pumps when they were known to be operating acceptably. These pump curves represent pump performance almost identical to manufacturer's test data. The methodology employed for establishing a reference pump curve is similar to that for performing a comprehensive test proposed by the later edition of the OM Code.

2) For RCIC-P-1, a variable speed drive pump, flow rate is set within ± 2% of the reference flow rate and the reference curve is based on speed with acceptance criteria based on differential pressure. This is done because of the difficulty in setting speed to a specific reference value as specified by the Code. Additionally, evaluation of the manufacturer pump data, preoperational and special test data used to establish the pump reference curve indicates insignificant change (0.25 psi/gpm) in differential pressure with small variation (± 12 gpm) in flow rate.

3) For HPCS-P-1 and LPCS-P-1 pumps, the reference pump curve is based on the manufacturer pump curve which was validated during the preoperational testing.

Relief Request -- **RP04** (Continued)

4) RHR and RCIC pump curves are based on seven or more test points beyond the flat portion of the curve. These ECCS pumps have minimum flow rate requirements specified in Technical Specifications and are being tested at or near full design flow rate.

5) To reduce the uncertainty associated with the pump curves and to ensure the adequacy of the acceptance criteria, special test gauges (± 0.5% full scale accuracy) were installed to take test data in addition to plant installed gauges and Transient Data Acquisition System (TDAS). All instruments used either met or exceeded the Code required accuracy.

6) Review of the pump hydraulic data trend plots indicates close correlation with the established pump reference curves, thus further validating the accuracy and adequacy of the pump curves to assess pumps operational readiness.

7) Acceptance criteria curves are based on differential pressure limits given in Table 3b. See the attached sample RHR-P-2A pump Acceptance Criteria sheet. Area 1-2-5-6 is the acceptable range for pump performance. Area 3-4-5-6 defines the Alert Range and the area outside 1-2-3-4 defines the required Action Range. These acceptance criteria limits do not conflict with Technical Specifications or Final Safety Analysis Report operability criteria.

8) Only a small portion of the established reference curve is being used to accommodate flow rate variance.

9) Review of vibration data trend plots indicates that the change in vibration readings over the narrow range of pump curves being used is insignificant and thus only one fixed reference value has been assigned for each vibration measurement location.

10) After maintenance or repair that may affect the existing reference pump curve, a new reference pump curve shall be determined or the existing pump curve revalidated by an inservice test. A new reference pump curve shall be established based on at least 5 test points beyond the flat portion of the pump curve.

Quality/Safety Impact

Due to impracticality and difficulty of adjusting independent variables (flow rate, and speed for variable drive RCIC pump) to a fixed reference value for inservice testing without system modifications, alternate testing to vary the variables over a very narrow range (± 2% of reference values) and using pump reference curves for this narrow range is proposed. Alternate testing using a reference pump curve for each pump provides adequate assurance and accuracy in monitoring pump condition to assess pump operational readiness and will adequately detect pump degradation. Alternate testing will have no adverse impact on plant and public safety.

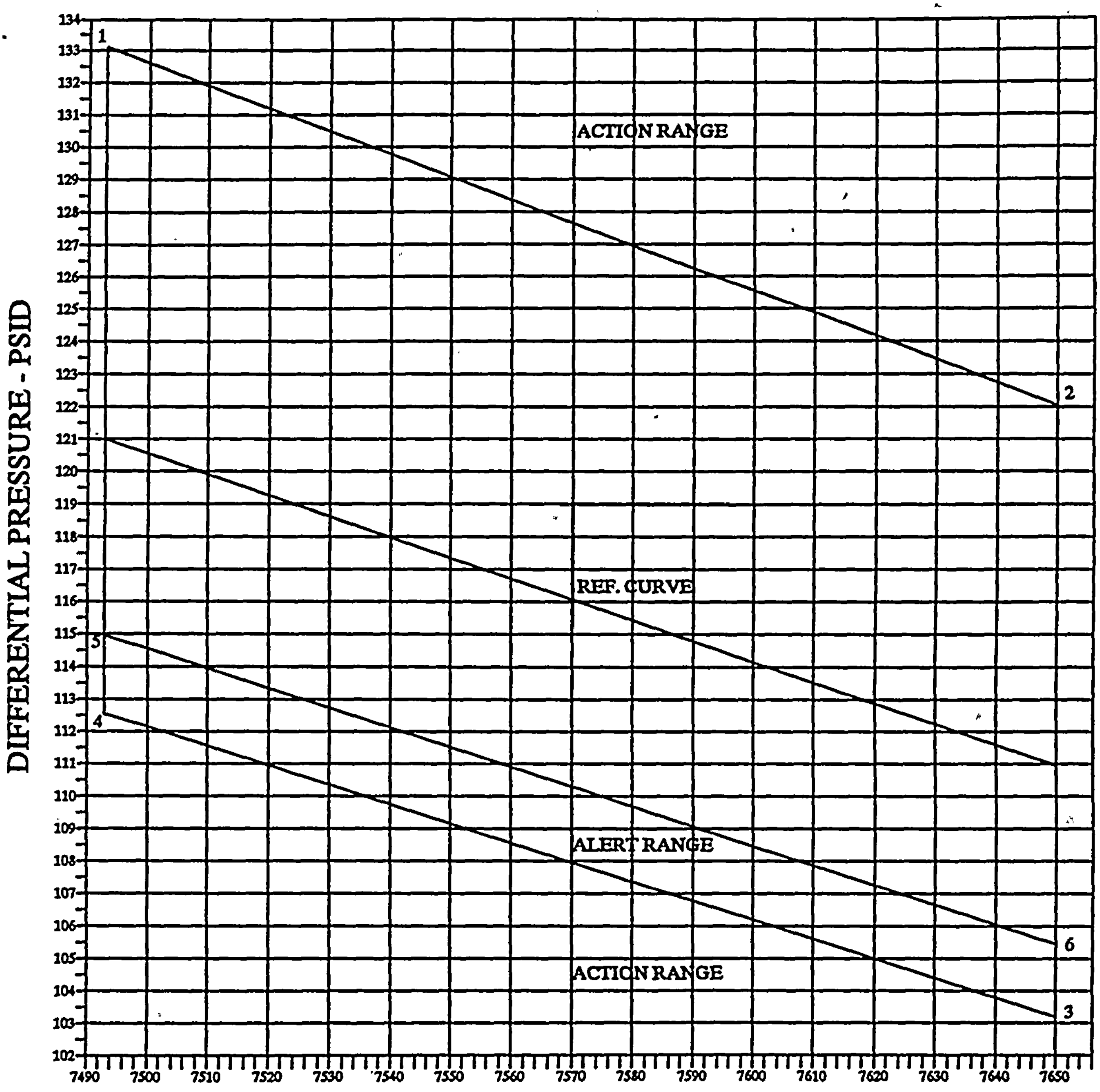
Relief Request -- **RP04** (Continued)

NRC Acceptance/SER Dated November 27, 1995

Relief granted as requested.

Relief Request -- **RP04** (Continued)

SAMPLE DATA SHEET
RHR-P-2A ACCEPTANCE CRITERIA



ALERT RANGE = Area Inside 3-4-5-6

ACTION RANGE = Area Outside 1-2-3-4

Relief Request -- RP05

Pump	Code Class	P&ID Dwg. Number	System(s)
RHR-P-2A	2	M521, SH 1	Residual Heat Removal
RHR-P-2B	2	M521, SH 2	
RHR-P-2C	2	M521, SH 2	
HPCS-P-1	2	M520	High Pressure Core Spray

OM Part 6 Code Requirements For Which Relief is Requested

Paragraph 4.6.1.2(a) Range, the full scale range of each analog instrument shall be not greater than three times the reference value.

Basis for Relief

1) Paragraph 4.6 specifies both accuracy and range requirements for each instrument used in measuring pump performance parameters. The purpose of instrument requirements is to ensure that pump test measurements are sufficiently accurate and repeatable to permit evaluation of pump condition and detection of degradation. Instrument accuracy limits the inaccuracy associated with the measured test data. Thus, higher instrument accuracy lowers the uncertainty associated with the measured data. The purpose of the Code range requirement is to ensure reading accuracy and repeatability of test data.

2) Since the TDAS data is being obtained to an accuracy of ± 1% of full scale, it consistently yields measurements more accurate than would be provided by instruments meeting the Code instrument accuracy requirement of ± 2% of full scale and range requirement of three times the reference value. Equivalent Code accuracy being obtained by TDAS measurements is calculated below.

Pump	Test Parameter	Instrument I.D.	Range (PSIG)	*Ref. Value (PSIG)	Instrument Loop Accuracy	Equivalent Code Accuracy
RHR-P-2A	Discharge Pressure	RHR-PT-37A TDAS PT 155	0-600	136	± 1%, ± 6 psig	6/(3x136)x100 =1.47%
RHR-P-2B	Discharge Pressure	RHR-PT-37B TDAS PT 076	0-600	132	± 1%, ± 6 psig	6/(3x132)x100 =1.52%
RHR-P-2C	Discharge Pressure	RHR-PT-37C TDAS PT 091	0-600	143	± 1%, ± 6 psig	6/(3x143)x100 =1.40%
HPCS-P-1	Discharge Pressure	HPCS-PT-4 TDAS PT 107	0-1500	430	± 1%, ± 15 psig	15/(3x430)x100 =1.16%

* Reference values are specified in the implementing procedures. This table will not be updated to reflect changes in reference values.

Relief Request -- **RP05** (Continued)

Thus the range and accuracy of TDAS instruments being used to measure pump discharge pressure result in data measurements of higher accuracy than that required by the Code and thus will provide reasonable assurance of pump operational readiness. It should also be noted that the TDAS system averages many readings, therefore giving a significantly more accurate reading than would be obtained by visual observation of a gauge.

3) Installing temporary test gauges every quarter to obtain discharge pressure readings would be burdensome and costly and would not provide a pressure measurement that is any more accurate or reliable. Additionally, using different test gauges for IST from one test to another may introduce its unique systematic error and thus affect the quality and repeatability of test data.

Alternate Testing to be Performed

During quarterly pump inservice testing, pump discharge pressure which is used to determine differential pressure shall be measured by respective TDAS points listed above for each pump.

Quality/Safety Impact

TDAS data will consistently provide acceptable accuracy to ensure that the pumps are performing at the flow and pressure conditions to fulfill their design function. TDAS data is sufficiently accurate for evaluating pump condition and in detecting pump degradation. The effect of granting this relief request will have no adverse impact on plant and public safety. Test quality will be enhanced by getting slightly better, more repeatable data.

NRC Acceptance/SER Dated November 27, 1995

Relief granted with provisions.

The range of the PTs used for these applications were selected to bound the expected pump discharge pressure range during all normal and emergency operating conditions (the maximum expected discharge pressure for the RHR and HPCS pumps is approximately 450 psig and 1400 psig respectively). However, during inservice testing the pumps are tested at full flow, resulting in lower discharge pressures than the elevated discharge pressure that can occur during some operating conditions. For this reason the pump reference value is significantly below the maximum expected operational discharge pressure. A reduction of the range of the PTs to three times the reference value would, in these cases, no longer bound the expected discharge pressure range for these pumps, and therefore is not practicable. If a pressure transmitter were to fail, a like replacement would have to be used due to the above identified reasons of replacing a pressure transmitter with one not suited for all pump flow conditions. However, this is not a concern because the existing instrumentation provides pump discharge pressure indication of higher accuracy and better resolution than that required by the Code for evaluating pump condition and detecting degradation.

Relief Request -- RP06

Pump	Code Class	P&ID Dwg. Number	System(s)
DO-P-1A	3	M512, SH 4	Diesel Oil Transfer System
DO-P-1B	3	M512, SH 4	
DO-P-2	3	M512, SH 4	

OM Part 6 Code Requirement For Which Relief is Requested

Paragraph 5.2(b) requires that the system resistance be varied until either the measured differential pressure or measured flow rate equals the corresponding reference value.

Function

The fuel oil storage and transfer system consists of separate, independent diesel oil supply subsystems serving each of the two tandem diesel generators (1A and 1B) and the HPCS diesel engine generator (1C). In each subsystem, a transfer pump takes suction from the diesel oil storage tank and discharges to an associated diesel generator fuel oil day tank to maintain the fuel oil level within the day tank. The transfer pump is sized to provide a flow of 4.4 times the maximum engine consumption rate (of 110% load) and is automatically controlled by level switches activated by day tank fuel level. The volume of the day tank permits eight and one-half hours of engine operation of the associated diesel generator without supply to the day tank. In case of loss of fuel to one diesel generator, the other generator can provide sufficient capacity for emergency conditions, including safe shutdown of the reactor coincident with loss of offsite power.

Basis for Relief

1) Diesel fuel transfer pumps do not have inline flow meters and the pump flow rate is determined by measuring the volume of fuel oil pumped and dividing by the corresponding pump run time. Use of a clamp-on flow meter does not provide an accurate and repeatable flow rate due to the low flow rate and lack of time available to set up the flow meter with the pump running.

2) Pump discharge piping has manual discharge isolation and day tank inlet isolation valves which are fully open. These valves are provided for system maintenance only. System resistance based on the system design and lineup remains constant from test to test. Since the flow rate is calculated based on the change in tank level, it is impractical to adjust flow rate with the globe valve.

Relief Request -- **RP06** (Continued)

3) Differential pressure for these pumps is calculated by measuring discharge pressure using the discharge pressure gauge and suction pressure is calculated by measuring the level of the storage tank before the pump start. Storage tank level changes during the pump run. Thus, due to system design and lack of instrumentation it is impractical to adjust the differential pressure to the reference value by varying the flow rate during pump operation.

4) It is extremely difficult or impossible to fix either flow rate or differential pressure to the reference value for testing of these pumps. As the system resistance based on the system design and lineup remains constant from test to test, the provisions of paragraph 5.2(c), "where system resistance cannot be varied, flow rate and pressure shall be determined and compared to their respective reference values", can be used to evaluate operational readiness of these pumps.

5) Review of previous hydraulic and mechanical pump performance parameters indicates no degrading trends. Disassembly of these pumps during various maintenance activities revealed no degradation.

Alternate Testing to be Performed

The subject system will be treated as a fixed resistance system as defined by paragraph 5.2(c) and all applicable Code requirements adhered to. That is, pressure, flow rate, and vibration shall be determined and compared with corresponding reference values. All deviations from the reference values shall be compared with the limits given in Table 3 and corrective actions taken as specified in paragraph 6.1.

Quality/Safety Impact

Design of the WNP-2 Diesel Fuel Oil Transfer system and lack of instrumentation make it impractical to adjust the system flow rate or differential pressure to a fixed reference value for inservice testing. Proposed alternate testing by maintaining system resistance constant from test to test and determining flow rate and differential pressure and comparing to their respective reference values provides adequate assurance and accuracy in monitoring pump condition to assess pump operational readiness and will adequately detect pump degradation. Alternate testing will have no adverse impact on plant and public safety.

References
FSAR Section 9.5.4

NRC Acceptance/SER Dated November 27, 1995

Relief not required.

Relief Request -- **RP07**

Pump	Code Class	P&ID Dwg. Number	System(s)
SLC-P-1A	2	M522	Standby Liquid Control
SLC-P-1B	2	M522	

<u>OM Part 6 Code Requirement For Which Relief is Requested</u>

Paragraph 4.6.1.6, Frequency Response Range. The frequency response range of the vibration measuring transducers and their readout system shall be from one third minimum pump shaft rotational speed to at least 1000 Hz.

<u>Function</u>

SLC-P-1A and 1B inject borated water into the reactor vessel as an alternate means of introducing negative reactivity to shutdown the reactor.

<u>Basis for Relief</u>

1) The motor speed of 30 Hertz is transferred to the pump shaft through a 4.8:1 ratio gear box which reduces motor speed and produces a shaft rotation of 6.25 Hertz. Paragraph 4.6.1.6 requires a frequency range of one third pump shaft rotating frequency to one KiloHertz; in this case that frequency range is 2 Hertz through one KiloHertz ± 5%. A search for field applicable certifiable instrumentation that can satisfy these criteria has been unsuccessful.

2) Vibration instruments include high-pass filters in the signal processing scheme for the purpose of eliminating low frequency electronic noise. Low frequency vibration is thus filtered out of the processed signal. This is a common practice in nearly all available field usable instrumentation, because there is no requirement for collecting vibration data at such low frequencies. Thus, the procurement of practical, field applicable instrumentation capable of accurate detection down to 2 Hertz is improbable.

3) The Supply System uses high quality instrumentation that has been certified to a lower frequency range of six Hertz and an upper range of three KiloHertz with an accuracy of at least ± 5%, and meets the other requirements of the Code for plant rotating machinery. This instrumentation has been made part of the Quality Class I calibration program, which is traceable to the National Bureau Of Standards, and is used for Quality Class I rotating machinery vibration data collection, including the SLC pumps.

Relief Request -- **RP07** (Continued)

4) The requirement of one third minimum pump shaft rotation speed is useful when subsynchronous vibration frequencies must be monitored. Subsynchronous vibration monitoring can be used to identify rotor dynamic problems that are common in rotating machines such as shaft rubs, fluid whirl in journal bearings, axial instabilities, and other such problems that are not normally found in reciprocating machines. The necessity of collecting subsynchronous vibration data on the SLC pumps was discussed with the manufacturer. The Union Pump Company agreed that vibration data at less than rotating frequency would not be necessary.

5) The SLC pumps at WNP-2 operate only during required surveillance testing, and thus experience very little service, such that a mechanical fault is very unlikely. Moreover, the SLC pumps are included in the WNP-2 Vibration Monitoring Program, as well as in the IST program. The Vibration Monitoring Program collects vibration data on plant machinery, and analyzes and trends the collected vibration data for use in maintenance decisions as well as machinery operability determinations. The SLC Pumps have been monitored since November 1993. Their spectra is consistent and has shown only minor statistical changes during the period of surveillance. The subsynchronous region shows a very low amplitude and consistent pattern, as expected.

Alternate Testing to be Performed

The vibration measurements will be taken using instrumentation accurate to within ± 5% of full scale over a frequency range of 6 Hertz to 3 KiloHertz. All deviations from the reference values shall be compared with the limits given in Table 3 and corrective actions taken as specified in paragraph 6.1.

Quality/Safety Impact

The Supply System is of the opinion that the use of high quality, commercially available vibration monitoring equipment calibrated to be accurate to at least ± 5% over a range of 6 Hertz to 3 KiloHertz is a technically acceptable method of monitoring the mechanical condition of the SLC pumps. The instruments that are used provide meaningful and useful vibration data over the frequency range in which pump faults would be expected to develop and manifest. In addition to this, the 3 KiloHertz range includes the frequencies at which rolling element bearing faults occur, and thus provides an additional range of protection. Thus, the monitoring program meets the intent of the Code and will neither adversely impact system reliability nor the health and safety of the general public.

Relief Request -- **RP07** (Continued)

NRC Acceptance/SER Dated November 27, 1995

Relief granted with provisions. In the event it becomes necessary to replace the existing analyzer and its matching accelerometer, and if another matched unit capable of response down to 2 Hz is available and is compatible with the existing vendor software, the Supply System will procure the replacement equipment. Alternately, if the Supply System changes the method of vibration data acquisition (i.e, to utilize proximity probes which measure vibration by displacement), all code requirements will be met.

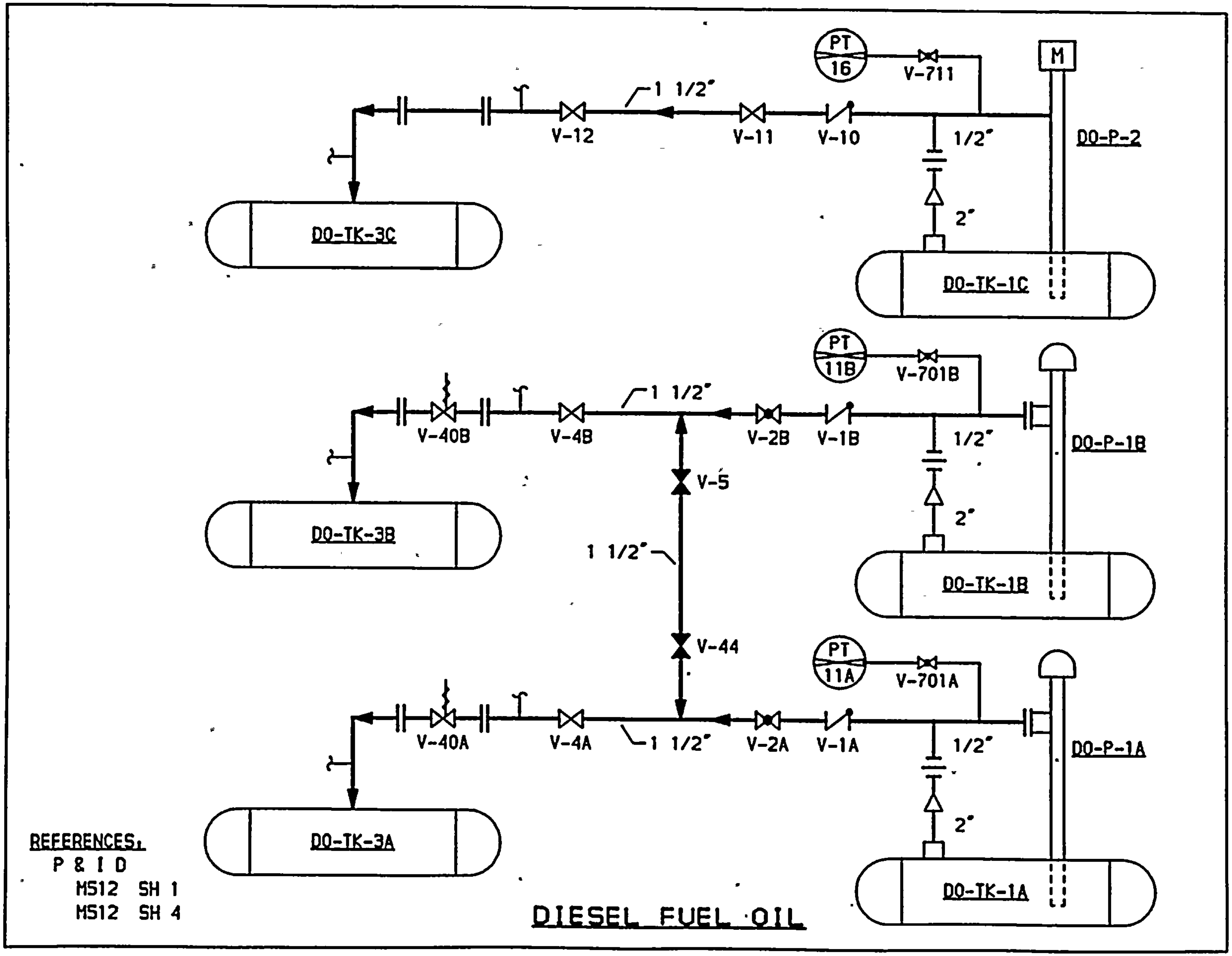
This contingency to upgrade the vibration equipment has been added to the component condition monitoring program.

3.7 Proposed Pump Test Flow Paths

These flow paths are proposed for use during pump and valve testing. Surveillance procedures define actual system lineup for testing pumps and valves.

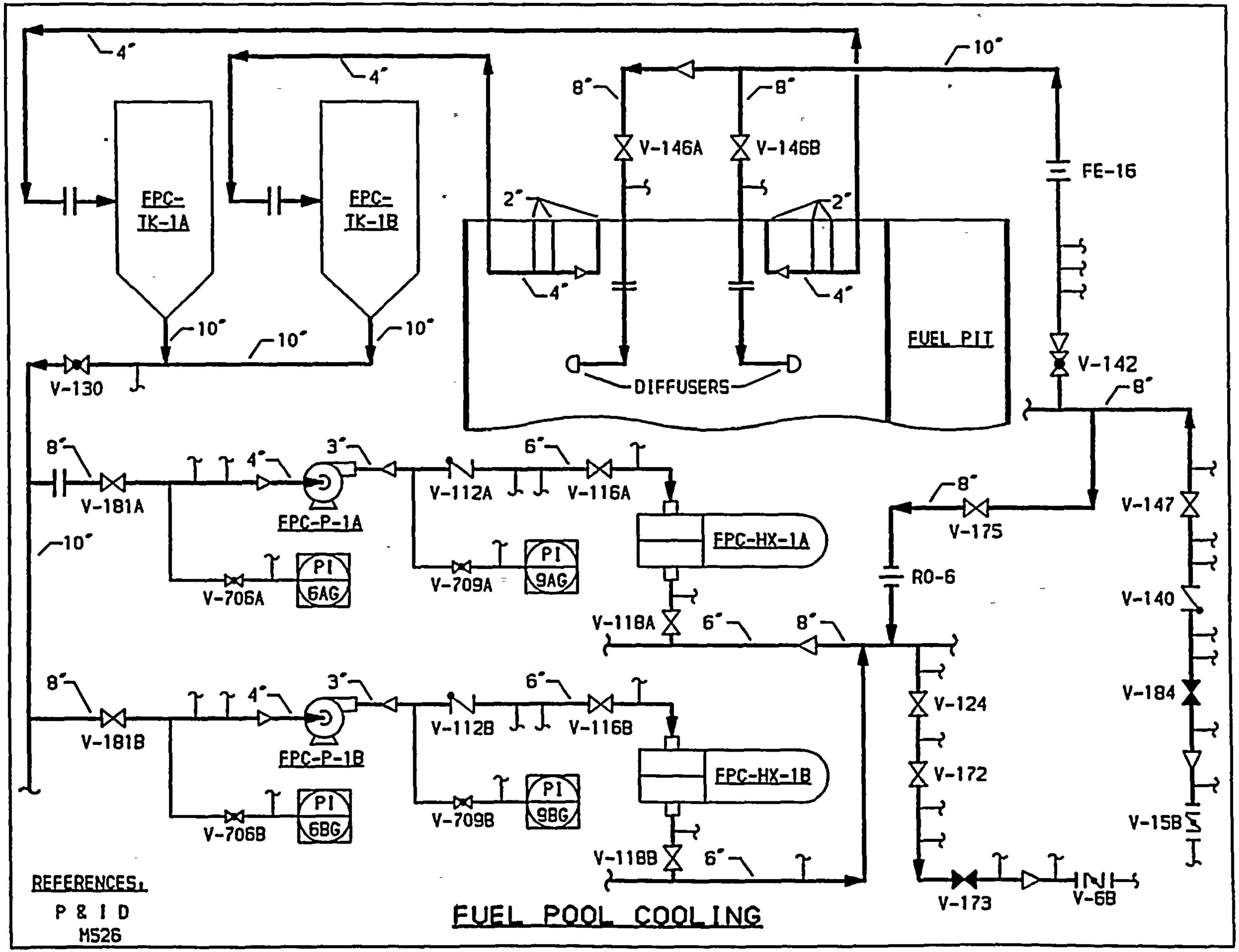
WNP-2

DO-P-1A, DO-P-1B & DO-P-2 PUMP TEST FLOW PATH

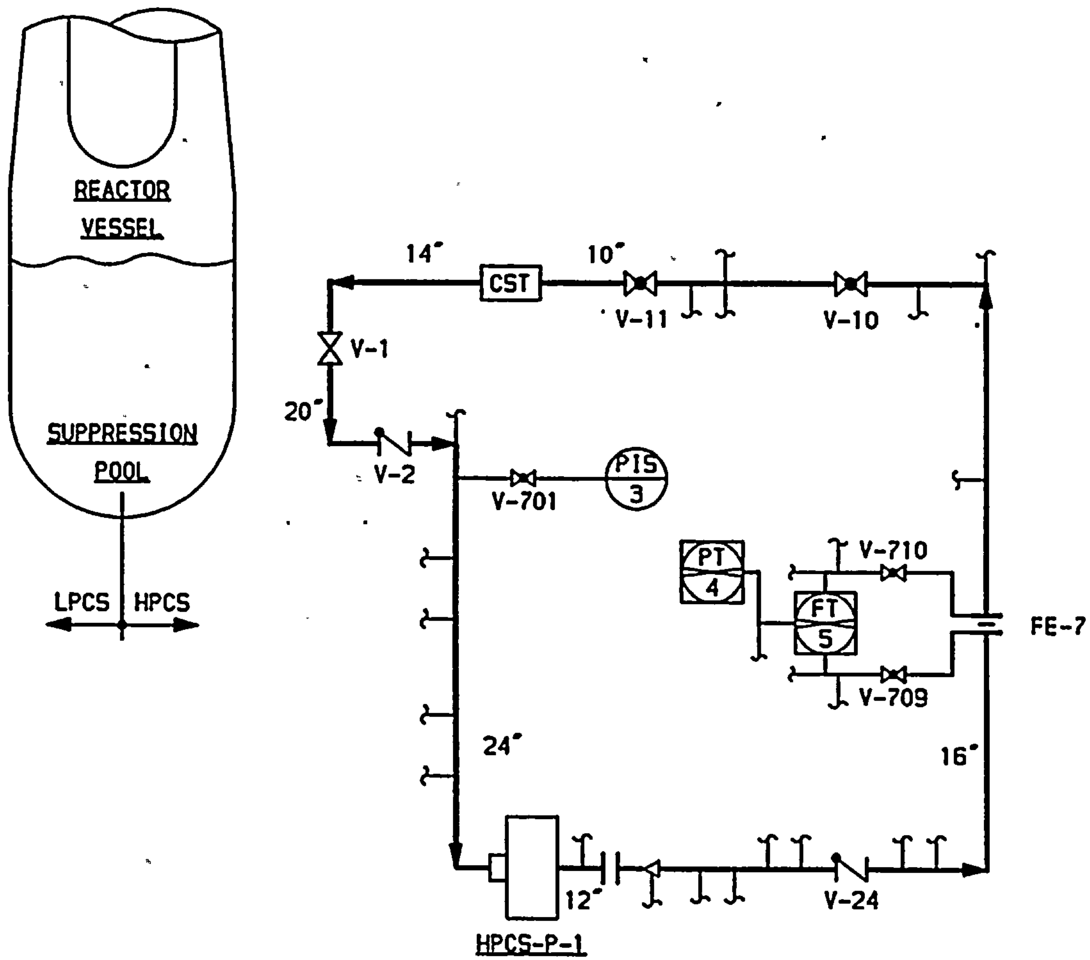


WNP-2

FPC-P-1A & FPC-P-1B PUMP TEST FLOW PATH



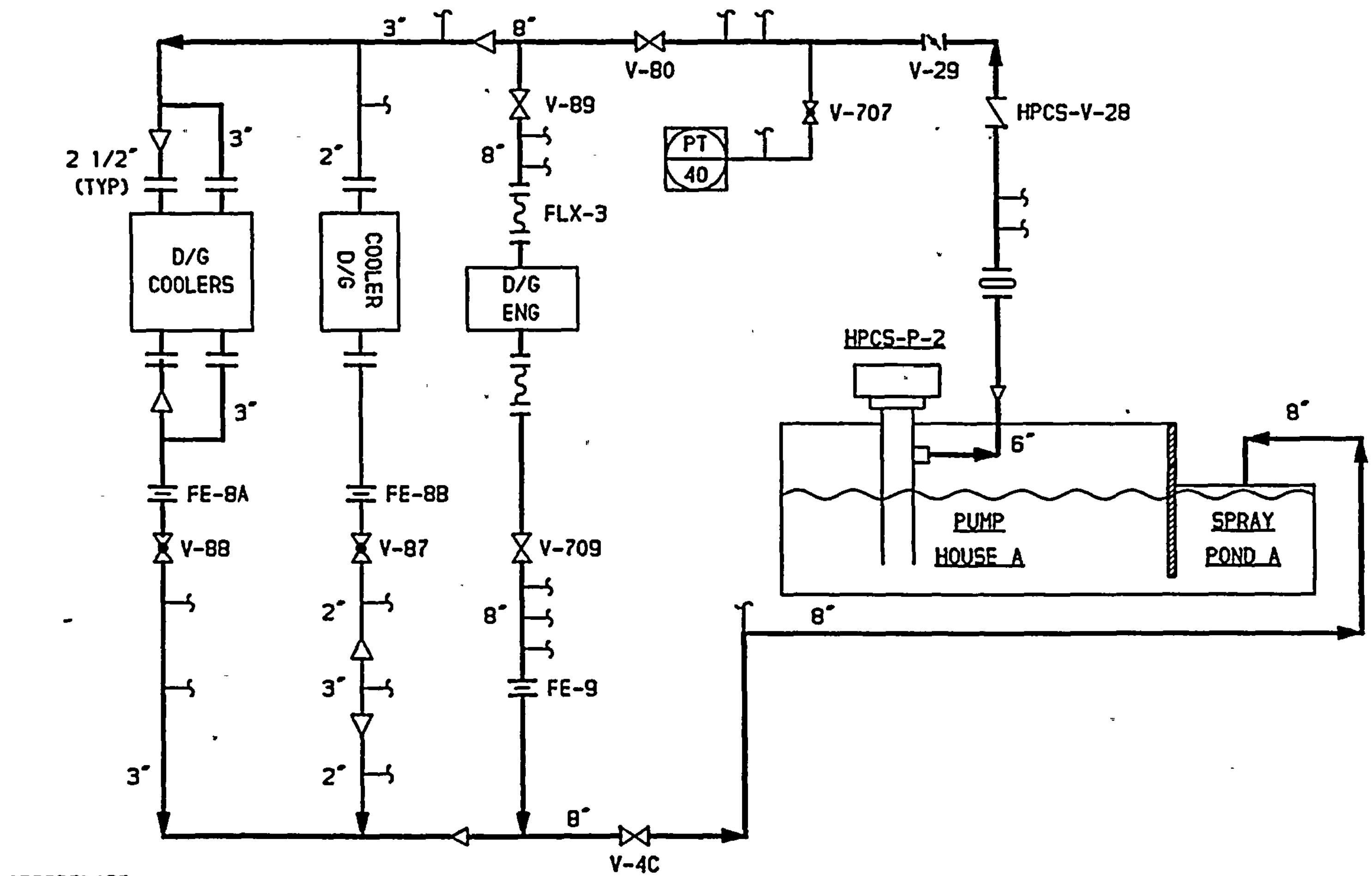
HPCS-P-1 PUMP TEST FLOW PATH



HIGH PRESSURE CORE SPRAY

REFERENCES:
P & I D
M520

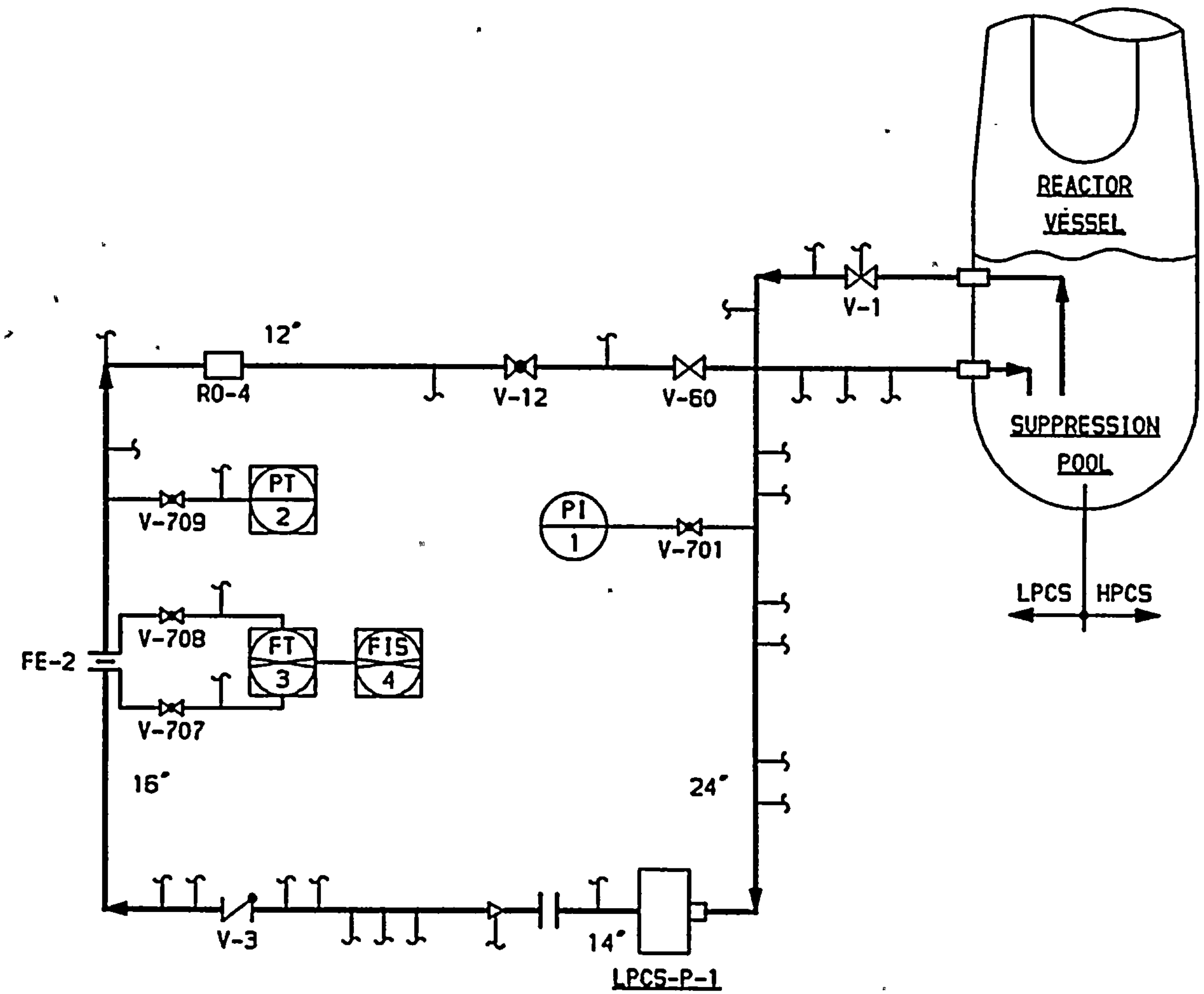
HPCS-P-2 PUMP TEST FLOW PATH



REFERENCES:
P & I D
M524 SH 1

HPCS SERVICE WATER

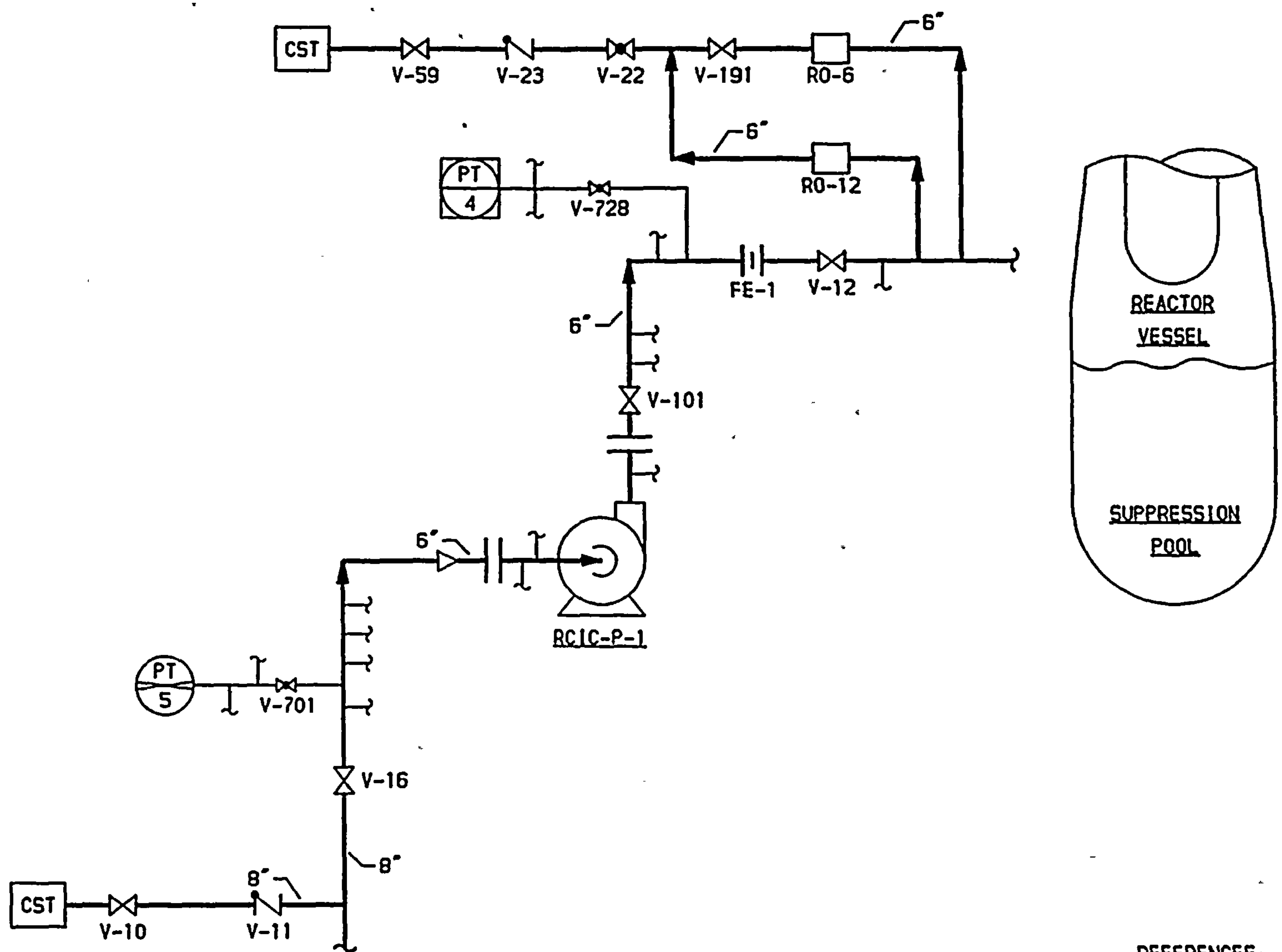
LPCS-P-1 PUMP TEST FLOW PATH



LOW PRESSURE CORE SPRAY

REFERENCES:
P & I D
M520

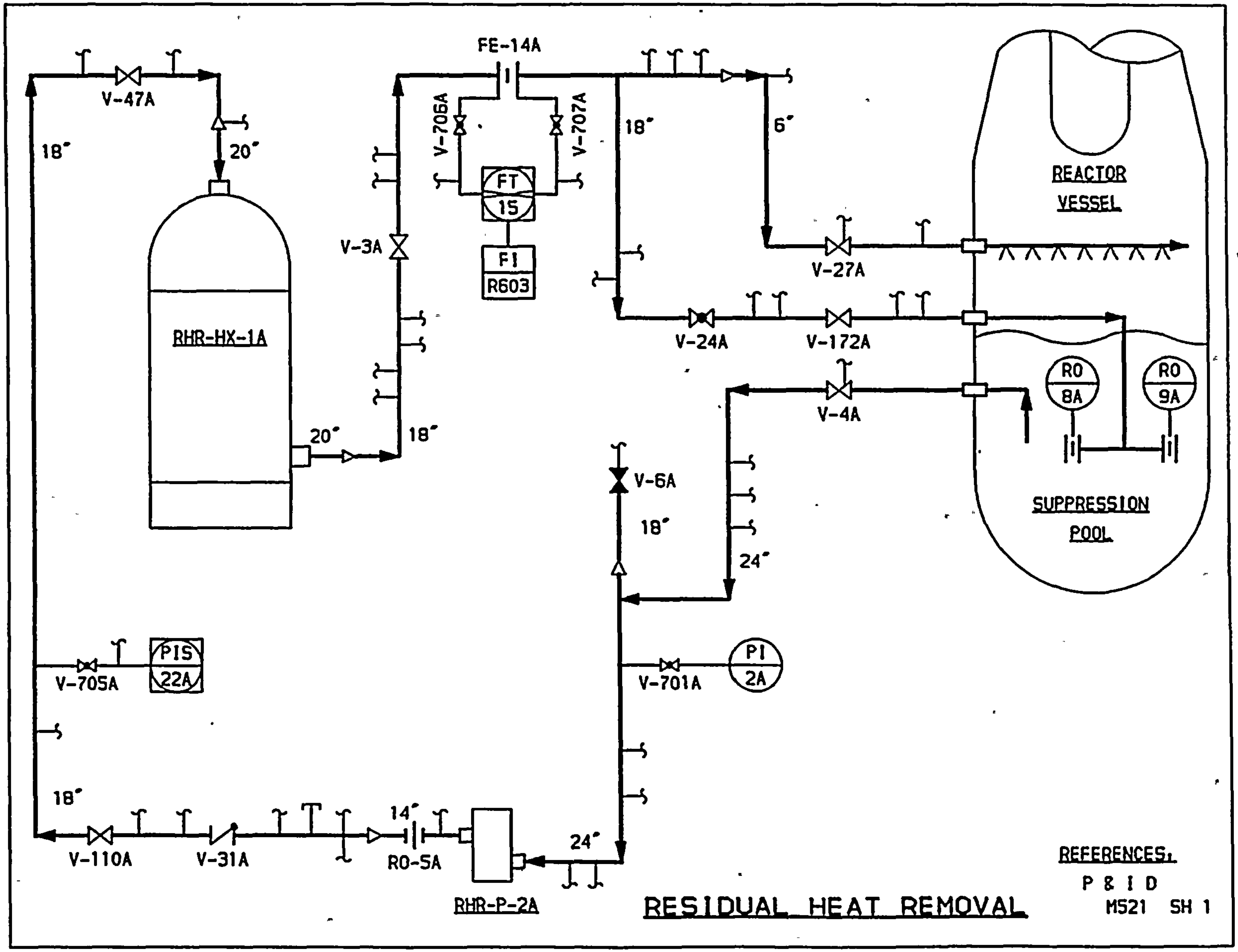
RCIC-P-1 PUMP TEST FLOW PATH



REACTOR CORE ISOLATION COOLING

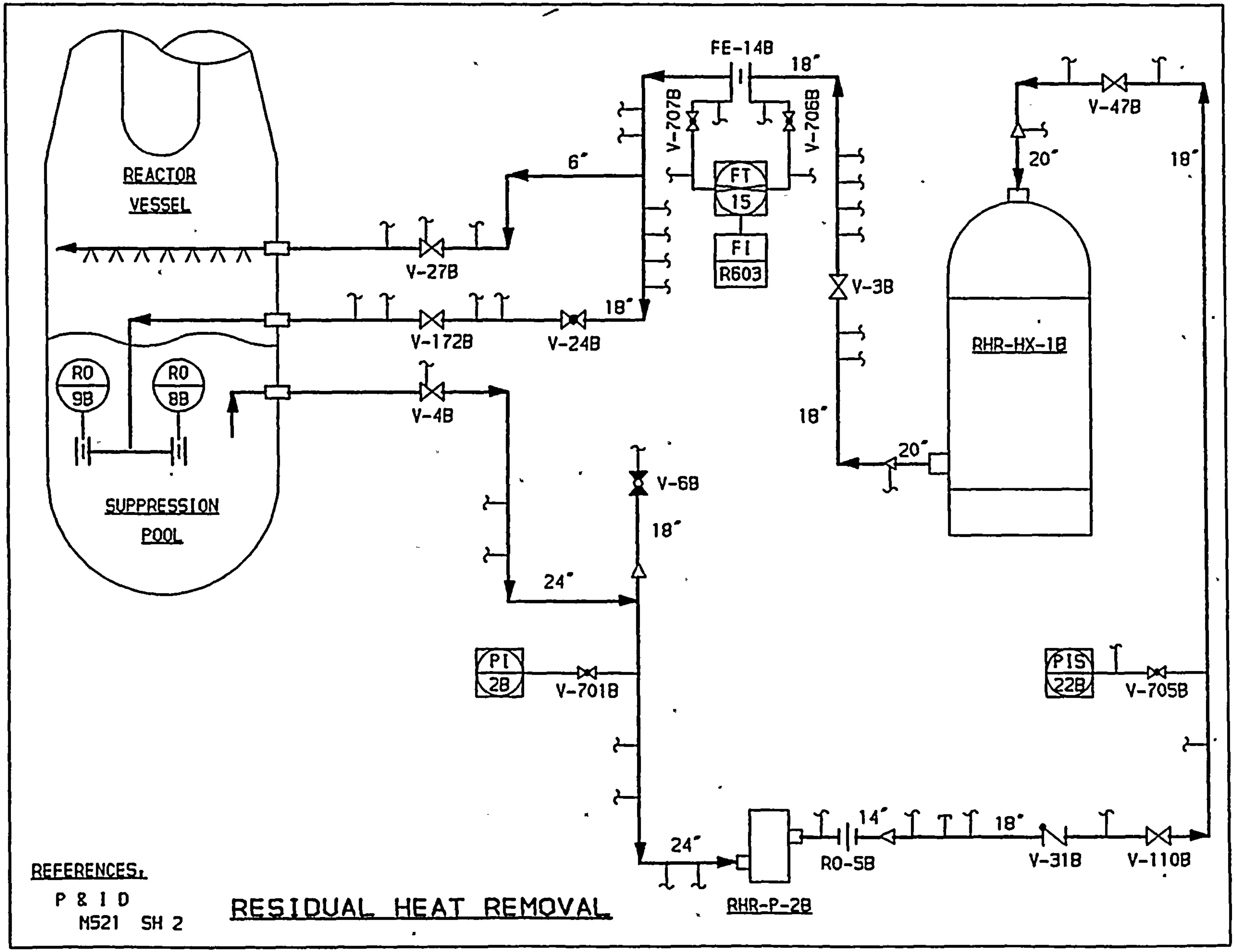
REFERENCES:
P & I D
M519

RHR-P-2A PUMP TEST FLOW PATH

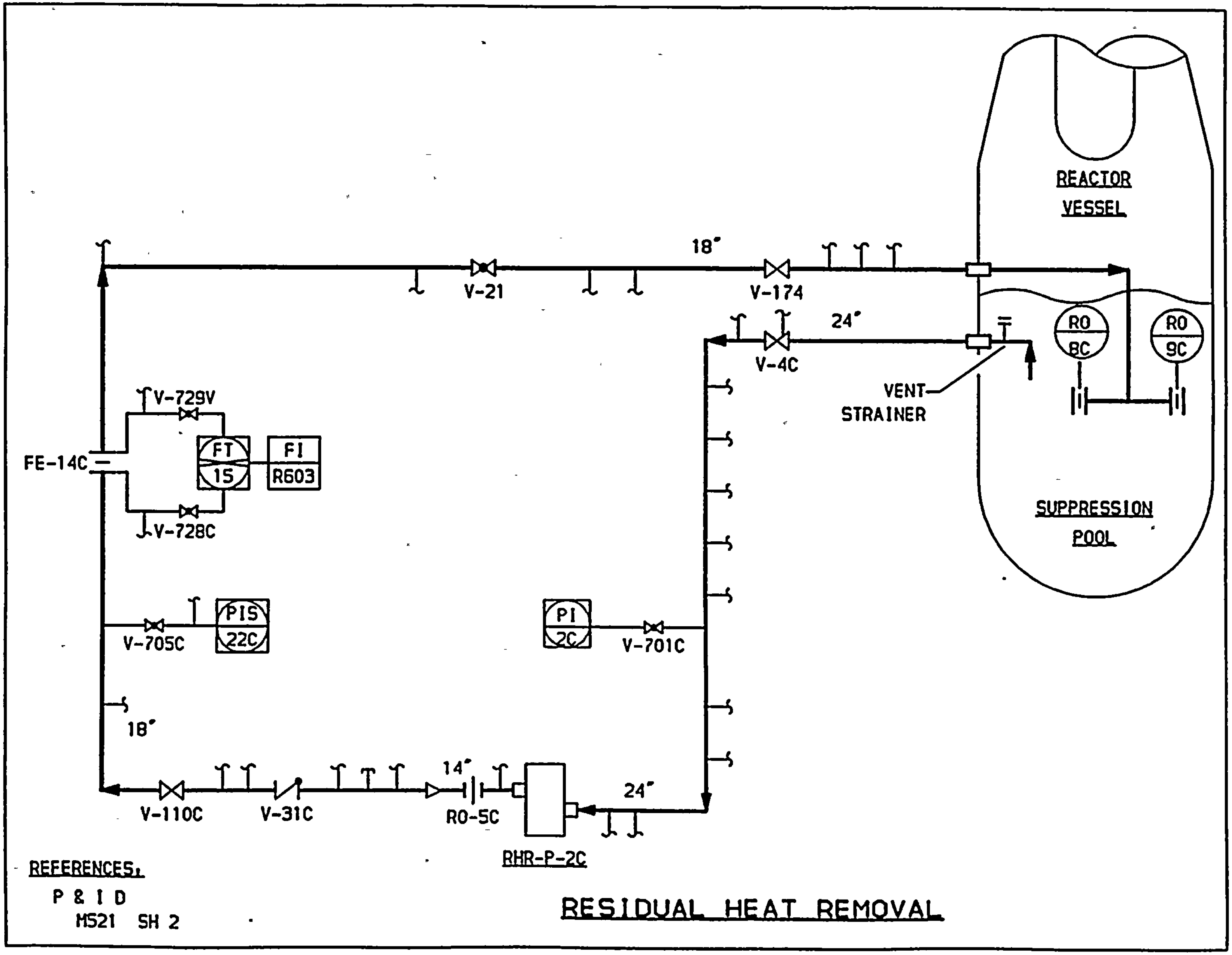


WNP-2

RHR-P-2B PUMP TEST FLOW PATH

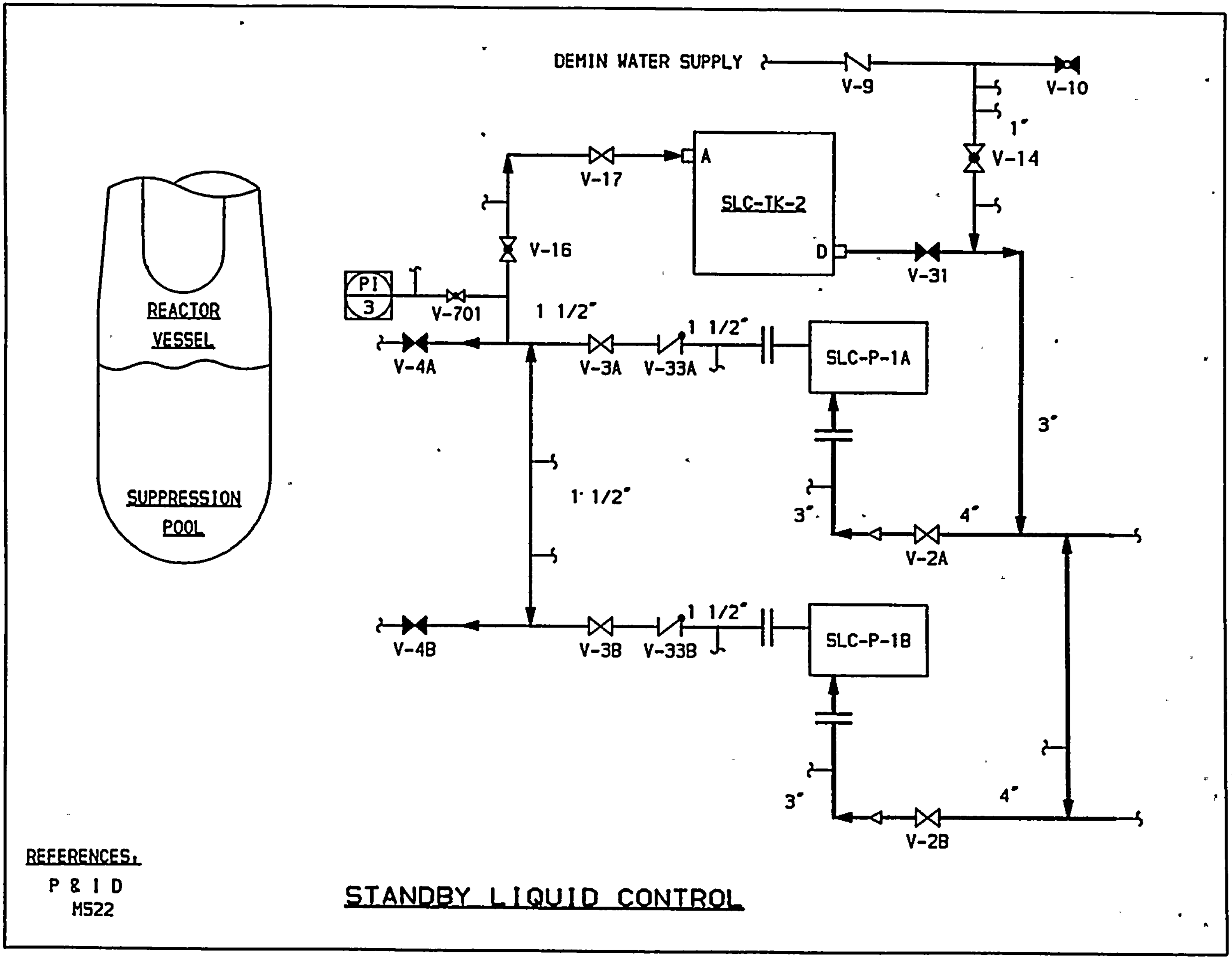


RHR-P-2C PUMP TEST FLOW PATH



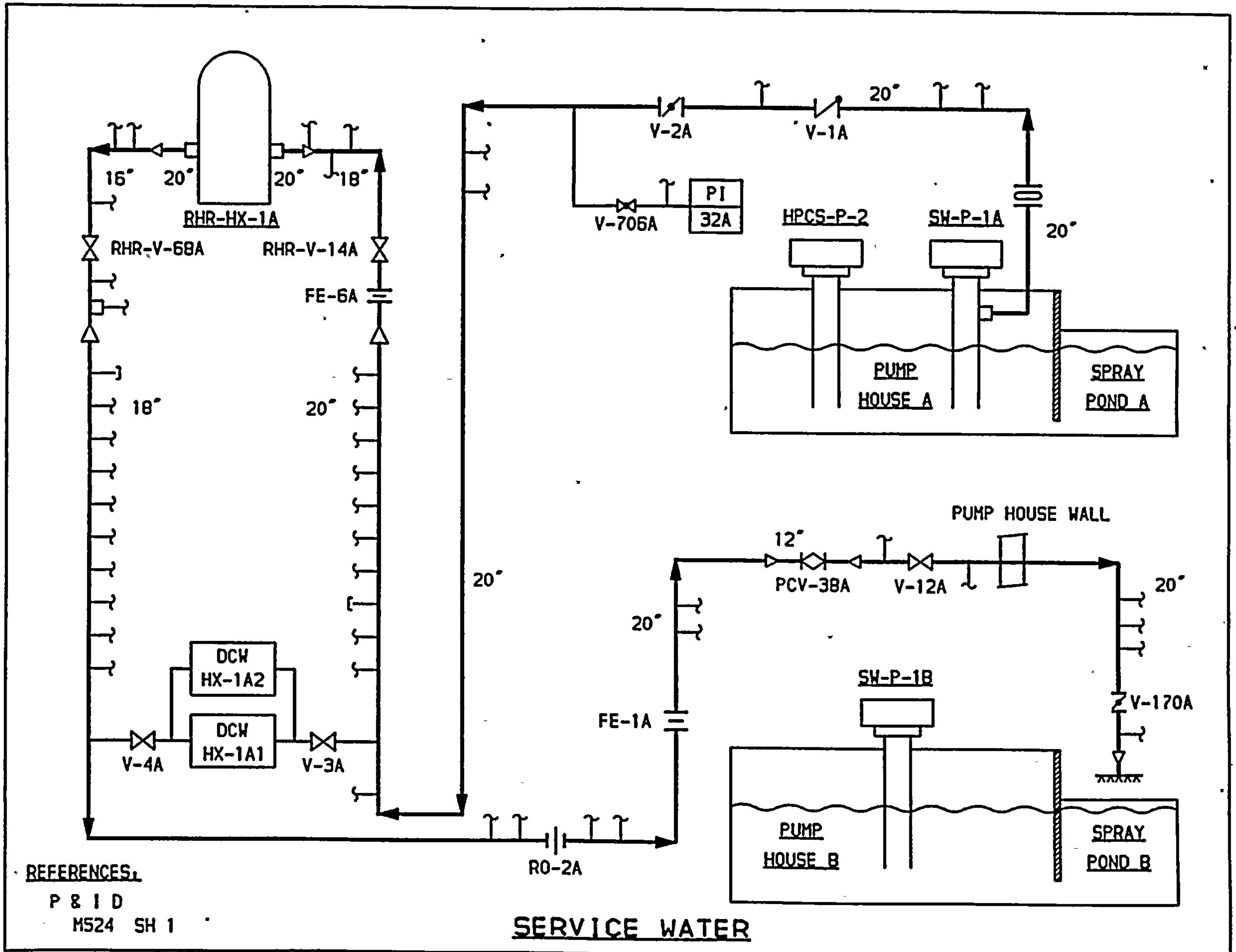
WNP-2

SLC-P-1A & SLC-P-1B
PUMP TEST FLOW PATH



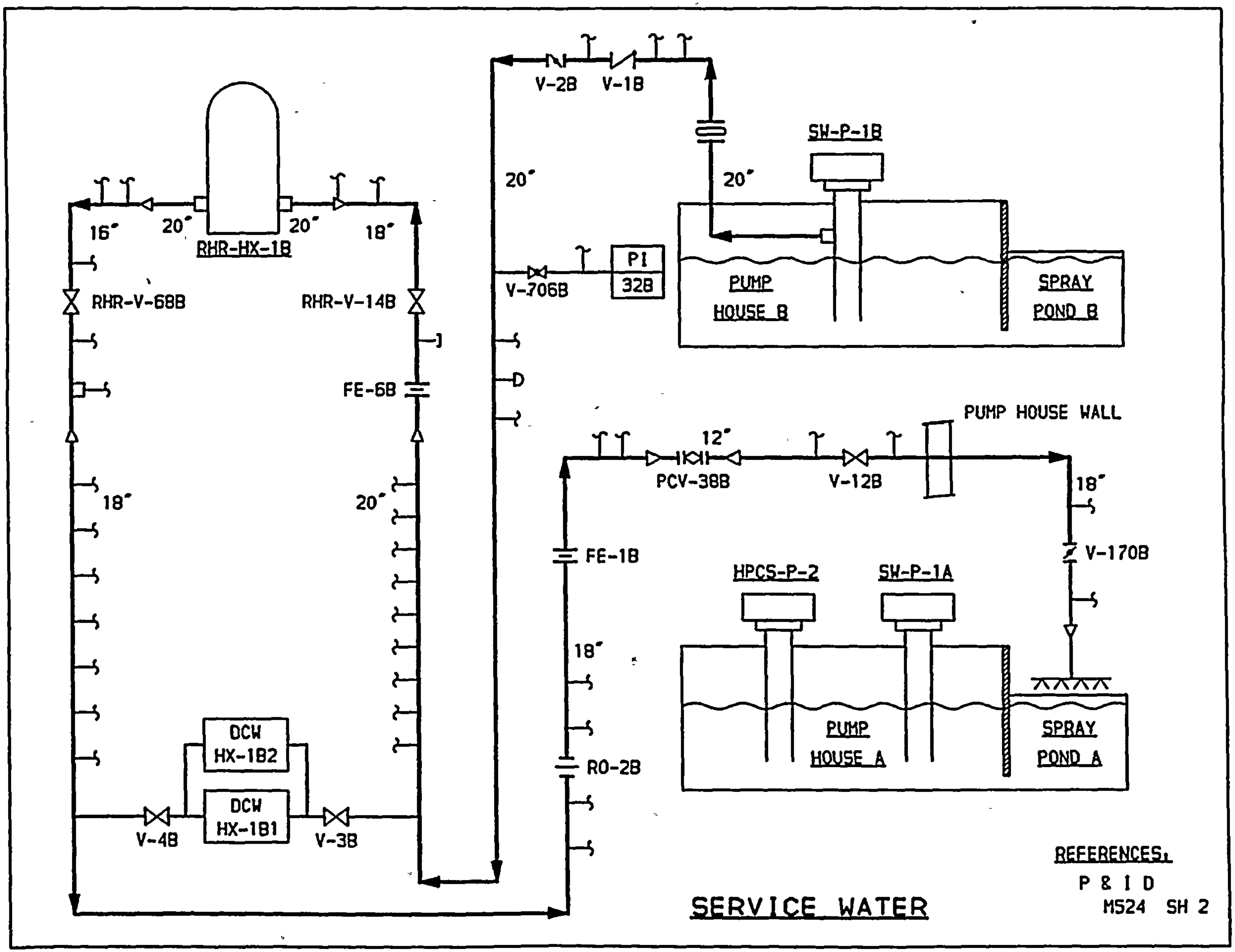
WNP-2

SW-P-1A PUMP TEST FLOW PATH



WNP-2

SW-P-1B PUMP TEST FLOW PATH



3.8 Records and Reports of Pumps

Records and reports of pumps in the Program will be maintained in accordance with OM Part 6 paragraph 7. The files will contain the following:

1) Pump records will be maintained in accordance with paragraph 7.1.

2) Inservice test plans are issued as pump surveillance test procedures. The inservice testing records for pumps in the Program will be maintained in accordance with paragraph 7.2.

3) Records of tests for pumps in the Program will be maintained in accordance with paragraph 7.3. Completed surveillance test procedures are retained per plant administrative procedures.

4) Records of corrective actions for pumps in the Program will be maintained in accordance with paragraph 7.4. Corrective actions are documented on Work Orders and/or Problem Evaluation Requests (PERs).

The Pump Inservice Test Program, associated surveillance test procedures and results, and corrective actions are retained per plant administrative procedures. For informational purposes, a sample pump test data sheet is provided.

SAMPLE DATA SHEET
PUMP OPERABILITY DATA SHEET FOR HPCS-P-1

TEST PARAMETERS	UNITS	REF VALUE	ACTION LO (+1)	ALERT LO (+1)	MEASURED VALUE	ACTION HI(+1)
Driver Lubrication	N/A	SAT	N/A	N/A		UNSAT
Pump Lubrication	N/A	SAT	N/A	N/A		UNSAT
Suction Pressure at test flow per Test Gauge	PSIG	16.5	5.7	N/A		N/A
Discharge Pressure per TDAS 107	PSIG	N/A	N/A	N/A		N/A
Differential Pressure (Discharge Pressure-Suction Pressure per test gauge)	PSID	413.0	(+2)	(+3)		(+2)
Indicated Flowrate per TDAS 122	GPM (+4)	6560	# 6500	N/A		NA
CST level per COND-LI-40A/40B	FEET	N/A	N/A	N/A		N/A
Motor Voltage	VAC	N/A	N/A	N/A		N/A
Motor Current	AMP	N/A	N/A	N/A		N/A
Outboard Motor Bearing Temperature per W134	°F	N/A	N/A	N/A		N/A
Inboard Motor Bearing Temperature per W135	°F	N/A	N/A	N/A		N/A

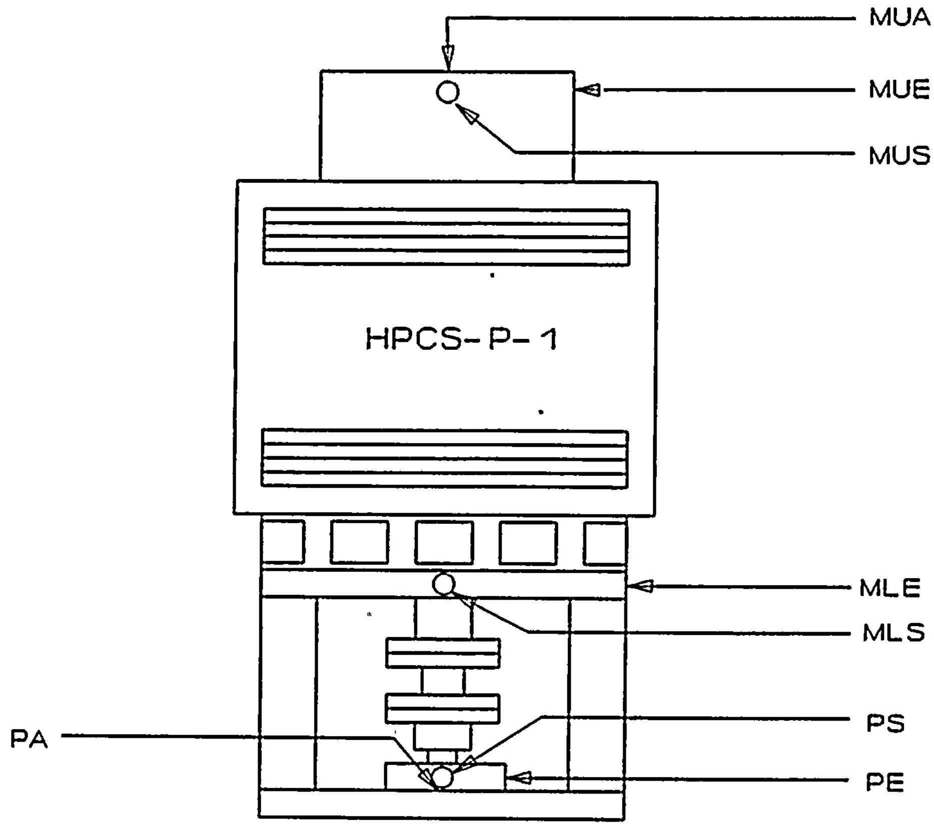
(+1) For measured values beyond the ALERT Value or ACTION Value refer to Precaution 4.8 or 4.9, respectively.

(+2) The ACTION Range is defined as outside the area described by points 1, 2, 3 and 4 on Attachment 9.4.

(+3) The ALERT Range is defined as inside the area described by points 3, 4, 5 and 6 on Attachment 9.4.

(+4) Indicated flow GE 6500 gpm provides corrected flow GT 6350 gpm (Technical Specification Limit) for fluid temperature GE 40 °F.

SAMPLE DATA SHEET
VIBRATION DATA SHEET FOR HPCS-P-1

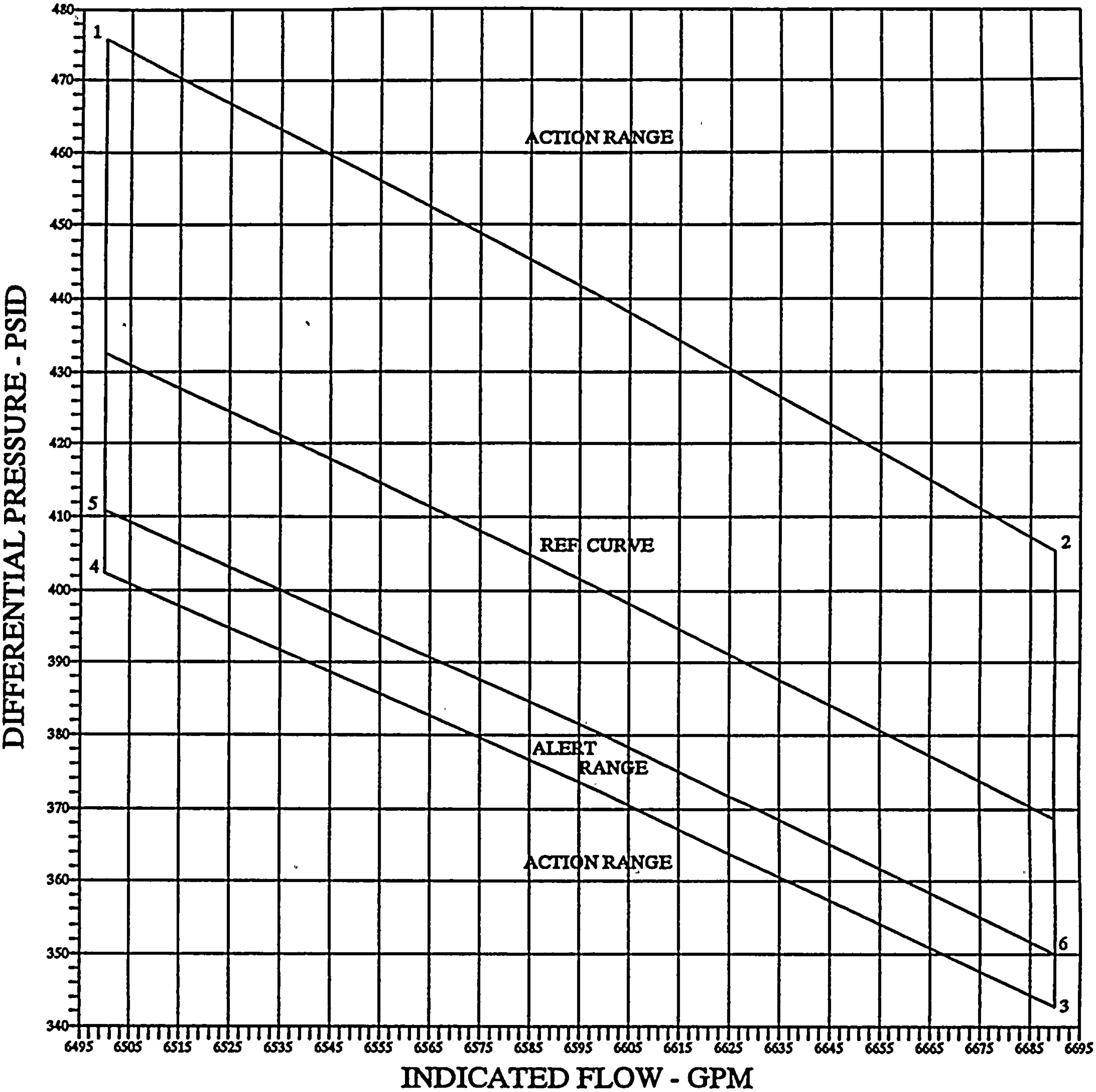


<u>VIEW LOOKING NORTH</u>

	PROBE LOCATION	VIBRATION VELOCITY (IN/SEC)			
		REFER VALUE	MEASURED VALUE	ALERT HI (+1)	ACTION HI (+1)
ASME	MUA	0.027		0.068	0.162
	MUE	0.040		0.100	0.240
	MUS	0.072		0.180	0.432
NON-ASME	MLE	0.079		N/A	N/A
	MLS	0.061		N/A	N/A
	PA	0.176		N/A	N/A
	PE	0.097		N/A	N/A
	PS	0.074		N/A	N/A

(+1) For MEASURED VALUES beyond the ALERT HI value or ACTION HI value refer to Precautions and Limitations 4.8 or 4.9, respectively.

SAMPLE DATA SHEET
HPCS-P-1 ACCEPTANCE CRITERIA



ALERT RANGE = Area Inside 3-4-5-6

ACTION RANGE = Area Outside 1-2-3-4

4.0 Valve Inservice Testing Program

4.1 Introduction

ASME OM Code requires periodic testing of certain safety related valves in order to verify their operability and leak tight integrity. The WNP-2 Valve Inservice Testing Program satisfies these requirements and conforms to FSAR commitments and Technical Specifications for ASME valve testing. The program establishes the requirements for preservice and inservice testing to assess the operational readiness of safety related valves. The Program is based on the requirements of the ASME/ANSI OM Standard, OMa-1988 Addenda, Part 10, "Inservice Testing of Valves in Light-Water Reactor Power Plants." The Program complies with the specifications of the approved Codes (1), Regulations (2), and Generic Letters (3). This program includes those ASME valves which are required in shutting down the reactor to the cold shutdown condition, maintaining the cold shutdown condition, or mitigating the consequences of an accident.

The Code recognized that certain of its requirements may be impractical for a specific plant and contains provisions for requesting relief from impractical requirements. The relief requests for the Valve Inservice Testing Program (Section 4.8) identify testing impracticalities, provide technical basis for the request and propose alternate testing where warranted.

References:

1) ASME/ANSI OM Standard, OMa-1988 Addenda, Part 10, "Inservice Testing of Valves in Light-Water Reactor Power Plants."

2) 10CFR 50.55 a(f).

3) Generic Letter 89-04.

4.2 Program Implementation

4.2.1 Preservice Testing

Each valve shall be tested during the preservice test period. This testing shall be conducted under conditions as near as practicable to those expected during subsequent inservice testing. Preservice testing applies only to newly added components.

4.2.2 Inservice Testing

Inservice testing shall commence when the valves are required to be operable. Surveillance testing is performed for each valve listed in the program , nominally every 3 months. For valves in systems out of service (declared inoperable or not required to be operable), the test is performed prior to placing the system in an operable status and the test schedule resumed. The WNP-2 Valve Inservice Testing Program is implemented as part of the technical surveillance testing program. Active and passive valves in categories A, B, C, and D are tested in accordance with the requirements specified in Part 10, Table 1.

4.2.3 Reference Values

Reference values are established and maintained in accordance with OM Part 10, paragraph 3.3. Baseline data for stroke times has been obtained from initial Valve Operability Tests. The limiting value(s) of full-stroke time of each power-operated valve is listed in the test procedures. Reference values are obtained from baseline tests or post maintenance tests. Many times the reference values are more accurately determined by an average of stroke times. This practice is in accordance with position 5 of GL 89-04.

4.2.4 Fail-Safe Valves

Fail-safe testing is required only for those valves for which a fail-safe feature is a required safety function of the valve. Fail safe valves as identified by the valve test tables are tested by observing the operation of the actuator upon loss of valve electrical, pneumatic or hydraulic actuating power. In most cases, loss of electrical power causes loss of actuating fluid and can be accomplished using normal control circuits. Fail-safe testing is performed at the same frequency as the exercising test frequency of Part 10 paragraph 4.2.1.1.

4.2.5 Valve Seat Leakage Rate Test

The category A valves identified in this program are seat leakage tested in accordance with the requirements of Part 10 paragraph 4.2.2. See Technical Position TV02.

4.2.6 Test Procedure

Valves in the Valve Testing Program are tested according to detailed procedures. The procedures include, as a minimum:

a) Statement of Test Purpose. This section identifies test objectives, references applicable Technical Specifications and notes the operating modes for which the test is appropriate.

b) Prerequisites for Testing. System valve alignment and additional instrumentation (e.g., stop watch) is noted. Identification numbers, range and calibration verification of additional instrumentation is recorded.

c) Test Instructions. Directions are sufficiently detailed to assure completeness and uniformity of testing. Instructions include provisions for returning the system to its normal standby configuration following testing.

d) Acceptance Criteria. The ranges within which test data is considered acceptable have been established by the Supply System and included in the test procedure. In the event that the test data falls outside the acceptable ranges, corrective actions are taken in accordance with Code requirements.

e) Reference Values.

4.2.7 Trending

Stroke times of power-operated valves are trended.

4.2.8 Safety Valve and Relief Valve Tests

Safety and relief valves will meet the test requirements of OM Part 1.

Finally, it is recognized that the Valve Inservice Testing Program sets forth minimum testing requirements. Additional testing will be performed, as required, after valve maintenance, or as determined necessary by the Plant staff.

4.3 Valve Test Tables

The Valve Test Tables are the essence of the Supply System's Program for compliance with valve IST requirements. The Tables include active valves which are required to operate in order to safely shutdown the reactor, maintain it in the cold shutdown condition, or mitigate the consequences of an accident. Additionally, passive valves which require leak rate testing and valve position verification are also included. The Tables reflect the positions taken in support of the relief requests.

To aid in the interpretation of the Tables, brief explanations of the Table headings and abbreviations are provided.

(1) VALVE — Each valve in the plant has a unique "tag" number. This is divided into three parts. The first identifies the system to which the valve belongs (ie. RHR, HPCS, ...), the second part identifies type of valve (flow control valve = FCV, relief valve = RV, rupture disc = RD, etc.), and the third part is serialized to insure each valve number is unique. A brief functional description of the valve is also provided.

(2) DWG & COORD — The flow diagram drawing is identified along with the coordinates indicating where on the drawing the valve is located.

(3a) CLASS — ASME Code Class per Section III of the ASME Boiler and Pressure Vessel Code.

1,2 or 3 = ASME Class 1, 2 or 3
D = Non-ASME

(3b) CAT — Valve categories A, B, C, and D are defined in accordance with Code requirements. Each valve has specific testing requirements which are determined by the category to which it belongs.

(4a) ACTUATOR Type — The following abbreviations are used to describe actuator types. Valves may be actuated in more than one way.

AO = Air operated
HO = Hydraulic operated
MA = Manually operated
MO = Motor operated
SA = Self actuated
SO = Solenoid operated

(4b) VALVE Type

The following abbreviations are used to describe valve type:

BA	= Ball Valve	RD	= Rupture Disc
BF	= Butterfly Valve	RV	= Relief Valve
CK	= Check Valve	SC	= Stopcheck Valve
DI	= Diaphragm Valve	SR	= Safety/Relief Valve
EX	= Explosive Valve	SV	= Solenoid Valve
GB	= Globe Valve	3W	= Three Way Valve
GT	= Gate Valve		

(4c) SIZE

Nominal pipe diameter to which the valve connects is given in inches.

(5a) SAFETY Position

Safety position identifies the position(s) the valve must assume to fulfill its safety function(s).

C = Closed
NA = Not Applicable (ie. overpressure protection devices, valves included at the Owner's discretion, or valves with no required safety position)
O = Open
O/C = Both Open and Closed

(5b) FAILED Position

Failed position identifies the position the valve assumes upon loss of actuating power.

FAI = Fail As Is
FC = Failed Close
FO = Failed Open
NA = Not Applicable

(5c) NORMAL Position

Normal position identifies the valve position during normal power operation.

LC = Locked Close
LO = Locked Open
NC = Normally Closed
NO = Normally Open
NT = Normally Throttled

(6a)	TESTS	This column lists a code corresponding to the test requirements applicable to that valve.
	G	OM Part 10, Paragraph 4.1 -- Verify the accuracy of remote position indicators.
	H	OM Part 10, Paragraphs 4.2.1.2 or 4.3.2.2 (for check valves) -- Full stroke exercise the valve to its required position.
	J	OM Part 10, Paragraph 4.2.1.4 -- Measure the stroke time of power operated valves.
	K	OM Part 10, Paragraph 4.2.1.6 -- Testing valves with fail-safe actuators (fail-safe testing is required only for those valves for which the fail-safe feature is a required safety function of the valve).
	L	OM Part 10, Paragraph 4.2.2 -- Valve seat leakage rate test.
	P	OM Part 10, Paragraph 4.3.1 -- Safety and relief valve test per OM Part 1 requirements.
	S	OM Part 1 -- Vacuum Relief Setpoint Test
	V	OM Part 10, Paragraph 4.4.1 -- Explosively actuated valve test.
	W	OM Part 10, Paragraph 4.4.2 -- Rupture discs shall meet the requirements for nonreclosing pressure relief devices of OM Part 1.

(6b) FREQUENCY This column identifies the required testing frequency.

Legend	Meaning
CS	Test performed during cold shutdowns but not more frequently than once every 92 days. Valve testing shall commence within 48 hours after cold shutdown is achieved and continue until complete or until the plant is ready to return to power.
EX	Test explosive valve per OM Part 10 schedule.
J	Leakage Test per Primary Containment Leakage Rate Testing Program (10 CFR 50 Appendix J, Option B)
N	Not Applicable.
Q	Test performed once every 92 days.
RD	Test rupture disc per OM Part 1 schedule.
RF	Test performed each refueling outage.
RV	Test relief valve per OM Part 1 schedule.
TS	Test performed per Technical Specification or Licensee Controlled Specification.
2Y	Test performed once every two years.
6M	Test performed semiannually.
18M	Test performed every 18 months.

(6c) PPM This identifies the implementing procedure. This field is for information only and may be changed without formal amendment to the valve tables.

(7) TESTING EXCEPTIONS -- This field is used to identify any applicable Relief Requests (RVs), Refueling Outage Justifications (ROJs) or Cold Shutdown Justifications (CSJs).

(8) REMARK This field is used to provide reference to explanatory notes or Technical Positions located at the end of the Valve Test Tables. Minor changes to the program via change notices may also be identified in this field.

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
CAC-FCV-1A	M554 H11	2 A	HO GB 2.50	O/C FC NC	G 2Y 7.4.0.5.14A HJK Q 7.4.0.5.14A L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CAC FCV FROM PENETRATION X99 (CIV)							
CAC-FCV-1B	M554 H6	2 A	HO GB 2.50	O/C FC NC	G 2Y 7.4.0.5.14B HJK Q 7.4.0.5.14B L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CAC FCV FROM PENETRATION X97 (CIV)							
CAC-FCV-2A	M554 F10	2 A	HO GB 2.50	O/C FC NC	G 2Y 7.4.0.5.14A HJK Q 7.4.0.5.14A L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CAC FCV TO PENETRATION X96 (CIV)							
CAC-FCV-2B	M554 F6	2 A	HO GB 2.50	O/C FC NC	G 2Y 7.4.0.5.14B HJK Q 7.4.0.5.14B L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CAC FCV TO PENETRATION X98 (CIV)							
CAC-FCV-3A	M554 D10	2 A	HO GB 2.50	O/C FC NC	G 2Y 7.4.0.5.14A HJK Q 7.4.0.5.14A L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CAC FCV FROM PENETRATION X105 (CIV)							
CAC-FCV-3B	M554 D6	2 A	HO GB 2.50	O/C FC NC	G 2Y 7.4.0.5.14B HJK Q 7.4.0.5.14B L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CAC FCV FROM PENETRATION X104 (CIV)							
CAC-FCV-4A	M554 E10	2 A	HO GB 2.50	O/C FC NC	G 2Y 7.4.0.5.14A HJK Q 7.4.0.5.14A L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CAC FCV TO PENETRATION X102 (CIV)							
CAC-FCV-4B	M554 E6	2 A	HO GB 2.50	O/C FC NC	G 2Y 7.4.0.5.14B HJK Q 7.4.0.5.14B L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CAC FCV TO PENETRATION X103 (CIV)							
CAC-FCV-5A	M554 F14	2 B	HO GB 1	O/C FC NC	G 2Y 7.4.0.5.14A HJK Q 7.4.0.5.14A		TV01
DESCRIPTION: CAC-AW-1A SW INLET FCV							
CAC-FCV-5B	M554 F2	2 B	HO GB 1	O/C FC NC	G 2Y 7.4.0.5.14B HJK Q 7.4.0.5.14B		TV01
DESCRIPTION: CAC-AW-1B SW INLET FCV							
CAC-FCV-6A	M554 G12	2 B	HO GB 2	O/C FO NO	G 2Y 7.4.0.5.14A HJ Q 7.4.0.5.14A		TV01
DESCRIPTION: CAC-FN-1A RECIRC FCV							
CAC-FCV-6B	M554 G4	2 B	HO GB 2	O/C FO NO	G 2Y 7.4.0.5.14B HJ Q 7.4.0.5.14B		TV01
DESCRIPTION: CAC-FN-1B RECIRC FCV							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
CAC-RD-1A	M554 D12	2 D	SA RD 2	NA NA NC			N09
DESCRIPTION: CAC MOISTURE SEPARATOR & AFTERCOOLER RUPTURE DISC							
CAC-RD-1B	M554 D4	2 D	SA RD 2	NA NA NC			N09
DESCRIPTION: CAC MOISTURE SEPARATOR & AFTERCOOLER RUPTURE DISC							
CAC-RV-63A	M554 E12	2 C	SA RV 1 X 2	NA NA NC	P RV 7.4.0.5.20		TV03
DESCRIPTION: SW TO CAC-EV-1A RV							
CAC-RV-63B	M554 E04	2 C	SA RV 1 X 2	NA NA NC	P RV 7.4.0.5.20		TV03
DESCRIPTION: SW TO CAC-EV-1B RV							
CAC-RV-65A	M554 D14	2 C	SA RV 1.5 X 3	NA NA NC	P RV 7.4.0.5.20		TV03
DESCRIPTION: CAC-EV-1A DISCH RV							
CAC-RV-65B	M554 D4	2 C	SA RV 1.5 X 3	NA NA NC	P RV 7.4.0.5.20		TV03
DESCRIPTION: CAC-EV-1B DISCH RV							
CAC-TCV-4A	M554 D12	3 B	HO GB 2	O FO NO	H TS 7.4.6.6.1.3E		N07
DESCRIPTION: SW TO CAC-EV-1A TCV (SKID MOUNTED)							
CAC-TCV-4B	M554 D5	3 B	HO GB 2	O FO NO	H TS 7.4.6.6.1.3F		N07
DESCRIPTION: SW TO CAC-EV-1B TCV (SKID MOUNTED)							
CAC-V-1A	M554 F15	2 B	HO DI 2	O FC NC	G 2Y 7.4.0.5.14A HJ Q 7.4.0.5.14A		TV01
DESCRIPTION: CAC-AW-1A INLET							
CAC-V-1B	M554 F2	2 B	HO DI 2	O FC NC	G 2Y 7.4.0.5.14B HJ Q 7.4.0.5.14B		TV01
DESCRIPTION: CAC-AW-1B INLET							
CAC-V-2	M554 G10	2 A	MO GT 4	O/C FAI NC	G 2Y 7.4.0.5.14A HJ Q 7.4.0.5.14A L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CAC ISO TO PENETRATION X-96 (CIV)							
CAC-V-2A	M554 F12	2 B	HO DI 2	O/C FC NO	G 2Y 7.4.0.5.14A HJ Q 7.4.0.5.14A		TV01
DESCRIPTION: CAC RETURN							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
CAC-V-2B	M554 F4	2 B	HO DI 2	O/C FC NO	G 2Y 7.4.0.5.14B HJ Q 7.4.0.5.14B		TV01
	DESCRIPTION: CAC RETURN						
CAC-V-3A	M554 D12	2 B	HO GB 0.75	O/C FC NC	H TS 7.4.6.6.1.3A		N07
	DESCRIPTION: CAC-MS-1A DRN (SKID MOUNTED)						
CAC-V-3B	M554 D4	2 B	HO GB 0.75	O/C FC NC	H TS 7.4.6.6.1.3B		N07
	DESCRIPTION: CAC-MS-1B DRN (SKID MOUNTED)						
CAC-V-4	M554 E10	2 A	MO GT 4	O/C FAI NC	G 2Y 7.4.0.5.14A HJ Q 7.4.0.5.14A L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: CAC ISO TO PENETRATION X-102 (CIV)						
CAC-V-6	M554 H10	2 A	MO GT 4	O/C FAI NC	G 2Y 7.4.0.5.14A HJ Q 7.4.0.5.14A L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: CAC ISO FROM PENETRATION X-99 (CIV)						
CAC-V-8	M554 D10	2 A	MO GT 4	O/C FAI NC	G 2Y 7.4.0.5.14A HJ Q 7.4.0.5.14A L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: CAC ISO FROM PENETRATION X-105 (CIV)						
CAC-V-11	M554 G6	2 A	MO GT 4	O/C FAI NC	G 2Y 7.4.0.5.14B HJ Q 7.4.0.5.14B L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: CAC ISO TO PENETRATION X-98 (CIV)						
CAC-V-13	M554 E7	2 A	MO GT 4	O/C FAI NC	G 2Y 7.4.0.5.14B HJ Q 7.4.0.5.14B L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: CAC ISO TO PENETRATION X-103 (CIV)						
CAC-V-15	M554 H6	2 A	MO GT 4	O/C FAI NC	G 2Y 7.4.0.5.14B HJ Q 7.4.0.5.14B L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: CAC ISO FROM PENETRATION X-97 (CIV)						
CAC-V-17	M554 D6	2 A	MO GT 4	O/C FAI NC	G 2Y 7.4.0.5.14B HJ Q 7.4.0.5.14B L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: CAC ISO FROM PENETRATION X-104 (CIV)						
CAS-V-29A THRU D	M510-2 A J8	3 AC	SA CK 0.50	C NA NC	HL RF 7.4.0.5.60	ROJ02	
	DESCRIPTION: CAS TO MS-V-28A,B,C,D (MSIV) OPERATOR CHK						
CAS-V-730	M510-2 H12	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
	DESCRIPTION: AIR LINE ISO FOR TESTING WW-DW VACUUM BRKRS (CIV)						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
CAS-VX-82E	M510-2 H12	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: AIR LINE ISO FOR TESTING WW-DW VACUUM BRKRS (CIV)							
CCH-RD-1A	M775 G8	3 D	SA RD 3	NA NA NC			N08
DESCRIPTION: CCH PUMP SUCT LINE OVERPRESS PROTECTION							
CCH-RD-1B	M775 C7	3 D	SA RD 3	NA NA NC			N08
DESCRIPTION: CCH PUMP SUCT LINE OVERPRESS PROTECTION							
CCH-RD-2A	M775 J13	3 D	SA RD 2	NA NA NC			N08
DESCRIPTION: RUPTURE DISC CCH-CU-1A REFRIGERANT							
CCH-RD-2B	M775 D13	3 D	SA RD 2	NA NA NC			N08
DESCRIPTION: RUPTURE DISC CCH-CU-1B REFRIGERANT							
CEP-V-1A	M543-1 J13	2 A	AO BF 30	C FC NC	G 2Y 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4		TV01,2
DESCRIPTION: DRYWELL EXHAUST (CIV)							
CEP-V-1B	M543-1 J13	2 A	AO GT 2	C FC NC	G 2Y 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4		TV01,2
DESCRIPTION: CEP-V-1A BYPASS (CIV)							
CEP-V-2A	M543-1 J13	2 A	AO BF 30	C FC NC	G 2Y 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4		TV01,2
DESCRIPTION: DRYWELL EXHAUST (CIV)							
CEP-V-2B	M543-1 J13	2 A	AO GT 2	C FC NC	G 2Y 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4		TV01,2
DESCRIPTION: CEP-V-2A BYPASS (CIV)							
CEP-V-3A	M543-1 C14	2 A	AO BF 24	C FC NC	G 2Y 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4		TV01,2
DESCRIPTION: SUPPRESSION CHAMBER EXHAUST (CIV)							
CEP-V-3B	M543-1 C14	2 A	AO GT 2	C FC NC	G 2Y 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4		TV01,2
DESCRIPTION: CEP-V-3A BYPASS (CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
CEP-V-4A	M543-1 C14	2 A	AO BF 24	C FC NC	G 2Y 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4		TV01,2
DESCRIPTION: SUPPRESSION CHAMBER EXHAUST (CIV)							
CEP-V-4B	M543-1 C14	2 A	AO GT 2	C FC NC	G 2Y 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4		TV01,2
DESCRIPTION: CEP-V-4A BYPASS (CIV)							
CIA-RV-5A	M556-1 H11	3 C	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20		TV03
DESCRIPTION: CIA TRAIN " A" NITROGEN HEADER RV							
CIA-RV-5B	M556-1 D11	3 C	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20		TV03
DESCRIPTION: CIA TRAIN " B" NITROGEN HEADER RV							
CIA-SPV-1A THRU 15A	M556-1 G12	3 B	SO SV 0.50	O FO NC	HJK CS 7.4.0.5.23	CSJ09	N03 TV01
DESCRIPTION: CIA NITROGEN BOTTLE AUTO ISO							
CIA-SPV-1B THRU 19B	M556-1 B12	3 B	SO SV 0.50	O FO NC	HJK CS 7.4.0.5.23	CSJ09	N03 TV01
DESCRIPTION: CIA NITROGEN BOTTLE AUTO ISO							
CIA-V-20	M556-1 K8	2 A	MO GB 0.75	C FAI NO	G 2Y 7.4.0.5.15 HJ Q 7.4.0.5.15 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: NORMAL CIA SUPPLY TO CONTAINMENT (OTBD CIV)							
CIA-V-21	M556-1 K6	2 AC	SA CK 0.75	O/C NA NO	H RF 7.4.0.5.53 HL RF 7.4.6.1.2.4	ROJ02	TV02
DESCRIPTION: NORMAL CIA SUPPLY TO CONTAINMENT CHK (INBD CIV)							
CIA-V-24A	M556-1 J5	2 AC	SA CK 0.50	C NA NC	HL RF 7.4.0.5.60	ROJ02	
DESCRIPTION: CIA TO MS-V-22A (MSIV) OPERATOR CHK							
CIA-V-24B	M556-1 J4	2 AC	SA CK 0.50	C NA NC	HL RF 7.4.0.5.60	ROJ02	
DESCRIPTION: CIA TO MS-V-22B (MSIV) OPERATOR CHK							
CIA-V-24C	M556-1 K5	2 AC	SA CK 0.50	C NA NC	HL RF 7.4.0.5.60	ROJ02	
DESCRIPTION: CIA TO MS-V-22C (MSIV) OPERATOR CHK							
CIA-V-24D	M556-1 K4	2 AC	SA CK 0.50	C NA NC	HL RF 7.4.0.5.60	ROJ02	
DESCRIPTION: CIA TO MS-V-22D (MSIV) OPERATOR CHK							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
CIA-V-30A	M556-1 G9	2 A	MO GB 0.50	O/C FAI NO	G 2Y 7.4.0.5.15 HJ Q 7.4.0.5.15 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CIA SUPPLY TO 3 ADS ACCUMULATORS ISO (CIV)							
CIA-V-30B	M556-1 F8	2 A	MO GB 0.50	O/C FAI NO	G 2Y 7.4.0.5.15 HJ Q 7.4.0.5.15 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CIA SUPPLY TO 4 ADS ACCUMULATORS ISO (CIV)							
CIA-V-31A	M556-1 G7	2 AC	SA CK 0.50	O/C NA NO	H RF 7.4.0.5.53 HL RF 7.4.6.1.2.4	ROJ02	TV02
DESCRIPTION: CIA SUPPLY TO 3 ADS ACCUMULATORS CHK (INBD CIV)							
CIA-V-31B	M556-1 F7	2 AC	SA CK 0.50	O/C NA NO	H RF 7.4.0.5.53 HL RF 7.4.6.1.2.4	ROJ02	TV02
DESCRIPTION: CIA SUPPLY TO 4 ADS ACCUMULATORS CHK (INBD CIV)							
CIA-V-39A	M556-1 J10	3 B	AO BA 0.50	C FC NO	G 2Y 7.4.0.5.23 HJK CS 7.4.0.5.23	CSJ05	TV01
DESCRIPTION: CIA NORMAL SUPPLY TO BACKUP SUPPLY HEADER ISO							
CIA-V-39B	M556-1 E10	3 B	AO BA 0.50	C FC NO	G 2Y 7.4.0.5.23 HJK CS 7.4.0.5.23	CSJ05	TV01
DESCRIPTION: CIA NORMAL SUPPLY TO BACKUP SUPPLY HEADER ISO							
CIA-V-40M (TYP 7)	M556-1 B5	2 AC	SA CK 0.50	O/C NA NO	HL RF 7.4.0.5.53	ROJ02	
DESCRIPTION: CIA TO ADS ACCUMULATOR CHK							
CIA-V-41A	M556-1 J10	3 C	SA CK 0.50	C NA NO	H CS 7.4.0.5.23	CSJ05	
DESCRIPTION: CIA NORMAL SUPPLY TO BACKUP SUPPLY HEADER CHK							
CIA-V-41B	M556-1 D10	3 C	SA CK 0.50	C NA NO	H CS 7.4.0.5.23	CSJ05	
DESCRIPTION: CIA NORMAL SUPPLY TO BACKUP SUPPLY HEADER CHK							
CIA-V-52A THRU 66A	M556-1 G12	3 C	SA CK 0.50	O NA NC	H CS 7.4.0.5.23	CSJ09	
DESCRIPTION: CIA NITROGEN BOTTLE DISCH CHK							
CIA-V-52B THRU 70B	M556-1 C12	3 C	SA CK 0.50	O NA NC	H CS 7.4.0.5.23	CSJ09	
DESCRIPTION: CIA NITROGEN BOTTLE DISCH CHK							
CIA-V-103A	M556-1 H13	3 C	SA CK 0.50	O NA NC	H CS 7.4.0.5.23	CSJ09	
DESCRIPTION: CIA NITROGEN BOTTLE DISCH CHK							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
CIA-V-103B	M556-1 D12	3 C	SA CK 0.50	O NA NC	H CS 7.4.0.5.23	CSJ09	
	DESCRIPTION: CIA NITROGEN BOTTLE DISCH CHK						
CIA-V-104A	M556-1 H13	3 B	MA GB 0.50	O NA NC	H CS 7.4.0.5.23	CSJ09	
	DESCRIPTION: CIA NITROGEN BOTTLE DISCH MAN ISO						
CIA-V-104B	M556-1 D12	3 B	MA GB 0.50	O NA NC	H CS 7.4.0.5.23	CSJ09	
	DESCRIPTION: CIA NITROGEN BOTTLE DISCH MAN ISO						
CRD-V-10	M528-1 K6	2 B	AO GB 1	C FC NO	G 2Y 7.4.1.3.1.1B HJK Q 7.4.1.3.1.1B		TV01
	DESCRIPTION: SCRAM DISCH VOLUME VENT						
CRD-V-11	M528-1 F7	2 B	AO GB 2	C FC NO	G 2Y 7.4.1.3.1.1B HJK Q 7.4.1.3.1.1B		TV01
	DESCRIPTION: SCRAM DISCH VOLUME DRN						
CRD-V-114 (TYP 185)	M528-1 B13	D C	SA CK 0.75	O NA NC	H TS 7.4.1.3.2		N05
	DESCRIPTION: HCU TO SCRAM DISCH HEADER CHK						
CRD-V-115 (TYP 185)	M528-1 B14	D C	SA CK 1	C NA NC	H TS 7.4.1.3.5.3		N05
	DESCRIPTION: CHARGING WATER TO HCU CHK						
CRD-V-126 (TYP 185)	M528-1 C4	D B	AO DI 1	O FO NC	H TS 7.4.1.3.2		N05
	DESCRIPTION: HCU CONT-ROD INSERT WATER SCRAM VLV						
CRD-V-127 (TYP 185)	M528-1 C3	D B	AO DI 0.75	O FO NC	H TS 7.4.1.3.2		N05
	DESCRIPTION: HCU CONT-ROD WITHDRAWAL WATER SCRAM VLV						
CRD-V-138 (TYP 185)	M528-1 C4	D C	SA CK 0.75	C NA NO	H Q 7.4.1.3.1.2		N05
	DESCRIPTION: COOLING WATER TO HCU CHK						
CRD-V-180	M528-1 K6	2 B	AO GB 1	C FC NO	G 2Y 7.4.1.3.1.1B HJK Q 7.4.1.3.1.1B		TV01
	DESCRIPTION: SCRAM DISCH VOLUME VENT						
CRD-V-181	M528-1 F6	2 B	AO GB 2	C FC NO	G 2Y 7.4.1.3.1.1B HJK Q 7.4.1.3.1.1B		TV01
	DESCRIPTION: SCRAM DISCH VOLUME DRN						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
CSP-RV-51	M619-161	2 C	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20		TV03
DESCRIPTION: BACKUP CONTROL AIR SUPPLY HEADER TO CSP-V-5,6,9 RV							
CSP-RV-52	M619-161	2 C	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20		TV03
DESCRIPTION: CSP-TK-51 RV (CONTROL AIR TO CSP-V-5,6,9)							
CSP-V-1	M543-1 D5	2 A	AO BF 30	C FC NC	G 2Y 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4		TV01,2
DESCRIPTION: CSP TO CONTAINMENT ISO (CIV)							
CSP-V-2	M543-1 D6	2 A	AO BF 30	C FC NC	G 2Y 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4		TV01,2
DESCRIPTION: CSP TO CONTAINMENT ISO (CIV)							
CSP-V-3	M543-1 D5	2 A	AO BF 24	C FC NC	G 2Y 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4		TV01,2
DESCRIPTION: CSP TO CONTAINMENT ISO (CIV)							
CSP-V-4	M543-1 C5	2 A	AO BF 24	C FC NC	G 2Y 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4		TV01,2
DESCRIPTION: CSP TO CONTAINMENT ISO (CIV)							
CSP-V-5	M543-1 C5	2 A	AO BF 24	O/C FO NC	G 6M 7.4.6.4.2.6 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4 S 6M 7.4.6.4.2.6		TV01,2
DESCRIPTION: CSP TO CONTAINMENT ISO (CIV)							
CSP-V-6	M543-1 B14	2 A	AO BF 24	O/C FO NC	G 6M 7.4.6.4.2.6 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4 S 6M 7.4.6.4.2.6		TV01,2
DESCRIPTION: CSP TO CONTAINMENT ISO (CIV)							
CSP-V-7	M543-1 C5	2 AC	AO,SA CK 24	O/C NA NC	G 6M 7.4.6.4.2.6 H Q 7.4.6.4.2.6 L 2Y 7.4.6.1.2.4 S 6M 7.4.6.4.2.3		N02 TV02
DESCRIPTION: VACUUM RELIEF TO SUPPRESSION CHAMBER (CIV)							
CSP-V-8	M543-1 B14	2 AC	AO,SA CK 24	O/C NA NC	G 6M 7.4.6.4.2.6 H Q 7.4.6.4.2.6 L 2Y 7.4.6.1.2.4 S 6M 7.4.6.4.2.3		N02 TV02
DESCRIPTION: VACUUM RELIEF (CIV)							
CSP-V-9	M543-1 C6	2 A	AO BF 24	O/C FO NC	G 6M 7.4.6.3.3 HJK Q 7.4.6.3.3 L 2Y 7.4.6.1.2.4 S 6M 7.4.6.4.2.6		TV01,2
DESCRIPTION: VACUUM RELIEF TO SUPPRESSION CHAMBER (CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
CSP-V-10	M543-1 C6	2 AC	AO,SA CK 24	O/C NA NC	G 6M 7.4.6.4.2.6 H Q 7.4.6.4.2.6 L 2Y 7.4.6.1.2.4 S 6M 7.4.6.4.2.3		N02 TV02
	DESCRIPTION: VACUUM RELIEF (CIV)						
CSP-V-65	M619-161	2 AC	SA CK 1.50	C NA NC	HL RF 7.4.0.5.61	ROJ09	
	DESCRIPTION: CONTROL AIR CHK TO CIVs, ISOLATES SR FROM NSR AIR						
CSP-V-70	M619-161	2 C	SA CK 1	O NA NC	H RF 7.4.0.5.61	ROJ09	
	DESCRIPTION: BACKUP CONTROL AIR SUPPLY CHK TO CIVs (CSP-V-5,6,9						
CSP-V-71	M619-161	2 C	SA CK 1	O NA NC	H RF 7.4.0.5.61	ROJ09	
	DESCRIPTION: BACKUP CONTROL AIR SUPPLY CHK TO CIVs (CSP-V-5,6,9						
CSP-V-72	M619-161	2 C	SA CK 1	O NA NC	H RF 7.4.0.5.61	ROJ09	
	DESCRIPTION: BACKUP CONTROL AIR SUPPLY CHK TO CIVs (CSP-V-5,6,9						
CSP-V-73	M619-161	2 C	SA CK 1	O NA NC	H RF 7.4.0.5.61	ROJ09	
	DESCRIPTION: BACKUP CONTROL AIR SUPPLY CHK TO CIVs (CSP-V-5,6,9						
CSP-V-74	M619-161	2 C	SA CK 1	O NA NC	H RF 7.4.0.5.61	ROJ09	
	DESCRIPTION: BACKUP CONTROL AIR SUPPLY CHK TO CIVs (CSP-V-5,6,9						
CSP-V-75	M619-161	2 C	SA CK 1	O NA NC	H RF 7.4.0.5.61	ROJ09	
	DESCRIPTION: BACKUP CONTROL AIR SUPPLY CHK TO CIVs (CSP-V-5,6,9						
CSP-V-76	M619-161	2 C	SA CK 1	O NA NC	H RF 7.4.0.5.61	ROJ09	
	DESCRIPTION: BACKUP CONTROL AIR SUPPLY CHK TO CIVs (CSP-V-5,6,9						
CSP-V-77	M619-161	2 C	SA CK 1	O NA NC	H RF 7.4.0.5.61	ROJ09	
	DESCRIPTION: BACKUP CONTROL AIR SUPPLY CHK TO CIVs (CSP-V-5,6,9						
CSP-V-78	M619-161	2 C	SA CK 1	O NA NC	H RF 7.4.0.5.61	ROJ09	
	DESCRIPTION: BACKUP CONTROL AIR SUPPLY CHK TO CIVs (CSP-V-5,6,9						
CSP-V-79	M619-161	2 C	SA CK 1	O NA NC	H RF 7.4.0.5.61	ROJ09	
	DESCRIPTION: BACKUP CONTROL AIR SUPPLY CHK TO CIVs (CSP-V-5,6,9						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
CSP-V-93	M783 F5	2 A	SO SV 1	C FC NO	HJK Q 7.4.6.3.3 GL TS 7.4.6.1.2.4		TV01,2
DESCRIPTION: CONTAINMENT N2 SUPPLY (CIV)							
CSP-V-96	M783 H4	2 A	SO SV 1	C FC NO	HJK Q 7.4.6.3.3 GL TS 7.4.6.1.2.4		TV01,2
DESCRIPTION: CONTAINMENT N2 SUPPLY (CIV)							
CSP-V-97	M783 H4	2 A	SO SV 1	C FC NO	HJK Q 7.4.6.3.3 GL TS 7.4.6.1.2.4		TV01,2
DESCRIPTION: CONTAINMENT N2 SUPPLY (CIV)							
CSP-V-98	M783 F5	2 A	SO SV 1	C FC NO	HJK Q 7.4.6.3.3 GL TS 7.4.6.1.2.4		TV01,2
DESCRIPTION: CONTAINMENT N2 SUPPLY (CIV)							
CVB-V-1AB	M543-1 B13	2 AC	AO,SA CK 24	O/C NA NC	GS 2Y 7.4.6.4.1.3 H Q 7.4.6.4.1.2 L 2Y 7.4.6.2.1	RV01	N02 TV05
DESCRIPTION: VACUUM RELIEF TO DRYWELL							
CVB-V-1CD	M543-1 C12	2 AC	AO,SA CK 24	O/C NA NC	GS 2Y 7.4.6.4.1.3 H Q 7.4.6.4.1.2 L 2Y 7.4.6.2.1	RV01	N02 TV05
DESCRIPTION: VACUUM RELIEF TO DRYWELL							
CVB-V-1EF	M543-1 B12	2 AC	AO,SA CK 24	O/C NA NC	GS 2Y 7.4.6.4.1.3 H Q 7.4.6.4.1.2 L 2Y 7.4.6.2.1	RV01	N02 TV05
DESCRIPTION: VACUUM RELIEF TO DRYWELL							
CVB-V-1GH	M543-1 B11	2 AC	AO,SA CK 24	O/C NA NC	GS 2Y 7.4.6.4.1.3 H Q 7.4.6.4.1.2 L 2Y 7.4.6.2.1	RV01	N02 TV05
DESCRIPTION: VACUUM RELIEF TO DRYWELL							
CVB-V-1JK	M543-1 B9	2 AC	AO,SA CK 24	O/C NA NC	GS 2Y 7.4.6.4.1.3 H Q 7.4.6.4.1.2 L 2Y 7.4.6.2.1	RV01	N02 TV05
DESCRIPTION: VACUUM RELIEF TO DRYWELL							
CVB-V-1LM	M543-1 B8	2 AC	AO,SA CK 24	O/C NA NC	GS 2Y 7.4.6.4.1.3 H Q 7.4.6.4.1.2 L 2Y 7.4.6.2.1	RV01	N02 TV05
DESCRIPTION: VACUUM RELIEF TO DRYWELL							
CVB-V-1NP	M543-1 B8	2 AC	AO,SA CK 24	O/C NA NC	GS 2Y 7.4.6.4.1.3 H Q 7.4.6.4.1.2 L 2Y 7.4.6.2.1	RV01	N02 TV05
DESCRIPTION: VACUUM RELIEF TO DRYWELL							
CVB-V-1QR	M543-1 B7	2 AC	AO,SA CK 24	O/C NA NC	GS 2Y 7.4.6.4.1.3 H Q 7.4.6.4.1.2 L 2Y 7.4.6.2.1	RV01	N02 TV05
DESCRIPTION: VACUUM RELIEF TO DRYWELL							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
CVB-V-1ST	M543-1 B7	2 AC	AO,SA CK 24	O/C NA NC	GS 2Y 7.4.6.4.1.3 H Q 7.4.6.4.1.2 L 2Y 7.4.6.2.1	RV01	N02 TV05
DESCRIPTION: VACUUM RELIEF TO DRYWELL							
DO-V-1A	M512-4 J12	3 C	SA CK 1.50	O NA NC	H Q 7.4.0.5.1		
DESCRIPTION: DO-P-1A (TRANSFER PUMP) TO DAY TANK DISCH CHK							
DO-V-1B	M512-4 F12	3 C	SA CK 1.50	O NA NC	H Q 7.4.0.5.2		
DESCRIPTION: DO-P-1B (TRANSFER PUMP) TO DAY TANK DISCH CHK							
DO-V-10	M512-4 D1	3 C	SA CK 1.50	O NA NC	H Q 7.4.0.5.3		
DESCRIPTION: DO-P-2 (TRANSFER PUMP) DISCH CHK							
DSA-SPV-5A1/2	M512-2 F10	D B	SO 3W 2	O/C FAI NC	H N 8.3.126		N06
DESCRIPTION: DSA TO EDG START MOTORS BYPASS/VENT VLV							
DSA-SPV-5A1/4	M512-2 E10	D B	SO 3W 2	O/C FAI NC	H N 8.3.126		N06
DESCRIPTION: DSA TO EDG START MOTORS BYPASS/VENT VLV							
DSA-SPV-5A2/2	M512-2 F6	D B	SO 3W 2	O/C FAI NC	H N 8.3.126		N06
DESCRIPTION: DSA TO EDG START MOTORS BYPASS/VENT VLV							
DSA-SPV-5A2/4	M512-2 E6	D B	SO 3W 2	O/C FAI NC	H N 8.3.126		N06
DESCRIPTION: DSA TO EDG START MOTORS BYPASS/VENT VLV							
DSA-SPV-5B1/2	M512-3 F10	D B	SO 3W 2	O/C FAI NC	H N 8.3.128		N06
DESCRIPTION: DSA TO EDG START MOTORS BYPASS/VENT VLV							
DSA-SPV-5B1/4	M512-3 E10	D B	SO 3W 2	O/C FAI NC	H N 8.3.128		N06
DESCRIPTION: DSA TO EDG START MOTORS BYPASS/VENT VLV							
DSA-SPV-5B2/2	M512-3 F6	D B	SO 3W 2	O/C FAI NC	H N 8.3.128		N06
DESCRIPTION: DSA TO EDG START MOTORS BYPASS/VENT VLV							
DSA-SPV-5B2/4	M512-3 E6	D B	SO 3W 2	O/C FAI NC	H N 8.3.128		N06
DESCRIPTION: DSA TO EDG START MOTORS BYPASS/VENT VLV							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
DSA-SPV-5C1/1	M512-1 F9	D B	SO 3W 1.50	O FAI NC	H N 8.3.129		N06
DESCRIPTION: DSA TO EDG START MOTORS ISO							
DSA-SPV-5C1/2	M512-1 F9	D B	SO 3W 1.50	O FAI NC	H N 8.3.129		N06
DESCRIPTION: DSA TO EDG START MOTORS ISO							
DW-V-156	M517 G8	2 A	MA GT 2	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: DEMIN WATER TO CONTAINMENT ISO (OTBD CIV)							
DW-V-157	M517 G8	2 A	MA GT 2	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: DEMIN WATER TO CONTAINMENT ISO (INBD CIV)							
EDR-V-19	M537 D9	2 A	AO GT 3	C FC NO	G 2Y 7.4.0.5.6A HJK Q 7.4.0.5.6A L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: EDR ISO FROM DRYWELL SUMP (CIV)							
EDR-V-20	M537 D9	2 A	AO GT 3	C FC NO	G 2Y 7.4.0.5.6A HJK Q 7.4.0.5.6A L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: EDR ISO FROM DRYWELL SUMP (CIV)							
FDR-V-3	M539 D6	2 A	AO BA 3	C FC NO	G 2Y 7.4.0.5.6B HJK Q 7.4.0.5.6B L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: FDR ISO FROM DRYWELL FDR-SUMP-3 (CIV)							
FDR-V-4	M539 D6	2 A	AO BA 3	C FC NO	G 2Y 7.4.0.5.6B HJK Q 7.4.0.5.6B L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: FDR ISO FROM DRYWELL FDR-SUMP-3 (CIV)							
FPC-FCV-1	M526 C9	3 B	AO GB 4 X 6	O FO NC	G 2Y 7.4.0.5.4 HJK Q 7.4.0.5.4		TV01
DESCRIPTION: FPC DEMINERALIZER BYPASS FCV							
FPC-RV-117A	M526 D11	3 C	SA RV 0.75	NA NA NC	P RV 7.4.0.5.20		TV03
DESCRIPTION: FPC-HX-1A RV							
FPC-RV-117B	M526 C11	3 C	SA RV 0.75	NA NA NC	P RV 7.4.0.5.20		TV03
DESCRIPTION: FPC-HX-1B RV							
FPC-V-112A	M526 D13	3 C	SA CK 6	O/C NA NC	H Q 7.4.0.5.4		
DESCRIPTION: FPC-P-1A DISCH CHK							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
FPC-V-112B	M526 C13	3 C	SA CK 6	O/C NA NC	H Q 7.4.0.5.4		
DESCRIPTION: FPC-P-1B DISCH CHK							
FPC-V-127	M526 E9	3 C	SA CK 2	O/C NA NC	H Q 7.4.0.5.4		
DESCRIPTION: SW TO FPC CHK							
FPC-V-140	M526 C9	3 C	SA CK 8	C NA NO	H Q 7.4.0.5.4		
DESCRIPTION: FPC DEMIN EFF CHK							
FPC-V-146A	M526 J11	3 C	SA CK 8	O NA NO	H Q 7.4.0.5.4		
DESCRIPTION: FPC TO FUEL POOL CHK							
FPC-V-146B	M526 J10	3 C	SA CK 8	O NA NO	H Q 7.4.0.5.4		
DESCRIPTION: FPC TO FUEL POOL CHK							
FPC-V-149	M526 D9	2 A	MO GT 6	C FAI NC	G 2Y 7.4.0.5.4 HJ Q 7.4.0.5.4 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: FPC TO SUPPRESSION POOL ISO (CIV)							
FPC-V-153	M526 B11	2 A	MO GT 6	C FAI NC	G 2Y 7.4.0.5.4 HJ Q 7.4.0.5.4 L 2Y 7.4.6.1.2.9		TV01,2
DESCRIPTION: SUPPRESSION POOL TO FPC-P-3 SUCT (CIV)							
FPC-V-154	M526 B11	2 A	MO GT 6	C FAI NC	G 2Y 7.4.0.5.4 HJ Q 7.4.0.5.4 L 2Y 7.4.6.1.2.9		TV01,2
DESCRIPTION: SUPPRESSION POOL TO FPC-P-3 SUCT (CIV)							
FPC-V-156	M526 C11	2 A	MO GT 6	C FAI NC	G 2Y 7.4.0.5.4 HJ Q 7.4.0.5.4 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: FPC TO SUPPRESSION POOL ISO (CIV)							
FPC-V-172	M526 C9	3 B	MO GT 8	C FAI NO	G 2Y 7.4.0.5.4 HJ Q 7.4.0.5.4		TV01
DESCRIPTION: FPC TO SUPPRESSION POOL ISO							
FPC-V-173	M526 C8	3 B	MO GT 8	C FAI NO	G 2Y 7.4.0.5.4 HJ Q 7.4.0.5.4		TV01
DESCRIPTION: FPC INFLUENT TO DEMIN ISO							
FPC-V-175	M526 C10	3 B	MO GT 8	O FAI NC	G 2Y 7.4.0.5.4 HJ Q 7.4.0.5.4		TV01
DESCRIPTION: FPC FLTR DEMIN BYPASS							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
FPC-V-181A	M526 E14	3 B	MO GT 8	O FAI NO	G 2Y 7.4.0.5.4		TV01 Passive
	DESCRIPTION: FPC-P-1A SUCT						
FPC-V-181B	M526 D14	3 B	MO GT 8	O FAI NO	G 2Y 7.4.0.5.4		TV01 Passive
	DESCRIPTION: FPC-P-1B SUCT						
FPC-V-184	M526 C9	3 B	MO GT 8	C FAI NO	G 2Y 7.4.0.5.4 HJ Q 7.4.0.5.4		TV01
	DESCRIPTION: FPC FILTER DEMIN EFFLUENT ISO						
HPCS-RV-14	M520 C6	2 AC	SA RV 1 X 1	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
	DESCRIPTION: HPCS-P-3 SUCT RV (CIV)						
HPCS-RV-35	M520 C5	2 AC	SA RV 1.5 X 2	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
	DESCRIPTION: HPCS-P-3 DISCH RV (CIV)						
HPCS-V-1	M520 C7	2 B	MO GT 14	O/C FAI NO	G 2Y 7.4.5.1.11 HJ Q 7.4.5.1.11		TV01
	DESCRIPTION: CST TO HPCS-P-1 SUCT						
HPCS-V-2	M520 C6	2 C	SA CK 20	O/C NA NC	H Q 7.4.5.1.11		
	DESCRIPTION: CST TO HPCS-P-1 SUCT CHK						
HPCS-V-4	M520 G7	1 A	MO GT 12	O/C FAI NC	G 2Y 7.4.5.1.11 HJ Q 7.4.5.1.11 L 18M 7.4.4.3.2.2		TV01,2
	DESCRIPTION: HPCS TO RPV ISO (OTBD CIV)						
HPCS-V-5	M520 H8	1 AC	SA CK 12	O/C NA NC	H RF 7.4.0.5.7E HL RF 7.4.4.3.2.2	ROJ08	TV02
	DESCRIPTION: HPCS TO RPV ISO (INBD CIV)						
HPCS-V-6	M520 C5	2 C	SA,MA SC 1.50	C NA NO	H Q 7.4.5.1.11	RV02	
	DESCRIPTION: HPCS-P-3 (WATER LEG) DISCH STOP CHK						
HPCS-V-7	M520 C5	2 C	SA CK 1.50	C NA NO	H Q 7.4.5.1.11	RV02	
	DESCRIPTION: HPCS-P-3 (WATER LEG) DISCH CHK						
HPCS-V-10	M520 E3	2 B	MO GB 10	C FAI NC	G 2Y 7.4.5.1.11 HJ Q 7.4.5.1.11		TV01
	DESCRIPTION: HPCS TO CST ISO						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
HPCS-V-11	M520 E3	2 B	MO GB 10	C FAI NC	G 2Y 7.4.5.1.11 HJ Q 7.4.5.1.11		TV01
	DESCRIPTION: HPCS TO CST ISO						
HPCS-V-12	M520 B5	2 A	MO GT 4	O/C FAI NC	G 2Y 7.4.5.1.11 HJ Q 7.4.5.1.11 L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: HPCS-P-1 MINIMUM FLOW VLV (CIV)						
HPCS-V-15	M520 D7	2 A	MO GT 18	O/C FAI NC	G 2Y 7.4.5.1.11 HJ Q 7.4.5.1.11 L 2Y 7.4.6.1.2.9		TV01,2
	DESCRIPTION: SUPPRESSION POOL TO HPCS-P-1 SUCT (CIV)						
HPCS-V-16	M520 D6	2 C	SA CK 24	O NA NC	H Q 7.4.5.1.11		
	DESCRIPTION: SUPPRESSION POOL TO HPCS-P-1 SUCT CHK						
HPCS-V-23	M520 E5	2 A	MO GB 12	C FAI NC	G 2Y 7.4.5.1.11 HJ Q 7.4.5.1.11 L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: HPCS TEST LINE TO SUPPRESSION POOL ISO (CIV)						
HPCS-V-24	M520 B4	2 C	SA CK 16	O/C NA NC	H Q 7.4.5.1.11		
	DESCRIPTION: HPCS-P-1 DISCH CHK						
HPCS-V-28	M524-1 G6	3 C	SA CK 8	O NA NC	H Q 7.4.0.5.18		
	DESCRIPTION: HPCS-P-2 (SERVICE WATER) DISCH CHK						
HPCS-V-65	M520 H7	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
	DESCRIPTION: AIR TO HPCS-V-5 OPERATOR (INBD CIV)						
HPCS-V-68	M520 H7	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
	DESCRIPTION: AIR TO HPCS-V-5 OPERATOR (OTBD CIV)						
LPCS-FCV-11	M520 B13	2 A	MO GB 3	O/C FAI NC	G 2Y 7.4.5.1.7 HJ Q 7.4.5.1.7 L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: LPCS-P-1 MINIMUM FCV (CIV)						
LPCS-RV-18	M520 G12	2 AC	SA RV 1.5 X 2	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
	DESCRIPTION: LPCS-P-1 RV (CIV)						
LPCS-RV-31	M520 C12	2 AC	SA RV 1 X 1	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
	DESCRIPTION: LPCS-P-2 SUCT RV (CIV)						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
LPCS-V-1	M520 D11	2 A	MO GT 24	O/C FAI NO	G 2Y 7.4.5.1.7 HJ Q 7.4.5.1.7 L 2Y 7.4.6.1.2.9		TV01,2
	DESCRIPTION: SUPPRESSION POOL TO LPCS-P-1 SUCT (CIV)						
LPCS-V-3	M520 B13	2 C	SA CK 16	O/C NA NC	H Q 7.4.5.1.7		
	DESCRIPTION: LPCS-P-1 DISCH CHK						
LPCS-V-5	M520 G11	1 A	MO GT 12	O/C FAI NC	G 2Y 7.4.0.5.8B HJ CS 7.4.0.5.8B L 18M 7.4.4.3.2.2	CSJ08	TV01,2
	DESCRIPTION: LPCS TO RPV ISO (OTBD CIV)						
LPCS-V-6	M520 G9	1 AC	SA CK 12	O/C NA NC	H RF 7.4.0.5.7D HL RF 7.4.4.3.2.2	ROJ08	TV02
	DESCRIPTION: LPCS TO RPV ISO CHK (INBD CIV)						
LPCS-V-12	M520 E14	2 A	MO GB 12	C FAI NC	G 2Y 7.4.5.1.7 HJ Q 7.4.5.1.7 L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: LPCS TEST LINE TO SUPPRESSION POOL ISO (CIV)						
LPCS-V-33	M520 C12	2 C	SA CK 1.50	C NA NO	H Q 7.4.5.1.7	RV02	
	DESCRIPTION: LPCS-P-2 (WATER LEG) DISCH CHK						
LPCS-V-34	M520 C13	2 C	SA,MA SC 1.50	C NA NO	H Q 7.4.5.1.7	RV02	
	DESCRIPTION: LPCS-P-2 (WATER LEG) DISCH STOP CHK						
LPCS-V-66	M520 H10	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
	DESCRIPTION: AIR TO LPCS-V-6 OPERATOR (INBD CIV)						
LPCS-V-67	M520 H10	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
	DESCRIPTION: AIR TO LPCS-V-6 OPERATOR (OTBD CIV)						
MS-RV-1A	M529 F11	1 C	AO,SA SR 6 X 10	NA NA NC	G 2Y 7.4.4.2.1.3 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	RV05	TV03
	DESCRIPTION: MAIN STEAM SAFETY RV						
MS-RV-1B	M529 D11	1 C	AO,SA SR 6 X 10	NA NA NC	G 2Y 7.4.4.2.1.3 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	RV05	TV03
	DESCRIPTION: MAIN STEAM SAFETY RV						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
MS-RV-1C	M529 F6	1 C	AO,SA SR 6 X 10	NA NA NC	G 2Y 7.4.4.2.1.3 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	RV05	TV03
	DESCRIPTION: MAIN STEAM SAFETY RV						
MS-RV-1D	M529 E7	1 C	AO,SA SR 6 X 10	NA NA NC.	G 2Y 7.4.4.2.1.3 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	RV05	TV03
	DESCRIPTION: MAIN STEAM SAFETY RV						
MS-RV-2A	M529 F10	1 C	AO,SA SR 6 X 10	NA NA NC	G 2Y 7.4.4.2.1.3 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	RV05	TV03
	DESCRIPTION: MAIN STEAM SAFETY RV						
MS-RV-2B	M529 D10	1 C	AO,SA SR 6 X 10	NA NA NC	G 2Y 7.4.4.2.1.3 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	RV05	TV03
	DESCRIPTION: MAIN STEAM SAFETY RV						
MS-RV-2C	M529 F7	1 C	AO,SA SR 6 X 10	NA NA NC	G 2Y 7.4.4.2.1.3 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	RV05	TV03
	DESCRIPTION: MAIN STEAM SAFETY RV						
MS-RV-2D	M529 E7	1 C	AO,SA SR 6 X 10	NA NA NC	G 2Y 7.4.4.2.1.3 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	RV05	TV03
	DESCRIPTION: MAIN STEAM SAFETY RV						
MS-RV-3A	M529 F9	1 C	AO,SA SR 6 X 10	NA NA NC	G 2Y 7.4.4.2.1.3 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	RV05	TV03
	DESCRIPTION: MAIN STEAM SAFETY RV						
MS-RV-3B	M529 D10	1 C	AO,SA SR 6 X 10	NA NA NC	G 2Y 7.4.4.2.1.3 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	RV05	TV03
	DESCRIPTION: MAIN STEAM SAFETY RV						
MS-RV-3C	M529 E7	1 C	AO,SA SR 6 X 10	NA NA NC	G 2Y 7.4.4.2.1.3 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	RV05	TV03
	DESCRIPTION: MAIN STEAM SAFETY RV						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type / Actuat, Valve & Size	Position / Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
MS-RV-3D	M529 E8	1 BC	AO,SA SR 6 X 10	O NA NC	GHJ RF 7.4.4.2.1.2 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	ROJ05 RV05	TV01,3
DESCRIPTION: MAIN STEAM & ADS SAFETY RV							
MS-RV-4A	M529 F9	1 BC	AO,SA SR 6 X 10	O NA NC	GHJ RF 7.4.4.2.1.2 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	ROJ05 RV05	TV01,3
DESCRIPTION: MAIN STEAM & ADS SAFETY RV							
MS-RV-4B	M529 D9	1 BC	AO,SA SR 6 X 10	O NA NC	GHJ RF 7.4.4.2.1.2 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	ROJ05 RV05	TV01,3
DESCRIPTION: MAIN STEAM & ADS SAFETY RV							
MS-RV-4C	M529 F8	1 BC	AO,SA SR 6 X 10	O NA NC	GHJ RF 7.4.4.2.1.2 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	ROJ05 RV05	TV01,3
DESCRIPTION: MAIN STEAM & ADS SAFETY RV							
MS-RV-4D	M529 E8	1 BC	AO,SA SR 6 X 10	O NA NC	GHJ RF 7.4.4.2.1.2 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	ROJ05 RV05	TV01,3
DESCRIPTION: MAIN STEAM & ADS SAFETY RV							
MS-RV-5B	M529 E9	1 BC	AO,SA SR 6 X 10	O NA NC	GHJ RF 7.4.4.2.1.2 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	ROJ05 RV05	TV01,3
DESCRIPTION: MAIN STEAM & ADS SAFETY RV							
MS-RV-5C	M529 F8	1 BC	AO,SA SR 6 X 10	O NA NC	GHJ RF 7.4.4.2.1.2 P RV 7.4.0.5.55 7.4.0.5.62 7.4.0.5.63	ROJ05 RV05	TV01,3
DESCRIPTION: MAIN STEAM & ADS SAFETY RV							
MS-V-16	M529 B13	1 A	MO GT 3	C FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B L J 7.4.6.1.2.4	CSJ16	TV01,2
DESCRIPTION: MAIN STEAM DRN ISO (INBD CIV)							
MS-V-19	M529 B14	1 A	MO GT NC	C FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B L J 7.4.6.1.2.4	CSJ16	TV01,2
DESCRIPTION: MAIN STEAM DRN ISO (OTBD CIV)							
MS-V-20	M529 C15	2 B	MO GB 3	C FAI NC	G 2Y 7.4.6.1.4.2B		Passive
DESCRIPTION: MS LINE DRN ISO (MUST CLOSE FOR MSLC OPERATION)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
MS-V-22A	M529 F12	1 A	AO GB 26	C FC NO	G 2Y 7.4.4.7 H Q 7.4.3.1.1.9 HJK CS 7.4.4.7 L 2Y 7.4.6.1.2.7	CSJ11	TV01,2
	DESCRIPTION: MAIN STEAM ISO VLV (INBD CIV)						
MS-V-22B	M529 E12	1 A	AO GB 26	C FC NO	G 2Y 7.4.4.7 H Q 7.4.3.1.1.9 HJK CS 7.4.4.7 L 2Y 7.4.6.1.2.7	CSJ11	TV01,2
	DESCRIPTION: MAIN STEAM ISO VLV (INBD CIV)						
MS-V-22C	M529 F5	1 A	AO GB 26	C FC NO	G 2Y 7.4.4.7 H Q 7.4.3.1.1.9 HJK CS 7.4.4.7 L 2Y 7.4.6.1.2.7	CSJ11	TV01,2
	DESCRIPTION: MAIN STEAM ISO VLV (INBD CIV)						
MS-V-22D	M529 E5	1 A	AO GB 26	C FC NO	G 2Y 7.4.4.7 H Q 7.4.3.1.1.9 HJK CS 7.4.4.7 L 2Y 7.4.6.1.2.7	CSJ11	TV01,2
	DESCRIPTION: MAIN STEAM ISO VLV (INBD CIV)						
MS-V-28A	M529 F13	1 A	AO GB 26	C FC NO	G 2Y 7.4.4.7 H Q 7.4.3.1.1.9 HJK CS 7.4.4.7 L 2Y 7.4.6.1.2.7	CSJ11	TV01,2
	DESCRIPTION: MAIN STEAM ISO VLV (OTBD CIV)						
MS-V-28B	M529 E13	1 A	AO GB 26	C FC NO	G 2Y 7.4.4.7 H Q 7.4.3.1.1.9 HJK CS 7.4.4.7 L 2Y 7.4.6.1.2.7	CSJ11	TV01,2
	DESCRIPTION: MAIN STEAM ISO VLV (OTBD CIV)						
MS-V-28C	M529 F4	1 A	AO GB 26	C FC NO	G 2Y 7.4.4.7 H Q 7.4.3.1.1.9 HJK CS 7.4.4.7 L 2Y 7.4.6.1.2.7	CSJ11	TV01,2
	DESCRIPTION: MAIN STEAM ISO VLV (OTBD CIV)						
MS-V-28D	M529 E4	1 A	AO GB 26	C FC NO	G 2Y 7.4.4.7 H Q 7.4.3.1.1.9 HJK CS 7.4.4.7 L 2Y 7.4.6.1.2.7	CSJ11	TV01,2
	DESCRIPTION: MAIN STEAM ISO VLV (OTBD CIV)						
MS-V-37A (TYP 18)	M529 C11	3 C	SA CK 10	O NA NC	HS RF 7.4.0.5.11	ROJ07	TV06
	DESCRIPTION: VACUUM BREAKER ON MSRV TAILPIPE						
MS-V-38A (TYP 18)	M529 C11	3 C	SA CK 10	O NA NC	HS RF 7.4.0.5.11	ROJ07	TV06
	DESCRIPTION: VACUUM BREAKER ON MSRV TAILPIPE						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
MS-V-67A	M529 F13	1 A	MO GT 1.50	C FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B L 2Y 7.4.6.1.2.7	CSJ14	TV01,2
	DESCRIPTION: MS-V-28A BODY DRN (OTBD CIV)						
MS-V-67B	M529 D13	1 A	MO GT 1.50	C FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B L 2Y 7.4.6.1.2.7	CSJ14	TV01,2
	DESCRIPTION: MS-V-28B BODY DRN (OTBD CIV)						
MS-V-67C	M529 F4	1 A	MO GT 1.50	C FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B L 2Y 7.4.6.1.2.7	CSJ14	TV01,2
	DESCRIPTION: MS-V-28C BODY DRN (OTBD CIV)						
MS-V-67D	M529 D4	1 A	MO GT 1.50	C FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B L 2Y 7.4.6.1.2.7	CSJ14	TV01,2
	DESCRIPTION: MS-V-28D BODY DRN (OTBD CIV)						
MS-V-146	M502-1 B7	2 B	MO GT 24	C FAI NO	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B	CSJ13	TV01
	DESCRIPTION: MS SUPPLY TO AUXILIARIES						
MSLC-V-1A	M557 C7	2 B	MO GT 1.50	O/C FAI NC	G 2Y 7.4.6.1.4.2A HJ Q 7.4.6.1.4.2A		TV01
	DESCRIPTION: MS VENT BYPASS TO REACTOR BUILDING						
MSLC-V-1B	M557 C5	2 B	MO GT 1.50	O/C FAI NC	G 2Y 7.4.6.1.4.2A HJ Q 7.4.6.1.4.2A		TV01
	DESCRIPTION: MS VENT BYPASS TO REACTOR BUILDING						
MSLC-V-1C	M557 D7	2 B	MO GT 1.50	O/C FAI NC	G 2Y 7.4.6.1.4.2A HJ Q 7.4.6.1.4.2A		TV01
	DESCRIPTION: MS VENT BYPASS TO REACTOR BUILDING						
MSLC-V-1D	M557 D5	2 B	MO GT 1.50	O/C FAI NC	G 2Y 7.4.6.1.4.2A HJ Q 7.4.6.1.4.2A		TV01
	DESCRIPTION: MS VENT BYPASS TO REACTOR BUILDING						
MSLC-V-2A	M557 C8	1 B	MO GT 1.50	O FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B	CSJ12	TV01
	DESCRIPTION: MS VENT TO SGT AND REACTOR BUILDING						
MSLC-V-2B	M557 C8	1 B	MO GT 1.50	O FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B	CSJ12	TV01
	DESCRIPTION: MS VENT TO SGT AND REACTOR BUILDING						
MSLC-V-2C	M557 E8	1 B	MO GT 1.50	O FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B	CSJ12	TV01
	DESCRIPTION: MS VENT TO SGT AND REACTOR BUILDING						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type / Actuat, Valve & Size	Position / Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
MSLC-V-2D	M557 E8	1 B	MO GT 1.50	O FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B	CSJ12	TV01
	DESCRIPTION: MS VENT TO SGT AND REACTOR BUILDING						
MSLC-V-3A	M557 C9	1 A	MO GT 1.50	O/C FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B L 2Y 7.4.6.1.2.7	CSJ12	TV01,2
	DESCRIPTION: MS VENT TO SGT AND REACTOR BUILDING (OTBD CIV)						
MSLC-V-3B	M557 C8	1 A	MO GT 1.50	O/C FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B L 2Y 7.4.6.1.2.7	CSJ12	TV01,2
	DESCRIPTION: MS VENT TO SGT AND REACTOR BUILDING (OTBD CIV)						
MSLC-V-3C	M557 DE9	1 A	MO GT 1.50	O/C FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B L 2Y 7.4.6.1.2.7	CSJ12	TV01,2
	DESCRIPTION: MS VENT TO SGT AND REACTOR BUILDING (OTBD CIV)						
MSLC-V-3D	M557 E8	1 A	MO GT 1.50	O/C FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B L 2Y 7.4.6.1.2.7	CSJ12	TV01,2
	DESCRIPTION: MS VENT TO SGT AND REACTOR BUILDING (OTBD CIV)						
MSLC-V-4	M557 J5	2 B	MO GT 1.50	O FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B	CSJ12	TV01
	DESCRIPTION: MS VENT DOWN FROM MSIV'S TO REACTOR BUILDING						
MSLC-V-5	M557 J5	2 B	MO GT 1.50	O FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B	CSJ12	TV01
	DESCRIPTION: MS VENT DOWN FROM MSIV'S TO REACTOR BUILDING						
MSLC-V-9	M557 H5	2 B	MO GT 1.50	O FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B	CSJ12	TV01
	DESCRIPTION: MS DEPRESS VENT DOWN FROM MSIV'S TO SGT ISO						
MSLC-V-10	M557 H5	2 B	MO GT 1.50	O FAI NC	G 2Y 7.4.6.1.4.2B HJ CS 7.4.6.1.4.2B	CSJ12	TV01
	DESCRIPTION: MS DEPRESS VENT DOWN FROM MSIV'S TO SGT ISO						
PI-EFC-X18A	M557 G9	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1B	ROJ06	TV02
	DESCRIPTION: MAIN STEAM LINE A TO PRESS INST EFC (CIV)						
PI-EFC-X18B	M557 G9	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1B	ROJ06	TV02
	DESCRIPTION: MAIN STEAM LINE B TO PRESS INST EFC (CIV)						
PI-EFC-X18C	M557 G9	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1B	ROJ06	TV02
	DESCRIPTION: MAIN STEAM LINE C TO PRESS INST EFC (CIV)						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PI-EFC-X18D	M557 F9	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1B	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE D TO PRESS INST EFC (CIV)							
PI-EFC-X29B	M543-1 H8	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
DESCRIPTION: DRYWELL ATM TO CMS-PT-6 EFC (CIV)							
PI-EFC-X29F	M543-1 H7	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
DESCRIPTION: DRYWELL ATM TO CMS-PT-2 EFC (CIV)							
PI-EFC-X30A	M543-1 G13	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
DESCRIPTION: DRYWELL ATM TO CMS-PT-5 EFC (CIV)							
PI-EFC-X30F	M543-1 F13	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
DESCRIPTION: DRYWELL ATM TO CMS-PT-1 EFC (CIV)							
PI-EFC-X37E	M521-1 D6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
DESCRIPTION: RHR SDC A SUPPLY TO DPIS EFC (CIV)							
PI-EFC-X37F	M521-1 D6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
DESCRIPTION: RHR SDC A SUPPLY TO DPIS EFC (CIV)							
PI-EFC-X38A	M529 C13	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE B TO DPIS HI SIDE EFC (CIV)							
PI-EFC-X38B	M529 D13	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE B TO DPIS LO SIDE EFC (CIV)							
PI-EFC-X38C	M519 G6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1E	ROJ06	TV02
DESCRIPTION: RCIC STEAM SUPPLY TO DPIS-7B EFC (CIV)							
PI-EFC-X38D	M519 G6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1E	ROJ06	TV02
DESCRIPTION: RCIC STEAM SUPPLY TO DPIS-7B EFC (CIV)							
PI-EFC-X38E	M519 G6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1E	ROJ06	TV02
DESCRIPTION: RCIC STEAM SUPPLY TO DPIS-13B EFC (CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type / Actuat, Valve & Size	Position / Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PI-EFC-X38F	M519 G6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1E	ROJ06	TV02
	DESCRIPTION: RCIC STEAM SUPPLY TO DPIS-13B EFC (CIV)						
PI-EFC-X39A	M521-2 H13	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
	DESCRIPTION: MAIN STEAM LINE B TO DPIS HI SIDE EFC (CIV)						
PI-EFC-X39B	M529 D13	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
	DESCRIPTION: MAIN STEAM LINE B TO DPIS LO SIDE EFC (CIV)						
PI-EFC-X39D	M521-2 H13	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
	DESCRIPTION: RHR LPCI B INJECTION TO DPIS-29B EFC (CIV)						
PI-EFC-X39E	M521-2 H13	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
	DESCRIPTION: RHR LPCI C INJECTION TO DPIS-29B EFC (CIV)						
PI-EFC-X40C	M530-1 F12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1F	ROJ06	TV02
	DESCRIPTION: RRC A TO FT-14A,14B,11A EFC (CIV)						
PI-EFC-X40D	M530-1 F12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1F	ROJ06	TV02
	DESCRIPTION: RRC A TO FT-14A,14B,11A EFC (CIV)						
PI-EFC-X40E	M530-1 C14	2 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
	DESCRIPTION: RRC A (RRC-P-1A) TO PI-1A,602A EFC (CIV)						
PI-EFC-X40F	M530-1 C14	2 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
	DESCRIPTION: RRC A (RRC-P-1A) TO PI-2A,603A EFC (CIV)						
PI-EFC-X41C	M530-1 B4	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
	DESCRIPTION: RRC B (RRC-P-1B) TO DPT-15B EFC (CIV)						
PI-EFC-X41D	M530-1 C4	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
	DESCRIPTION: RRC B (RRC-P-1B) TO DPT-15B EFC (CIV)						
PI-EFC-X41E	M530-1 B4	2 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
	DESCRIPTION: RRC B (RRC-P-1B) TO PI-1B,602B EFC (CIV)						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type / Actuat, Valve & Size	Position / Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PI-EFC-X41F	M530-1 C4	2 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
DESCRIPTION: RRC B (RRC-P-1B) TO PI-2B,603B EFC (CIV)							
PI-EFC-X42A	M529 C4	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE D TO DPIS HI SIDE EFC (CIV)							
PI-EFC-X42B	M529 C4	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE D TO DPIS LO SIDE EFC (CIV)							
PI-EFC-X42C	M543-2 E6	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
DESCRIPTION: H2-O2 MONITOR TO DRYWELL ATM SAMPLE EFC (CIV)							
PI-EFC-X42F	M529 H5	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
DESCRIPTION: DRYWELL ATM TO PRESS INST EFC (CIV)							
PI-EFC-X44AA	M530-1 E2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
DESCRIPTION: JET PUMP NO 11 TO FLOW INST EFC (CIV)							
PI-EFC-X44AB	M530-1 E2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
DESCRIPTION: JET PUMP NO 12 TO FLOW INST EFC (CIV)							
PI-EFC-X44AC	M530-1 E2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
DESCRIPTION: JET PUMP NO 13 TO FLOW INST EFC (CIV)							
PI-EFC-X44AD	M530-1 E2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
DESCRIPTION: JET PUMP NO 14 TO FLOW INST EFC (CIV)							
PI-EFC-X44AE	M530-1 J6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
DESCRIPTION: JET PUMP NO 15 TO FLOW INST EFC (CIV)							
PI-EFC-X44AF	M530-1 E2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
DESCRIPTION: JET PUMP NO 16 TO FLOW INST EFC (CIV)							
PI-EFC-X44AG	M530-1 E2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
DESCRIPTION: JET PUMP NO 17 TO FLOW INST EFC (CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PI-EFC-X44AH	M530-1 E2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 19 TO FLOW INST EFC (CIV)						
PI-EFC-X44AJ	M530-1 E2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 18 TO FLOW INST EFC (CIV)						
PI-EFC-X44AK	M530-1 J6	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 20 TO FLOW INST EFC (CIV)						
PI-EFC-X44AL	M530-1 H6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 15 TO FLOW INST EFC (CIV)						
PI-EFC-X44AM	M530-1 H6	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 20 TO FLOW INST EFC (CIV)						
PI-EFC-X44BA	M530-1 F2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 1TO FLOW INST EFC (CIV)						
PI-EFC-X44BB	M530-1 F2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 2TO FLOW INST EFC (CIV)						
PI-EFC-X44BC	M530-1 F2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 3TO FLOW INST EFC (CIV)						
PI-EFC-X44BD	M530-1 F2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 4TO FLOW INST EFC (CIV)						
PI-EFC-X44BE	M530-1 J11	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 5TO FLOW INST EFC (CIV)						
PI-EFC-X44BF	M530-1 F2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 6TO FLOW INST EFC (CIV)						
PI-EFC-X44BG	M530-1 F2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 7TO FLOW INST EFC (CIV)						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PI-EFC-X44BH	M530-1 F2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 8TO FLOW INST EFC (CIV)						
PI-EFC-X44BJ	M530-1 F2	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 9TO FLOW INST EFC (CIV)						
PI-EFC-X44BK	M530-1 J11	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 10 TO FLOW INST EFC (CIV)						
PI-EFC-X44BL	M530-1 H11	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 5TO FLOW INST EFC (CIV)						
PI-EFC-X44BM	M530-1 H11	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
	DESCRIPTION: JET PUMP NO 10 TO FLOW INST EFC (CIV)						
PI-EFC-X61A	M530-1 F12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1F	ROJ06	TV02
	DESCRIPTION: RRC A TO FT-14C,14D EFC (CIV)						
PI-EFC-X61B	M530-1 F12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1F	ROJ06	TV02
	DESCRIPTION: RRC A TO FT-14C,14D EFC (CIV)						
PI-EFC-X61C	M529 G5	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
	DESCRIPTION: DRYWELL ATM TO PRESS INST EFC (CIV)						
PI-EFC-X62B	M529 H12	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
	DESCRIPTION: DRYWELL ATM TO PRESS INST EFC (CIV)						
PI-EFC-X62C	M530-1 F6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1F	ROJ06	TV02
	DESCRIPTION: RRC B TO FT-24C,24D EFC (CIV)						
PI-EFC-X62D	M530-1 F6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1F	ROJ06	TV02
	DESCRIPTION: RRC B TO FT-24C,24D EFC (CIV)						
PI-EFC-X66	M543-1 B6	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
	DESCRIPTION: WETWELL ATM TO CSP-DPT-5 EFC (CIV)						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PI-EFC-X67	M543-1 B13	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
DESCRIPTION: WETWELL ATM TO CSP-DPT-4 EFC (CIV)							
PI-EFC-X69A	M529 C4	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE D TO DPIS HI SIDE EFC (CIV)							
PI-EFC-X69B	M529 C4	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE D TO DPIS LO SIDE EFC (CIV)							
PI-EFC-X69E	M530 G6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
DESCRIPTION: RRC B TO PS-18B EFC (CIV)							
PI-EFC-X69F	M529 H12	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
DESCRIPTION: DRYWELL ATM TO PS-48A,48C,2B EFC (CIV)							
PI-EFC-X70A	M529 E4	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE C TO DPIS HI SIDE EFC (CIV)							
PI-EFC-X70B	M529 E4	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE C TO DPIS LO SIDE EFC (CIV)							
PI-EFC-X70C	M529 E13	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE A TO DPIS HI SIDE EFC (CIV)							
PI-EFC-X70D	M529 E13	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE A TO DPIS LO SIDE EFC (CIV)							
PI-EFC-X70E	M530-1 B14	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
DESCRIPTION: RRC A (RRC-P-1A) TO DPT-15A EFC (CIV)							
PI-EFC-X70F	M530-1 B14	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
DESCRIPTION: RRC A (RRC-P-1A) TO DPT-15A EFC (CIV)							
PI-EFC-X71A	M529 E4	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE C TO DPIS HI SIDE EFC (CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PI-EFC-X71B	M529 E4	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE C TO DPIS LO SIDE EFC (CIV)							
PI-EFC-X71C	M519 G6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1E	ROJ06	TV02
DESCRIPTION: RCIC STEAM SUPPLY TO DPIS-7A EFC (CIV)							
PI-EFC-X71D	M519 G6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1E	ROJ06	TV02
DESCRIPTION: RCIC STEAM SUPPLY TO DPIS-7A EFC (CIV)							
PI-EFC-X71E	M519 G6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1E	ROJ06	TV02
DESCRIPTION: RCIC STEAM SUPPLY TO DPIS-13A EFC (CIV)							
PI-EFC-X71F	M519 G6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1E	ROJ06	TV02
DESCRIPTION: RCIC STEAM SUPPLY TO DPIS-13A EFC (CIV)							
PI-EFC-X72A	M529 J6	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
DESCRIPTION: RPV STEAM DOME TO PRESS INST EFC (CIV)							
PI-EFC-X73A	M520 J8	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1E	ROJ06	TV02
DESCRIPTION: HPCS TO RPV TO DPIS-9 EFC (CIV)							
PI-EFC-X74A	M530-1 G12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
DESCRIPTION: SLC INJ BELOW CORE PLATE TO FLOW INSTR EFC (CIV)							
PI-EFC-X74B	M521-1 H5	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
DESCRIPTION: RHR LPCI A INJECTION TO DPIS-29A EFC (CIV)							
PI-EFC-X74E	M530-1 H11	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
DESCRIPTION: RRC A TO RHR PUMPS TO DPIS-12A EFC (CIV)							
PI-EFC-X74F	M530-1 H11	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
DESCRIPTION: RRC A TO RHR PUMPS TO DPIS-12A EFC (CIV)							
PI-EFC-X75A	M530-1 G6	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
DESCRIPTION: SLC INJ BELOW CORE PLATE TO FLOW INSTR EFC (CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PI-EFC-X75B	M530-1 G12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1E	ROJ06	TV02
DESCRIPTION: SLC INJ ABOVE CORE PLATE TO FLOW INSTR EFC (CIV)							
PI-EFC-X75C	M529 E12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE A TO DPIS EFC (CIV)							
PI-EFC-X75D	M529 E12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1A	ROJ06	TV02
DESCRIPTION: MAIN STEAM LINE A TO DPIS EFC (CIV)							
PI-EFC-X75E	M530-1 F5	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1F	ROJ06	TV02
DESCRIPTION: RRC B TO FT-24A,24B EFC (CIV)							
PI-EFC-X75F	M530-1 F5	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1F	ROJ06	TV02
DESCRIPTION: RRC B TO FT-24A,24B EFC (CIV)							
PI-EFC-X78A	M543-2 E13	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
DESCRIPTION: H2-O2 MONITOR TO DRYWELL ATM SAMPLE ISO (CIV)							
PI-EFC-X78B	M520 J10	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
DESCRIPTION: LPCS TO RPV TO RHR-DPS-29A EFC (CIV)							
PI-EFC-X78C	M523 F12	1 AC	SA CK 1 X .5	C NA NO	GH RF 7.4.6.3.4.1C	ROJ06	TV02
DESCRIPTION: RWCU TO RWCU-FT-37 EFC (CIV)							
PI-EFC-X78F	M530-1 H12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1D	ROJ06	TV02
DESCRIPTION: RRC A (RRC-P-1A SUCT) TO PS-18A EFC (CIV)							
PI-EFC-X79A	M523 F15	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1E	ROJ06	TV02
DESCRIPTION: RWCU TO RWCU-FT-36 EFC (CIV)							
PI-EFC-X79B	M523 F15	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1E	ROJ06	TV02
DESCRIPTION: RWCU TO RWCU-FT-36 EFC (CIV)							
PI-EFC-X82B	M543-1 B14	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
DESCRIPTION: WETWELL ATM TO PT-3 EFC (CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PI-EFC-X84A	M543-1 B6	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
	DESCRIPTION: WETWELL ATM TO PT-4 EFC (CIV)						
PI-EFC-X86A	M543-1 B14	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
	DESCRIPTION: WETWELL TO LT-1 EFC (CIV)						
PI-EFC-X86B	M543-1 B14	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
	DESCRIPTION: WETWELL TO LT-1 EFC (CIV)						
PI-EFC-X87A	M543-1 B6	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
	DESCRIPTION: WETWELL TO LT-2 EFC (CIV)						
PI-EFC-X87B	M543-1 B6	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
	DESCRIPTION: WETWELL TO LT-2 EFC (CIV)						
PI-EFC-X106	M529 H12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
	DESCRIPTION: RPV TO PRESS INST EFC (CIV)						
PI-EFC-X107	M529 H12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
	DESCRIPTION: RPV TO PRESS INST EFC (CIV)						
PI-EFC-X108	M529 G12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
	DESCRIPTION: RPV TO PRESS INST EFC (CIV)						
PI-EFC-X109	M529 H5	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
	DESCRIPTION: RPV TO PRESS INST EFC (CIV)						
PI-EFC-X110	M529 H5	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
	DESCRIPTION: RPV TO PRESS INST EFC (CIV)						
PI-EFC-X111	M529 H5	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
	DESCRIPTION: RPV TO PRESS INST EFC (CIV)						
PI-EFC-X112	M529 H5	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
	DESCRIPTION: RPV TO PRESS INST EFC (CIV)						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PI-EFC-X113	M529 H5	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
DESCRIPTION: RPV TO PRESS INST EFC (CIV)							
PI-EFC-X114	M529 H12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
DESCRIPTION: RPV TO PRESS INST EFC (CIV)							
PI-EFC-X115	M529 H12	1 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.1G	ROJ06	TV02
DESCRIPTION: RPV TO PRESS INST EFC (CIV)							
PI-EFC-X119	M543-1 B6	2 AC	SA CK 1 X .5	O/C NA NO	GH RF 7.4.6.3.4.2	ROJ06	TV02
DESCRIPTION: WETWELL ATM TO CSP-DPT-6 EFC (CIV)							
PI-V-X42D	M521-1 F5	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: AIR TO RHR-V-50A OPERATOR (INBD CIV)							
PI-V-X54BF	M521-2 H13	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: AIR TO RHR-V-41B OPERATOR (INBD CIV)							
PI-V-X61F	M521-1 G5	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: AIR TO RHR-V-41A OPERATOR (INBD CIV)							
PI-V-X62F	M521-2 D12	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: AIR TO RHR-V-41C OPERATOR (INBD CIV)							
PI-V-X69C	M521-2 F13	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: AIR TO RHR-V-50B OPERATOR (INBD CIV)							
PI-V-X72F/1	M543-1 F13	2 AC	SA CK 1	C NA NO	H RF 7.4.0.5.7G L J 7.4.6.1.2.4	ROJ04	TV02
DESCRIPTION: DRYWELL ATM TO RAD-RE-12A EFC (CIV)							
PI-V-X73E/1	M543-1 F7	2 AC	SA CK 1	C NA NO	H RF 7.4.0.5.7G L J 7.4.6.1.2.4	ROJ04	TV02
DESCRIPTION: DRYWELL ATM TO RAD-RE-12B EFC (CIV)							
PI-VX-216	M521-1 G6	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: AIR TO RHR-V-50A OPERATOR (OTBD CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PI-VX-218	M521-2 H13	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
	DESCRIPTION: AIR TO RHR-V-41B OPERATOR (OTBD CIV)						
PI-VX-219	M521-1 H6	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
	DESCRIPTION: AIR TO RHR-V-41A OPERATOR (OTBD CIV)						
PI-VX-220	M521-2 D12	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
	DESCRIPTION: AIR TO RHR-V-41C OPERATOR (OTBD CIV)						
PI-VX-221	M521-2 G13	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
	DESCRIPTION: AIR TO RHR-V-50B OPERATOR (OTBD CIV)						
PI-VX-250	M543-1 F13	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13 GL 18M 7.4.6.1.2.4		TV01,2
	DESCRIPTION: DRYWELL TO RADIATION MONITOR ISO (CIV)						
PI-VX-251	M543-1 F13	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13 GL 18M 7.4.6.1.2.4		TV01,2
	DESCRIPTION: DRYWELL TO RADIATION MONITOR ISO (CIV)						
PI-VX-253	M543-1 F13	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13 GL 18M 7.4.6.1.2.4		TV01,2
	DESCRIPTION: DRYWELL TO RADIATION MONITOR ISO (CIV)						
PI-VX-256	M543-1 F7	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13 GL 18M 7.4.6.1.2.4		TV01,2
	DESCRIPTION: DRYWELL TO RADIATION MONITOR ISO (CIV)						
PI-VX-257	M543-1 F7	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13 GL 18M 7.4.6.1.2.4		TV01,2
	DESCRIPTION: DRYWELL TO RADIATION MONITOR ISO (CIV)						
PI-VX-259	M543-1 F7	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13 GL 18M 7.4.6.1.2.4		TV01,2
	DESCRIPTION: DRYWELL TO RADIATION MONITOR ISO (CIV)						
PI-VX-262	M543-2 G13	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13		TV01,2
	DESCRIPTION: DRYWELL TO H2-O2 MONITOR ISO (CIV)						
PI-VX-263	M543-2 G13	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13		TV01,2
	DESCRIPTION: DRYWELL TO H2-O2 MONITOR ISO (CIV)						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PI-VX-264	M543-2 F13	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13		TV01,2
DESCRIPTION: DRYWELL TO H2-O2 MONITOR ISO (CIV)							
PI-VX-265	M543-2 C14	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13		TV01,2
DESCRIPTION: DRYWELL TO H2-O2 MONITOR ISO (CIV)							
PI-VX-266	M543-2 F6	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13		TV01,2
DESCRIPTION: DRYWELL TO H2-O2 MONITOR ISO (CIV)							
PI-VX-268	M543-2 F6	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13		TV01,2
DESCRIPTION: DRYWELL TO H2-O2 MONITOR ISO (CIV)							
PI-VX-269	M543-2 C5	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13		TV01,2
DESCRIPTION: DRYWELL TO H2-O2 MONITOR ISO (CIV)							
PSR-V-003/A	M896 E12	2 B	SO SV 1	C FC NC	G 2Y 7.4.0.5.51 HJ Q 7.4.0.5.51		TV01
DESCRIPTION: RHR LOOP A SAMPLE ISO							
PSR-V-003/B	M896 D12	2 B	SO SV 1	C FC NC	G 2Y 7.4.0.5.51 HJ Q 7.4.0.5.51		TV01
DESCRIPTION: RHR LOOP B SAMPLE ISO							
PSR-V-X73/1	M896 J14	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51	RV04	TV01,2
DESCRIPTION: DRYWELL ATM SAMPLE ISO (CIV)							
PSR-V-X73/2	M896 J12	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51		TV01,2
DESCRIPTION: DRYWELL ATM SAMPLE ISO (CIV)							
PSR-V-X77A/1	M896 E14	1 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51	RV04	TV01,2
DESCRIPTION: JET PUMP SAMPLE ISO (CIV)							
PSR-V-X77A/2	M896 E12	1 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51		TV01,2
DESCRIPTION: JET PUMP SAMPLE ISO (CIV)							
PSR-V-X77A/3	M896 F14	1 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51	RV04	TV01,2
DESCRIPTION: JET PUMP SAMPLE ISO (CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PSR-V-X77A/4	M896 F12	1 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51		TV01,2
	DESCRIPTION: JET PUMP SAMPLE ISO (CIV)						
PSR-V-X80/1	M896 K14	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51	RV04	TV01,2
	DESCRIPTION: DRYWELL ATM SAMPLE ISO (CIV)						
PSR-V-X80/2	M896 K12	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51		TV01,2
	DESCRIPTION: DRYWELL ATM SAMPLE ISO (CIV)						
PSR-V-X82/1	M896 B13	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51	RV04	TV01,2
	DESCRIPTION: SAMPLE RETURN TO SUPP POOL ISO (CIV)						
PSR-V-X82/2	M896 B11	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51		TV01,2
	DESCRIPTION: SAMPLE RETURN TO SUPP POOL ISO (CIV)						
PSR-V-X82/7	M896 F13	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51	RV04	TV01,2
	DESCRIPTION: SAMPLE RETURN TO DRYWELL ISO (CIV)						
PSR-V-X82/8	M896 F12	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51		TV01,2
	DESCRIPTION: SAMPLE RETURN TO DRYWELL ISO (CIV)						
PSR-V-X83/1	M896 J13	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51	RV04	TV01,2
	DESCRIPTION: WETWELL ATM SAMPLE ISO (CIV)						
PSR-V-X83/2	M896 J12	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51		TV01,2
	DESCRIPTION: WETWELL ATM SAMPLE ISO (CIV)						
PSR-V-X84/1	M896 H12	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51	RV04	TV01,2
	DESCRIPTION: WETWELL ATM SAMPLE ISO (CIV)						
PSR-V-X84/2	M896 H11	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51		TV01,2
	DESCRIPTION: WETWELL ATM SAMPLE ISO (CIV)						
PSR-V-X88/1	M896 D13	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51	RV04	TV01,2
	DESCRIPTION: SUPP POOL SAMPLE ISO (CIV)						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PSR-V-X88/2	M896 D11	2 A	SO GB 1	C FC NC	GL 18M 7.4.6.1.2.4 HJK Q 7.4.0.5.51		TV01,2
	DESCRIPTION: SUPP POOL SAMPLE ISO (CIV)						
RCC-RV-34A	M525 H05	3 C	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20		TV03
	DESCRIPTION: FPC-HX-1A SHELL SIDE RV						
RCC-RV-34B	M525 G05	3 C	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20		TV03
	DESCRIPTION: FPC-HX-1B SHELL SIDE RV						
RCC-V-5	M525 E10	2 A	MO GB 10	C FAI NO	G 2Y 7.4.0.5.9C HJ CS 7.4.0.5.9C L J 7.4.6.1.2.4	CSJ02	TV01,2
	DESCRIPTION: RCC TO DRYWELL COOLING LOADS (1ST OTBD CIV)						
RCC-V-21	M525 D10	2 A	MO GT 10	C FAI NO	G 2Y 7.4.0.5.9C HJ CS 7.4.0.5.9C L J 7.4.6.1.2.4	CSJ02	TV01,2
	DESCRIPTION: RCC FROM DRYWELL COOLING LOADS (OTBD CIV)						
RCC-V-40	M525 D11	2 A	MO GT 10	C FAI NO	G 2Y 7.4.0.5.9C HJ CS 7.4.0.5.9C L J 7.4.6.1.2.4	CSJ02	TV01,2
	DESCRIPTION: RCC FROM DRYWELL COOLING LOADS (INBD CIV)						
RCC-V-104	M525 E10	2 A	MO GT 10	C FAI NO	G 2Y 7.4.0.5.9C HJ CS 7.4.0.5.9C L J 7.4.6.1.2.4	CSJ02	TV01,2
	DESCRIPTION: RCC TO DRYWELL COOLING LOADS (2ND OTBD CIV)						
RCC-V-129	M525 E5	3 B	MO GT 8	C FAI NO	G 2Y 7.4.0.5.6D HJ Q 7.4.0.5.6D		TV01
	DESCRIPTION: RCC TO FPC-HX-1A & 1B ISO						
RCC-V-130	M525 E6	3 B	MO GT 8	C FAI NO	G 2Y 7.4.0.5.6D HJ Q 7.4.0.5.6D		TV01
	DESCRIPTION: RCC FROM FPC-HX-1A & 1B ISO						
RCC-V-131	M525 E6	3 B	MO GT 8	C FAI NO	G 2Y 7.4.0.5.6D HJ Q 7.4.0.5.6D		TV01
	DESCRIPTION: RCC FROM FPC-HX-1A & 1B ISO						
RCC-V-133A	M525 H05	3 C	SA CK 6	C NA NO	H Q 7.4.0.5.16		
	DESCRIPTION: RCC TO FPC-HX-1A CHK						
RCC-V-133B	M525 G05	3 C	SA CK 6	C NA NO	H Q 7.4.0.5.17		
	DESCRIPTION: RCC TO FPC-HX-1B CHK						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
RCIC-RD-1	M519 D12	2 D	SA RD 10	NA NA NC			N08
	DESCRIPTION: RCIC TURBINE EXHAUST LINE RUPTURE DISC						
RCIC-RD-2	M519 C12	2 D	SA RD 10	NA NA NC			N08
	DESCRIPTION: RCIC TURBINE EXHAUST LINE RUPTURE DISC						
RCIC-RV-17	M519 C13	2 C	SA RV 1 X 1	NA NA NC	P RV 7.4.0.5.20		TV03
	DESCRIPTION: RCIC PUMP SUCT RV						
RCIC-V-1	M519 E11	2 B	MO GB 3	C FAI NO	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C		TV01
	DESCRIPTION: RCIC TURBINE TRIP/THROTTLE VLV						
RCIC-V-8	M519 F6	1 A	MO GT 4	C FAI NO	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: RCIC TURBINE STEAM SUPPLY (OTBD CIV)						
RCIC-V-10	M519 B14	2 B	MO GT 8	C FAI NO	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C		TV01
	DESCRIPTION: CST TO RCIC-P-1 SUCT						
RCIC-V-13	M519 H7	1 A	MO GT 6	C FAI NC	G 2Y 7.4.0.5.8C HJ CS 7.4.0.5.8C L 18M 7.4.4.3.2.2	CSJ07	TV01,2
	DESCRIPTION: RCIC TO RPV HEAD SPRAY ISO (OTBD CIV)						
RCIC-V-19	M519 F7	2 A	MO GB 2	C FAI NC	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: RCIC-P-1 MINIMUM FLOW TO SUPP POOL (OTBD CIV)						
RCIC-V-22	M519 J8	2 B	MO GB 6	C FAI NC	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C		TV01
	DESCRIPTION: RCIC-P-1 DISCH TO CST ISO						
RCIC-V-28	M519 D8	2 AC	SA CK 1.50	C NA NC	H Q 7.4.7.3.3C H Q 7.4.7.3.3B L J 7.4.6.1.2.4		TV02
	DESCRIPTION: AUX COOLING TO SUPP POOL CHK (CIV)						
RCIC-V-30	M519 C7	2 C	SA CK 8	NA NA NC	H Q 7.4.7.3.3B H TS 7.4.7.3.6		N01
	DESCRIPTION: SUPP POOL TO RCIC-P-1 SUCT CHK						
RCIC-V-31	M519 C7	2 A	MO GT 8	C FAI NC	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C L 2Y 7.4.6.1.2.9		TV01,2
	DESCRIPTION: SUPPRESSION POOL TO RCIC-P-1 SUCT (OTBD CIV)						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
RCIC-V-40	M519 E8	2 AC	SA CK 10	C NA NC	H Q 7.4.7.3.3B H Q 7.4.7.3.3C L J 7.4.6.1.2.4		TV02
	DESCRIPTION: RCIC TURBINE EXHAUST TO SUPP POOL CHK (CIV)						
RCIC-V-45	M519 F11	2 B	MO GB 4	NA FAI NC	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C		N01 TV01
	DESCRIPTION: RCIC TURB STM SUPPLY ISO (MAIN TURBINE TRIP I/L)						
RCIC-V-46	M519 F11	2 B	MO GB 2	C FAI NC	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C		TV01
	DESCRIPTION: RCIC AUXILIARY COOLING TO LO COOLER ISO						
RCIC-V-47	M519 B10	2 C	SA CK 2	C NA NC	H Q 7.4.7.3.3C		
	DESCRIPTION: RCIC-P-4 (CONDENSATE PUMP) DISCH CHK						
RCIC-V-50	M519 F9	2 A	MO GB 2	C FAI LO	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C L 2Y 7.4.6.1.2.9		TV01
	DESCRIPTION: RCIC-HX-2 CW SUPPLY ISO						
RCIC-V-63	M519 H3	1 A	MO GT 10	C FAI NO	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: RCIC TURBINE STEAM SUPPLY (INBD CIV)						
RCIC-V-64	M519 G6	1 A	MO GT 10	C NA LC	L J 7.4.6.1.2.4		TV02
	DESCRIPTION: RCIC TURBINE STEAM SUPPLY TO RHR STM-COND (CIV)						
RCIC-V-65	M519 H6	1 C	SA CK 6	NA NA NC	G 2Y 7.4.0.5.7F H RF 7.4.0.5.7F		N01
	DESCRIPTION: RCIC-P-1 DISCH TO RPV HEAD SPRAY CHK						
RCIC-V-66	M519 J4	1 AC	SA CK 6	C NA NC	G 2Y 7.4.0.5.7F H RF 7.4.0.5.7F HL RF 7.4.4.3.2.2	ROJ08	N02 TV02
	DESCRIPTION: RCIC TO RPV HEAD SPRAY CHK (INBD CIV)						
RCIC-V-68	M519 E7	2 A	MO GT 10	C FAI NO	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: RCIC TURBINE EXHAUST TO SUPP POOL (OTBD CIV)						
RCIC-V-69	M519 D7	2 A	MO GT 1.50	C FAI NO	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: RCIC VACUUM PUMP TO SUPP POOL (OTBD CIV)						
RCIC-V-76	M519 H3	1 A	MO GB 1	C FAI NC	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: RCIC-V-63 BYPASS (INBD CIV)						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
RCIC-V-110	M519 E7	2 B	MO GT 2	O FAI NO	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C		TV01
DESCRIPTION: RCIC TURBINE EXH TO SUPP POOL VAC REL ISO							
RCIC-V-111	M519 E7	2 C	SA CK 2	O/C NA NC	H Q 7.4.7.3.3B		N04
DESCRIPTION: RCIC TURBINE EXHAUST VACUUM BREAKER ISO							
RCIC-V-112	M519 E7	2 C	SA CK 2	O/C NA NC	H Q 7.4.7.3.3B		N04
DESCRIPTION: RCIC TURBINE EXHAUST VACUUM BREAKER ISO							
RCIC-V-113	M519 E7	2 B	MO GT 2	O FAI NO	G 2Y 7.4.7.3.3C HJ Q 7.4.7.3.3C		TV01
DESCRIPTION: RCIC TURB EXH TO SUPP POOL VAC REL ISO							
RCIC-V-184	M519 H6	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: AIR TO RCIC-V-66 OPERATOR MAN ISO (OTBD CIV)							
RCIC-V-204	M519 B14	2 C	SA CK 8	C NA NC	H Q 7.4.7.3.3C H Q 7.4.7.3.3B		
DESCRIPTION: RCIC PUMP SUCT FROM CST CHK							
RCIC-V-740	M519 H6	2 A	MA GB 1	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: AIR TO RCIC-V-66 OPERATOR MAN ISO (INBD CIV)							
RCIC-V-742	M519 J6	1 A	MA GB 0.75	C NA LC	L 18M 7.4.4.3.2.2		TV02
DESCRIPTION: SAMPLE PROBE 19B MAN ISO (CIV)							
REA-V-1	M545-3 H1	3 B	AO BF 72	C FC NO	G 2Y 7.4.3.7.5.1A HJK Q 7.4.6.5.2.1		TV01
DESCRIPTION: REACTOR BUILDING EXHAUST							
REA-V-2	M545-3 H1	3 B	AO BF 72	C FC NO	G 2Y 7.4.3.7.5.1A HJK Q 7.4.6.5.2.1		TV01
DESCRIPTION: REACTOR BUILDING EXHAUST							
RFW-V-10A	M529 G12	1 AC	SA CK 24	C NA NO	GH CS 7.4.0.5.9D GL 2Y 7.4.6.1.2.4	CSJ03	TV02
DESCRIPTION: RFW TO RPV CHK (INBD CIV)							
RFW-V-10B	M529 G6	1 AC	SA CK 24	C NA NO	GH CS 7.4.0.5.9D GL 2Y 7.4.6.1.2.4	CSJ03	TV02
DESCRIPTION: RFW TO RPV CHK (INBD CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
RFW-V-32A	M529 G13	1 AC	AO,SA CK 24	C NA NO	GH CS 7.4.0.5.9D GL 2Y 7.4.6.1.2.4	CSJ03	N02 TV02
DESCRIPTION: RFW TO RPV CHK (1ST OTBD CIV)							
RFW-V-32B	M529 G5	1 AC	AO,SA CK 24	C NA NO	GH CS 7.4.0.5.9D GL 2Y 7.4.6.1.2.4	CSJ03	N02 TV02
DESCRIPTION: RFW TO RPV CHK (1ST OTBD CIV)							
RFW-V-65A	M529 G13	1 A	MO GT 24	C FAI NO	G 2Y 7.4.0.5.9D HJ CS 7.4.0.5.9D L 2Y 7.4.6.1.2.4	CSJ03	TV01,2
DESCRIPTION: RFW TO RPV ISO (2ND OTBD CIV)							
RFW-V-65B	M529 G4	1 A	MO GT 24	C FAI NO	G 2Y 7.4.0.5.9D HJ CS 7.4.0.5.9D L 2Y 7.4.6.1.2.4	CSJ03	TV01,2
DESCRIPTION: RFW TO RPV ISO (2ND OTBD CIV)							
RHR-FCV-64A	M521-1 B12	2 A	MO GB 3	O/C FAI NO	G 2Y 7.4.5.1.8 HJ Q 7.4.5.1.8 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: RHR-P-2A MINIMUM FCV (CIV)							
RHR-FCV-64B	M521-2 B6	2 A	MO GB 3	O/C FAI NO	G 2Y 7.4.5.1.9 HJ Q 7.4.5.1.9 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: RHR-P-2B MINIMUM FCV (CIV)							
RHR-FCV-64C	M521-2 D6	2 A	MO GB 3	O/C FAI NO	G 2Y 7.4.5.1.10 HJ Q 7.4.5.1.10 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: RHR-P-2C MINIMUM FCV (CIV)							
RHR-RV-1A	M521-1 H13	2 AC	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
DESCRIPTION: RHR-HX-1A SHELL SIDE RV (CIV)							
RHR-RV-1B	M521-2 H5	2 AC	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
DESCRIPTION: RHR-HX-1B SHELL SIDE RV (CIV)							
RHR-RV-5	M521-1 C8	2 AC	SA RV 1 X 2	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
DESCRIPTION: RHR SHUTDOWN COOLING SUCT RV (CIV)							
RHR-RV-25A	M521-1 D10	2 AC	SA RV 1 X 2	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
DESCRIPTION: RHR LOOP A TEST LINE RV (CIV)							
RHR-RV-25B	M521-2 C10	2 AC	SA RV 1 X 2	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
DESCRIPTION: RHR LOOP B TEST LINE RV (CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
RHR-RV-25C	M521-2 E8	2 AC	SA RV 1 X 2	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
DESCRIPTION: RHR LOOP C TEST LINE RV (CIV)							
RHR-RV-30	M521-2 C4	2 AC	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
DESCRIPTION: RHR FLUSH LINE RV (CIV)							
RHR-RV-88A	M521-1 C7	2 AC	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
DESCRIPTION: RHR-P-2A SUCT RV (CIV)							
RHR-RV-88B	M521-2 B9	2 AC	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
DESCRIPTION: RHR-P-2B SUCT RV (CIV)							
RHR-RV-88C	M521-2 C8	2 AC	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20 L J 7.4.6.1.2.1		TV02,3
DESCRIPTION: RHR-P-2C SUCT RV (CIV)							
RHR-V-3A	M521-1 G10	2 B	MO GT 18	O/C FAI NO	G 2Y 7.4.5.1.8 HJ Q 7.4.5.1.8		TV01
DESCRIPTION: RHR-HX-1A OUTLET ISO							
RHR-V-3B	M521-2 J9	2 B	MO GT 18	O/C FAI NO	G 2Y 7.4.5.1.9 HJ Q 7.4.5.1.9		TV01
DESCRIPTION: RHR-HX-1B OUTLET ISO							
RHR-V-4A	M521-1 C7	2 A	MO GT 24	O/C FAI NO	G 2Y 7.4.5.1.8 HJ Q 7.4.5.1.8 L 2Y 7.4.6.1.2.9		TV01,2
DESCRIPTION: SUPPRESSION POOL TO RHR-P-2A SUCT (OTBD CIV)							
RHR-V-4B	M521-2 B11	2 A	MO GT 24	O/C FAI NO	G 2Y 7.4.5.1.9 HJ Q 7.4.5.1.9 L 2Y 7.4.6.1.2.9		TV01,2
DESCRIPTION: SUPPRESSION POOL TO RHR-P-2B SUCT (OTBD CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
RHR-V-4C	M521-2 B11	2 A	MO GT 24	O/C FAI NO	G 2Y 7.4.5.1.10 HJ Q 7.4.5.1.10 L 2Y 7.4.6.1.2.9		TV01,2
DESCRIPTION: SUPPRESSION POOL TO RHR-P-2C SUCT (OTBD CIV)							
RHR-V-6A	M521-1 B8	2 B	MO GT 18	O/C FAI NC	G 2Y 7.4.5.1.8 HJ Q 7.4.5.1.8		TV01
DESCRIPTION: RPV TO RHR-P-2A SUCT (SDC MODE)							
RHR-V-6B	M521-1 C7	2 B	MO GT 18	O/C FAI NC	G 2Y 7.4.5.1.9 HJ Q 7.4.5.1.9		TV01
DESCRIPTION: RPV TO RHR-P-2B SUCT (SDC MODE)							
RHR-V-8	M521-1 E6	1 A	MO GT 20	O/C FAI NC	G 2Y 7.4.0.5.8D HJ RF 7.4.0.5.8D L 18M 7.4.4.3.2.2	ROJ10	TV01,2
DESCRIPTION: RHR SDC MODE SUPPLY FOR A & B FROM RPV (OTBD CIV)							
RHR-V-9	M521-1 D6	1 A	MO GT 20	O/C FAI NC	G 2Y 7.4.0.5.8D HJ RF 7.4.0.5.8D L 18M 7.4.4.3.2.2	ROJ10	TV01,2
DESCRIPTION: RHR SDC MODE SUPPLY FOR A & B FROM RPV (INBD CIV)							
RHR-V-11A	M521-1 E11	2 A	MO GT 4	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: RHR STM-COND TO SUPP POOL ISO (CIV)							
RHR-V-11B	M521-2 C11	2 A	MO GT 4	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: RHR B STM-COND TO SUPP POOL ISO (CIV)							
RHR-V-16A	M521-1 H7	2 A	MO GT 16	O/C FAI NC	G 2Y 7.4.0.5.8A HJ CS 7.4.0.5.8A L J 7.4.6.1.2.4	CSJ15	TV01,2
DESCRIPTION: RHR TO DRYWELL SPRAY HEADER (2ND OTBD CIV)							
RHR-V-16B	M521-2 D10	2 A	MO GT 16	O/C FAI NC	G 2Y 7.4.0.5.8A HJ CS 7.4.0.5.8A L J 7.4.6.1.2.4	CSJ15	TV01,2
DESCRIPTION: RHR TO DRYWELL SPRAY HEADER (2ND OTBD CIV)							
RHR-V-17A	M521-1 H5	2 A	MO GT 16	O/C FAI NC	G 2Y 7.4.0.5.8A HJ CS 7.4.0.5.8A L J 7.4.6.1.2.4	CSJ15	TV01,2
DESCRIPTION: RHR TO DRYWELL SPRAY HEADER (1ST OTBD CIV)							
RHR-V-17B	M521-2 D11	2 A	MO GT 16	O/C FAI NC	G 2Y 7.4.0.5.8A HJ CS 7.4.0.5.8A L J 7.4.6.1.2.4	CSJ15	TV01,2
DESCRIPTION: RHR TO DRYWELL SPRAY HEADER (1ST OTBD CIV)							
RHR-V-21	M521-2 E8	2 A	MO GB 18	C FAI NC	G 2Y 7.4.5.1.10 HJ Q 7.4.5.1.10 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: RHR LOOP C TEST LINE TO SUPP POOL (OTBD CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
RHR-V-23	M521-2 J13	1 A	MO GB 6	C FAI NC	G 2Y 7.4.0.5.8A HJ CS 7.4.0.5.8A L 18M 7.4.4.3.2.2	CSJ01	TV01,2
DESCRIPTION: RHR TO RCIC RPV HEAD SPRAY (OTBD CIV)							
RHR-V-24A	M521-1 E9	2 A	MO GB 18	O/C FAI NC	G 2Y 7.4.5.1.8 HJ Q 7.4.5.1.8 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: RHR LOOP A TEST LINE TO SUPP POOL (OTBD CIV)							
RHR-V-24B	M521-2 C11	2 A	MO GB 18	O/C FAI NC	G 2Y 7.4.5.1.9 HJ Q 7.4.5.1.9 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: RHR LOOP B TEST LINE TO SUPP POOL (OTBD CIV)							
RHR-V-27A	M521-1 D7	2 A	MO GT 6	O/C FAI NC	G 2Y 7.4.5.1.8 HJ Q 7.4.5.1.8 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: RHR TO SUPPRESSION CHAMBER SPRAY HEADER (OTBD CIV)							
RHR-V-27B	M521-2 C11	2 A	MO GT 6	O/C FAI NC	G 2Y 7.4.5.1.9 HJ Q 7.4.5.1.9 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: RHR TO SUPPRESSION CHAMBER SPRAY HEADER (OTBD CIV)							
RHR-V-31A	M521-1 C14	2 C	SA CK 18	O NA NC	H Q 7.4.5.1.8		
DESCRIPTION: RHR-P-2A DISCH CHK							
RHR-V-31B	M521-2 C3	2 C	SA CK 18	O NA NC	H Q 7.4.5.1.9		
DESCRIPTION: RHR-P-2B DISCH CHK							
RHR-V-31C	M521-2 C5	2 C	SA CK 18	O NA NC	H Q 7.4.5.1.10		
DESCRIPTION: RHR-P-2C DISCH CHK							
RHR-V-40	M521-2 G4	2 B	MO GB 4	C FAI NC	G 2Y 7.4.5.1.9 HJ Q 7.4.5.1.9		TV01
DESCRIPTION: RHR LOOP B TO EDR (SDC WARMUP LINE) ISO							
RHR-V-41A	M521-1 F5	1 AC	SA CK 14	O/C NA NC	H RF 7.4.0.5.7A HL RF 7.4.4.3.2.2	ROJ08	TV02
DESCRIPTION: RHR A LPCI TO RPV CHK (INBD CIV)							
RHR-V-41B	M521-2 G13	1 AC	SA CK 14	O/C NA NC	H RF 7.4.0.5.7B HL RF 7.4.4.3.2.2	ROJ08	TV02
DESCRIPTION: RHR B LPCI TO RPV (INBD CIV)							
RHR-V-41C	M521-2 D13	1 AC	SA CK 14	O/C NA NC	H RF 7.4.0.5.7C HL RF 7.4.4.3.2.2	ROJ08	TV02
DESCRIPTION: RHR C LPCI TO RPV (INBD CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
RHR-V-42A	M521-1 G7	1 A	MO GT 14	O/C FAI NC	G 2Y 7.4.0.5.8A HJ CS 7.4.0.5.8A L 18M 7.4.4.3.2.2	CSJ08	TV01,2
DESCRIPTION: RHR A LPCI MODE TO RPV (OTBD CIV)							
RHR-V-42B	M521-2 F12	1 A	MO GT 14	O/C FAI NC	G 2Y 7.4.0.5.8A HJ CS 7.4.0.5.8A L 18M 7.4.4.3.2.2	CSJ08	TV01,2
DESCRIPTION: RHR B LPCI MODE TO RPV (OTBD CIV)							
RHR-V-42C	M521-2 E12	1 A	MO GT 14	O/C FAI NC	G 2Y 7.4.0.5.8A HJ CS 7.4.0.5.8A L 18M 7.4.4.3.2.2	CSJ08	TV01,2
DESCRIPTION: RHR B LPCI MODE TO RPV (OTBD CIV)							
RHR-V-47A	M521-1 J13	2 B	MO GT 18	O FAI NO	G 2Y 7.4.5.1.8 HJ Q 7.4.5.1.8		TV01
DESCRIPTION: RHR-HX-1A INLET ISO							
RHR-V-47B	M521-2 J3	2 B	MO GT 18	O FAI NO	G 2Y 7.4.5.1.9 HJ Q 7.4.5.1.9		TV01
DESCRIPTION: RHR-HX-1B INLET ISO							
RHR-V-48A	M521-1 J11	2 B	MO GB 18	O/C FAI NO	G 2Y 7.4.5.1.8 HJ Q 7.4.5.1.8		TV01
DESCRIPTION: RHR-HX-1A BYPASS							
RHR-V-48B	M521-2 J8	2 B	MO GB 18	O/C FAI NO	G 2Y 7.4.5.1.9 HJ Q 7.4.5.1.9		TV01
DESCRIPTION: RHR-HX-1B BYPASS							
RHR-V-49	M521-2 G4	2 B	MO GT 4	C FAI NC	G 2Y 7.4.5.1.9 HJ Q 7.4.5.1.9		TV01
DESCRIPTION: RHR LOOP B TO EDR (SDC WARMUP LINE) ISO							
RHR-V-50A	M521-1 F5	1 AC	SA CK 12	O/C NA NC	H RF 7.4.0.5.7A HL RF 7.4.4.3.2.2	ROJ08	TV02
DESCRIPTION: RHR A SDC TO RPV CHK (INBD CIV)							
RHR-V-50B	M521-2 F13	1 AC	SA CK 12	O/C NA NC	H RF 7.4.0.5.7B HL RF 7.4.4.3.2.2	ROJ08	TV02
DESCRIPTION: RHR B SDC TO RPV (INBD CIV)							
RHR-V-53A	M521-1 F6	1 A	MO GT 12	O/C FAI NC	G 2Y 7.4.0.5.8A HJ CS 7.4.0.5.8A L 18M 7.4.4.3.2.2	CSJ01	TV01,2
DESCRIPTION: RHR A SDC MODE TO RPV (OTBD CIV)							
RHR-V-53B	M521-2 F11	1 A	MO GT 12	O/C FAI NC	G 2Y 7.4.0.5.8A HJ CS 7.4.0.5.8A L 18M 7.4.4.3.2.2	CSJ01	TV01,2
DESCRIPTION: RHR B SDC MODE TO RPV (OTBD CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
RHR-V-60A	M521-1 G11	2 B	SO SV 0.75	C FC NC	G 2Y 7.4.5.1.8 HJK Q 7.4.5.1.8		TV01
DESCRIPTION: RHR A SAMPLE PROBE 22A ISO							
RHR-V-60B	M521-2 H9	2 B	SO SV 0.75	C FC NC	G 2Y 7.4.5.1.9 HJK Q 7.4.5.1.9		TV01
DESCRIPTION: RHR B SAMPLE PROBE 22B ISO							
RHR-V-68A	M524-1 D14	3 B	MO GT 16	O FAI NO	G 2Y 7.4.0.5.16 HJ Q 7.4.0.5.16		TV01
DESCRIPTION: SW FROM RHR-HX-1A ISO							
RHR-V-68B	M524-2 G14	3 B	MO GT 16	O FAI NO	G 2Y 7.4.0.5.17 HJ Q 7.4.0.5.17		TV01
DESCRIPTION: SW B FROM RHR-HX-1B ISO							
RHR-V-73A	M521-1 H14	2 A	MO GB 2	C FAI NC	G 2Y 7.4.5.1.8 HJ Q 7.4.5.1.8 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: RHR-HX-1A SHELL SIDE VENT (OTBD CIV)							
RHR-V-73B	M521-2 H4	2 A	MO GB 2	C FAI NC	G 2Y 7.4.5.1.9 HJ Q 7.4.5.1.9 L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: RHR-HX-1B SHELL SIDE VENT (OTBD CIV)							
RHR-V-75A	M521-1 G11	2 B	SO SV 0.75	C FC NC	G 2Y 7.4.5.1.8 HJK Q 7.4.5.1.8		TV01
DESCRIPTION: RHR A SAMPLE PROBE 22A ISO							
RHR-V-75B	M521-2 H8	2 B	SO SV 0.75	C FC NC	G 2Y 7.4.5.1.9 HJK Q 7.4.5.1.9		TV01
DESCRIPTION: RHR B SAMPLE PROBE 22B ISO							
RHR-V-84A	M521-1 D15	2 C	SA CK 1.50	C NA NC	H Q 7.4.5.1.8	RV02	
DESCRIPTION: LPCS-P-2 (WATER LEG) TO RHR A CHK							
RHR-V-84B	M521-2 B4	2 C	SA CK 1.50	C NA NC	H Q 7.4.5.1.9	RV02	
DESCRIPTION: RHR-P-3 (WATER LEG) DISCH TO RHR B CHK							
RHR-V-84C	M521-2 C6	2 C	SA CK 1.50	C NA NC	H Q 7.4.5.1.10	RV02	
DESCRIPTION: RHR-P-3 (WATER LEG) DISCH TO RHR C CHK							
RHR-V-85A	M521-1 C14	2 C	SA,MA SC 1.50	C NA NC	H Q 7.4.5.1.8	RV02	
DESCRIPTION: LPCS-P-2 (WATER LEG) TO RHR A STOP CHK							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
RHR-V-85B	M521-2 C4	2 C	SA,MA SC 1.50	C NA NC	H Q 7.4.5.1.9	RV02	
DESCRIPTION: RHR-P-3 (WATER LEG) DISCH TO RHR B STOP CHK							
RHR-V-85C	M521-2 C6	2 C	SA,MA SC 1.50	C NA NC	H Q 7.4.5.1.10	RV02	
DESCRIPTION: RHR-P-3 (WATER LEG) DISCH TO RHR C STOP CHK							
RHR-V-120	M521-1 C11	2 A	MA GT 3	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: RHR A TO FDR SYS MAN ISO (CIV)							
RHR-V-121	M521-1 C11	2 A	MA GT 3	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: RHR A TO FDR SYS MAN ISO (CIV)							
RHR-V-123A	M521-1 E5	1 A	MO GT 1	C FAI NC	G 2Y 7.4.0.5.8D HJ RF 7.4.0.5.8D L 18M 7.4.4.3.2.2	ROJ11	TV01,2
DESCRIPTION: RHR-V-50A BYPASS (INBD CIV) (MOTOR DEENERGIZED)							
RHR-V-123B	M521-2 E13	1 A	MO GT 1	C FAI NC	G 2Y 7.4.0.5.8D HJ RF 7.4.0.5.8D L 18M 7.4.4.3.2.2	ROJ11	TV01,2
DESCRIPTION: RHR-V-50B BYPASS (INBD CIV) (MOTOR DEENERGIZED)							
RHR-V-124A	M521-1 B13	2 A	MO GB 1.50	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: RHR STM-COND DRN TO SUPP POOL (CIV)							
RHR-V-124B	M521-1 C13	2 A	MO GB 1.50	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: RHR STM-COND DRN TO SUPP POOL (CIV)							
RHR-V-125A	M521-2 D4	2 A	MO GB 1.50	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: RHR STM-COND DRN TO SUPP POOL (CIV)							
RHR-V-125B	M521-2 D4	2 A	MO GB 1.50	C NA LC	L J 7.4.6.1.2.4		TV02
DESCRIPTION: RHR STM-COND DRN TO SUPP POOL (CIV)							
RHR-V-134A	M521-1 E14	2 A	MO GB 2	O/C FAI NC	G 2Y 7.4.0.5.14A HJ Q 7.4.0.5.14A L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CAC TIE TO RHR (OTBD CIV)							
RHR-V-134B	M521-2 E5	2 A	MO GB 2	O/C FAI NC	G 2Y 7.4.0.5.14B HJ Q 7.4.0.5.14B L J 7.4.6.1.2.4		TV01,2
DESCRIPTION: CAC TIE TO RHR (OTBD CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
RHR-V-209	M521-1 D5	1 AC	SA CK 0.75	O/C NA NC	H RF 7.4.0.5.7A L 18M 7.4.4.3.2.2	ROJ03	N04 TV02
	DESCRIPTION: THERMAL RELIEF CHK BETWEEN RHR-V-8 AND 9 (CIV)						
RHR-V-503	M521-1 A8	2 C	SA CK 0.50	C NA NC	H Q 7.4.5.1.8		
	DESCRIPTION: RHR-V-6A LEAK BY-PASS CHK						
ROA-V-1	M545-3 D1	3 B	AO BF 84	C FC NO	G 2Y 7.4.3.7.5.1A HJK Q 7.4.6.5.2.1		TV01
	DESCRIPTION: REACTOR BUILDING ISO						
ROA-V-2	M545-3 D2	3 B	AO BF 84	C FC NO	G 2Y 7.4.3.7.5.1A HJK Q 7.4.6.5.2.1		TV01
	DESCRIPTION: REACTOR BUILDING ISO						
RRC-V-13A	M530-1 C13	2 AC	SA CK 0.75	C NA NO	H CS 7.4.0.5.9B L J 7.4.6.1.2.4	CSJ06	TV02
	DESCRIPTION: RRC PUMP SEAL PURGE INLET CHK (INBD CIV)						
RRC-V-13B	M530-1 B13	2 AC	SA CK 0.75	C NA NO	H CS 7.4.0.5.9B L J 7.4.6.1.2.4	CSJ06	TV02
	DESCRIPTION: RRC PUMP SEAL PURGE INLET CHK (INBD CIV)						
RRC-V-16A	M530-1 C14	2 A	MO GT 0.75	C FAI NO	G 2Y 7.4.0.5.9B HJ CS 7.4.0.5.9B L J 7.4.6.1.2.4	CSJ06	TV01,2
	DESCRIPTION: RRC PUMP SEAL PURGE INLET (OTBD CIV)						
RRC-V-16B	M530-1 B14	2 A	MO GT 0.75	C FAI NO	G 2Y 7.4.0.5.9B HJ CS 7.4.0.5.9B L J 7.4.6.1.2.4	CSJ06	TV01,2
	DESCRIPTION: RRC PUMP SEAL PURGE INLET (OTBD CIV)						
RRC-V-19	M530-1 F11	1 A	SO SV 0.75	C FC NC	G 2Y 7.4.0.5.6C HJK Q 7.4.0.5.6C L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: RRC SAMPLE PROBE 1 ISO (CIV)						
RRC-V-20	M530-1 F12	1 A	SO SV 0.75	C FC NC	G 2Y 7.4.0.5.6C HJK Q 7.4.0.5.6C L J 7.4.6.1.2.4		TV01,2
	DESCRIPTION: RRC SAMPLE PROBE 1 ISO (CIV)						
RWCU-V-1	M523-1 F15	1 A	MO GT 6	C FAI NO	G 2Y 7.4.0.5.9A HJ CS 7.4.0.5.9A L J 7.4.6.1.2.4	CSJ10	TV01,2
	DESCRIPTION: RWCU FROM RPV ISO (INBD CIV)						
RWCU-V-4	M523-1 E15	1 A	MO GT 6	C FAI NO	G 2Y 7.4.0.5.9A HJ CS 7.4.0.5.9A L J 7.4.6.1.2.4	CSJ10	TV01,2
	DESCRIPTION: RWCU FROM RPV ISO (OTBD CIV)						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
RWCU-V-40	M523-1 H11	1 A	MO GT 6	C FAI NO	G 2Y 7.4.0.5.9A HJ CS 7.4.0.5.9A L 2Y 7.4.6.1.2.4	CSJ10	TV01,2
	DESCRIPTION: RWCU TO RFW ISO (OTBD CIV)						
SA-V-109	M510-3 H8	2 A	MA GB 2	C NA LC	L J 7.4.6.1.2.4		TV02
	DESCRIPTION: AIR LINE ISO USED FOR MAINT (CAPPED IN DW) (CIV)						
SGT-V-1A	M544 G14	2 B	MO BF 18	C FAI NC	G 2Y 7.4.3.7.5.1A HJ Q 7.4.0.5.58A		TV01
	DESCRIPTION: SGT INLET						
SGT-V-1B	M544 E14	2 B	MO BF 18	C FAI NC	G 2Y 7.4.3.7.5.1A HJ Q 7.4.0.5.58B		TV01
	DESCRIPTION: SGT INLET						
SGT-V-2A	M544 H15	3 B	AO BF 18	O FO NO	G 2Y 7.4.3.7.5.1A HJK Q 7.4.0.5.58A		TV01
	DESCRIPTION: SGT-FU-1A INLET						
SGT-V-2B	M544 D15	3 B	AO BF 18	O FO NO	G 2Y 7.4.3.7.5.1A HJK Q 7.4.0.5.58B		TV01
	DESCRIPTION: SGT-FU-1B INLET						
SGT-V-4A1	M544 J5	2 B	MO BF 18	O/C FAI NC	G 2Y 7.4.3.7.5.1A HJ Q 7.4.0.5.58A		TV01
	DESCRIPTION: SGT-FN-1A1 DISCH						
SGT-V-4A2	M544 G5	2 B	MO BF 18	O/C FAI NC	G 2Y 7.4.3.7.5.1A HJ Q 7.4.0.5.58A		TV01
	DESCRIPTION: SGT-FN-1A2 DISCH						
SGT-V-4B1	M544 C5	2 B	MO BF 18	O/C FAI NC	G 2Y 7.4.3.7.5.1A HJ Q 7.4.0.5.58B		TV01
	DESCRIPTION: SGT-FN-1B1 DISCH						
SGT-V-4B2	M544 D5	2 B	MO BF 18	O/C FAI NC	G 2Y 7.4.3.7.5.1A HJ Q 7.4.0.5.58B		TV01
	DESCRIPTION: SGT-FN-1B2 DISCH						
SGT-V-5A1	M544 J5	2 B	MO BF 18	O/C FAI NC	G 2Y 7.4.3.7.5.1A HJ Q 7.4.0.5.58A		TV01
	DESCRIPTION: SGT-FN-1A1 OUTLET						
SGT-V-5A2	M544 G5	2 B	MO BF 18	O/C FAI NC	G 2Y 7.4.3.7.5.1A HJ Q 7.4.0.5.58A		TV01
	DESCRIPTION: SGT-FN-1A2 OUTLET						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM			Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
SGT-V-5B1	M544 C5	2 B	MO BF 18	O/C FAI NC	G HJ	2Y Q	7.4.3.7.5.1A 7.4.0.5.58B		TV01
	DESCRIPTION: SGT-FN-1B1 OUTLET								
SGT-V-5B2	M544 E5	2 B	MO BF 18	O/C FAI NC	G HJ	2Y Q	7.4.3.7.5.1A 7.4.0.5.58B		TV01
	DESCRIPTION: SGT-FN-1B2 OUTLET								
SLC-RV-29A	M522 F6	2 C	SA RV 1 X 2	NA NA NC	P	RV	7.4.0.5.20		TV03
	DESCRIPTION: SLC-P-1A DISCH RV								
SLC-RV-29B	M522 D6	2 C	SA RV 1 X 2	NA NA NC	P	RV	7.4.0.5.20		TV03
	DESCRIPTION: SLC-P-1B DISCH RV								
SLC-V-1A	M522 E4	2 B	MO GB 4	O FAI NC	G HJ	2Y Q	7.4.1.5.3 7.4.1.5.3		TV01
	DESCRIPTION: SLC-TK-1A (STORAGE TANK) TO SLC-P-1A SUCT ISO								
SLC-V-1B	M522 D4	2 B	MO GB 4	O FAI NC	G HJ	2Y Q	7.4.1.5.3 7.4.1.5.3		TV01
	DESCRIPTION: SLC-TK-1B (STORAGE TANK) TO SLC-P-1B SUCT ISO								
SLC-V-4A	M522 F8	1 AD	SO EX 1.50	O/C NA NC	L V	J EX	7.4.6.1.2.4 7.4.1.5A		TV02
	DESCRIPTION: SLC-P-1A DISCH TO RPV ISO (EXPLOSIVE OTBD CIV)								
SLC-V-4B	M522 D8	1 AD	SO EX 1.50	O/C NA NC	L V	J EX	7.4.6.1.2.4 7.4.1.5B		TV02
	DESCRIPTION: SLC-P-1B DISCH TO RPV ISO (EXPLOSIVE OTBD CIV)								
SLC-V-6	M522 F11	1 C	SA CK 1.50	O NA NC	H	RF	7.4.1.5A, B	ROJ01	
	DESCRIPTION: SLC TO RPV CHK								
SLC-V-7	M522 H13	1 AC	SA CK 1.50	O/C NA NC	H HL	RF RF	7.4.1.5A, B 7.4.6.1.2.4	ROJ01	TV02
	DESCRIPTION: SLC TO RPV CHK (INBD CIV)								
SLC-V-33A	M522 F7	2 C	SA CK 1.50	O/C NA NC	H	Q	7.4.1.5.3		
	DESCRIPTION: SLC-P-1A DISCH CHK								
SLC-V-33B	M522 D7	2 C	SA CK 1.50	O/C NA NC	H	Q	7.4.1.5.3		
	DESCRIPTION: SLC-P-1B DISCH CHK								

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
SW-RV-001A	M524-1 C14	3 C	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20		TV03
DESCRIPTION: RHR-HX-1A TUBE SIDE RV							
SW-RV-001B	M524-2 F14	3 C	SA RV .75 X 1	NA NA NC	P RV 7.4.0.5.20		TV03
DESCRIPTION: RHR-HX-1B TUBE SIDE RV							
SW-TCV-11A	M775 H5	3 B	HO GB 2.50	O FO NT	HK RF 7.4.0.5.52	RV03	
DESCRIPTION: EMERGENCY CHILLED WATER FROM WMA-CC-51A-1 TCV							
SW-TCV-11B	M775 C5	3 B	HO GB 2.50	O FO NT	HK RF 7.4.0.5.52	RV03	
DESCRIPTION: EMERGENCY CHILLED WATER FROM WMA-CC-51B-1 TCV							
SW-V-1A	M524-1 H5	3 C	SA CK 20	O NA NC	H Q 7.4.0.5.16		
DESCRIPTION: SW-P-1A DISCH CHK							
SW-V-1B	M524-2 G5	3 C	SA CK 20	O NA NC	H Q 7.4.0.5.17		
DESCRIPTION: SW-P-1B DISCH CHK							
SW-V-2A	M524-1 H6	3 B	MO BF 20	O/C FAI NC	G 2Y 7.4.0.5.16 HJ Q 7.4.0.5.16		TV01
DESCRIPTION: SW-P-1A DISCH ISO							
SW-V-2B	M524-2 G6	3 B	MO BF 20	O/C FAI NC	G 2Y 7.4.0.5.17 HJ Q 7.4.0.5.17		TV01
DESCRIPTION: SW-P-1B DISCH ISO							
SW-V-12A	M524-1 G3	3 B	MO GT 18	O/C FAI NC	G 2Y 7.4.0.5.16 HJ Q 7.4.0.5.16		TV01
DESCRIPTION: SW A RETURN TO SPRAY POND B ISO							
SW-V-12B	M524-2 G3	3 B	MO GT 18	O/C FAI NC	G 2Y 7.4.0.5.17 HJ Q 7.4.0.5.17		TV01
DESCRIPTION: SW B RETURN TO SPRAYPOND A ISO							
SW-V-29	M524-1 G6	3 B	MO BF 8	O/C FAI NC	G 2Y 7.4.0.5.18 HJ Q 7.4.0.5.18		TV01
DESCRIPTION: HPCS-P-2 DISCH ISO							
SW-V-34	M524-2 C11	3 B	SO GB 1.50	O FO NO	G 2Y 7.4.0.5.17 HJK Q 7.4.0.5.17		TV01
DESCRIPTION: SW FROM RCIC-P-1 ROOM RRA-CC-6 ISO							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
SW-V-75A	M524-1 B13	3 B	MO GB 2	O/C FAI NC	G 2Y 7.4.0.5.16 HJ Q 7.4.0.5.16		TV01
	DESCRIPTION: SW TIE TO FPC LOOP A						
SW-V-75AA	M524-1 A13	3 B	MA GB 2	O/C FAI NC	H Q 7.4.0.5.16		
	DESCRIPTION: SW CROSSTIE TO FPC MAN ISO						
SW-V-75B	M524-2 B14	3 B	MO GB 2	O/C FAI NC	G 2Y 7.4.0.5.17 HJ Q 7.4.0.5.17		TV01
	DESCRIPTION: SW TIE TO FPC LOOP B						
SW-V-75BB	M524-2 B14	3 B	MA GB 2	O/C FAI NC	H Q 7.4.0.5.17		
	DESCRIPTION: SW CROSSTIE TO FPC MAN ISO						
SW-V-165A	M524-1 D3	3 B	MA BF 18	O/C NA NO	H Q 7.4.0.5.16		
	DESCRIPTION: SW A RETURN TO SPRAY POND B SPRAY RING HDR BYPASS						
SW-V-165B	M524-2 K3	3 B	MA BF 18	O/C NA NO	H Q 7.4.0.5.17		
	DESCRIPTION: SW B RETURN TO SPRAY POND A SPRAY RING HDR BYPASS						
SW-V-170A	M524-1 D3	3 B	MA BF 18	O/C NA NC	H Q 7.4.0.5.16		
	DESCRIPTION: SW A RETURN TO SPRAY POND B SPRAY RING HDR MAN ISO						
SW-V-170B	M524-2 K4	3 B	MA BF 18	O/C NA NC	H Q 7.4.0.5.17		
	DESCRIPTION: SW B RETURN TO SPRAY POND A SPRAY RING HDR MAN ISO						
SW-V-187A	M524-1 G14	3 B	MO GT 6	O FAI NC	G 2Y 7.4.0.5.16 HJ Q 7.4.0.5.16		TV01
	DESCRIPTION: SW TO FPC-HX-1A INLET						
SW-V-187B	M524-2 C13	3 B	MO GT 6	O FAI NC	G 2Y 7.4.0.5.17 HJ Q 7.4.0.5.17		TV01
	DESCRIPTION: SW TO FPC-HX-1B INLET						
SW-V-188A	M524-1 H13	3 B	MO GT 6	O FAI NC	G 2Y 7.4.0.5.16 HJ Q 7.4.0.5.16		TV01
	DESCRIPTION: SW FROM FPC-HX-1A OUTLET						
SW-V-188B	M524-2 D12	3 B	MO GT 6	O FAI NC	G 2Y 7.4.0.5.17 HJ Q 7.4.0.5.17		TV01
	DESCRIPTION: SW FROM FPC-HX-1B OUTLET						

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type / Actuat, Valve & Size	Position / Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
SW-V-226A	M775 F6	3 C	SA CK 3	C NA NC	H Q 7.4.0.5.52		
DESCRIPTION: CCH-EV-1A (EVAPORATOR) OUTLET CHK							
SW-V-226B	M775 B6	3 C	SA CK 3	C NA NC	H Q 7.4.0.5.52		
DESCRIPTION: CCH-EV-1B (EVAPORATOR) OUTLET CHK							
SW-V-227A	M775 H7	3 B	MA GT 3	C NA NC	H Q 7.4.0.5.52		
DESCRIPTION: CCH-P-1A SUCT MAN ISO							
SW-V-227B	M775 C7	3 B	MA GT 3	C NA NO	H Q 7.4.0.5.52		
DESCRIPTION: CCH-P-1B SUCT MAN ISO							
SW-V-822A	M775 J5	3 B	MA GT 3	O NA NO	H Q 7.4.0.5.52		
DESCRIPTION: SW TO WMA-CC-51A-1 (CR CHILLER) MAN ISO							
SW-V-822B	M775 E5	3 B	MA GT 3	O NA NC	H Q 7.4.0.5.52		
DESCRIPTION: SW TO WMA-CC-51B-1 (CR CHILLER) MAN ISO							
SW-V-823A	M775 J5	3 B	MA GT 3	O NA NO	H Q 7.4.0.5.52		
DESCRIPTION: SW FROM WMA-CC-51A-1 (CONTROL RM CHILLER) MAN ISO							
SW-V-823B	M775 E5	3 B	MA GT 3	O NA NC	H Q 7.4.0.5.52		
DESCRIPTION: SW FROM WMA-CC-51B-1 (CONTROL RM CHILLER) MAN ISO							
TIP-V-1	M604 G13	2 A	SO BA 0.375	C FC NC	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13 GL 18M 7.4.6.1.2.4		TV01,2
DESCRIPTION: TIP LINE BALL-TYPE ISO VLV (1ST OTBD CIV)							
TIP-V-2	M604 G13	2 A	SO BA 0.375	C FC NC	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13 GL 18M 7.4.6.1.2.4		TV01,2
DESCRIPTION: TIP LINE BALL-TYPE ISO VLV (1ST OTBD CIV)							
TIP-V-3	M604 G12	2 A	SO BA 0.375	C FC NC	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13 GL 18M 7.4.6.1.2.4		TV01,2
DESCRIPTION: TIP LINE BALL-TYPE ISO VLV (1ST OTBD CIV)							
TIP-V-4	M604 H12	2 A	SO BA 0.375	C FC NC	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13 GL 18M 7.4.6.1.2.4		TV01,2
DESCRIPTION: TIP LINE BALL-TYPE ISO VLV (1ST OTBD CIV)							

WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type: Actuat, Valve & Size	Position: Safety, Failed, Normal	Tests, Frequency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
TIP-V-5	M604 H12	2 A	SO BA 0.375	C FC NC	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13 GL 18M 7.4.6.1.2.4		TV01,2
DESCRIPTION: TIP LINE BALL-TYPE ISO VLV (1ST OTBD CIV)							
TIP-V-6	M604 F12	2 AC	SA CK 0.375	C NA NO	H RF 7.4.0.5.7H L J 7.4.6.1.2.4	ROJ04	TV02
DESCRIPTION: TIP PURGE LINE CHK (INBD CIV)							
TIP-V-7	M604 G13	D AD	SO EX 0.375	C FAI NO	V EX 7.4.6.3.5.2		N10 TV02
DESCRIPTION: TIP LINE SHEAR-TYPE ISO VLV (2ND OTBD CIV)							
TIP-V-8	M604 G13	D AD	SO EX 0.375	C FAI NO	V EX 7.4.6.3.5.2		N10 TV02
DESCRIPTION: TIP LINE SHEAR-TYPE ISO VLV (2ND OTBD CIV)							
TIP-V-9	M604 H12	D AD	SO EX 0.375	C FAI NO	V EX 7.4.6.3.5.2		N10 TV02
DESCRIPTION: TIP LINE SHEAR-TYPE ISO VLV (2ND OTBD CIV)							
TIP-V-10	M604 H12	D AD	SO EX 0.375	C FAI NO	V EX 7.4.6.3.5.2		N10 TV02
DESCRIPTION: TIP LINE SHEAR-TYPE ISO VLV (2ND OTBD CIV)							
TIP-V-11	M604 H12	D AD	SO EX 0.375	C FAI NO	V EX 7.4.6.3.5.2		N10 TV02
DESCRIPTION: TIP LINE SHEAR-TYPE ISO VLV (2ND OTBD CIV)							
TIP-V-15	M604 G13	2 A	SO SV 1	C FC NO	G 2Y 7.4.0.5.13 HJK Q 7.4.0.5.13 GL 18M 7.4.6.1.2.4		TV01,2
DESCRIPTION: TIP PURGE LINE CHK (OTBD CIV)							

4.4 Inservice Testing Program Notes

The following additional information/methodologies are provided as Notes to the Valve Inservice Testing Program. The Note numbers correspond to the notes listed throughout the valve test tables.

NOTE N01

Only those valves which are required to perform a specific function in shutting down the reactor to the cold shutdown condition, in maintaining the cold shutdown condition, or in mitigating the consequences of an accident are required to be tested per OM Part 10. Using this criteria the following valves are not required to be tested per OM Part 10, but due to their functional importance are included in the valve list at the Owner's discretion.

RCIC-V-30, 45, 65

RCIC-V-65 is verified open only during refueling outages.

RCIC-V-30 will be partial-stroke exercised quarterly and full-stroke exercised during outages at Technical Specification frequency. A relief request is not required for this valve since it is not required to be included in the IST program.

NOTE N02

The valve actuator was installed to facilitate stroke testing of the valve. It is not intended for use in normal system operations and is therefore, exempt from paragraph 4.2.1.4 (stroke-time measurement) and paragraph 4.2.1.6 (operation of fail-safe actuators) requirements.

RCIC-V-66
RFW-V-32A, 32B
CVB-V-1AB, CD, EF, GH, JK, LM, NP, QR, ST
CSP-V-7, 8, 10

NOTE N03

These valves are operated by a programmer with an index wheel. The programmer is activated by logic which trips on low header pressure or on header isolation combined with low header pressure. The programmer rotates one position to deenergize a solenoid and open a nitrogen bottle isolation valve. If the low pressure condition persists, in 30 seconds, the programmer rotates and another solenoid is deenergized to open another nitrogen bottle isolation valve. The index wheel is equipped with a window through which a number 1 through 20 may be seen. Each number corresponds to the number of solenoids deenergized in its rotational sequence which corresponds directly with the number of valves that are open.

It is the Owner's position that this is not a "Valve Position Indicator" as used in paragraph 4.1. At best it is an indicator of whether or not specific solenoids should be energized or not.

CIA-SPV-1A through 15A
CIA-SPV-1B through 19B

NOTE N04

The following valves do not serve as ASME over pressure protection devices and as such are outside the scope of OM Part 1.

RCIC-V-111 and RCIC-V-112
RHR-V-209

NOTE N05

The following CRD valves (typical of 185 valves) perform a function important to safety. These valves are non-ASME and as such are not required to be included in the IST program by 10CFR50.55a or by GL 89-04. These valves are being tested per WNP-2 Technical Specifications referenced against each valve. This alternate testing complies with position 7 of GL 89-04.

Valve	Category	Function	Tested Per Technical Specifications
CRD-V-114	C	Check Valve to SCRAM Header	4.1.3.2 (a, b, & c)
CRD-V-115	C	Charging Water Check Valve	4.1.3.5.b.2
CRD-V-126	B	Drive Water AOV	4.1.3.2(a, b, & c)
CRD-V-127	B	Withdraw AOV	4.1.3.2 (a, b, & c)
CRD-V-138	C	Cooling Water Check Valve	4.1.3.1.2.a

NOTE N06

The following emergency diesel generator air start system valves perform a function important to safety. These valves are non-ASME and as such are not required to meet the testing requirements of OM Part 10. These valves will be tested during DG Air Starter Motor Testing as part of post maintenance testing and prior to return to service. Note that two valves will be tested at a time but a failure of a single valve would be detected.

Valve

DSA-SPV-5A1/2
DSA-SPV-5A1/4
DSA-SPV-5A2/2
DSA-SPV-5A2/4
DSA-SPV-5B1/2
DSA-SPV-5B1/4
DSA-SPV-5B2/2
DSA-SPV-5B2/4
DSA-SPV-5C1/1
DSA-SPV-5C1/2

NOTE N07

Affected Valves	Class	Cat.	Function	System(s)
CAC-V-3A, B	2	B	CAC-MS-1A Drain Valve (skid mounted)	Containment Atmosphere Control
CAC-TCV-4A, B	3	B	SW to CAC-EV-1A temperature control valve (skid mounted)	

Each valve is skid mounted and is provided with an electro-hydraulic actuator that is normally de-energized unless the CAC skid is energized. These valves are not provided with control switches with which to cycle the valve. CAC-V-3A (B) opens during skid operation when a high level in CAC-MS-1A (B) is detected by CAC-LS-1A (B). CAC-TCV-4A (B) controls flow to CAC-EV-1A (B) so as to control system temperature at its setpoint value. Technical Specification 4.6.6.1 specifies skid operability surveillance requirements at a 18 month frequency. These valves will be tested at least once every 18 months during a system outage coincident with testing of the associated instrument loop. The valves will be exercised and verified fully open and fully closed as required by OM Part 10. No problems have been identified with these valves as a result of periodic inservice testing since the start of commercial operation to the time of this writing (11/96)

NOTE N08

The following rupture discs are on portions of systems which do not perform a required function in shutting down a reactor to the cold shutdown condition, maintaining the cold shutdown condition, or mitigating the consequences of an accident. As such, they are outside the scope of testing per OM Part 1.

CCH-RD-1A, 1B
CCH-RD-2A, 2B
RCIC-RD-1, 2

NOTE N09

The following rupture discs are not designed as pressure relief devices required for overpressure protection, and as such are excluded from the requirements of OM Part 1 per paragraph 1.1.2(b).

CAC-RD-1A, 1B

NOTE N10

The following shear explosive valves are exempt from Type C leakage testing per FSAR Table 6.2-16, Note 29, because they have explosive squibs and require testing to destruction.

TIP-V-7, TIP-V-8, TIP-V-9, TIP-V-10 and TIP-V-11

4.5 Technical Positions

Technical Position - TV01

Title

Limiting Values of Full-stroke Times for Power Operated Valves

Issue Discussion

OM Part 10 requires that an initial reference value be established for each valve or group of valves. The acceptance criteria is a percentage ± of the reference value. Part 10 recognizes that operating characteristics of electric motor operated valves are more consistent than those of other power operated valves.

Part 10 specifies stroke time acceptance criteria in paragraph 4.2.1.8. The limiting values of stroke time testing are to be established by the Owner according to paragraph 4.2.1.4.

Position

The following criteria shall be used to establish Acceptance Criteria and Limiting Value ranges for power operated valves:

Type	Acceptance Criteria (Alert)	Limiting Value (Action)
MOVs ≤ 10 seconds	± .25 Tref*	1.50 Tref**
MOVs > 10 seconds	± .15 Tref	1.30 Tref
SOVs/AOVs/HOVs ≤ 10 seconds	± .50 Tref	2.00 Tref
SOVs/AOVs/HOVs > 10 seconds	± .25 Tref	1.50 Tref

* or ± a 1.0 second change in stroke time, whichever is greater when compared to the Reference value

** or ± a 1.0 second change in stroke time, whichever is greater when compared to the Alert Hi value

Technical Position -- **TV01** (Continued)

Notes:

1) T_{ref} is the reference or average stroke value in seconds for an individual valve or valve grouping.

2) Standard rounding techniques are used when rounding measured stroke times during valve stroke timing (e.g. 10.49 rounds to 10 and 10.5 is rounded to 11 seconds). Measured stroke times are rounded to the nearest second when comparing measured values to Acceptance Criteria and Limiting value.

3) When establishing new reference values by taking the average of previous values, use measured values without rounding off. The new reference values will then be rounded off to the nearest second.

4) The Acceptance Criteria and the Limiting Value will be rounded off to the nearest second.

5) When reference stroke values or average stroke values are affected by other parameters or conditions, then these parameters or conditions must be analyzed and the above factors adjusted.

6) If the above calculated values exceed a TS (Technical Specification), FSAR value or other design basis limit, then the TS, FSAR or design basis value must be used for the limiting value of full-stroke.

7) Valves with stroke times of less than 2 seconds are exempt from the above if the maximum limiting valve stroke time is set at 2 seconds (Part 10, paragraph 4.2.1.8 (e)).

   Standard rounding techniques will be used when rounding off readings during stroke timing (e.g. 2.49 seconds rounds to 2 and 2.5 rounds to 3 seconds). Specific valves with normal stroke times less than 2 seconds will be identified as "Fast Acting Valves" and will be considered acceptable if the measured stroke time (rounded to the nearest second) remains at 2 seconds or less. Corrective action will be required when a "Fast Acting Valve" stroke time is 3 seconds or greater.

   This criteria meets the guidelines of Part 10 and Position 6 of GL 89-04.

8) When valve stroke time measuring techniques provide more precise measurements, rounding technique will not be used.

Technical Position -- TV02

Title

Seat Leakage Testing per 10CFR50 Appendix J

Issue Discussion

Category A containment isolation valves are to be tested as required by OM Part 10 Paragraph 4.2.2.2 in accordance with 10CFR50, Appendix J. Containment isolation valves which also provide a reactor coolant system pressure isolation function (PIVs) shall additionally be tested in accordance with paragraph 4.2.2.3.

Position

Category A containment isolation valves are tested in accordance with 10CFR50, Appendix J as approved by the NRC in WNP-2 Safety Evaluation Reports. Certain exceptions to Appendix J testing requirements are detailed in the WNP-2 FSAR and Technical Specifications where the associated basis is documented.

WNP-2 will specify a permissible leakage limit based on valve type, size and equipment history for those valves being Type C leak tested. Valves or valve combination exceeding their leakage limits will be declared inoperable and repaired or replaced. During refueling outages valves exceeding specified leakage limits are declared inoperable for containment isolation function but considered operable for system operability during Mode 4 and 5. Valves are repaired or replaced before plant startup.

All PIVs are tested per Technical Specification 4.4.3.2.2. These valves are reactor coolant pressure boundary pressure isolation valves and are hydraulically leak tested at 950 (± 10) psig during refueling outages in lieu of a type C test. Maximum allowable leakage rate for these valves is specified in Technical Specification 3.4.3.2.e which is much more restrictive than the permissible leakage allowed by paragraph 4.2.2.3(e). Function maximum pressure differential pressures for these valves under most conservative conditions will result in insignificant (about 4%) adjustment to observed leakage per paragraph 4.2.2.3(b)(4) requirements. Since Technical Specification limits are more conservative than the Code, no adjustment will be applied to observed leakages for PIVs.

Technical Position -- TV03

Title

Inservice Performance Testing of Pressure Relief Valves

Issue Discussion

OM Part 10 requires testing of safety and relief valves in accordance with OM Part 1.

Position

Additional clarifications have been provided in ASME OMc Code-1994, Appendix I and certain inquiries to the OM Code committee. NUREG-1482, Section 4.3.9, allows use of certain clarifications provided in the 1994 addenda and can be used without further NRC approval. Other clarifications may also be used without further NRC approval if it is determined to be clarification only and is documented in the IST program or test procedures. The following clarifications will be used when implementing testing requirements for safety and relief valves.

- Replacement valve (Para. 2.1(c) and (d)): New valves not previously used at WNP-2.
- Valve group: valves of the same manufacturer, type, system application and service media.
- As-found set-pressure means first test actuation.
- Spare class 1 Main Steam relief valves, which have been set-pressure tested after repair and refurbishment prior to December 13, 1994, in accordance with the Code in effect for 1st 10 year interval, will not be retested prior to installation in the plant and will be considered operable based on this previous test.
- During disposition after testing, maintenance or repair (Para. 3.4), valves and accessories that do not comply with their respective acceptance criteria, whether the problem is associated with the component, the system, or associated equipment, shall be evaluated to determine the ability of the valve to perform its intended function until the next testing interval or maintenance opportunity. Corrective actions shall be taken, as appropriate, to ensure valve operability.
- Testing of valve accessories is not dependent on operating conditions and will be performed at normal ambient condition (paragraph 1.1.2(a)).

Technical Position -- TV03 (Continued)

- Additional valves from the same valve group will be tested only if the as-found set pressure exceeds the greater of either the +/- tolerance limit of the owner established set-pressure acceptance criteria or +/- 3% of valve nameplate set-pressure.

- Set pressure adjustment is an acceptable corrective action. If the out-of-specification condition can be corrected by adjusting the setpoint, a Code repair or replacement activity is unwarranted (NUREG-1482, Section 4.3.6).

- Return to service will mean resumption of electric power generation.

- Test sequence in paragraph 3.3.1.1 is not applicable for refurbishments.

- Reduced system pressure for valve actuation includes zero pressure (paragraph 3.4.1.1(d))

- "Code tolerance" for set pressure testing implies Owner's acceptance criteria.

- Verification of thermal equilibrium is not required for valves which are tested at ambient temperature using a test medium at ambient temperature (SE dated 11/27/95, TER Section 3.5).

- For set-pressure testing, the volume of the accumulator drum and the pressure source flow rate shall be sufficient to determine the valve set-pressure. Valves may have their lifts restricted during set-pressure testing.

- Each installed class 1 pressure relief valve shall be as-found tested at least once every 5 years. The test interval for any installed valve shall not exceed 5 years. When as-found test requirements have been satisfied for a given 24 month or 5 year test interval, additional valves removed for maintenance do not require as-found set-pressure testing prior to disassembly for maintenance.

Technical Position -- TV04

DELETED

Primary Containment Vacuum Relief Valves (Valves CSP-V-5, 6, 7, 8, 9, 10) are being tested in accordance with OM Part 1.

Technical Position -- TV05

Title

Inservice Testing of Vacuum Relief Valves, suppression chamber - drywell vacuum breakers (CVB Valves)

Issue Discussion

Para. 3.3.2.3 of OM Part 1 specifies the following testing requirements for vacuum relief valves

(a) The valves shall be actuated to verify open and close capability, set pressure, and performance of any pressure and position sensing accessories.

(b) Compliance with the Owner's seat tightness criteria.

Part 1 does not specify any test frequency for class 2 and 3 vacuum relief valves. NUREG-1482 recommends using the test frequency specified for class 2 and 3 pressure relief valves in para. 1.3.4.1. Para. 1.3.4.1(b) requires testing of these valves once every 10 years, with a minimum of 20% of the valves tested within any 48 months.

Position

At WNP-2 these vacuum relief valves are operability tested in accordance with Technical Specification 4.6.4.1. Technical Specification testing detailed below meets or exceeds the testing requirements of OM Part 1 and as such these valves will continue to be tested in accordance with the WNP-2 Technical Specifications. Leakage testing of these valves is performed by conducting a drywell-to-suppression chamber bypass leak test (Relief Request RV01). These testing requirements will also apply to replacement and refurbished valves, as applicable.

Each suppression chamber - drywell vacuum breaker shall be:

a. Verified closed at least once per 7 days (regardless of operability).

b. Demonstrated OPERABLE:

    1. At least once per 31 days and within 2 hours after any discharge of steam to the suppression chamber from the safety/relief valves, by cycling each vacuum breaker through at least one complete cycle of full travel.

Technical Position -- **TV05** (Continued)

2. At least once per 31 days by verifying both position indicators OPERABLE by observing expected valve movement during the cycling test.

3. At least once per 18 months by;

   a) Verifying the opening setpoint, from the closed position, to be less than or equal to 0.5 psid, and

   b) Verifying both position indicators OPERABLE by performance of CHANNEL CALIBRATION.

Technical Position -- TV06

Title

Inservice Testing of Vacuum Relief Valves, Main Steam vacuum breaker valves (MS 37 and 38 series)

Issue Discussion

Para. 3.3.2.3 of OM Part 1 specifies the following testing requirements for vacuum relief valves

(a) The valves shall be actuated to verify open and close capability, set pressure, and performance of any pressure and position sensing accessories.

(b) Compliance with the Owner's seat tightness criteria.

Part 1 does not specify any test frequency for class 2 and 3 vacuum relief valves. NUREG-1482 recommends using the test frequency specified for class 2 and 3 pressure relief valves in para. 1.3.4.1. Para. 1.3.4.1(b) requires testing of these valves once every 10 years, with a minimum of 20% of the valves tested within any 48 months.

Position

The vacuum breaker system allows MSRV downcomer pressure to equalize with drywell pressure as downcomer steam is condensed in the suppression pool. These valves have no defined leakage (seat tightness) criteria for their specified normal set pressure (seating force) range. Short duration steam leakage into the drywell is not desirable, but such leakage does not pose a challenge to containment function or integrity. These valves also have no pressure and position sensing accessories. Thus, operability test requirements are to verify valve open and close capability and set pressure determination. The safety function of these valves is to open only. This testing is performed every refueling outage (ROJ07). These testing requirements exceed the testing requirements of OM Part 1. These testing requirements will also apply to replacement and refurbished valves, as applicable.

4.6 Cold Shutdown Justifications

OM Part 10 paragraph 4.2.1.1 states that all Active category A and B valves shall be tested nominally every 3 months, except as provided by paras. 4.2.1.2, 4.2.1.5, and 4.2.1.7.

OM Part 10 paragraph 4.3.2.1 states that all check valves shall be exercised nominally every 3 months, except as provided by paras. 4.3.2.2, 4.3.2.3, 4.3.2.4 and 4.3.2.5.

Paragraph 4.2.1.2 and paragraph 4.3.2.2 state that valves shall be full-stroke tested or exercised during plant operation to the position(s) required to fulfill its function(s). If full-stroke exercising during plant operation is not practicable, it may be limited to part-stroke during plant operation and full-stroke during cold shutdowns. Valves full-stroke exercised at cold shutdowns shall be exercised during each cold shutdown, except as given below per paragraph 4.2.1.2(g) and paragraph 4.3.2.2(g).

Valve exercising during cold shutdown 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 hour provided all valves required to be tested during cold shutdown will be tested prior to plant startup. However, it is not the intent of the Code to keep the plant in cold shutdown in order to complete cold shutdown testing. Such exercising is not required if the time period since the previous full-stroke exercise is less than 92 days.

NUREG-1482 Section 3.1.1.1 further clarifies cold shutdown testing. All valves tested during cold shutdown outages shall also be tested before startup from refueling outages, unless testing has been completed within the previous 92 days. If an outage lasts beyond 92 days, all cold shutdown testing shall be completed within the last 92 days of the shutdown.

Cold shutdown valves are tested in groups by several different procedures. The decision whether to start cold shutdown testing on any particular procedure will depend on the estimated length of the cold shutdown period; system outages/conditions; time interval from the last cold shutdown testing; or other particular conditions.

The following valves are identified as being impracticable to exercise during plant operations and will therefore be full-stroke exercised during cold shutdowns. All of these valves will be tested during each refueling outage. The valves are identified by unique valve numbers and Code identification as to Code Class and Valve Category.

Cold Shutdown Justification -- CSJ01

Description

It is not practicable to full or partial stroke exercise open the following RHR valves during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
RHR-V-23	1	A	RHR supply to vessel head spray	Residual Heat Removal
RHR-V-53A, B	1	A	Loop A, B outboard isolation valve for shutdown cooling return	

Justification

Valves are interlocked with reactor coolant system pressure such that valves automatically close to protect the RHR pump discharge line from elevated reactor coolant system pressures. Opening circuit is disabled by the same pressure interlocks. Overpressurization of the discharge line may cause the loss of shutdown RHR cooling capability. Interlocks cannot be bypassed with normal control circuits.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown.

Cold Shutdown Justification -- **CSJ02**

Description

It is not practicable to full or partial stroke exercise open the following RCC valves during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
RCC-V-5	2	A	Isolation valves for reactor closed cooling water lines penetrating the primary containment.	Reactor Closed Cooling Water
RCC-V-21	2	A		
RCC-V-40	2	A		
RCC-V-104	2	A		

Justification

Closure of any isolation valve will interrupt cooling water flow to the Reactor Recirculation (RRC) Pump seals, to the RRC pump motor coolers and to the Drywell Air Coolers possibly causing failure of this equipment.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown

Cold Shutdown Justification -- **CSJ03**

Description

It is not practicable to full or partial stroke exercise the following RFW valves during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
RFW-V-10A, B	1	AC	Reactor feedwater inboard check valves	Reactor Feedwater
RFW-V-32A, B	1	AC	Reactor feedwater outboard check valves	
RFW-V-65A, B	1	A	Reactor feedwater isolation valves	

Justification

1) Closure of either Category A valve (RFW-V-65A, 65B) would result in a loss of flow to the reactor vessel and cause a significant reduction of reactor coolant inventory.

2) Category AC valves are held open by feedwater flow and cannot be closed during power operations.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown

Cold Shutdown Justification -- **CSJ04**

<u>DELETED</u>

BDC 94-0057-0A removed the hydraulic lines to the actuator of flow control valves RRC-V-60A and 60B including the HY valves as part of the design modification.

Cold Shutdown Justification -- CSJ05

Description

It is not practicable to full or partial stroke exercise the following CIA valves during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
CIA-V-39A, B	3	B	These valves cross connect the normal nitrogen supply for the Main Steam Isolation Valves and Main Steam Relief Valves (including the 7 ADS Valves) accumulators to the backup nitrogen supply for the 7 ADS valves.	Containment Instrument Air
CIA-V-41A, B	3	C		

Justification

Testing these valves requires securing the backup nitrogen supply to the ADS valve accumulators. This is operationally undesirable to do while the plant is operating.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown

Cold Shutdown Justification -- CSJ06

Description

It is not practicable to full or partial stroke exercise the following RRC valves during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
RRC-V-13A, B	2	AC	Inboard and outboard isolation valves for the recirculation pumps seal purge line	Reactor Recirculation
RRC-V-16A, B	2	A		

Justification

1) Closure of Category A valves (RCC-V-16A, B) would terminate seal purge water flow to recirculation Pump 1A or 1B, respectively. Loss of purge flow may result in excessive seal wear and possibly failure of the seal.

2) Category AC valves (RRC-V-13A, B) are held open by purge water flow and cannot be closed during power operations.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown

Cold Shutdown Justification -- CSJ07

Description

It is not practicable to full or partial stroke exercise open the following RCIC valve during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
RCIC-V-13	1	A	RCIC pump discharge isolation, and containment isolation, and reactor coolant pressure isolation valve.	Reactor Core Isolation Cooling

Justification

Opening this valve during normal power operations increases the possibility of an intersystem LOCA.

Alternative Frequency

This valve will be full stroke exercised during cold shutdown

Cold Shutdown Justification -- CSJ08

Description

It is not practicable to full or partial stroke exercise open the following LPCS or RHR valves during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
LPCS-V-5	1	A	LPCS discharge isolation to the reactor vessel.	Low Pressure Core Spray
RHR-V-42A, B, C	1	A	RHR discharge isolation to the reactor vessel.	Residual Heat Removal

Justification

The risk of injuring plant personnel, overpressurizing the associated pump and piping, or causing an intersystem LOCA makes the opening of these valves imprudent during power operations.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown

Cold Shutdown Justification -- CSJ09

Description

It is not practicable to full or partial stroke exercise open the following CIA valves during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
CIA-SPV-1B to 19B	3	B	Emergency nitrogen supply isolation valve.	Containment Instrument Air
CIA-SPV-1A to 15A	3	B		
CIA-V-52A to 66A	3	C	Emergency nitrogen supply check valve.	
CIA-V-52B to 70B	3	C		
CIA-V-103A, B	3	C	Remote Emergency nitrogen supply check valve.	
CIA-V-104A, B	3	B	Remote Emergency nitrogen supply isolation valve.	

Justification

Valve testing requires overriding valve control circuitry, isolating or expending emergency nitrogen supply tanks, and venting the system. This would inhibit the system from performing its designed safety function in case of an emergency.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown

Cold Shutdown Justification -- CSJ10

Description

It is not practicable to full or partial stroke exercise the following RWCU valves during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
RWCU-V-1	1	A	Containment Iso., RWCU Pump Suction Iso.	Reactor Water Cleanup
RWCU-V-4	1	A	Containment Iso., RWCU Pump Suction Iso.	
RWCU-V-40	1	A	Containment Iso., RWCU Pump Discharge Iso.	

Justification

Testing these valves during power operations leads to overheating of the pumps, significantly increasing the potential for equipment damage.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown

Cold Shutdown Justification -- CSJ11

Description

It is not practicable to full stroke exercise the Main Steam Isolation Valves (MSIVs) during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
MS-V-22A	1	A	Main Steam Line A Inboard Isolation Valve	Main Steam
MS-V-22B	1	A	Main Steam Line B Inboard Isolation Valve	
MS-V-22C	1	A	Main Steam Line C Inboard Isolation Valve	
MS-V-22D	1	A	Main Steam Line D Inboard Isolation Valve	
MS-V-28A	1	A	Main Steam Line A Outboard Isolation Valve	
MS-V-28B	1	A	Main Steam Line B Outboard Isolation Valve	
MS-V-28C	1	A	Main Steam Line C Outboard Isolation Valve	
MS-V-28D	1	A	Main Steam Line D Outboard Isolation Valve	

Justification

Full stroke testing each MSIV during normal reactor operation requires isolating the respective main steam line. These isolations are conducted with the plant at reduced power, however, the evolution still results in primary system pressure spikes, reactor power fluctuations, and increased flow in the unisolated steam lines. Each of these reactor pressure transients or power excursions has the potential to induce an automatic SCRAM and actuation of the safety relief valves. The risks of challenging these protective systems during power operations is not considered prudent, and therefore the alternative cold shutdown testing frequency is warranted.

The implementation of the alternate frequency will contribute to the reduction of the relief valve challenge and failure rate as specifically recommended in NUREG-0626.

Alternative Frequency

These valves will be full stroke exercised and stroke timed during cold shutdown conditions. WNP-2 will continue to perform partial MSIV stroke testing (in accordance with PPM 7.4.3.1.1.9) on a quarterly frequency. The partial stroke test demonstrates the functional capability of each MSIV and the associated RPS logic.

Cold Shutdown Justification -- CSJ12

Description

It is not practicable to full or partial stroke exercise open the following MSLC valves during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
MSLC-V-2A, B, C, D	1	B	Prevent Radioactive Material Release	Main Steam Leakage Control
MSLC-V-3A, B, C, D	1	A	CIV, Prevent Radioactive Material Release	
MSLC-V-4, 5, 9, 10	2	B	Prevent Radioactive Material Release	

Justification

Testing the valves quarterly during normal plant operation subjects the valves to operation with 1020 psi across the seat. While the valves and operators are designed for the 1020 psi differential, this results in excessive wear and tear on the valves that may affect their performance when required to operate to allow the MSLC System to operate or maintain isolation if the inboard MSIV fails to close.

The valves (MSLC-V-2A/B/C/D and MSLC-V-3A/B/C/D) perform two functions: (1) isolation during normal plant operation and in case of failure of the inboard MSIV to close adequately for the MSLC system to operate and (2) open to allow the inboard MSLC to operate. The valves (MSLC-V-4/5/9/10) perform two functions: (1) isolation during normal plant operation and in case of failure of the outboard MSIV to close adequately for the MSLC system to operate and (2) open to allow the outboard MSLC to operate. Since the valves are normally in the closed position during plant operation and will be required to open or close with only 35 psi across them in case of an accident, the potential of having to shut the plant down if they don't seat after a test, and subjecting the valve to severe duty compared to what it normally operates against, is not considered prudent.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown

Cold Shutdown Justification -- CSJ13

Description

It is not practicable to full or partial stroke exercise the following MS valve during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
MS-V-146	2	B	Isolation Valve, Main Steam Supply to Auxiliary Equipment	Main Steam

Justification

This valve is normally open at power. Closing this valve at power would isolate steam from the following equipment.

1) Reactor Feed Water Pumps and result in loss of RPV level and a reactor scram,

2) Main Steam Bypass Valves and result in equipment inoperability,

3) Main Steam Air Ejectors and result in loss of Main Condenser vacuum.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown

Cold Shutdown Justification -- CSJ14

Description

It is not practicable to full or partial stroke exercise open the following MS valves during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
MS-V-67A, B, C, D	1	A	Outboard MSIV drain valve (MS-V-28A, B, C, D)	Main Steam

Justification

These valves are normally closed during power operation

1) Failure of these valves in a non-conservative position (open) during the surveillance testing at normal plant operation could result in an unacceptable iodine release in the event of an accident, e.g. 26" main steam line break.

2) Failure to close during surveillance testing could result in a loss of containment integrity, because the inboard MSIV is open during normal plant operation.

3) Cycling of these valves during normal plant operation could increase the fatigue usage of the superpipe between the MSIV and the 67 valve above acceptable limits, i.e. Usage > 0.1.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown

Cold Shutdown Justification -- **CSJ15**

Description

It is not practicable to full or partial stroke exercise open the following RHR valves during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
RHR-V-16A, B	2	A	Drywell Spray Header (2nd outboard CIV)	Residual Heat Removal
RHR-V-17A, B	2	A	Drywell Spray Header (1st outboard CIV)	

Justification

These valves are normally closed during power operation

1) Valve exercising during power operation increases the possibility that a containment boundary valve will not be fully closed, thus resulting in loss of containment integrity.

2) These valves are located in relatively high radiation areas and require operators to attach test hoses to supplement the testing of these valves. Reduced exercising frequency is justified by ALARA.

3) Each time these valves are exercised, there is a risk of spraying/wetting down safety related equipment in the drywell (Ref. OER 82083F-INPO SER 41-85, Containment Spraying Events, OER 89040I-7, INPO RSEN 91-01, Recurring Significant Events).

4) During exercising of outboard valves, piping between the valves is filled and pressurized. Inadequate filling of piping before exercising the outboard valve can result in water hammer damage to the RHR system.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown

Cold Shutdown Justification -- **CSJ16**

Description

It is not practicable to full or partial stroke exercise open the following Main Steam valves during normal plant operation.

Affected Valves	Class	Cat.	Function	System(s)
MS-V-16	1	A	Containment Isolation	Main Steam
MS-V-19	1	A	Containment Isolation	

Justification

1) These valves are normally closed above 5% power operation

2) Valve exercising during power operation increases the possibility that a containment boundary valve will not be fully closed, thus resulting in loss of containment integrity.

3) Cycling these valves during power operation produces severe thermal cycles and stress on the drain line piping (reference calculation ME-02-94-37). Each thermal cycle is an unnecessary challenge to piping integrity and plant safety overall.

4) Valves are inaccessible during power operation. MS-V-16 is inside primary containment and MS-V-19 is in the steam tunnel.

Alternative Frequency

These valves will be full stroke exercised during cold shutdown

4.7 Refueling Outage Justifications

OM Part 10 paragraph 4.2.1.1 states that all Active category A and B valves shall be tested nominally every 3 months, except as provided by paras. 4.2.1.2, 4.2.1.5, and 4.2.1.7.

OM Part 10 paragraph 4.3.2.1 states that all check valves shall be exercised nominally every 3 months, except as provided by paras. 4.3.2.2, 4.3.2.3, 4.3.2.4 and 4.3.2.5.

Paragraph 4.2.1.2 and paragraph 4.3.2.2 state that valves shall be full-stroke tested or exercised during plant operation to the position(s) required to fulfill its function(s). If full-stroke exercising during plant operation and cold shutdowns is not practicable, it may be limited to part-stroke during cold shutdowns and full-stroke during refueling outages. If exercising is not practicable during plant operation or cold shutdowns, it may be limited to full-stroke during refueling outages.

The following valves are identified as being impractical to exercise during plant operations and cold shutdowns and will therefore be full-stroke exercised during refueling outages. The valves are identified by unique valve numbers and Code identification as to Code Class and Valve Category.

Refueling Outage Justification -- **ROJ01**

Description

It is not practicable to full or partial stroke exercise open the following SLC check valves during normal plant operation or cold shutdown.

Affected Valves	Class	Cat.	Function	System(s)
SLC-V-6	1	C	Standby Liquid Control discharge to reactor vessel	Standby Liquid Control
SLC-V-7	1	AC		

Justification

1) Valves have no operator with which they may be stroked and are located in the primary containment.

2) Exercising the valves require the initiation of the SLC system and full flow injection into the reactor vessel. Initiation of SLC flow involves the discharge of Category D explosively activated valves. This involves destroying the valve and is an impractical evolution to perform during reactor operation or cold shutdowns since it could result in the addition of chemical poison to the reactor vessel. During power operation, the injection of chemical poison would necessitate shutting down the reactor. Poison injection during cold shutdown would require extensive cleanup of the reactor coolant to remove the poison. Furthermore, it would require frequent replacement of the explosive charges in the explosively activated valves, which is costly and burdensome. Paragraph 4.4.1(c) requires replacement of explosive charge every 2 years.

3) NUREG-1482 Section 3.1.1.3 states that valves may be tested during refueling outages if they would otherwise be tested during cold shutdown outages that require the containment to be de-inerted for performance of valve testing.

4) These valves are not frequently cycled and should not experience a high rate of degradation associated with cycling, such as hinge or seating surface wear.

Alternative Frequency

During each refueling outage,

1. One of the Standby Liquid Control system loops, including the associated explosive valve, will be initiated. A flow path to the Reactor Vessel will be verified by pumping demineralized water to the vessel, this verifies valve opening.

2. Valve closure capability for SLC-V-7 will be verified in conjunction with 10CFR50 Appendix J (Type C) testing or by other positive means.

Refueling Outage Justification -- ROJ02

Description

It is not practicable to full or partial stroke exercise open the following CIA valves during normal plant operation or cold shutdown.

Affected Valves	Class	Cat.	Function	System(s)
CIA-V-21	2	AC	Instrument air supply to containment (inside containment)	Containment Instrument Air
CIA-V-31A,B	2	AC	Instrument air supply to ADS valves (inside containment)	
CIA-V-40M,N,P, R,S,U,V	2	AC	Instrument air to ADS Accumulators (inside containment)	
CIA-V-24A,B,C,D	2	AC	Instrument air to Accumulators for inboard MSIVs (inside containment)	
CAS-V-29A,B,C,D	3	AC	Control air to Accumulators for outboard MSIVs (inside steam tunnel)	

Justification

1) NUREG-1482 Section 4.1.4 allows extension of test interval to refueling outage for check valves verified closed by leak testing. [Applies to CIA-V-21, 31A and 31B.]

2) NUREG-1482 Section 3.1.1.3 states that valves may be tested during refueling outages if they would otherwise be tested during cold shutdown outages that require the containment to be de-inerted for performance of valve testing. [Applies to CIA-V-24 series and CIA-V-40 series.]

    a) The CIA-V-24 and CIA-V-40 series check valves are located inside the containment and are inaccessible during power operations and during cold shutdowns when the containment is inerted. There is no way to remotely isolate the valves and observe the pressure decay of the accumulators.

3) There is no local or remote position indication for these check valves. These valves can be verified closed only by performing a leak-rate test. This requires reconfiguring the system, hook-up and disconnection of leak test apparatus. [Applies to all referenced valves.]

Refueling Outage Justification -- **ROJ02** (Continued)

4) Due to system design, no practical method exists to perform this testing during power operations and during cold shutdowns when the containment is inerted. [Applies to all referenced valves.]

   a) The CAS-V-29 series check valves are located in an area inaccessible during power operation, but accessible during cold shutdown conditions with containment inerted. The testing requires disassembly of mechanical connections which challenges the integrity/functionality of the system. The testing also requires the depressurization of the Reactor Building Service Air header. The risk of inducing a system fault due to disassembly and reassembly of system parts is increased with the frequency of occurrence and thus renders this approach impractical for a cold shutdown test frequency. In this case, the increased risk of system malfunction due to testing exceeds the benefit of testing these check valves on a cold shutdown test frequency.

5) Each time an MSIV is exercised, the corresponding accumulator check valve is exercised. This testing effectively demonstrates there is no blockage in the air supply lines to the MSIV, but does not effectively demonstrate check valve closure and hence does not effectively detect a stuck open check valve. [Applies to CIA-V-24 series and CAS-V-29 series.]

<u>Alternative Frequency</u>

During each refueling outage,

1) Pressure decay tests will be performed on the accumulators in order to verify closure of CAS-V-29 series, CIA-V-24 and 40 series check valves and opening ability of CIA-V-21, 31A and 31B.

2) Closure of CIA-V-21, 31A, and 31B will be verified by normal 10CFR50, Appendix J (Type C) testing.

Refueling Outage Justification -- ROJ03

Description

It is not practicable to full or partial stroke exercise open the following RHR valves during normal plant operation or cold shutdown.

Affected Valves	Class	Cat.	Function	System(s)
RHR-V-209	1	AC	Containment isolation and Reactor Coolant System Pressure Boundary and pressure relief for piping between valves RHR-V-8 and 9.	Residual Heat Removal

Justification

1) This check valve is located inside the containment and does not have valve position indication or an operator of any type. It cannot be tested without interrupting RHR shutdown cooling flow. During power operations, access is prohibited. During cold shutdown conditions, RHR cannot be out of service more than 2 hours per an 8 hour interval (per WNP-2 Technical Specification). Additionally, containment will not be de-inerted during all cold shutdowns.

2) This valve is normally closed and is verified to be adequately seated by leak tests during each refueling outage. This valve performs the passive safety functions of containment isolation and reactor coolant system pressure isolation. Its active function of relieving pressure between valves RHR-V-8 and RHR-V-9 is a very unlikely situation and could only occur during time periods where both RHR-V-8 and 9 are shut and containment temperature is significantly above normal (i.e., LOCA condition). The proposed alternate testing avoids extraordinary testing efforts.

3) NUREG-1482 Section 3.1.1.3 states that valves may be tested during refueling outages if they would otherwise be tested during cold shutdown outages that require the containment to be de-inerted for performance of valve testing.

Alternative Frequency

This check valve will be exercised during each refueling outage.

Refueling Outage Justification -- **ROJ04**

Description

It is not practicable to full or partial stroke exercise open the following valves during normal plant operation or cold shutdown.

Affected Valves	Class	Cat.	Function	System(s)
PI-V-X72f/1	2	AC	Containment Isolation	Process Instrumentation
PI-V-X73e/1	2	AC	Containment Isolation	
TIP-V-6	2	AC	Containment Isolation	Traversing Incore Probe

Justification

1) These check valves are located on the discharge of the radiation leak detection monitors and on the purge system for the TIP. These containment isolation valves are located inside the containment and are inaccessible during power operation and during cold shutdowns when the containment is inerted. Therefore, it is impractical to test these check valves quarterly during power operations or during cold shutdowns when containment remains inerted.

2) NUREG-1482 Section 3.1.1.3 states that valves may be tested during refueling outages if they would otherwise be tested during cold shutdown outages that require the containment to be de-inerted for performance of valve testing.

Alternative Frequency

These valves will be full stroke exercised during each refueling outage.

Refueling Outage Justification -- ROJ05

Description

It is not practicable to full or partial stroke exercise open the following MS relief valves during normal plant operation or cold shutdown.

Affected Valves	Class	Cat.	Function	System(s)
MS-RV-3D, 4A, 4B, 4C, 4D, 5B, 5C	1	BC	These valves form the Auto-Depressurization System and, as such, function to relieve reactor vessel pressure to the extent that the low pressure coolant injection system could be brought on line and perform its safety function.	Main Steam

Justification

1) It is impractical to test these ADS valves quarterly for their Category B power-operated function during power operation as this would result in the release of steam from the main steam lines causing power fluctuations and possibly resulting in a reactor shutdown. Exercising these valves during cold shutdowns would result in excessive wear on valve seating surfaces and an increased number of challenges to these valves, which is undesirable.

2) In NUREG-1482 Section 4.3.4, the NRC staff recommends reducing the number of challenges to the dual function ADS valves in order to reduce their failure rate, because failure in the open position is equivalent to a small break LOCA. Therefore, the period between refueling outages is a reasonable alternate frequency for verifying the category B function of theses valves.

Alternative Frequency

1) Category B function of these valves will be verified during each refueling outage in accordance with WNP-2 Technical Specification.

2) Category C function of these valves will be performed in accordance with OM Part 1.

Refueling Outage Justification -- **ROJ06**

Description

It is not practicable to full or partial stroke exercise the following excess flow check valves during normal plant operation or cold shutdown.

Affected Valves	Class	Cat.	Function	System(s)
PI-EFC-X18A, B, C, D	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X29B	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X29F	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X30A, F	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X37E, F	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X38A, B, C, D, E, F	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X39A, B, D, E	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X40C, D	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X40E, F	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X41C, D	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X41E, F	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X42A, B	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X42C, F	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X44A Series (Typ 12)	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X44B Series (Typ 12)	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X61A, B	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X61C	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X62B	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X62C, D	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X66	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X67	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X69A, B, E	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X69F	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X70A, B, C, D, E, F	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X71A, B, C, D, E, F	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X72A	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X73A	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X74A, B, E, F	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X75A, B, C, D, E, F	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X78A	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X78B, C, F	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X79A, B	1	AC	Containment Isolation	Process Instrumentation

Affected Valves	Class	Cat.	Function	System(s)
PI-EFC-X82B	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X84A	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X86A, B	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X87A, B	2	AC	Containment Isolation	Process Instrumentation
PI-EFC-X106	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X107	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X108	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X109	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X110	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X111	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X112	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X113	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X114	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X115	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X119	2	AC	Containment Isolation	Process Instrumentation

Justification

1) These are excess flow check valves on instrument sensing lines which penetrate the primary containment. Their function is to close in case of excessive flow to perform a containment isolation function. The testing specified by WNP-2 Technical Specifications is a modified leak test which is performed once each refueling outage. Performance of valve closure verification on a quarterly or cold shutdown basis is impractical since this would isolate various instruments and could result in loss of control signals to vital instrumentation and subsequent unnecessary initiation of automatic safety systems or lack of initiation when required.

2) It is not possible to test these valves at normal operating conditions because of the thermal stresses this places on the containment penetrations. Calculations have shown that repeated testing with such thermal induced stresses could lead to failure of the penetration.

Alternative Frequency

These valves will be exercised during each refueling outage per WNP-2 Technical Specifications.

Refueling Outage Justification -- ROJ07

Description

It is not practicable to full or partial stroke exercise open the following MS valves during normal plant operation or cold shutdown.

Affected Valves	Class	Cat.	Function	System(s)
MS-V-37 Series (Typ 18)	3	C	Open: To break vacuum in the downcomers of the main steam relief valves. Close: To direct steam to the quenchers in the wetwell.	Main Steam
MS-V-38 Series (Typ 18)	3	C		

Justification

1) The vacuum breaker system allows MSRV downcomer pressure to equalize with drywell pressure as downcomer steam is condensed in the suppression pool. The 36 normally closed check valves (2 on each downcomer) are not equipped with an external means of actuation for exercising the valve. Testing these valves is impractical with the reactor operating or the containment inserted as this testing requires personnel entry into the containment building.

2) NUREG-1482 Section 3.1.1.3 states that valves may be tested during refueling outages if they would otherwise be tested during cold shutdown outages that require the containment to be de-inerted for performance of valve testing.

Alternative Frequency

These valves will be exercised when the reactor is shutdown and the containment de-inerted during each refueling outage. Breakaway force required to move the valve disc off its seat is measured. The valves are also manually operated and visually verified to open and reseat. The safety function of these valves is to open only.

Refueling Outage Justification -- ROJ08

Description

It is not practicable to full or partial stroke exercise open the following check valves during normal plant operation or cold shutdown.

Affected Valves	Class	Cat.	Function	System(s)
RCIC-V-66	1	AC	RCIC discharge to the reactor vessel head	Reactor Core Isolation Cooling
LPCS-V-6	1	AC	LPCS discharge to the reactor vessel	Low Pressure Core Spray
HPCS-V-5	1	AC	HPCS Discharge to the reactor vessel	High Pressure Core Spray
RHR-V-41A, B, C	1	AC	RHR Loop A, B, C discharge to the reactor vessel	Residual Heat Removal
RHR-V-50A, B	1	AC	RHR Loop A, B discharge to the recirculating pump discharge	Residual Heat Removal

Justification

1) These valves function as Reactor Coolant System Pressure Boundary Isolation valves. This requires the check valve disc to properly seat and achieve a relatively leak-tight seal. Technical Specifications require seat leakage testing of these valves each refueling outage. Seat leakage must be less than 1 gpm at a differential pressure of 950 psig. Seat leakage as a method of showing valve closure testing is labor and dose intensive and as such impractical to perform during each cold shutdown and should be tested during refueling outages only.

2) These check valves have exhibited excellent leak-tight integrity since commercial operation.

3) Due to lack of reliable position indications, the other positive means of verifying these valves fully open is by passing the required accident condition flow through these valves. This is an acceptable full-stroke per position 1 of Attachment 1 of Generic Letter 89-04.

4) With flow rates on the order of 7500 gpm (ECCS), vessel level rises at a rate of 38 inches per minute. Operating ranges for RPV level provides a narrow band in which to work, making any such injection a challenge to plant Technical Specification limits and can result in flooding of main steam lines. Full flow testing of these valves should be performed only during refueling outages, when such testing can occur during refueling cavity flood-up.

Refueling Outage Justification -- **ROJ08** (Continued)

5) Because of the differences in water chemistry, frequent injections of Suppression Pool water into the RPV is undesirable and can lead to additional crud accumulations in the crevices of piping nozzles, etc., thus resulting in higher dose rates in the containment.

6) The subject valves have been inspected internally and have exhibited no signs of wear which could affect the ability of the valves to stroke full open or closed. These check valves do not exhibit signs of back-seat tapping or hinge pin wear, nor have they shown indication that internal fastener retention methods are inadequate.

7) During normal plant operation, these valves are normally closed and do not open.

8) NUREG-1482 Section 3.1.1.3 states that valves may be tested during refueling outages if they would otherwise be tested during cold shutdown outages that require the containment to be de-inerted for performance of valve testing.

9) NUREG-1482 Section 4.1.4 allows extension of the test interval to refueling outage for check valves verified closed by leak testing.

Alternative Frequency

During each refueling outage,

1) Closure ability of these valves shall be demonstrated by leakage test as required by Technical Specifications.

2) Opening ability of these valves shall be demonstrated by passing the maximum required accident condition flow through these valves.

Refueling Outage Justification -- ROJ09

Description

It is not practicable to full or partial stroke exercise open the following CSP valves during normal plant operation or cold shutdown.

Affected Valves	Class	Cat.	Function	System(s)
CSP-V-65	2	AC	Close to provide isolation for safety related control air to containment isolation valves CSP-V-5, 6 and 9.	Containment Supply and Purge
CSP-V-70 through CSP-V-79	2	C	Open to provide safety related control air to containment isolation valves CSP-V-5, 6 and 9.	

Justification

1) There is no local or remote position indication for these check valves. Testing these valves requires partial depressurization of the supply header. Although, only partial depressurization is expected, full depressurization could easily occur due to leaky boundary valves, operator error, or check valve failure. Depressurization of the supply header to CSP-V-5, 6 and 9 will cause these containment isolation valves to fail open.

2) Due to system design, no practical method exists to perform this testing during power operations or during cold shutdowns. CSP-V-65 can only be verified closed by performing a special pressure decay leak-rate test. This requires reconfiguring the system and hook-up and disconnection of leak test apparatus. This requires the system to be breached and a portion depressurized.

3) To verify CSP-V-70 through 79 open, flow from each of the 10 Nitrogen bottles and thus through each of these check valves must be demonstrated. This requires the system to be breached and the safety related supply header depressurized and would be performed in conjunction with the pressure decay test to verify closure of CSP-V-65. This testing will deplete safety related nitrogen inventory and will require replacement of depleted nitrogen bottles after the test.

4) Review of the maintenance history for CSP-V-65 reveals that no failures have been observed. Failure of CSP-V-65 to close and its effects pertaining to PRA (Probabalistic Risk Assessment) core melt frequency indicates a negligible increase in containment failure frequency.

Alternative Frequency

During each refueling outage, each of these valves will be exercised per the requirements of OM Part 10.

Refueling Outage Justification -- ROJ10

Description

It is not practicable to full or partial stroke exercise open the following RHR valves during normal plant operation or cold shutdown.

Affected Valves	Class	Cat.	Function	System(s)
RHR-V-8	1	A	Isolate RHR shutdown cooling suction line from reactor recirculation loop A	Residual Heat Removal
RHR-V-9	1	A		

Justification

1) Valves are interlocked with reactor coolant system pressure such that these valves automatically close to protect the RHR pump suction line from elevated reactor coolant system pressures. Opening circuit is disabled by the same pressure interlocks. Overpressurization of the suction line may cause the loss of RHR shutdown cooling capability. Interlocks cannot be bypassed with normal control circuits.

2) Full stroke testing at cold shutdown frequency degrades the outage safety plan because the RHR shutdown cooling function is lost. RHR-V-8 and 9 should be stroked at refueling outage frequency when testing can be scheduled for minimal impact to the plant. With shutdown cooling unavailable, it puts the plant in the yellow band of the outage safety plan, and in a 2 hour LCO. If tested at refueling outage frequency, the testing can be scheduled at the end of the outage when decay heat load is lowest.

3) Valves are exercised during every outage when the RHR shutdown cooling function is initiated.

Alternative Frequency

During each refueling outage, each of these valves will be exercised per the requirements of OM Part 10.

Refueling Outage Justification -- ROJ11

Description

It is not practicable to full or partial stroke exercise open the following RHR valves during normal plant operation or cold shutdown.

Affected Valves	Class	Cat.	Function	System(s)
RHR-V-123A, B	1	A	CIV, HI-LO Pressure Isolation	Residual Heat Removal

Justification

1) These valves are normally closed with the motor operator deenergized during power operations and function as Reactor Coolant Pressure Boundary/Containment Isolation Valves. Opening the valves for the sole purpose of verifying the ability to close is not prudent, as it presents an unnecessary challenge to the containment and increases the potential for an intersystem LOCA.

2) These valves have no active safety function. WNP-2 Technical Specification 4.6.3.1 requires the valve to be stroked following repair and maintenance.

Alternative Frequency

During each refueling outage, each of these valves will be exercised per the requirements of OM Part 10.

4.8 Relief Requests from Certain OM Part 1 and Part 10 Requirements

Relief Requests are presented to document differences between the Code and WNP-2's Valve Test Program. The requests include technical justification for the differences and, where appropriate, propose alternate testing.

Relief Request -- RV01

Affected Valves	Class	Cat.	Function	System(s)
CVB-V-1AB, CD, EF, GH, JK, LM, NP, QR, ST	2	AC	To break vacuum on the drywell to suppression chamber downcomers and to limit steam leakage from the downcomer to the wetwell gas space.	Primary Containment Cooling and Purge

Code Requirement for Which Relief is Requested

OM Part 10, Paragraph 4.2.2, Valve Seat Leakage Rate Test

Basis for Relief

These check valves cannot be tested individually therefore, assigning a limiting leakage rate for each valve is not practical. The purpose of this leak rate test is to assure that the leakage from the drywell to the suppression pool chamber does not exceed Technical Specification limits. The WNP-2 Technical Specifications specify conservative corrective actions commensurate with the importance of the safety function being performed by these valves.

Alternate Testing to be Performed

These valves will be leak tested according to WNP-2 Technical Specifications during refueling outages by conducting a drywell-to-suppression chamber bypass leak rate test. These valves are verified-closed by position indicators, tested in the open direction using a torque wrench, and each valve seat is visually inspected. Corrective actions will be as specified in the Technical Specifications.

Quality/Safety Impact

The leakage criteria and corrective actions specified in the WNP-2 Technical Specifications is the most practical approach to assessing the adequacy of these valves in performing their specified safety function. Following the WNP-2 Technical Specification requirements provides adequate assurance of material quality and public safety.

NRC Acceptance/SER Dated November 27, 1995

Relief granted as requested.

Relief Request -- RV02

Affected Valves	Class	Cat.	Function	System(s)
LPCS-V-33, 34	2	C	Open: To permit the water leg pump to fill the system with water and maintain it pressurized. Close: To prevent bypass flow from the applicable ECCS pump and maintain the ECCS injection flow path integrity. Also to prevent overpressurization of the waterleg pump and associated piping.	Low Pressure Core Spray
HPCS-V-6, 7	2	C		High Pressure Core Spray
RHR-V-84A, 85A	2	C		Residual Heat Removal
RHR-V-84B, 85B	2	C		
RHR-V-84C, 85C	2	C		

Code Requirement for Which Relief is Requested

Part 10 Paragraph 4.3.2, Exercising Tests for Check Valves

Basis for Relief

These in series valves cannot be verified to be closed individually without either installing a test connection or dismantling the valve and inspecting the internals (which requires grinding out the seal weld). The associated stop-check valve is located in series with the check valve and performs the same function as the check valve. Closure of the stop-check is verified quarterly. The overpressure protection function is provided by the two valves and in addition a low pressure relief valve is installed should both the check and stop-check valves fail or leak excessively.

Paragraph 4.1.1 of NUREG-1482 states, " If the licensee has no practical means for verifying the ability of each valve in a series to close, it may review the plant safety analysis to determine if both valves are required to function. If only one of the two valves is credited in the safety analysis (that is, if one valve could be removed without creating an unreviewed safety question or creating a conflict with regulatory or license requirements), then verification that the pair of valves is capable of closing is acceptable for IST."

A review of the License Basis Documents indicates that these valves are not credited individually for any safety related function. Therefore, one valve could be removed without creating an unreviewed safety question. The safety related function for these check valves is to close, which prevents bypass flow from the applicable ECCS pump and maintains the ECCS injection flow path integrity. As long as one of the check valves in the series pair is capable of closure, then the intended design function for the check valves is met.

Relief Request -- **RV02** (Continued)

The operability of these valves in the open direction (non safety function) is demonstrated continuously during normal power operation. Failure to open would become apparent by the decay of system pressure to a point where a Control Room Annunciator would turn on, indicating low system pressure.

<u>Alternate Testing to be Performed</u>

Each pair of series check valves will be exercise tested during the quarterly surveillance by some positive means (measurement or observation of an operational parameter such as pressure or flow) to verify the closure capability of at least one of the valves to prevent reverse flow. In addition, the stop-check valve will be cycled manually to ensure no binding exists. Acceptance criteria to verify closure of each pair of check valves is provided in the implementing surveillance procedures. If closure capability of the pair of valves is questionable, both valves shall be declared inoperable and both valves shall be repaired or replaced as necessary before the return to service.

<u>Quality/Safety Impact</u>

The proposed alternate testing verifies operability of the pressure isolation function shared by these valves. The required testing would be a hardship on WNP-2 with little compensating benefits. The alternate testing will provide adequate assurance of material quality and public safety.

<u>NRC Acceptance/SER Dated November 27, 1995</u>

Interim relief granted until November 26, 1996. Relief request revised to include safety function information and the acceptance criteria. See above.

Relief Request -- **RV03**

Affected Valves	Class	Cat.	Function	System(s)
SW-TCV-11A, B	3	B	Throttle flow to control temperature of the Control Room	Standby Service Water

Code Requirement for Which Relief is Requested

1) Part 10 Paragraph 4.2.1.1, Exercising Test Frequency

2) Part 10 Paragraph 4.2.1.4, Power-Operated Valve Stroke Testing.

Basis for Relief

1) These hydraulically actuated valves serve as regulating thermostatic control valves. The valves do not function to rapidly isolate or de-isolate the piping into which they are installed. Rather, their function is to slowly regulate throughout their entire stroke range to control the outlet temperatures of the components they serve in response to a 4-20 mA control signal provided by their respective instrument control loops. The valves are spring-to-open/oil-to-close; recirculating oil pumps inside the actuators for the valves constantly apply a source of oil to a piston that acts against the spring. The 4-20 mA control signal varies the amount of oil constantly bled from the operating piston (back to the internal actuator reservoir). In this fashion the valves are regulated anywhere within the entire stroke length. SW-TCV-11A & 11B are controlled by thermostats which regulate main control room air temperature.

2) It is difficult to accurately measure the stroke time of these valves. These valves are not provided with any form of override that would allow them to be manually cycled. Additionally, they are not provided with position indication. Partial stroking of these valves can be verified by observing system operational parameter changes, but accurate timing of full stroke for trending purposes is impractical.

3) Manual control of these valves can only be obtained by lifting the 4-20 mA control leads to inject a test signal to the hydraulic actuator. This in turn requires that the Technical Specification required systems they serve be taken out of service. The systems they serve are required to remain in service at all times.

4) Modification of the existing valves or installation of new valves to provide manual control and position indication would be burdensome and costly.

Relief Request -- **RV03** (Continued)

Alternate Testing to be Performed

1) During each refueling outage perform a full calibration verification of the actuator for each of these valves per instructions provided by the valve vendor ITT General Controls Division. Each calibration verification is performed with the actuator coupled to its valve. A variable 4-20 mA test signal is applied to the actuator, and the actuator is verified to respond to stroke the valve in a linear fashion throughout its entire stroke length (i.e. from full open to full closed). Full stroke length of the valve is measured and verified that it is within acceptable range. Stroke length outside the acceptable range will indicate valve degradation requiring corrective action.

2) Concurrently with the testing described in (1) above, the failsafe position on a loss of power (OPEN) shall be verified.

Quality/Safety Impact

The alternative testing to be performed (actuator calibration verification) will verify proper operation of the valve to meet its design function. These valves are designed to operate as slow moving regulating valves and must be able to achieve and maintain any position called for by its control instrumentation. Inability to meet the tolerances of the calibration throughout the entire range of motion will require further investigation (e.g. valve maintenance) to correct the problem to produce a satisfactory calibration check. Because the valves cannot be tested without the adverse affect of taking the associated required safety related systems out of service, testing will be at refueling outages versus quarterly. However, this form of testing is more rigorous than a quarterly stroke time test of the valves. Consequently, lengthening the time interval will not preclude timely evaluation of valve operability. Adequate assurance of material quality and maintenance of public safety will be provided.

NRC Acceptance/SER Dated November 27, 1995

Relief granted as requested.

Relief Request -- RV04

Affected Valves	Class	Cat.	Function	System(s)
PSR-V-X73-1	2	A	Containment Isolation	Post Accident Sampling
PSR-V-X80-1	2	A		
PSR-V-X83-1	2	A		
PSR-V-X77A1	1	A		
PSR-V-X82-1	2	A		
PSR-V-X84-1	2	A		
PSR-V-X77A3	1	A		
PSR-V-X82-7	2	A		
PSR-V-X88-1	2	A		

Code Requirement for Which Relief is Requested

Part 10 Paragraph 4.2.1.4, Power-Operated Valve Stroke Testing

Basis for Relief

These nine PSR solenoid valves are the inboard Containment Isolation Valve for nine different penetrations and are operated from a single keylock control switch. It is impractical to measure the individual valve stroke times. To do so would require repetitive cycling of the control switch causing unnecessary wear on the valves and control switch with little compensating benefit.

Alternate Testing to be Performed

These solenoid valves stroke under 2 seconds and are considered rapid-acting valves. Their safety function is to close to provide containment isolation. The stroke time of the slowest valve will be measured by terminating the stroke time measurement when the last of the nine indicating lights becomes illuminated. If the stroke time of the slowest valve is in the acceptance range (less than or equal to 2 seconds), then the stroke times of all valves will be considered acceptable. However, if the stroke time of the slowest valve exceeds the acceptance criteria (2 seconds), all 9 valves will be declared inoperable and corrective actions in accordance with Part 10 paragraph 4.2.1.9 taken.

Quality/Safety Impact

The proposed alternate testing will verify that the valves respond in a timely manner and provide information for monitoring signs of material degradation. This provides adequate assurance of material quality and public safety.

NRC Acceptance/SER Dated November 27, 1995

Relief granted with provisions. Relief request revised to include information on the actions taken if the slowest valve is unacceptable and the rapid-acting characteristic of these valves. See above.

Relief Request -- RV05

Affected Valves	Class	Cat.	Function	System(s)
MS-RV-1A, B, C, D	1	C	Overpressure Protection	Main Steam
MS-RV-2A, B, C, D	1	C		
MS-RV-3A, B, C	1	C		
MS-RV-3D	1	BC	Overpressure Protection and Auto Depressurization System to lower reactor pressure sufficient to allow initiation of Low Pressure Coolant Injection (RHR, LPCI mode)	
MS-RV-4A, B, C, D	1	BC		
MS-RV-5B, C	1	BC		

Code Requirement for Which Relief is Requested

1. Part 1, Paragraph 3.3.1.1: Sequence of Testing Main Steam Pressure Relief Valves with Auxiliary Actuating Devices.

Basis for Relief

1. MSRV periodic set pressure testing is performed on-line. Removal and replacement of the MSRVs is used only for valve maintenance and not for the purpose of as-found set pressure determination. MSRV's are removed and replaced for maintenance purposes (e.g., seat leakage) nominally each refueling outage. The valves which are required to be as-found set pressure tested, as part of the Code required periodic testing, do not necessarily correspond to those required to be replaced for maintenance. Actuators and solenoids remain in place when MSRV's are removed and replaced for maintenance. Actuator and solenoid tests are required by the Code for both the periodic tests as well as for the replaced valves, and the actuator and solenoid tests required after valve replacement are identical to those required for periodic actuator and solenoid tests. The actuator and solenoid tests require challenging the MSRV's by stroking and potentially degrading seat integrity by MSRV actuation. Since the actuator and solenoid tests for periodic testing and valve post-replacement are identical, the post-replacement test should be credited as satisfying the periodic tests, to reduce challenges to the MSRV's and to reduce risk of subsequent seat leakage, provided that no maintenance is performed on the actuator or solenoids (other than reinstallation on the replaced valve) prior to the actuator and solenoid tests.

Relief Request -- **RV05** (Continued)

2. "Valves" and "accessories" (actuators, solenoids, etc.) have different maintenance and test cycles due to the methods used for maintenance and testing at WNP-2 as discussed in item 1., and should be considered separately for the purposes of meeting the required test frequency and testing requirements. Valve testing (i.e., visual examination, seat tightness, set pressure determination and compliance with seat tightness criteria, in accordance with Code paragraphs 3.3.1.1 (a), (b), (c) and (d)) are independent of and can be separate from testing of "accessories" (i.e., solenoids, actuator, position indicators and pressure sensing element, in accordance with Code paragraphs 3.3.1.1 (e), (f), (g) and (i)). Valve maintenance or set pressure adjustment does not affect "accessories" testing; likewise, maintenance on "accessories" does not affect valve set pressure or seat leakage. Since the "accessories" remain in place when MSRVs are removed for maintenance, the testing of the "accessories" after MSRV replacement satisfies the periodic testing requirements for the actuators and solenoids, provided no maintenance is performed on the "accessories" prior to the tests on accessories which would affect their as-found status or that could affect the valve's future set pressure determination. Therefore, the MSRVs and the "accessories" may be tracked separately for the purpose of satisfying the Code test frequency requirements.

   Testing the accessories (actuators, solenoids, etc.) after valve maintenance or set pressure adjustment is complete is consistent with OMc Code-1994 Appendix I, paragraph I 3.3.1.

3. OM Code Part 1 requires testing of accessories in a prescribed sequence. Paragraph 3.3.1.1(g) requires determination of operation and electrical characteristics of position indicators, and paragraph 3.3.1.1(i) requires determination of actuating pressure of auxiliary actuating device sensing element and electrical continuity. These tests are required to be performed at the same frequency as the valve set pressure and auxiliary actuating device testing.

   The position indicators are all calibrated and functional tested during outages; the sensing elements (pressure switches) are all checked and calibrated nominally every 24 months. Although the existing tests are not in the prescribed sequence, and they do not have a one-to-one correspondence to the valve or actuator tests, these calibrations and functional tests meet all testing requirements of this Part, and far exceed the required test frequency and testing requirements.

4. ASME OMa Code-1996 Addenda removes the requirement to perform the accessories and seat tightness tests in a specific sequence. There was no technical basis for requiring the specific sequence.

Relief Request -- **RV05** (Continued)

Alternate Testing to be Performed

1. a) Valves: As clarified in OMc Code-1994 Appendix I, paragraph I 1.3.3 (a), as-found set pressure determination, seat leakage determination and compliance, and visual examination of MSRVs will be performed at least once every 5 years; the test interval for any individual valve will not exceed 5 years; a minimum of 20% of the valves will be tested within any 24 month interval, and this 20% will be previously untested if they exist. Valves will be tracked to assure that the Code required test frequency is met.

   b) Actuators and Solenoids: The required tests will be performed on a minimum of 20% of the actuators with solenoids in any 24 month interval. The actuators will be tracked to assure that each is tested at least once every 5 years and within an interval not to exceed 5 years. Since the valve and actuator test and maintenance cycles are different, the plant positions of the actuators selected, or due, for periodic testing may not match the plant positions of the MSRVs selected, or due, for as-found set pressure testing. The actuators and solenoids will be tested at the end of the outage after other maintenance is complete, and the tests will be credited as satisfying the Code periodic test requirements provided that no actuator or solenoid maintenance (other than actuator assembly re-installation on a replaced valve) is performed that would affect their as-found status prior to testing or that could affect the valve's future set pressure determination.

2. All MSRV position indicators will continue to be tested in accordance with existing surveillance procedures for monthly channel checks, and for channel calibration and channel functional testing on nominally 18 month frequency during shutdowns. These tests will be credited for satisfying the requirements of paragraph 3.3.1.1(g) of OM Code Part 1.

3. All auxiliary actuating device sensing elements (pressure switches) will continue to be tested and calibrated on a 24 month frequency during shutdowns. These tests will be credited for satisfying the requirements of paragraph 3.3.1.1(i) of OM Code Part 1.

Relief Request -- **RV05** (Continued)

Quality/Safety Impact

Due to different maintenance and test cycles of valves and accessories and also due to methods used for testing and maintenance, it is impractical to meet the Code required testing requirements without subjecting the valves to unnecessary challenges and increased risk of seat degradation. The requirement for testing actuators and accessories in a specific sequence does not enhance system or component operability, or in any way improve nuclear safety. The proposed alternate testing adequately evaluates the operational readiness of these valves commensurate with their safety function. This will help reduce the number of challenges and failures of safety relief valves and still provide timely information regarding operability and degradation. This will provide adequate assurance of material quality and public safety.

NRC Acceptance/SER Dated November 27,1995

Relief granted with provisions. Relief request revised to clarify that the 1994 Addenda testing frequency requirements will be complied with. Valves and accessories will be tested independently and on a different schedule and no maintenance or set pressure adjustments will be made prior to set pressure determination.

4.9 Records and Reports of Valves

Records and reports pertaining to valves in the Program will be maintained in accordance with OM Part 10 paragraph 6. The files will contain the following:

1) Valve records will be maintained in accordance with paragraph 6.1.

2) Inservice test plans are issued as valve surveillance test procedures. The inservice testing records for valves in the Program will be maintained in accordance with paragraph 6.2.

3) Records of tests for valves in the Program will be maintained in accordance with paragraph 6.3. Completed surveillance test procedures are retained per plant administrative procedures.

4) Records of corrective actions for valves in the Program will be maintained in accordance with paragraph 6.4. Corrective actions are documented on Work Orders and/or Problem Evaluation Requests (PERs).

Records and reports pertaining to pressure relief devices in the Program will also be maintained in accordance with OM Part 1 paragraph 5 requirements.

The Valve Inservice Test Program, associated surveillance test procedures and results, and corrective actions are retained per plant administrative procedures.

SAMPLE VALVE STROKE DATA SHEET

VALVE ID	OPENING TIME IN SECONDS					CLOSING TIME IN SECONDS				
	Ref. Value	Alert Lo (+1)	Measured Value (+2)	Alert Hi (+1)	Action Hi (+1)	Ref. Value	Alert Lo (+1)	Measured Value (+2)	Alert Hi (+1)	Action Hi (+1)
HPCS-V-1 †	56	48		64	73	56	48		64	73
HPCS-V-2	N/A	N/A		N/A	NOT OPEN	N/A	N/A		N/A	NOT CLOSED
HPCS-V-6	N/A	N/A		N/A	N/A	N/A	N/A		N/A	NOT CLOSED (+6)
HPCS-V-7	N/A	N/A		N/A	N/A	N/A	N/A		N/A	NOT CLOSED (+6)
HPCS-V-10 †	49	N/A		N/A	N/A	44	37		51	57
HPCS-V-11 †	50	N/A		N/A	N/A	50	43		57	65
HPCS-V-12 †	7	5		9	11	7	5		9	11 (+3)
HPCS-V-15 †	13	11		15 (+8)	16	14	12		16	18 (+4)
HPCS-V-16	N/A	N/A		N/A	NOT OPEN	N/A	N/A		N/A	N/A
HPCS-V-23 †	47	N/A		N/A	N/A	47	40		54	61 (+5)
HPCS-V-24	N/A	N/A		N/A	NOT OPEN	N/A	N/A		N/A	NOT CLOSED
HPCS-V-4 †	10	8		N/A	12 (+7)	11	9		13	14 (+3)

(+1) For measured values beyond the ALERT Value or ACTION Value refer to Precaution 4.8 or 4.9, respectively.
(+2) Round all measured Stroke Times to the nearest second when comparing measured values to Alert and Action limits. Use standard rounding techniques e.g. 10.49 rounds to 10 and 10.5 rounds to 11 seconds.
(+3) Use listed closing stroke time as limiting even though a higher limit is specified in FSAR.
(+4) Limiting stroke time per FSAR.
(+5) Use listed closing stroke time as limiting even though a higher limit is specified in Technical Specification.
(+6) If the valves are found not closed, repair or replace both HPCS-V-6 and HPCS-V-7.
(+7) For measured values GE 12 seconds, review the data obtained from PPM 7.4.8.1.1.2.8 for the effect on overall system response time. {2.9}
(+8) Limiting stroke time per Eng. Calculation C106-92-03.02 is 15.8 seconds. Notify Plant Support Engineering if this value is exceeded.
† Motor operated valve.

SAMPLE TWO YEAR VPI VERIFICATION AND ANNUAL CHANNEL CALIBRATION DATA SHEET

Valve No.	Valve Condition Inspected	VERIFIED OPEN					VERIFIED CLOSED					Valve Operation		% Full Open (+2)	Cycle MOV
		LOCAL INDICATION			REMOTE INDICATION		REMOTE INDICATION		LOCAL INDICATION						
		Initial	As Found	Full Open	SAT	UNSAT	SAT	UNSAT	Initial	(+1) As Found	Full Close				
	STEP 1	STEP 2	STEP 3	STEP 5	STEP 4	STEP 4	STEP 4	STEP 4	STEP 2	STEP 3	STEP 5	STEP 6	STEP 8	STEP 7	STEP 9
HPCS-V-1															
HPCS-V-4 #(+3)											(+4)				
HPCS-V-10															
HPCS-V-11															
HPCS-V-12 #(+3)															
HPCS-V-15 #(+3)															
HPCS-V-23 #(+3)															

(+1) If the valve in its As Found condition is not fully closed, write a PER. For throttle valves, verify the valve cannot be further closed from its control switch. For HPCS-V-4, enter 0% if the stem movement indicator on the SB unit reads GT 1/8" (See Attachment 9.7)

(+2) If the valve is less than 85% Full Open as calculated below, write a PER.

Calculate % Full Open in accordance with obtained values and the following examples:

% FULL OPEN = [(As Found Open) - (Full Closed)] ÷ [(Full Open) - (Full Closed)] x 100

Local Position Indicator — 5% at Full Closed 95% at Full Open 90% As Found Open % Full Open = (90 - 5) ÷ (95 - 5) x 100 = 94.4%	Stem Displacement — 0" at Full Closed 6.0" at Full Open 5.5" As Found Open % FULL OPEN = (5.5 - 0) ÷ (6.0 - 0) x 100 = 91.7%
Number of Handwheel Revolutions — 0 at Full Closed 12.5 at Full Open 11.5 As Found Open % Full Open = (11.5 - 0) ÷ (12.5 - 0) x 100 = 92.0%	Degree of Stem Rotation — 45° at Full Closed 275° at Full Open 235° As Found Open % FULL OPEN = (235 - 45) ÷ (275 - 45) x 100 = 82.6%

(+3) These valves require annual channel calibration in addition to two year VPI. VPI verification satisfies both requirements.

(+4) Step 5 does not require manual closure of HPCS-V-4. Enter 0% if the stem movement indicator on the SB unit (motor operator type used on HPCS-V-4) reads GT 1/8". See Attachment 9.7. {2.7}

5.0 Quality Assurance Program

The WNP-2 Pump and Valve Inservice Test Program activities will be conducted in accordance with Topical Report WPPSS-QA-004, the Supply System's Operational Quality Assurance Program description.

6.0 Piping and Instrument Diagrams

The Piping and Instrument Diagrams used to generate this Program are listed below. Subsequent changes to system design shall be evaluated for impact on the IST Program Plan and new revisions to this Program shall be issued accordingly.

Title	Ref. No.
Main & Exhaust Steam System	M502
Control & Service Air	M510
Diesel Oil & Misc. Systems	M512
Demineralized Water	M517
Reactor Core Isolation Cooling	M519
High/Low Pressure Core Spray	M520
Residual Heat Removal	M521
Standby Liquid Control	M522
Reactor Water Cleanup	M523
Standby Service Water	M524
Reactor Closed Cooling	M525
Fuel Pool Cooling	M526
Control Rod Drive	M528
Main Steam and Reactor Feedwater	M529

Title	Ref. No.
Reactor Recirculation Cooling	M530
Equipment Drain Radioactive	M537
Floor Drain Radioactive	M539
Containment Cooling & Purge	M543
Standby Gas Treatment	M544
Reactor Building HVAC	M545
Containment Atmosphere Control	M554
Containment Instrument Air	M556
Main Steam Leakage Control	M557
Undervessel Neutron Monitoring System	M604
Class I Air System for Containment Vacuum Breaker	M619
Emergency Chilled Water	M775
Primary Containment Nitrogen Inerting	M783
Post Accident Sampling	M896