INSERVICE TESTING PROGRAM PLAN

SECOND TEN-YEAR INSPECTION INTERVAL

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

NUCLEAR PLANT NO. 2

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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 0

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2.0 <u>Introduction</u>

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 1,145 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 <u>Program Administration</u>

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 draft NUREG-1482. Upon finding an ASME Code requirement impractical because of prohibitive dose rates or limitations in design, construction, or system configuration, the Supply System will submit a relief request provided that the proposed relief request had been (1) reviewed pursuant to 10 CFR 50.59; (2) approved by the plant staff in accordance with the administrative process described in the IST program administrative procedure; and (3) reviewed by the Plant Operations Committee. The relief request will be implemented at that time and plant operation will continue. The relief request will be submitted to the NRC within approximately 2 weeks after finding the need for relief request and completing the approval process.

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 This evaluation addressed the identification of active and passive safety Program. 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 <u>References</u>

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

- 2.3.15 WNP-2 Final Safety Analysis Report (FSAR).
- 2.3.16 NOS-34, "Inservice Testing of Pumps and valves".

3.0 <u>Pump Inservice Testing Program</u>

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 <u>Preservice Testing</u>

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 <u>Reference Values</u>

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 <u>Test Parameters</u>

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 <u>Test Procedure</u>

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 <u>Trending</u>

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 <u>Pump Reference List</u>

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.

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3.4 <u>Pump Inservice Test Table</u>

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

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Pump Inservice Test Table

	Flow	ASME	1 ump	Inlet	Disch	Diff	Flow	Vib	Pump	Relief
Pump Ident	Diagram	Code	Pump	Press	Press	Press	110	Vel	Speed	Requests & Technical
	& Coord	Class	Туре	Pi	Ро	۵P	Q	v	N	Positions
DO-P-1A	M512-4 J11	3	Vertical Line Shaft	Q	Q	Q	Q	Q	NR	2,6 TP01
DO-P-1B	M512-4 •E11	3	Vertical Line Shaft	Q	Q	Q	Q	Q	NR	2,6 TP01
DO-P-2	M512-1 B8	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	6
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 B12	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 G5	3	Vertical Line Shaft	N/A	Q	N/A	Q	Q	NR	1,3
SW-P-1B	M524-2 G5	3	Vertical Line Shaft	N/A	Q	N/A	Q	Q	NR	1,3



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Technical Positions 3.5

Technical Position -- TP01

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

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. Draft NUREG-1482 (reference 2.3.12), 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.







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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	
SW-P-1B	3	M524, SH 2	Standby Service Water
HPCS-P-2	3	M524, SH 1	

OM Part 6 Code Requirement for which Relief is Requested

Measure pump differential pressure, $\triangle P$. (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 Specifications state 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.

<u>Ouality/Safety Impact</u>

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.



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Relief Request -- RP01 (Continued)

Previous NRC Acceptance for 1st 10 Year Interval

SER dated May 7, 1991, TER Section 2.3.1, Relief Request No. RP-3

This relief was granted with the provision that acceptance criteria be assigned to discharge pressure that gives equivalent protection provided by the Code for ΔP .

Relief Request -- RP02

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

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.

Previous NRC Acceptance for 1st 10 Year Interval

SER dated May 7, 1991, TER Section 2.4.1, Relief Request No. RP-5

The relief request was granted with the provision that the calculated pump flow rate meets the accuracy requirements of the Code for flow rate.

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.
- The Service Water system loops are not designed with a full flow test line with a single 2) 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.

Alternate Testing to be Performed

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.

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Relief Request -- RP03 (Continued)

- 3) To reduce the uncertainty associated with the pump curves and the adequacy of the acceptance criteria, special test gauges (\pm 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.

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

Quality/Safety Impact

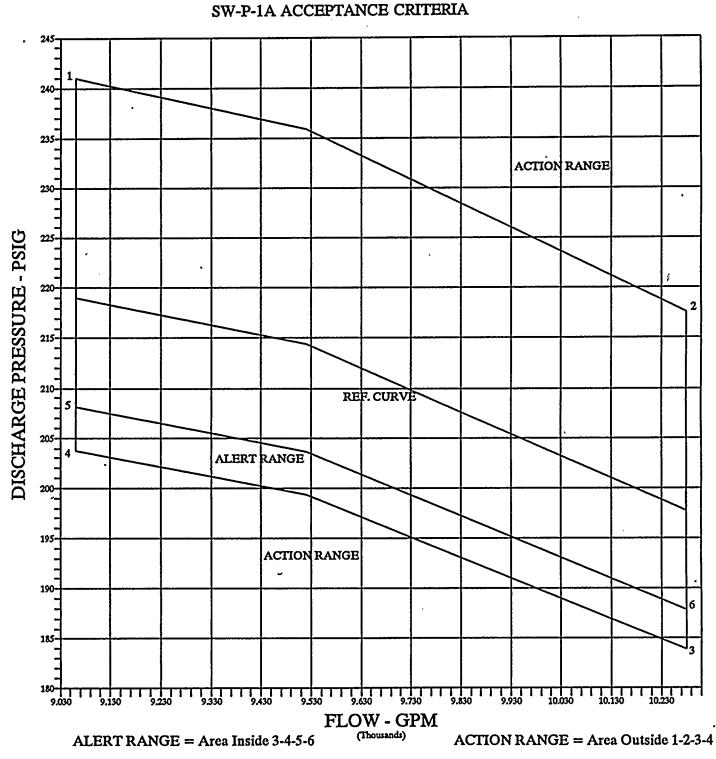
Design of the WNP-2 Service Water system and the Technical Specification requirements make it impractical to adjust system flow to a fixed reference value for inservice testing without adversely affecting the system flow balance and Technical Specification operability requirements. Proposed alternate 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.

Previous NRC Acceptance for 1st 10 Year Interval

SER dated September 30, 1993, TAC No. M84553, Relief Request No. RP-8

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Relief Request -- RP03 (Continued)



SAMPLE DATA SHEET

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	
RHR-P-2B	2	M521, SH 2	Residual Heat Removal
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

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

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 values as throttling values. Because these values 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 value manipulation which could ultimately result in damage to values or motor operators.

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

Alternate Testing to be Performed

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 $\pm 2\%$ of the reference value. Thus, flow rate shall be adjusted to be within $\pm 2\%$ 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 $\pm 2\%$ of their respective reference values and the The following elements are used in developing and differential pressure is measured. 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 $\pm 2\%$ 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 ($\pm 0.5\%$ 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 (\pm 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.

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Relief Request -- RP04 (Continued)

Previous NRC Acceptance for 1st 10 Year Interval

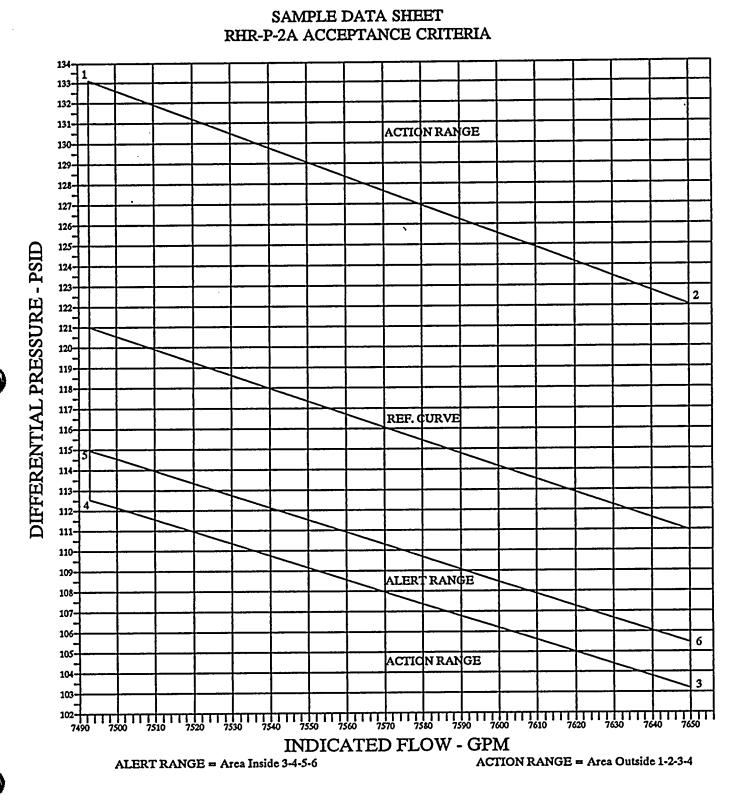
SER dated September 30, 1993, TAC No. M84553, Relief Request No. RP-9.

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Relief Request -- RP04 (Continued)



Relief Request -- RP05

Pump	Code Class	P&ID Dwg. Number	System(s)
RHR-P-2A	2	M521, SH 1	
RHR-P-2B	2	M521, SH 2	Residual Heat Removal
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 $\pm 1\%$ of full scale, it consistently yields measurements more accurate than would be provided by instruments meeting the Code instrument accuracy requirement of $\pm 2\%$ 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.

<u>Quality/Safety Impact</u>

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.

Previous NRC Acceptance for 1st 10 Year Interval

SER dated September 30, 1993, TAC No. M84553, Relief Request No. RP-10.

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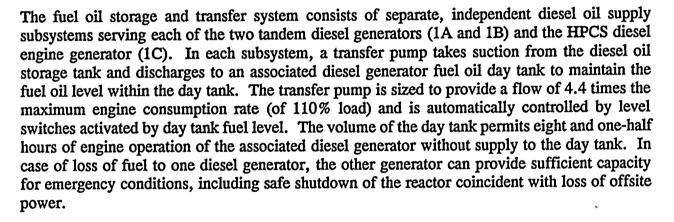
Relief Request -- RP06

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

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



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



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Relief Request -- **RP07**

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

OM Part 6 Code Requirement For Which Relief is Requested

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.

Function

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

Basis for Relief

- 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 $\pm 5\%$. 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 \pm 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.



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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 $\pm 5\%$ 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.

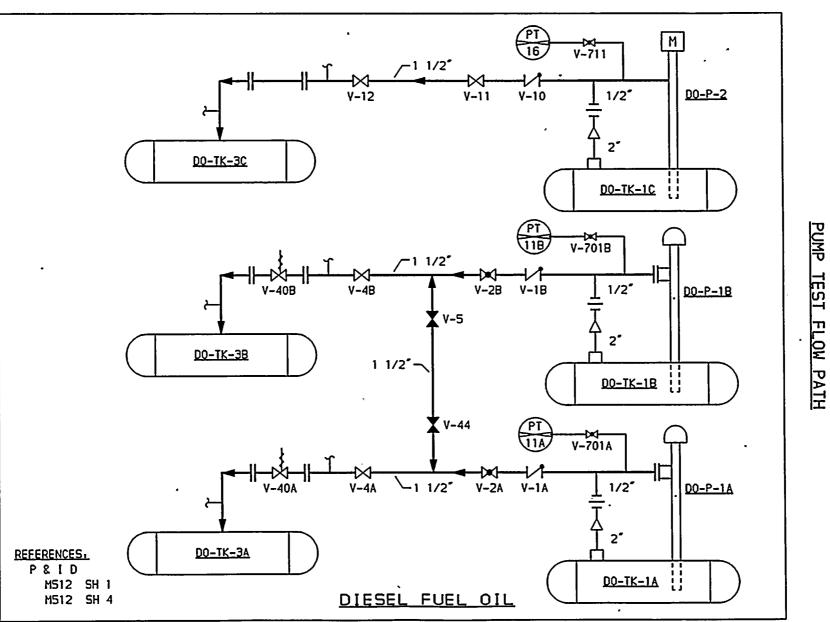
Quality/Safety Impact

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 $\pm 5\%$ 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.

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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.



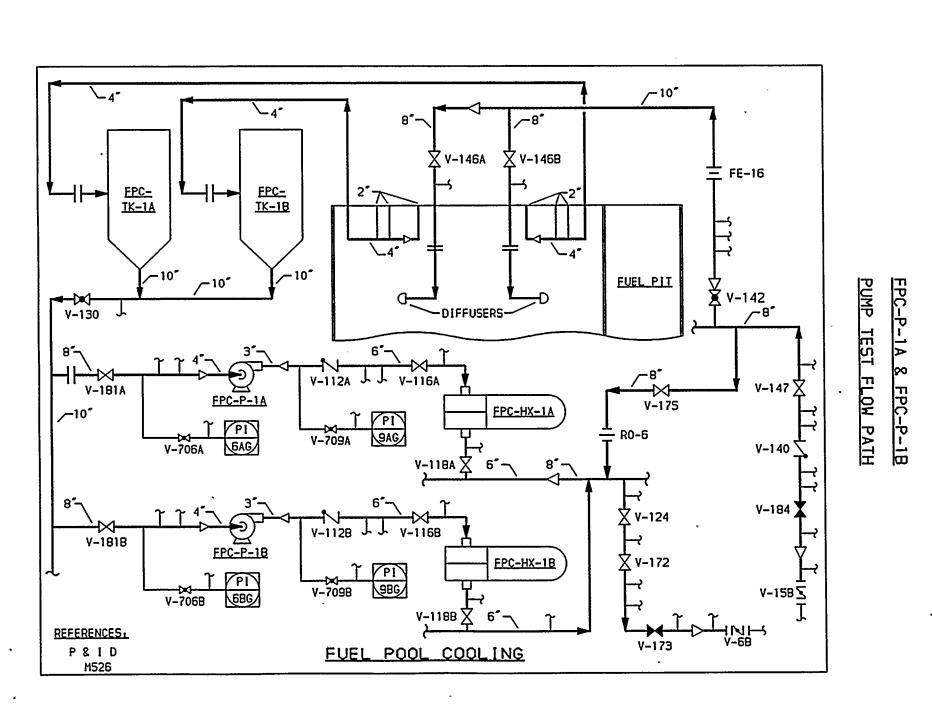
<u>DO-P-1A, DO-P-18 & DO-P-2</u>

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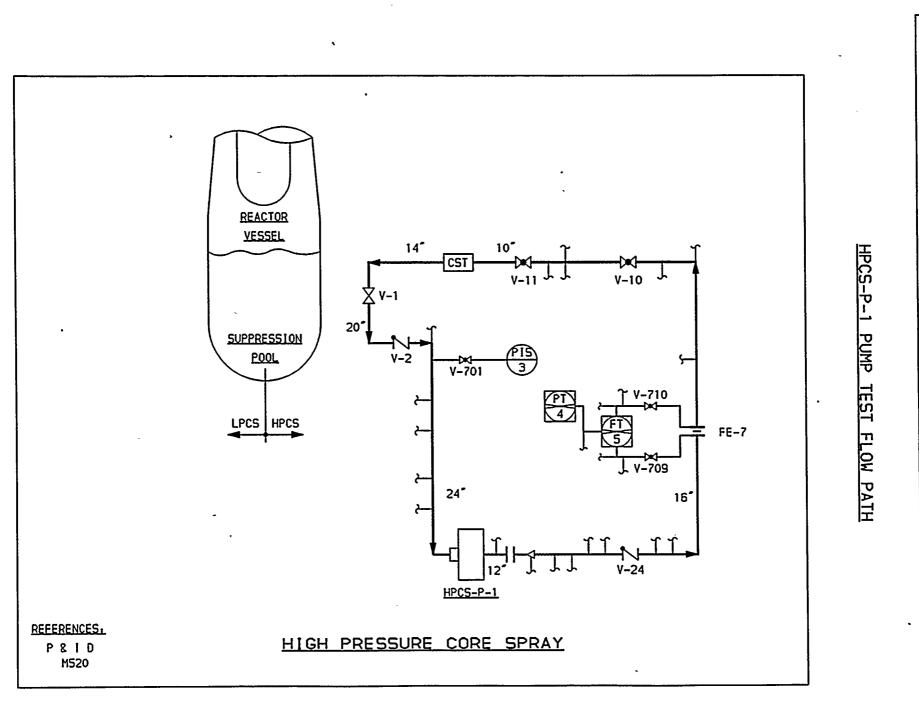


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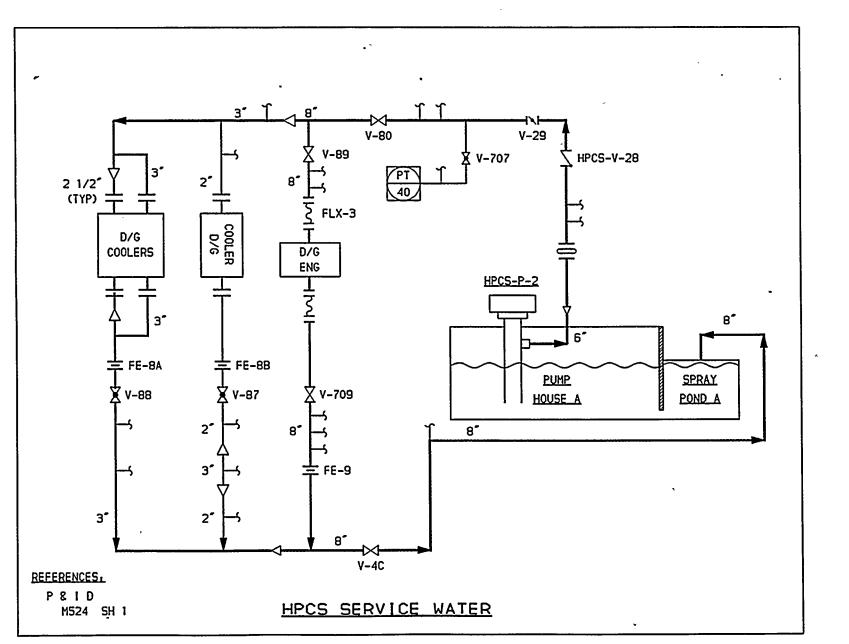
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HPCS-P-2 PUMP TEST FLOW PATH

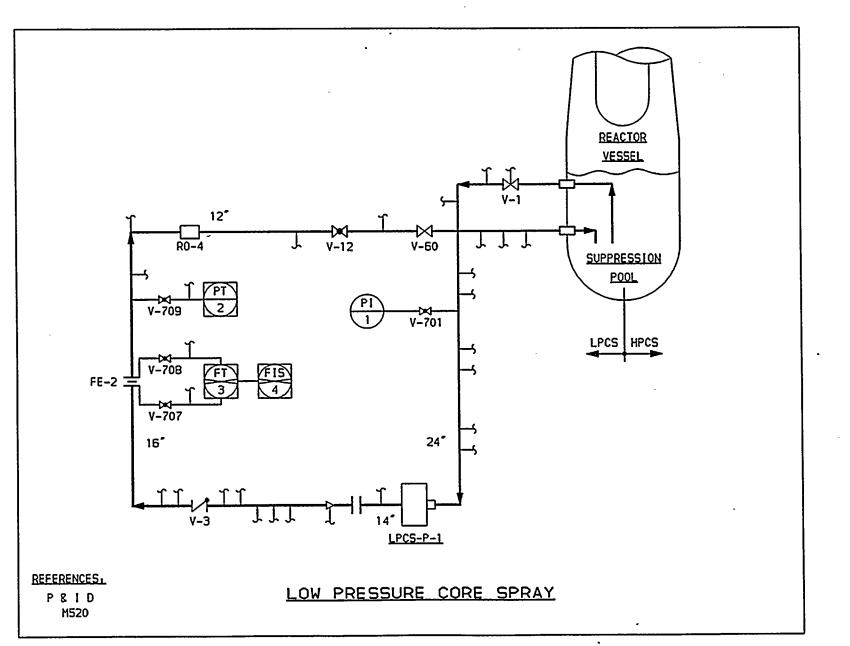
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LPCS-P-1 PUMP TEST FLOW PATH

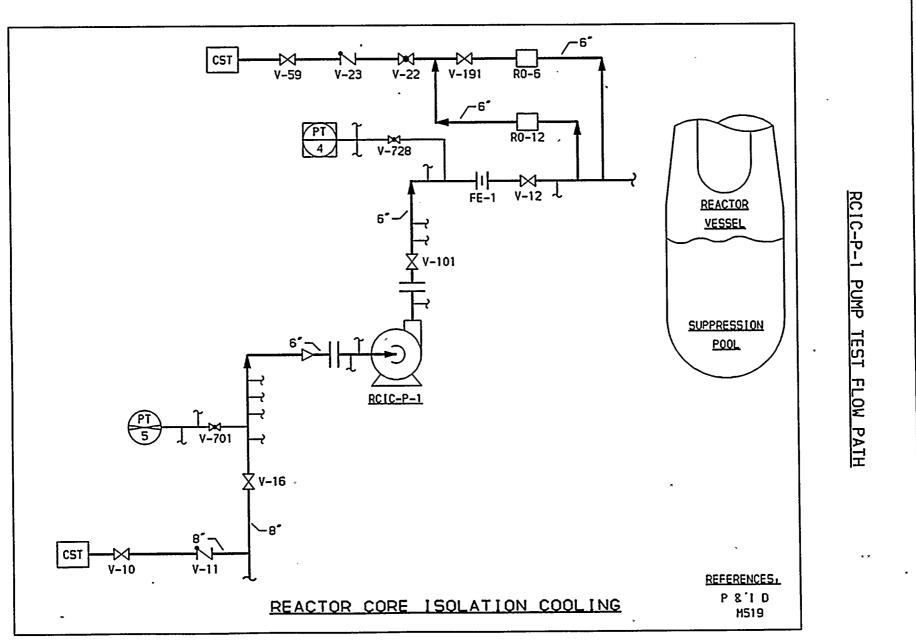
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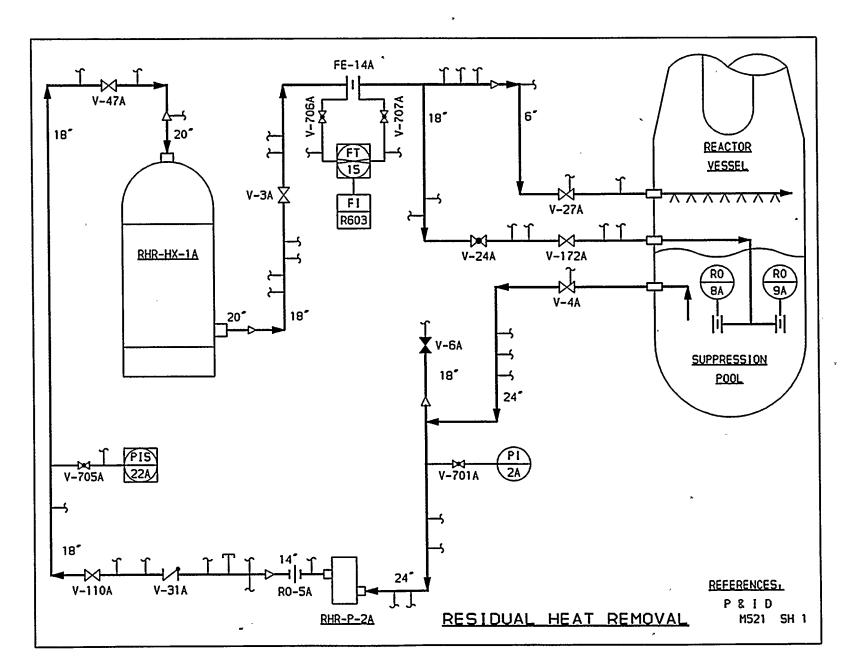
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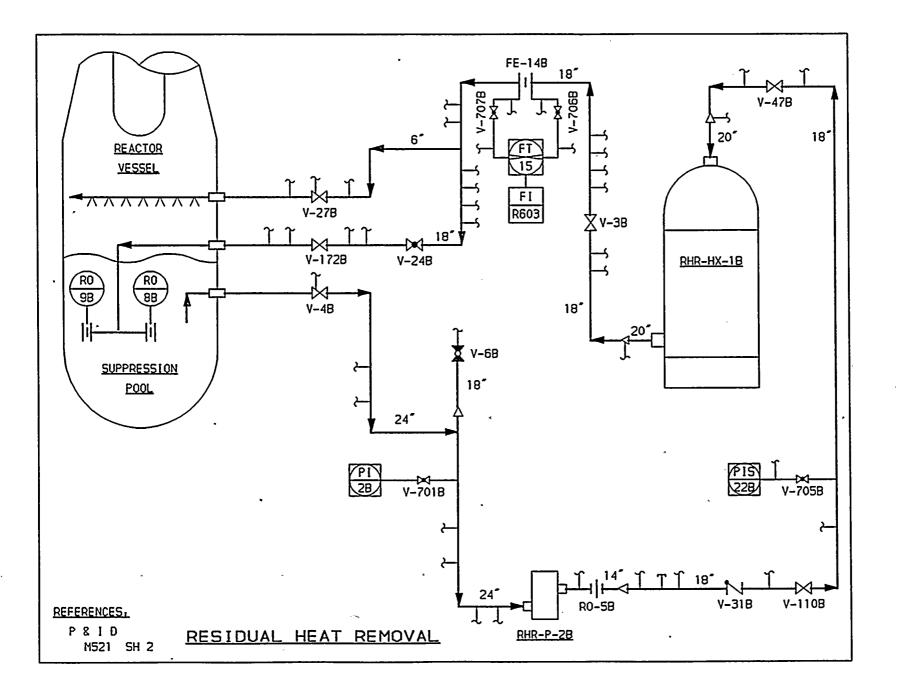


RHR-P-2A PUMP TEST FLOW PATH

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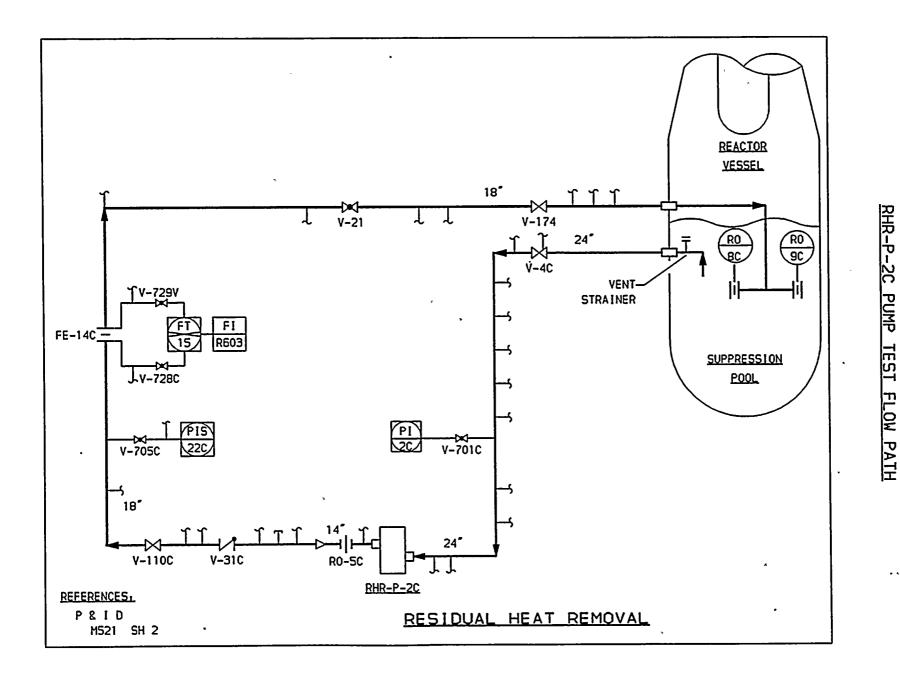


RHR-P-28 PUMP TEST FLOW PATH

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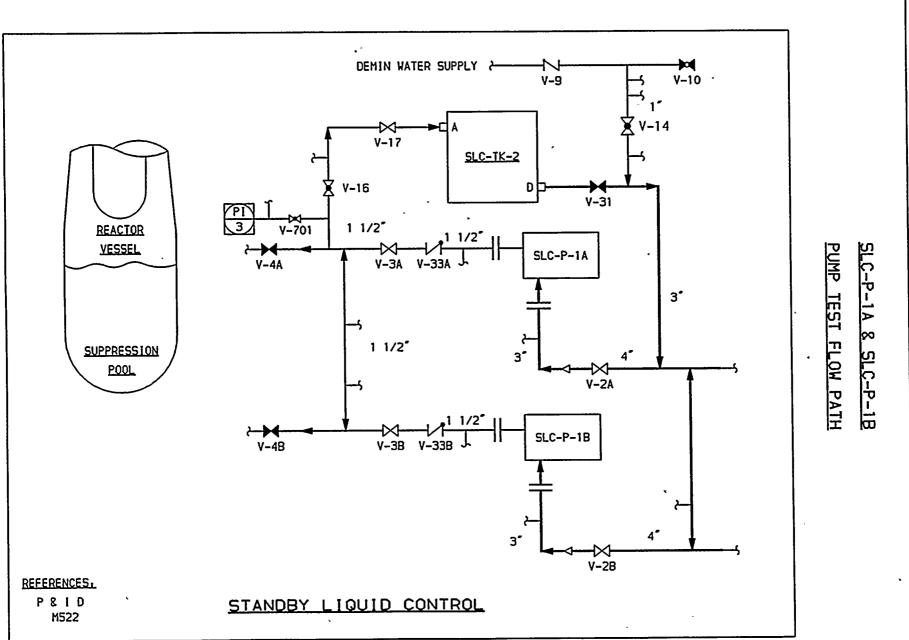
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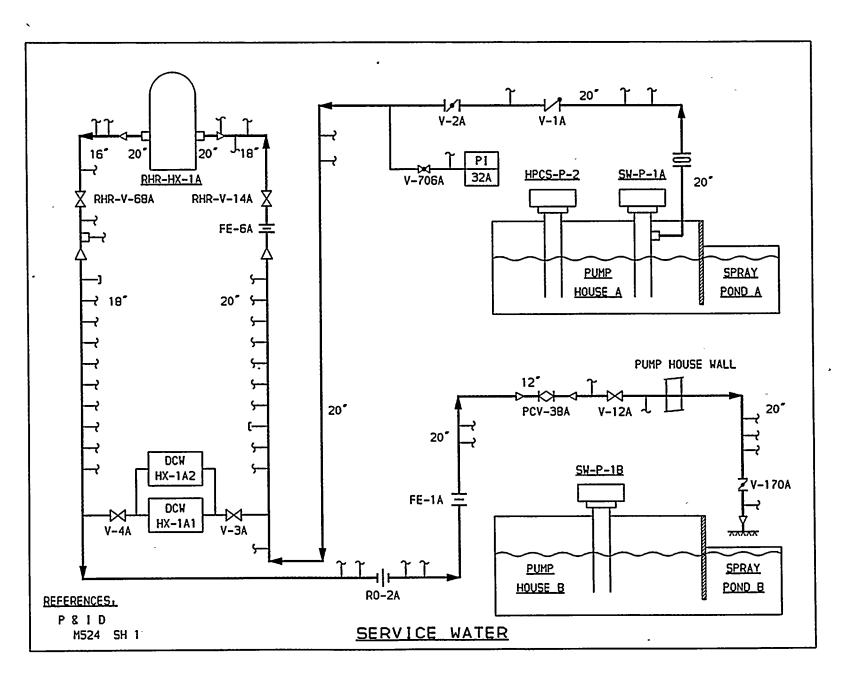
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SW-P-1A PUMP TEST FLOW PATH

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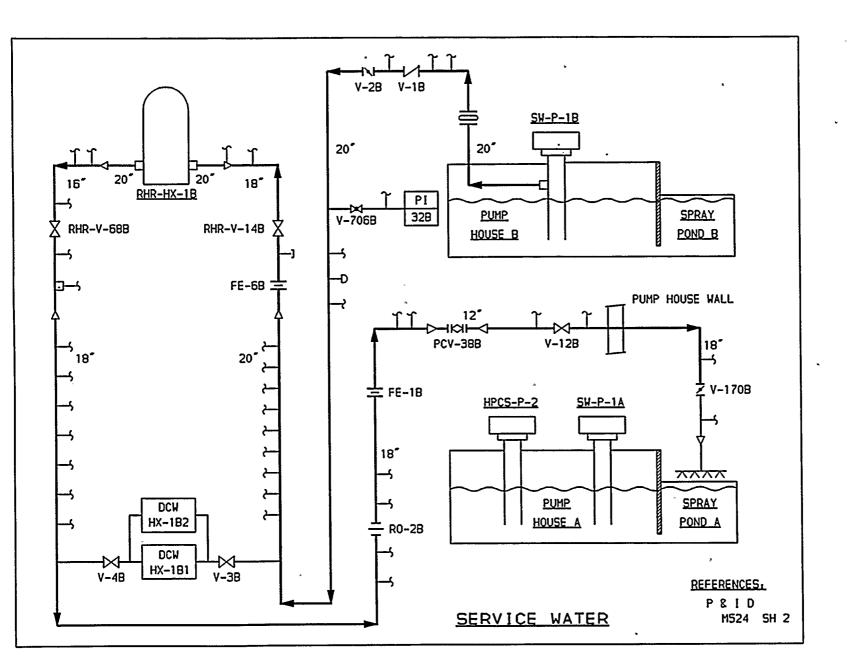
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SW-P-18 PUMP TEST FLOW PATH

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3.8 <u>Records and Reports of Pumps</u>

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.

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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	۴F	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.

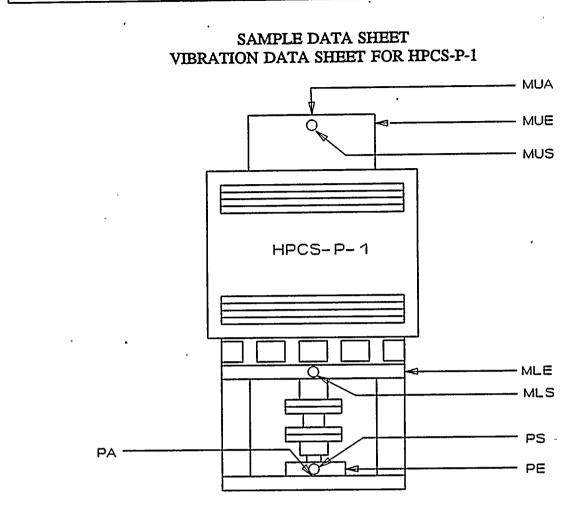
(+2) The ACTION Range is defined as outside the area described by points 1, 2, 3 and 4 on Attachment 9.4.

(+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.

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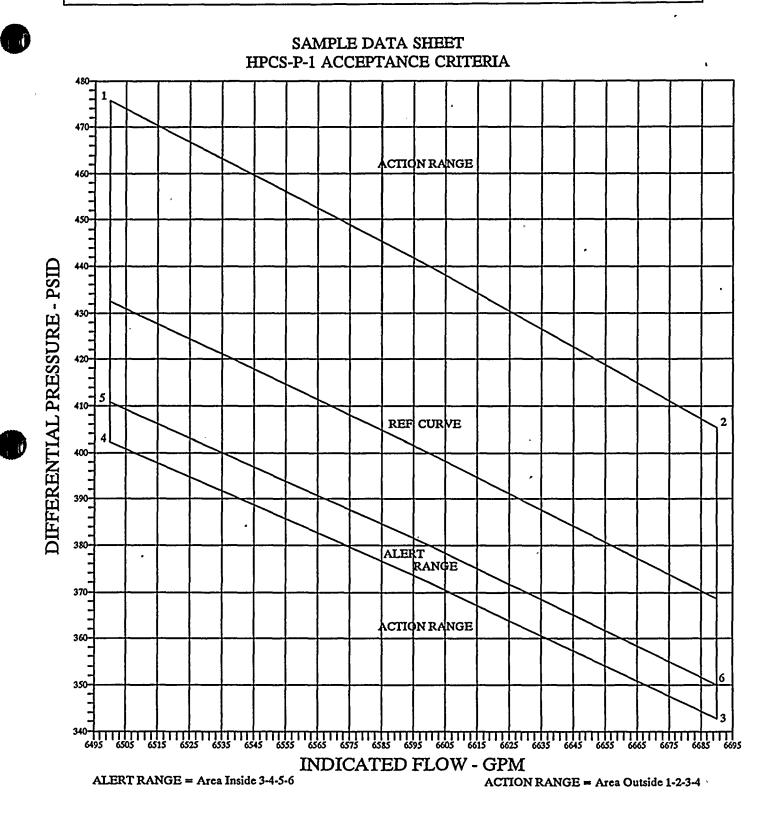
VIEW LOOKING NORTH

	e		VIBRATION VELC	I VELOCITY (IN/SEC)				
	PROBE LOCATION	REFER VALUE	MEASURED VALUE	ALERT HI (+1)	ACTION HI (+1)			
	MUA	0.027		0.068	0.162			
ASME	MUE	0.040		0.100	0.240			
	MUS	0.072		0.180	0.432			
	MLE	0.079		N/A	N/A			
NON-	MLS	0.061		N/A	N/A			
ASME	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.

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4.0 <u>Valve Inservice Testing Program</u>

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 <u>Preservice Testing</u>

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.





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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 <u>Test Procedure</u>

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 <u>Trending</u>

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.

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4.3 <u>Valve Test Tables</u>

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 value 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 operatedHO= Hydraulic operatedMA= Manually operatedMO= Motor operatedSA= Self actuated
 - SO = Solenoid operated





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(4b)	VALVE Type	The following abbreviations are used to describe valve type:								
		BA= Ball ValveRDBF= Butterfly ValveRVCK= Check ValveSCDI= Diaphragm ValveSREX= Explosive ValveSVGB= Globe Valve3WGT= Gate Valve	 Rupture Disc Relief Valve Stopcheck Valve Safety/Relief Valve Solenoid Valve Three Way Valve 							
(4c)	SIZE	Nominal pipe diameter to which the inches.	valve connects is given in							
(5a)	SAFETY Position	Safety position identifies the position(s fulfill its safety function(s).	s) the valve must assume to							
	v	with no required safety	wner's discretion, or valves							
		O = Open O/C = Both Open and Closed								
(5b)	FAILED Position	Failed position identifies the position the of actuating power.	he valve assumes upon loss							
	·	FAI= Fail As IsFC= Failed CloseFO= Failed OpenNA= Not Applicable								
5c)	NORMAL Position	Normal position identifies the valve po- operation.	sition during normal power							
		LC = Locked Close LO = Locked Open NC = Normally Closed NO = Normally Open NT = Normally Throttled								

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(ба)	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.
	К	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.

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(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.
	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.
	2 Y	Test performed once every two years.
(бс)	PPM	This identifies the implementing procedure. This field is for information only and may be changed without formal amendment to the value tables.
(7)	TESTING EXCEPT	IONS 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.

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WNP-2 Valve Test Tables

	Dwg & Class					S	Testing Exceptions	Remarks (Notes &	
Valve EPN	Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal	Test	•	luency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
CAC-FCV-1A	M554 H11	2 A	HO GB	O/C FC	G HJK	2Y Q	7.4.0.5.14A 7.4.0.5.14A		TV01,2
		DIPTION	2.50	NC	L	2Y	7.4.6.1.2.4 ON X99 (CIV)		l
CAC-FCV-1B		RIPTION	HO	O/C	G	2Y	7.4.0.5.14B		TV01,2
CACIFC V-IB	H6	Â	GB	FC	нік	Q	7.4.0.5.14B		1 101,2
4	1		2.50	NC	L	2Y	7.4.6.1.2.4		1
	DESC	RIPTION	CAC FO	V FROM	PENE	TRATI	ON X97 (CIV)		· · · · · · · · · · · · · · · · · · ·
CAC-FCV-2A	M554	2	HO	_ 0/C	G	2Y	7.4.0.5.14A		TV01,2
	F10	A	GB	FC	ник	Q	7.4.0.5.14A		1
		DIPERCIN	2.50	NC	L	2Y	7.4.6.1.2.4		
							X96 (CIV)		TV01,2
CAC-FCV-2B	M554 F6	2 A	HO GB	O/C FC	G HJK	2Y Q	7.4.0.5.14B 7.4.0.5.14B		1 101,2
	ro	^	2.50	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION					X98 (CIV)		l
CAC-FCV-3A	M554	2	НО	0/C	G	2Y	7.4.0.5.14A	··	TV01,2
	D10	Ā	GB	FC	ник	Q	7.4.0.5.14A		
			2.50	NC	L	2Y	7.4.6.1.2.4		ł
	DESC	RIPTION	CAC FO	V FROM	PENE	TRATIO	ON X105 (CIV)	·····	
CAC-FCV-3B	M554	2	HO	O/C	G	2Y	7.4.0.5.14B		TV01,2
	D6	A	GB	FC	нк	Q	7.4.0.5.14B		
	L		2.50	NC		2Y	7.4.6.1.2.4		
		RIPTION					ON X104 (CIV)		
CAC-FCV-4A	M554	2	НО	0/C	G	2Y	7.4.0.5.14A		TV01,2
	E10	A	GB 2.50	FC NC	L HIK	Q 2Y	7.4.0.5.14A 7.4.6.1.2.4		
	L	DIPTION					7.4.6.1.2.4 X102 (CIV)		l
CAC-FCV-4B	M554	2	HO	0/C	G	2Y	7.4.0.5.14B		TV01,2
0/101-45	E6	Â	GB	FC	нік	Q	7.4.0.5.14B		1 101,2
			2.50	NC	L	2 ` Y	7.4.6.1.2.4		
	DESC	RIPTION	CAC FO	V TO PE	NETRA	TION	X103 (CIV)		· · · · ·
CAC-FCV-5A	M554	2	НО	O/C	G	2Y	7.4.0.5.14A		TV01
	F14	В	GB	FC	нік	Q	7.4.0.5.14A		
			1	NC	L				l
				W-1A SW					
CAC-FCV-5B	M554 F2	2	HO	O/C FC	G HJK	2Y	7.4.0.5.14B		TV01
	F2	B	GB 1	FC NC	HJK	Q	7.4.0.5.14B		*
	DESC	RIPTION	-	V-1B SW	INLET	FCV	k	·	· · · · · · · · · · · · · · · · · · ·
CAC-FCV-6A	M554	2	HO	0/C	G	2Y	7.4.0.5.14A		TV01
~··~ T ~ I ~ I ~ VI J	G12	B	GB	FO	н	Q	7.4.0.5.14A		
		_	2	NO	1	•			[
	DESC	RIPTION	CAC-FN	I-1A REC	IRC FC	v			······
CAC-FCV-6B	M554	2	НО	O/C	G	2Y	7.4.0.5.14B		TV01
	G4	В	GB	FO	ні	Q	7.4.0.5.14B		
			2	NO					1
	DESC	RIPTION	CAC-FN	I-1B RECI	IRC FC	v			



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WNP-2 Valve Test Tables

			AA TAT.	-2 Valve	10	Labits) 		
Valve EPN	Dwg & Coord	Class & Cat	Type Actuat,	Position Safety,	Т	ests, Freq	uency & PPM	Testing Exceptions (CSJ/ROJ/	Remarks (Notes & Technical
			Valve & Size	Failed, Normal				Reliefs)	Position)
CAC-RD-1A	M554	2	SA	NA	Î				N09
	D12	D	RD 2	NA NC					
					SEP.	ARATOR	& AFTERCOOL	ER RUPTURE I	
CAC-RD-1B	M554	2	SA	NA					N09
	D4	D	RD 2	NA NC	ł				1
	DESC	DIDTION	_		CED	ADATOD	& AFTERCOOL		
CAC-RV-63A	M554	2	SA	NA	P	RV	7.4.0.5.20		1 TV03
	E12	ĉ	RV	NA	1	1.1	7.4.0.0.20		1.05
		-	1 X 2	NC	ł				
	DESC	RIPTION	SW TO	CAC-EV-	IA R	v	<u></u>	L	
CAC-RV-63B	M554	2	SA	NA	P	RV	7.4.0.5.20		TV03
	E04	С	RV	NA					
			1 X 2	NC					
		RIPTION	SW TO	CAC-EV-	1B R				_
CAC-RV-65A	M554	2	SA	NA	P	RV	7.4.0.5.20		TV03
	D14	С	RV	NA					
		DIMON	1.5 X 3	NC					l
				-1A DISC				r	1
CAC-RV-65B	M554 D4	2 C	SA RV	NA NA	P	RV	7.4.0.5.20		TV03
	104	C	RV 1.5 X 3	NA NC					
	DESC	RIPTION		7-1B DISC	<u>ן</u> איק אי	7			l
CAC-TCV-4A	M554	3	HO	0	Н	RF	7.4.6.6.1.3E	· · · · · · · · · · · · · · · · · · ·	N07
0/10/10/14/1	D12	B	GB	FO -	.		7,4,0.0.1.56		
			2	NO					
	DESC	RIPTION	SW TO	CAC-EV-	IA T	CV (SKII	MOUNTED)	· · · · · · · · · · · · · · · · · · ·	
CAC-TCV-4B	M554	3	HO	0	Н	RF	7.4.6.6.1.3F		N07
	D5	В	GB	FO	1				1
			2	NO					·
						-	MOUNTED)		<u></u>
CAC-V-1A	M554	2	HO	0	G	2Y	7.4.0.5.14A		TV01
	F15	В	DI	FC	н	Q	7.4.0.5.14A		
		DIDTION	2	NC V-1A INL					l
CAC-V-1B	M554			O			7405140		TV01
CAC-V-ID	F2	2 B	HO DI	FC	G HJ	2Y Q	7.4.0.5.14B 7.4.0.5.14B		
		2	2	NC	1	×	7.4.0.0.140		
	DESC	RIPTION	CAC-AT	V-1B INL	ET			<u>_</u>	· · · · · · · · · · · · · · · · · · ·
CAC-V-2	M554	2	MO	0/C	G	2Y	7.4.0.5.14A		TV01,2
	G10	Ā	GT	FAI	н	Q	7.4.0.5.14A		}
			4	NC	L	2 ` Y	7.4.6.1.2.4		1
	DESC	RIPTION	CAC IS	O TO PEN	IETR	ATION X	-96 (CIV)		*- <u></u>
CAC-V-2A	M554	2	НО	O/C	G	2Y	7.4.0.5.14A		TV01
	F12	В	DI	FC	ш	Q	7.4.0.5.14A	•	}
			2	NO					l
	DESC	RIPTION	CAC RE	TURN				,	

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				-2 valve	1001		,	<u></u>	r
	Dwg &	Class	Туре	Position		_		Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat,	Safety,				(CSJ/ROJ/	Technical
			Valve & Size	Failed, Normal		•		Reliefs)	Position)
CAC-V-2B	M554		HO	O/C	G	2Y	7.4.0.5.14B	<u> </u>	 TV01
CAC- V-2B	F4	2 B	DI	FC	ш	Q	7.4.0.5.14B		
	1.1	-	2	NO		×		ſ	1
	DESC	RIPTION	CAC R			··· <u> </u>		L	l
CAC-V-3A	M554	2	НО	0/C	H	RF	7.4.6.6.1.3A	<u> </u>	N07
	D12	В	GB	FC					
	[0.75	NC	ſ			ſ	l I
	DESC	RIPTION	CAC-M	S-1A DRN	I (SKII	D MOUL	NTED)		
CAC-V-3B	M554	2	HO	O/C	Н	RF	7.4.6.6.1.3B	1	N07
	D4	В	GB	FC					
			0.75	NC					
	DESC	RIPTION	CAC-M	S-1B DRN	I (SKII		NTED)		
CAC-V-4	M554	2	МО	O/C	G	2Y	7.4.0.5.14A		TV01,2
	E10	A	GT	FAI	HI	Q	7.4.0.5.14A		
,			4	NC	L	2Y	7.4.6.1.2.4	l	l
						_	K-102 (CIV)		<u>.</u>
CAC-V-6	M554	2	MO	O/C	G	2Y	7.4.0.5.14A	s	TV01,2
	H10	A	GT	FAI	HI	Q	7.4.0.5.14A		
		l	4	NC	L	2Y	7.4.6.1.2.4	l	I
							N X-99 (CIV)		1
CAC-V-8	M554	2	мо	O/C	G	2Y	7.4.0.5.14A	ł	TV01,2
	D10	A	GT	FAI	HI	Q	7.4.0.5.14A		а
		DIPTION	4	NC		2Y	7.4.6.1.2.4	I	L
<u></u>							N X-105 (CIV)	1	1
CAC-V-11	M554 G6	2	MO	O/C FAI	G HJ	2Y	7.4.0.5.14B		TV01,2
	60	A	GT 4	NC		Q 2Y	7.4.0.5.14B 7.4.6.1.2.4		
	DESC	DIDTION					(-98 (CIV)	l	l
CAC-V-13	M554	2	MO	O IO FER	G	2Y	7.4.0.5.14B	<u>, </u>	TV01,2
CAC-V-IJ	E7	Â	GT	FAI	н	Q	7.4.0.5.14B		1 001,2
		**	4	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	CAC IS				(-103 (CIV)	!	L
CAC-V-15	M554	2	MO	O/C	G	2Y	7.4.0.5.14B	I	TV01,2
	H6	Ā	GT	FAI	н	Q	7.4.0.5.14B		
			4	NC	L	2 Y	7.4.6.1.2.4		
	DESC	RIPTION	CAC IS	O FROM	PENET	RATIO	N X-97 (CIV)	·	•
CAC-V-17	M554	2	MO	O/C	G	2Y	7.4.0.5.14B	[TV01,2
	D6	Α	GT	FAI	HI	Q	7.4.0.5.14B		ſ
			4	NC	L	2Y	7.4.6.1.2.4		
		RIPTION	CAC IS				N X-104 (CIV)		
CAS-V-29A THRU D	M510-2	3	SA	C	HL	RF	7.4.0.5.60	ROJ02	
	A	AC	СК	NA	1				
	J8		0.50	NC				<u> </u>	l
						-	V) OPERATOR	CHK	
CAS-V-730	M510-2	2	MA	C	L_	2Y	7.4.6.1.2.4		TV02
	H12	Α	GB	NA				1	
			1	LC					

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WNP-2 Valve Test Tables



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WNP-2 Valve Test Tables

	<u> </u>		r——-	Position				Testing	Remarks
Volue EDM	Dwg &	Class	Type		Tor	to Fran	quency & PPM	Exceptions	(Notes &
Valve EPN	Coord	& Cat	Actuat, Valve	Safety, Failed,		is, freq	quency & Frit	(CSJ/ROJ/	Technical
		ļ	& Size	Normal				Reliefs)	Position)
CAS-VX-82E	M510-2	2	MA	C	L	2Y	7.4.6.1.2.4		TV02
	H12	A	GB 1	NA LC			i		
	DESC	RIPTION			DR TES	TING	WW-DW VACUU	M BRKRS (CIV])
CCH-RD-1A	M775	3	SA	NA					N08
	G8	D	RD	NA					
*			3	NC	<u> </u>				l
					T LINE	OVER	PRESS PROTECT	TION	1 2200
CCH-RD-1B	M775 C7	3 D	SA RD	NA NA					N08
	0,	U	3	NC					ł
	DESC	RIPTION	-		T LINE	OVER	PRESS PROTECT	TION	I
CCH-RD-2A	M775	3	SA	NA	1				N08
	J14	Ð	RD	NA					
-			2	NC					[
					CCH-C	U-1A F	REFRIGERANT	·····	1 1/00
CCH-RD-2B	M775 D14	3 D	SA RD	NA NA					N08
	D14	D	2	NC					ł
	DESC	RIPTION			CCH-C	U-IB R	EFRIGERANT		l
CEP-V-1A	M543-1	2	AO	C	G	2Y	7.4.6.3.3		TV01,2
-2	J13	Ā	BF	FC	нік	Q	7.4.6.3.3		
		-	30	NC	L	2 Y	7.4.6.1.8.3		
					L	2Y	7.4.6.1.2.4		
				ELL EXH					
CEP-V-1B	M543-1	2	AO	C	G	2Y	7.4.6.3.3		TV01,2
	J13	A	GT 2	FC NC	HJK L	Q 2Y	7.4.6.3.3 7.4.6.1.8.3		•
. ~			2	ne	Ľ	21 2Y	7.4.6.1.2.4		
	DESC	RIPTION	CEP-V-	IA BYPAS					L
CEP-V-2A	M543-1	2	AO	С	G	2Y	7.4.6.3.3		TV01,2
	J13	Α	BF	FC	нік	Q	7.4.6.3.3		
			30	NC		2Y	7.4.6.1.8.3		
	DESC	DIDTION	DDVIV		L	2Y	7.4.6.1.2.4		L
CEP-V-2B	M543-1	2		ELL EXHA	<u>G</u>	$\frac{2Y}{2Y}$	7.4.6.3.3		TV01,2
CEF- V-2D	J13	Â	AO GT	FC	нік	Q	7.4.6.3.3		1 1 1 1 1 1 2
			2	NC	L	2Y	7.4.6.1.8.3		
					L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	CEP-V-2	2A BYPAS	S (CIV)			
CEP-V-3A	M543-1	2	AO	С	G	2Y	7.4.6.3.3		TV01,2
	C14	Α	BF	FC	НІК	Q	7.4.6.3.3		
		DIDTION	24	NC		2Y	7.4.6.1.2.4 HAUST (CIV)		L
CEP-V-3B									TW01 0
CLIF- Y-JB	M543-1 C14	2 A	AO GT	C FC	G HJK	2Y Q	7.4.6.3.3 7.4.6.3.3		TV01,2
	~ . T	~ 1	2	NC	L	2Y	7.4.6.1.2.4		,
	DESC	RIPTION		A BYPAS					L

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WNP-2 Valve Test Tables

			44142.	-2 valve	101			η····	1
Valve EPN	Dwg &	Class	Type Actuat,	Position Safety,	Test	s, Freq	uency & PPM	Testing Exceptions (CSJ/ROJ/	Remarks (Notes & Technical
	Coord	& Cat	Valve & Size	Failed, Normal		•		Reliefs)	Position)
CEP-V-4A	M543-1	2	AO	С	G	2Y	7.4.6.3.3		TV01,2
	C14	A	BF	FC	нік	Q	7.4.6.3.3		
			24	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	: SUPPRI	ESSION C	HAMBI	ER EXI	IAUST (CIV)		
CEP-V-4B	M543-1	2	AO	С	G	2Y	7.4.6.3.3		TV01,2
	C14	A	GT	FC	нік	Q	7.4.6.3.3		
н. Т			2	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	: CEP-V-	4A BYPA	SS (CIV	<u></u>			1
CIA-RV-5A	M556-1	3	SA	NA	P	RV	7.4.0.5.20		TV03
	H11	Ċ	RV	NA					
		1	.75 X 1	NC	ļ				
	DESC	RIPTION	: CIA TR	AIN " A"	NITRO	GEN H	IEADER RV		
CIA-RV-5B	M556-1	3	SA	NA	P	RV	7.4.0.5.20	1	TV03
CIA-IX + JD	D11	Ċ	RV	NA	1				
1		-	.75 X 1	NC					
A	DESC	RIPTION			NITRO	GEN H	EADER RV		
OLA ODV 1A TUDII 15A	M556-1	3	so		НЈК	CS	7.4.0.5.23	CSJ09	N03
CIA-SPV-1A THRU 15A	G12	B	sv	FO		~	71-11010120		TVOI
		<u>ط</u>	0.50	NC					
		DIDTION		TROGEN	POTTI	RAIT	0 150	. <u>!</u>	1
		RIPTION			HJK	CS	7.4.0.5.23	CSJ09	N03
CIA-SPV-1B THRU 19B	M556-1		SO SV	FO	HJK	6	7.4.0.3.23	C3303	TV01
	B12	B	0.50	NC					
		INTERN		TROGEN	POTTI	E ATT	0 190		I
					_	2Y	7.4.0.5.15	·····	TV01,2
CIA-V-20	M556-1		MO	C	G Ш		7.4.0.5.15		1 101,2
	K8	A	GB	FAI NO	L	Q 2Y	7.4.6.1.2.4	1	
		1	0.75					TPD CIVD	
							NTAINMENT (TV02
CIA-V-21	M556-1	2	SA	0/C	H	RF	7.4.0.5.53	ROJ02	1 02
	K6	AC	CK	NA	HL	RF	7.4.6.1.2.4		
		J	0.75	NO					<u> </u>
		_	I: NORM				NTAINMENT C		· · · · ·
CIA-V-24A THRU D	M556-1	2	SA	С	HL	RF	7.4.0.5.60	ROJ02	
	J5	AC	СК	NA					
			0.50	NC				<u> </u>	
	DESC	CRIPTION			_		V) OPERATOR	СНК	
CIA-V-30A	M556-1	2	мо	O/C	G	2Y	7.4.0.5.15		TV01,2
	G9	A	GB	FAI	HI	Q	7.4.0.5.15	1	
			0.50	NO	L	_2Y	7.4.6.1.2.4		
	DESC	CRIPTION	I: CIA SU	JPPLY TO	3 ADS		MULATORS ISC		
CIA-V-30B	M556-1	2	MO	0/C	G	2Y	7.4.0.5.15		TV01,2
	F8	A	GB	FAI	Hì	Q	7.4.0.5.15		
		1	0.50	NO	L	2Y	7.4.6.1.2.4		<u> </u>
	DES	CRIPTION	I: CIA SU	JPPLY TO			MULATORS ISC		
CIA-V-31A	M556-1	2	SA	O/C	H	RF	7.4.0.5.53	ROJ02	TV02
3A-V-31A			СК	NA	HL	RF	7.4.6.1.2.4	1	1
	G7	AC		1 10		111	///////////////////////////////////////		
			0.50	NO			MULATORS CH		

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WNP-2 Valve Test Tables

	1			2 Valve				T	
VI-Inc PRIM	Dwg &	Class	Type Actuat.	Position Safety,	Test	s. Freq	uency & PPM	Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Valve & Size	Failed, Normal			-	(CSJ/ROJ/ Reliefs)	Technical Position)
CIA-V-31B	M556-1 F7	2 AC	SA CK 0.50	O/C NA NO	H HL	RF RF	7.4.0.5.53 7.4.6.1.2.4	ROJ02	TV02
	DESC	RIPTION	CIA SU	PPLY TO	4 ADS	ACCU	MULATORS CH	K (INBD CIV)	
CIA-V-39A	M556-1	3	AO	С	G	2Y	7.4.0.5.23	C\$105	TV01
	J10	В	BA	FC	нк	CS	7.4.0.5.23		
•			0.50	NO		TO DA	OWNER GUEDDI W	UPADER ISO	l
					· · · · ·		CKUP SUPPLY		TV01
CIA-V-39B	M556-1	3	AO	C FC	G НJК	2Y CS	7.4.0.5.23 7.4.0.5.23	CSJ05	1 401
	E10	В	BA 0.50	NO	I'U'V	6	1.4.0.3.23		
	DESC	DIDTION		_	IPPLY	TO BA	CKUP SUPPLY	HEADER ISO	J ·
OLA M 4016 (TVD 7)	M556-1	2		O/C	HL	RF	7.4.0.5.53	ROJ02	1
CIA-V-40M (TYP 7)	B5	ÂC	CK	NA		101	7.4.0.0.00		
			0.50	NO					
	DESC	RIPTION		ADS AC	CUMU	LATOR	СНК	1	·
CIA-V-41A	M556-1	3	SA	C	Н	CS	7.4.0.5.23	CSJ05	1
	J10	Ċ	СК	NA					
			0.50	NO					
	DESC	RIPTION	: CIA NO	DRMAL SI	JPPLY	TO BA	CKUP SUPPLY	HEADER CHK	
CIA-V-41B	M556-1	3	SA	С	H	CS	7.4.0.5.23	CSJ05	
	D10	C C	СК	NA					
			0.50	NO					<u> </u>
	DESC	RIPTION	: CIA NO	DRMAL SU	UPPLY	TO BA	CKUP SUPPLY		
CIA-V-52A THRU 66A	M556-1	3	SA	0	H	CS	7.4.0.5.23	CS109	
	G12	C	СК	NA					
			0.50	NC					
		RIPTION		TROGEN				1.0000	
CIA-V-52B THRU 70B	M556-1	3	SA		Н	CS	7.4.0.5.23	CSJ09	
	C12	С	CK 0.50	NA NC	1				
				TROGEN	1 DOTT	E DIC			1
					H	CS	7.4.0.5.23	CSJ09	1
CIA-V-103A	M556-1 H13	3 C	SA CK	O NA	n	6	1.4.0.3.20		
	I HIS		0.50	NC					
	DESC	RIPTION		TROGEN	BOTTI	E DISC	СН СНК		" I
CIA-V-103B	M556-1		SA	0	Н	CS		CSJ09	1
CIA-V-103B	D12	č	СК	NA					, ,
			0.50	NC					
	DESC	RIPTION	: CIA NI	TROGEN	BOTTI	LE DISC	СН СНК		
CIA-V-104A	M556-1		MA	0	Н	CS	7.4.0.5.23	CSJ09	
	H13	В	GB	NA					
			0.50	NC				<u> </u>	<u> </u>
	DESC	CRIPTION	: CIA NI	TROGEN	BOTTI		CH MAN ISO		
CIA-V-104B	M556-1	3	MA	0	н	CS	7.4.0.5.23	CS109	
	D12	B	GB	NA					
			0.50	NC	1	DDIC			
	DESC	CRIPTION	I: CIA N	TROGEN	BOLLI	LE DIS	CH MAN ISO		



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WNP-2 Valve Test Tables

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				-2 valve					T
Valve EPN	Dwg & Coord	Class & Cat	Type Actuat,	Position Safety,	Tests, Frequency & PPM		Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)	
			Valve & Size	Failed, Normal					
CRD-V-10	M528	2	AO	С	G	2Y	7.4.1.3.1.1B		TV01
	K6	В	GB	FC	нік	Q	7.4.1.3.1.1B		
			1	NO	ļ				<u> </u>
	DESC	RIPTION	: SCRAM	DISCH V	OLUM				T
CRD-V-11	M528	2	AO	С	G	2Y	7.4.1.3.1.1B		TV01
	F6	В	GB	FC	нк	Q	7.4.1.3.1.1B		
			2	NO					l
		RIPTION		DISCH V				<u>`</u>	1 205
CRD-V-114 (TYP 185)	M528	D	SA	0	н	RF	7.4.1.3.2		N05
	ငဒ	С	CK	NA					
			0.75	NC				L	<u></u>
				O SCRAM	_				1.205
CRD-V-115 (TYP 185)	M528	D	SA	С	н	RF	7.4.1.3.5.3		N05
	CS	C	СК	NA	1				
			1	NC		HOIL			<u></u>
		RIPTION		SING WAT				r	1 1105
CRD-V-126 (TYP 185)	M528	D	AO	0	Н	RF	7.4.1.3.2		N05
	C4	B	DI	FO	1				
				· NC	INCER	T 11/47	TED SCRAM VI	,	<u> </u>
			· · · · · · · · · · · · · · · · · · ·				TER SCRAM VL	v I	N05
CRD-V-127 (TYP 185)	M528	D	AO	O FO	н	RF	7.4.1.3.2		105
	C4	B	DI 0.75	FO NC					
					1	DDAW	AL WATER SCR		
					H	Q	7.4.1.3.1.2		N05
CRD-V-138 (TYP 185)	M528 C4	D C	SA CK		п	Q	7.4.1.3.1.2		1105
	104		0.75	NO					tu.
		CRIPTION		NG WATE			нк	L	.L
CRD-V-180	M528	2			G	2Y	7.4.1.3.1.1B	l	TV01
CRD-V-180	K6	B	GB	FC	НІК	Q	7.4.1.3.1.1B		
	NO		1	NO		×			
	DESC	RIPTION	-	I DISCH			т		I
CRD-V-181	M528	2	AO	C	G	2Y	7.4.1.3.1.1B	<u> </u>	TV01
CKD-V-181	F6	B	GB	FC	нік	Q	7.4.1.3.1.1B		
			2	NO					
	DES	CRIPTION	: SCRAN	1 DISCH	VOLUM	E DRN	1	·	4
CSP-RV-51	M619-	2	SA	NA	P	RV		ĭ	TV03
61-11-11	161	Ē	RV	NA	1-		•••••		
		1	.75 X 1						
	DES	CRIPTION			ROL AI	R SUPP	LY HEADER TO	CSP-V-5,6,9 I	RV
CSP-RV-52	M619-	2	SA	NA	P	RV	7.4.0.5.20	Π	TV03
	161	l c	RV	NA	1	-			
			.75 X 1						
	DES	CRIPTION			CONTR	OL AIF	R TO CSP-V-5,6,9	9)	
CSP-V-1	M543-1		AO	C	G	2Y		<u></u>	TV01,2
	D5	Ā	BF	FC	нік	Q	7.4.6.3.3	Į	· ·
			30	NC	L	2Y			
				1	L	2Y	7.4.6.1.2.4		
	DES	CRIPTION	I: CSP TO	O CONTA	INMEN	T ISO	(CIV)		



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	Dwg &	Class	Туре	Position				Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal	Test	s, Freq	uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
CSP-V-2	M543-1	2	AO	С	G	2Y	7.4.6.3.3	Í	TV01,2
	D6	Α	BF	FC	НЈК	Q	7.4.6.3.3		
			30	NC	L	2Y	7.4.6.1.8.3		
1					L	2Y	7.4.6.1.2.4		
		RIPTION		CONTAI				· · · · · · · · · · · · · · · · · · ·	
CSP-V-3	M543-1	2	AO	C	G	2Y	7.4.6.3.3	1	TV01,2
	D5	A	BF	FC	нік	Q	7.4.6.3.3		
			24	NC	L	2Y	7.4.6.1.8.2		
					L	2Y	7.4.6.1.2.4	<u> </u>	· · · · · · · · · · · · · · · · · · ·
				CONTAI				·	1
CSP-V-4	M543-1	2	, AO	C	G	2Y	7.4.6.3.3		TV01,2
	C5	A	BF	FC	НЈК	Q	7.4.6.3.3		
			24	NC		2Y	7.4.6.1.8.2		
		DIPTION		CONTAI	L	· 2Y	7.4.6.1.2.4	<u> </u>	<u> </u>
			·	CONTAL		-		T	17301.2.4
CSP-V-5	M543-1	2	AO	O/C	G HJK	2Y	7.4.6.3.3 7.4.6.3.3		TV01,2,4
	C5	A	BF 24	FO NC		Q 2Y	7.4.6.1.2.4		
		1	24	NC	LS	RF	7.4.6.4.2.7		
	DESC			CONTAI				<u> </u>	l
CSP-V-6	M543-1	2		O/C	G	2Y	7.4.6.3.3	I	TV01,2,4
21-1-0	B14	Â	BF	FO	нік	Q	7.4.6.3.3	1	
			24	NC	L	2Y	7.4.6.1.2.4		
					s	RF	7.4.6.4.2.7		
	DESC	RIPTION	CSP TO	CONTAL	NMEN	r iso (CIV)	I	I
CSP-V-7	M543-1	2	AO,SA	O/C	G	2Y	7.4.6.3.3		N02
	C5	AC	СК	NA	н	Q	7.4.6.3.3		TV02,4
			24	NC	L `	2Y	7.4.6.1.2.4	•	
					S	RF	7.4.6.4.2.6		
					_		SSION CHAMB	ER (CIV)	······
SP-V-8	M543-1	2	AO,SA	O/C	G	2Y	7.4.6.3.3		N02
I.	B14	AC	СК	NA	H	Q	7.4.6.3.3		TV02,4
			24	NC	L S	2Y RF	7.4.6.1.2.4 7.4.6.4.2.6		1
		PIPTION		M RELIE	-		/.4.0.4.2.0	I	<u> </u>
SP-V-9	M543-1	2		O/C	G G) 2Y	7.4.6.3.3	r	TV01,2,4
~~	C6	Â	BF	FO	нік	Q	7.4.6.3.3	1	
			24	NC	L	2Y	7.4.6.1.2.4		
-					ŝ	RF	7.4.6.4.2.7		
	DESC	RIPTION	VACUU	M RELIE			SSION CHAMBI	ER (CIV)	
SP-V-10	M543-1	2	AO,SA	0/C	G	2Y	7.4.6.3.3	<u>, , , , , , , , , , , , , , , , , , , </u>	N02
	C6	AC	СК	NA	н	Q	7.4.6.3.3		TV02,4
			24	NC	L	2Y	7.4.6.1.2.4		
					s	RF	7.4.6.4.2.6		
	DESC	RIPTION	VACUU	M RELIE	F (CIV))		• • • • • • • • • • • • • • • • • • • •	
					1		71050	L D O I O O	1
SP-V-65	M619-	2	SA	С	HL	RF	7.4.0.5.61	ROJ09	
CSP-V-65	M619- 161	2 AC	SA CK 1.50	C NA NC		RF	7.4.0.5.01	ROI09	





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			WNP	-2 Valve	Test '	Tables			y
Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal		ts, Freq	uency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
CSP-V-70	M619-	2	SA	0	Н	RF	7.4.0.5.61	ROJ09	
	161	С	СК 1	NA NC					
							LY CHK TO CI		
CSP-V-71	M619- 161	2 C	SA CK 1	O NA NC	H	RF	7.4.0.5.61	ROJ09	
							LY CHK TO CI		
CSP-V-72	M619- 161	2 C	SA CK 1	O NA NC	Н	RF	7.4.0.5.61	ROJ09	
1	DESC	RIPTION	BACKU			R SUPP	LY CHK TO CI	Vs (CSP-V-5,6,9	•
CSP-V-73	M619- 161	2 C	SA CK 1	O NA NC	н	RF	7.4.0.5.61	ROJ09	Jh
	DESC	RIPTION	BACKU	P CONTR			LY CHK TO CI		
CSP-V-74	M619- 161	2 C	SA CK 1	O NA NC	H	RF	7.4.0.5.61	ROJ09	,
	DESC	RIPTION	BACKU	P CONTR	OL AI	R SUPP	LY CHK TO CI	Vs (CSP-V-5,6,9	
CSP-V-75	M619- 161	2 C	SA CK 1	O NA NC	н	RF	7.4.0.5.61	ROJ09	
	DESC	RIPTION	BACKU	P CONTR	OL AI	R SUPP	LY CHK TO CI	Vs (CSP-V-5,6,9	l
CSP-V-76	M619- 161	2 C	SA CK 1	O NA NC	н	RF	7.4.0.5.61	ROJ09	
	L DESC	RIPTION			OL AI	R SUPP	LY CHK TO CI	1	l <u> </u>
CSP-V-77	M619- 161	2 C	SA CK 1	O NA NC	H	RF	7.4.0.5.61	ROJ09	
	DESC	RIPTION	BACKU	P CONTR	OL AI	R SUPP	LY CHK TO CIV	vs (CSP-V-5,6,9	
CSP-V-78	M619- 161	2 C	SA CK 1	O NA NC	н	RF	7.4.0.5.61	ROJ09	· · · · · · · · · · · · · · · · · · ·
	DESC	RIPTION	BACKU	P CONTR	OL AI	R SUPP	LY CHK TO CIV	vs (CSP-V-5,6,9	
CSP-V-79	M619- 161	2 C	SA CK 1	O NA NC	н	RF	7.4.0.5.61	ROJ09	
	DESC	RIPTION	BACKU	P CONTR	OL All	R SUPP	LY CHK TO CIV	/s (CSP-V-5,6,9	
CSP-V-93	M783 F5	2 A	SO SV 1	C FC NO	HJK GL	Q 2Y	7.4.6.3.3 7.4.6.1.2.4		TV01,2
,	DESC	RIPTION	CONTA	INMENT	N2 SU	PPLY (CIV)		L <u></u>
CSP-V-96	M783 H4	2 A	SO SV 1	C FC NO	HJK GL	Q 2Y	7.4.6.3.3 7.4.6.1.2.4		TV01,2
	DESC	RIPTION	CONTA	INMENT	N2 SU	PPLY (CIV)	1	





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· ·		.	WNP	-2 Valve	Test '	Table	<u> </u>		. <u></u>
	Dwg &	Class	Туре	Position		_		Testing Exceptions	Remarks (Notes &
Valve EPN	, Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal	Test	ls, Fred	quency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
CSP-V-97	M783	2	SO	С	нік	Q	7.4.6.3.3		TV01,2
	H4	A	SV 1	FC NO	GL	2Y	7.4.6.1.2.4		ł
	DESC	RIPTION		INMENT	N2 SU	PPLY ((CIV)	<u>. </u>	.!
CSP-V-98	M783	2	SO	С	нік	Q	7.4.6.3.3		TV01,2
	F5	A	SV 1	FC NO	GL	2Y	7.4.6.1.2.4		
	DESC	RIPTION	CONTA	- · -	1 N2 SU	PPLY		I	<u> </u>
CVB-V-1AB	M543-1	2	AO,SA	O/C	GS	2Y	7.4.6.4.1.3	RV01	N02
	B12	AC	СК	NA	н	Q	7.4.6.4.1.2		TV05
		<u> </u>	24	NC	L	2Y	7.4.6.2.1	<u> </u>	
			· VACUU					DUAL	1100
CVB-V-1CD	M543-1 B11	2 AC	AO,SA CK	O/C NA	GS H	2Y Q	7.4.6.4.1.3 7.4.6.4.1.2	RV01	N02 TV05
	BII		24	NC	L	2Y	7.4.6.2.1		
	DESC	RIPTION	VACUU	M RELIE	F TO I	DRYWI	ELL	I	
CVB-V-1EF	M543-1	2	AO,SA	0/C	GS	2Y	7.4.6.4.1,3	RV01	N02
	B11	AC	СК	NA	H	Q	7.4.6.4.1.2		TV05
		DIDTION	24 VACUU	NC		2Y	7.4.6.2.1	ļ	l
CVB-V-1GH	M543-1	2	AO,SA	O/C	GS	$\frac{7}{2Y}$	7.4.6.4.1.3	RV01	N02
CvB-v-IOn	B11	ÂC	CK	NA	H	Q	7.4.6.4.1.2		TV05
			24	NC	L	2Y	7.4.6.2.1		
	DESC	RIPTION	VACUU	M RELIE	FTOD	DRYWE	ELL		
CVB-V-1JK	M543-1	2	AO,SA	O/C	GS	2Y	7.4.6.4.1.3	RV01	N02
	B9	AC	CK 24	NA NC	H L	Q 2Y	7.4.6.4.1.2 7.4.6.2.1	ſ	TV05
	DESC	RIPTION	VACUU					!	L
CVB-V-1LM	M543-1	2	AO,SA	O/C	GS	2Y	7.4.6.4.1.3	RV01	N02
	B8	AC	СК	NA	Н	Q	7.4.6.4.1.2		TV05
			24	NC	L	2Y	7.4.6.2.1		[
			VACUU					·	·
CVB-V-1NP	M543-1	2	AO,SA			2Y	7.4.6.4.1.3	RV01	N02
	B 8	AC	CK 24	NA NC	H L	Q 2Y	7.4.6.4.1.2 7.4.6.2.1		TV05
	DESC	RIPTION	VACUU					ł	l
CVB-V-1QR	M543-1	2	AO,SA	O/C	GS	2Y	7.4.6.4.1.3	RV01	N02
-	B7	AC	СК	NA	н	Q	7.4.6.4.1.2	(TV05
			24	NC	L	2Y	7.4.6.2.1	l	
			VACUU						
CVB-V-1ST	M543-1 B7	2 AC	AO,SA CK	O/C NA	GS H	2Y Q	7.4.6.4.1.3 7.4.6.4.1.2	RV01	N02 TV05
	<i>"</i>	AU	24	NC	L	2Y	7.4.6.2.1	1	
	DESC	RIPTION	VACUU					1	ł
DO-V-1A	M512-4	3	SA	0	Н	Q	7.4.0.5. 1		1
	J12	С	СК	NA					
	, ,		1.50	NC				1	1



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WNP-2 Valve Test Tables

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	Dwg &	Class	Туре	Position	_			Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal	Te	sts, Freq	uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
DO-V-1B	M512-4	3	SA	0	Н	Q	7.4.0.5.2		
	F12	С	CK	NA					
			1.50	NC					<u> </u>
	DESC	RIPTION	: DO-P-1		_		O DAY TANK I	DISCH CHK	· · · · · · · · · · · · · · · · · · ·
DO-V-10	M512-4	3	SA	0	н	Q	7.4.0.5. 3		
	DI	С	CK	NA	1				
			1.50	NC				<u> </u>	
							SCH CHK	······	N06
DSA-SPV-5A1/2	M512-2	D	SO	O/C	н	N	8.3.126		NUO
	F10	В	3W	FAI NC					
		DIPERON	2			VOTOD	S BYPASS/VENT	WW	
									N06
DSA-SPV-5A1/4	M512-2	D	SO	O/C	н	N	8.3.126		1100
	E10	В	3₩ 2	FAI NC					
		DIPTION		-	ADT	MOTOP	S BYPASS/VENT		I
					_			1	N06
DSA-SPV-5A2/2	M512-2		SO	O/C	H	N	8.3.126		1400
	F6	В	3W 2	FAI NC					
			1 -		ADT	MOTOR	S BYPASS/VENT		<u> </u>
									N06
DSA-SPV-5A2/4	M512-2	D	SO	O/C	Н	N	8.3.126		NUO
	E6	В	3W 2	FAI NC					1
			_		ADT	VOTOR	S BYPASS/VENT		.I
									N06
DSA-SPV-5B1/2	M512-3		SO	O/C	н	N	8.3.128		NUO
	F10	B	3W 2	FAI NC					
	DESC	DIDTION	. –		ADT	MOTOP	S BYPASS/VENT		
DOA ODV CD1/4	M512-3	D		0/C	H	N	8.3.128	1	N06
DSA-SPV-5B1/4	E10	B	3W	FAI		14	0.0.120		
	EIU	4	2	NC					
	DESC	NOITEIG	-		ART	MOTOR	S BYPASS/VENT	VLV	
DSA-SPV-5B2/2	M512-3	D	SO	0/C	H	N	8.3.128		N06
D3K-3F Y-JD2/2	F6	B	3W	FAI	1		0.01120		
			2	NC					
	DESC	RIPTION	_		ART	MOTOR	S BYPASS/VENT	VLV	
DSA-SPV-5B2/4	M512-3	D	so	0/C	I H	N	8.3.128	1	N06
D3A-3F Y-JD2/4	E6	B	3W	FAI	1	••	0.01120		
	~	-	2	NC	ł				
	DESC	RIPTION	: DSA TO	D EDG ST	ART	MOTOR	S BYPASS/VENT	VLV	_ 1 ,
DSA-SPV-5C1/1	M512-1	D	so	0	H	N	8.3.129		N06
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	F9	B	3W	FAI	[				
		-	1.50	NC	1				
	DESC	RIPTION	: DSA T	O EDG ST	ART	MOTOR	s Iso	1	
DSA-SPV-5C1/2	M512-1	D	so	0	Н	N	8.3.129	1	N06
2013-01 1-001/2	F9	B	3W	FAI					
	1	-	1.50	NC	1			1	
	L	1		O EDG ST	1	VOMOD	0.100		



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#### WNP-2 Valve Test Tables

			Туре	Position				Testing	Remarks
Valve EPN	Dwg &	Class	Actuat,	Safety,	Test	s, Freq	uency & PPM	Exceptions (CSJ/ROJ/	(Notes & Technical
	Coord	& Cat	Valve & Size	Failed, Normal		•		Reliefs)	Position)
DW-V-156	M517	2	MA	С	L	2Y	7.4.6.1.2.4		TV02
	G8	A	GT	NA					
			2	LC		TT A THE	MENT ISO (OTP		I
			_	C		$\frac{1}{2Y}$	MENT ISO (OTB 7.4.6.1.2.4		TV02
DW-V-157	M517 G8	2 A	MA GT	NA		21	7.4.0.1.2.4		1102
		^	2	LC					
	DESC	RIPTION	: DEMIN	WATER	TO CO	NTAIN	MENT ISO (INBI	D CIV)	J
EDR-V-19	M537	2	AO	С	G	2Y	7.4.0.5. 6A		TV01,2
	D9	A	GT	FC	НЈК	Q	7.4.0.5. 6A		
			3	NO	L	2Y	7.4.6.1.2.4	·	
			_				JMP (CIV)		1
EDR-V-20	M537	2	AO	С	G	2Y	7.4.0.5. 6A		TV01,2
	D9	A ,	GT 3	FC NO	HJK L	Q 2Y	7.4.0.5. 6A 7.4.6.1.2.4		
	DECC	DIPERON			_		JMP (CIV)	l	<u></u>
FDR-V-3	M539		AO		G	2Y	7.4.0.5. 6B	i	TV01,2
FDK-V-3	M339 D6	2 A	BA	FC	ык	Q	7.4.0.5. 6B		
			3	NO	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	FDR IS	O FROM	DRYWI	ELL FE	DR-SUMP-3 (CIV	)	<u> </u>
FDR-V-4	M539	2	AO	С	G	2Y	7.4.0.5. 6B	l	TV01,2
	D6	Ā	BA	FC	ΗΙΚ	Q	7.4.0.5. 6B		
			3	NO	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	: FDR IS	O FROM	DRYWI	ell fe	DR-SUMP-3 (CIV	)	
FPC-FCV-1	M526	3	AO	0	G	2Y	7.4.0.5.4		TV01
	C9	В	GB	FO	нік	Q	7.4.0.5. 4		
			4 X 6	NC		DUDIO	0.001/	<u> </u>	
				MINERA				<del>۱</del>	TV03
FPC-RV-117A	M526	3 C	SA RV	NA NA	P	RV	7.4.0.5.20		1 003
	D11		0.75	NC				1	4
	DESC	RIPTION	FPC-H					P	
FPC-RV-117B	M526	3	SA	NA	P	RV	7.4.0.5.20	r	TV03
110-80-1118	C11	c	RV	NA	-				
			0.75	NC					
	DESC	RIPTION	: FPC-H	K-1B RV	·				
FPC-V-112A	M526	3	SA	O/C	Н	Q	7.4.0.5.4		
	D13	С	СК	NA					
4			6	NC					<u> </u>
			· · · · · · · · · · · · · · · · · · ·	IA DISCH				·····	1
FPC-V-112B	M526	3 C	SA CK	O/C NA	н	Q	7.4.0.5.4		
	C13		6	NA NC					
	DESC	RIPTION		IB DISCH	СНК			l	
FPC-V-127	M526	3	SA		H	Q	7.4.0.5.4	1	1
11 - 1-127	E9	Ċ	СК	NA	[	×			1
		ļ	2	NC					
	DESC	RIPTION	SW TO	FPC CHR	<u> </u>				

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#### WNP-2 Valve Test Tables

Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve	Position Safety, Failed,	Tes	ts, Freq	uency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
			& Size	Normal					
FPC-V-140	M526	3	SA	С	н	Q	7.4.0.5.4		
	C9	. C	СК	NA					
			8	NO				l	
		RIPTION		EMIN EFF					
FPC-V-146A	M526	3	SA	0	н	Q	7.4.0.5.4	1	
	J11	С	СК	NA					1
			8	NO					<u> </u>
				FUEL PO				ı	·····
FPC-V-146B	M526	3	SA	0	н	Q	7.4.0.5.4		
	J10	С	СК	NA	1				
		<u> </u>	8	NO					I
				FUEL PO					1
FPC-V-149	M526	2	MO	С	G	2Y	7.4.0.5.4		TV01,2
	D9	A	GT	FAI	́Ш,	Q	7.4.0.5.4		
ŀ			6	NC	L	2Y	7.4.6.1.2.4	l	
	DESC	RIPTION		) SUPPRE					
FPC-V-153	M526	2	мо	С	G	2Y	7.4.0.5.4		TV01,2
	B11	A	GT	FAI	HI	Q	7.4.0.5.4		
			6	NC	L	RF	7.4.6.1.2.9		<u> </u>
		RIPTION	: SUPPR				P-3 SUCT (CIV)		
FPC-V-154	M526	2	мо	С	G	2Y	7.4.0.5.4		TV01,2
	B11	A	GT	FAI	H	Q	7.4.0.5.4		
			6	NC	L	RF	7.4.6.1.2.9		<u> </u>
	DESC	CRIPTION	: SUPPR				P-3 SUCT (CIV)		
FPC-V-156	M526	2	MO	C	G	2Y	7.4.0.5.4		TV01,2
4	C11	A	GT	FAI	HJ	Q -	7.4.0.5.4		
			6	NC	L	2Y	7.4.6.1.2.4		<u> </u>
	DESC	CRIPTION	: FPC TC	) SUPPRE	SSION				
FPC-V-172	M526	3	мо	C	G	2Y	7.4.0.5.4		TV01
	C9	В	GT	FAI	H1	Q	7.4.0.5. 4		
			8	NO					
	DESC	CRIPTION	: FPC TC	SUPPRE	SSION	POOL	ISO		
FPC-V-173	M526	3	MO	C	G	2Y	7.4.0.5.4		TV01
	C8	В	GT	FAI	HI	Q	7.4.0.5. 4		
		]	8	NO					
	DESC	CRIPTION	: FPC IN	FLUENT	to di	emin is	0		
FPC-V-175	M526	3	МО	0	G	2Y	7.4.0.5.4		TV01
	C10	В	GT	FAI	ні	Q	7.4.0.5. 4		
			8	NC	<u> </u>			<u>I</u>	l
	DESC	CRIPTION	: FPC FL	TR DEMI	N BYI	PASS			
FPC-V-181A	M526	3	МО	0	G	2Y	7.4.0.5.4		TV01
	E14	В	GT	FAI	нл	Q	7.4.0.5.4		1
			8	NO				<u> </u>	<u> </u>
	DESC	CRIPTION	: FPC-P-	IA SUCT					
FPC-V-181B	M526	3	МО	0	G	2Y	7.4.0.5.4		TV01
	D14	B	GT	FAI	HJ	Q	7.4.0.5.4	1	
	1		8	NO	1	-		1	
	DESC	RIPTION	: FPC-P-	IB SUCT	.1				





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#### WNP-2 Valve Test Tables

. <u> </u>							<u> </u>	The states	Remarks
Valve EPN	Dwg &	Class	Type Actuat,	Position Safety,	Tes	its, Freq	uency & PPM	Testing Exceptions (CSJ/ROJ/	(Notes & Technical
	Coord	& Cat	Valve & Size	Failed, Normal		•		Reliefs)	Position)
FPC-V-184	M526	3	мо	С	G	2Y	7.4.0.5.4		TV01
	C9	В	GT 8	FAI NO	ш	Q	7.4.0.5.4		
	DESC	RIPTION	: FPC FI	LTER DEN	MIN E				
HPCS-RV-14	M520	2	SA	NA	P	RV	7.4.0.5.20		TV02,3
	C6	AC	RV	NA	L	2Y	7.4.6.1.2.1		
			1 X 1	NC				l	<u></u>
		RIPTION		-3 SUCT					1
HPCS-RV-35	M520	2	SA	NA	P	RV	7.4.0.5.20		TV02,3
	C5	AC	RV	NA	L	2Y	7.4.6.1.2.1		
			1.5 X 2	NC					I
				-3 DISCH					
HPCS-V-1	M520	2	мо	O/C	G	2Y	7.4.5.1.11		TV01
	C7	В	GT	FAI	ні	Q	7.4.5.1.11		
		-	14	NO		~			l
				HPCS-P-					. <u> </u>
HPCS-V-2	M520	2	SA	0/C	H	Q	7.4.5.1.11		
	C6	С	CK	NA					
			20	NC					<u> </u>
				HPCS-P-				- <del>1</del>	
HPCS-V-4	M520	1	MO	O/C	G	2Y	7.4.5.1.11		TV01,2
	G7	A	GT	FAI	HI	Q	7.4.5.1.11 7.4.4.3.2.2		
	L		12	NC		RF			I
				O RPV IS				100100	TV02
HPCS-V-5	M520		SA	O/C	H	RF	7.4.0.5.7E	ROJ08	1 1 02
	H8	AC	СК	NA	HL	RF	7.4.4.3.2.2		
	L		12	NC		D ann		<u> </u>	<u> </u>
				O RPV IS				1 77/00	
HPCS-V-6	M520	2	SA,MA	C	н	Q	7.4.5.1.11	RV02	
	C5	С	SC	NA	1				
	L		1.50	NO			U OTOD OUW		<u></u>
						· · · · · · · · · · · · · · · · · · ·	H STOP CHK	TDV02	
HPCS-V-7	M520	2 C	SA	C	н	Q	7.4.5.1.11	RV02.	•
	C5		CK 1.50	NA NO					
	DESC			-3 (WATE					
								1	TV01
HPCS-V-10	M520	2 B	MO	C FAI	G HJ	2Y	7.4.5.1.11 7.4.5.1.11		1 101
	E3		GB 10	NC	LU	Q	7.4.3.1.11		
		DIDTION		O CST IS	<u> </u>			_l	I
					IG IG	<u> </u>	7.4.5.1.11	1	TV01
HPCS-V-11	M520 E3	2 B	MO GB	C FAI	н	2Y Q	7.4.5.1.11		
		<b>^</b>	10	NC	1	X	/. <del>7</del> .~.1.11		
	DEG	DIDTION		O CST IS	<u> </u>				.1
			MO			2Y	7 4 5 1 11	- <u>T</u>	1 TV01 2
			I MO	0/C	G	21	7.4.5.1.11	1	TV01,2
HPCS-V-12	M520		4		111		7 1 5 1 11		1 1
HPCS-V-12	M520 B5	Â	GT 4	FAI NC	HJ L	Q 2Y	7.4.5.1.11 7.4.6.1.2.4		

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#### WNP-2 Valve Test Tables

			Туре	-2 Valve	2000			Testing	Remarks
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal	Test	s, Freq	uency & PPM	Exceptions (CSJ/ROJ/ Reliefs)	(Notes & Technical Position)
HPCS-V-15	M520 D7	2 A	MO GT 18	O/C FAI NC	G HJ L	2Y Q RF	7.4.5.1.11 7.4.5.1.11 7.4.6.1.2.9		TV01,2
							S-P-1 SUCT (CIV	)	T
HPCS-V-16	M520 D6	2 C	SA CK 24	O NA NC	Н	Q	7.4.5.1.11		
	DESC	RIPTION	SUPPR	ESSION PO	DOL TO	O HPCS	S-P-1 SUCT CHK	· · · · · · · · · · · · · · · · · · ·	
HPCS-V-23	M520 E5	2 A	MO GB 12	C FAI NC	G HJ L	2Y Q 2Y	7.4.5.1.11 7.4.5.1.11 7.4.6.1.2.4		TV01,2
	DESC	RIPTION	: HPCS 7				SSION POOL ISC	(CIV)	<b>1</b>
HPCS-V-24	M520 B4	2 C	SA CK 16	O/C NA NC	Н	Q	7.4.5.1.11		, ,
		RIPTION		-1 DISCH	_				·
HPCS-V-28	M524-1 G6	3 C	SA CK 8	O NA NC	н	Q	7.4.0.5.18		
		RIPTION					DISCH CHK		1 000
HPCS-V-65	M520 H7	2 A	MA GB 1	C NA LC	L	2Y	7.4.6.1.2.4		TV02
	DESC	RIPTION	: AIR TO	HPCS-V-	5 OPEI	RATOR	(INBD CIV)	1	
HPCS-V-68	M520 H7	2 A	MA GB 1	C NA LC	L	2Y	7.4.6.1.2.4		TV02
	DESC	RIPTION	: AIR TO	HPCS-V-	5 OPEI	RATOR	(OTBD CIV)		
HY-V-17A	M530-1 E13	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION	: HYDR/	AULIC CO	NTRO		RC PUMP DISCI		
HY-V-17B	M530-1 E5	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION	: HYDR				RC PUMP DISC		
HY-V-18A	M530-1 E13	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION	HYDR		NTRO		RC PUMP DISC		
HY-V-18B	M530-1 E5	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION					RC PUMP DISC		
HY-V-19A	M530-1 E13	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION	HYDR	AULIC CO	NTRO	L TO R	RC PUMP DISC	H V-ACTUAT (	CIV)



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#### WNP-2 Valve Test Tables

			Туре	-2 Valve Position				Testing	Remarks
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal		•	quency & PPM	Exceptions (CSJ/ROJ/ Reliefs)	(Notes & Technical Position)
HY-V-19B	M530-1 E5	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION	: HYDRA	ULIC CO	NTROL	, TO F	RC PUMP DISCH		-
HY-V-20A	M530-1 E13	2 A	SO GB	C FC NO	G HJK	2Ÿ CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION			NTROL	, TO F	RC PUMP DISCH	I V-ACTUAT (	
НҮ-V-20В	M530-1 E5	, 2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION	: HYDRA	ULIC CO	NTROL	, TO F	RC PUMP DISCH	I V-ACTUAT (C	
HY-V-33A	M530-1 E13	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION	HYDRA	ULIC CO	NTROL		RC PUMP DISCH	I V-ACTUAT (C	
HY-V-33B	M530-1 E5	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION	HYDRA	ULIC CO	NTROL	, TO F	RC PUMP DISCH	I V-ACTUAT (C	CIV)
HY-V-34A	M530-1 E13	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION	-		NTROL	TO R	RC PUMP DISCH	I V-ACTUAT (C	
HY-V-34B	M530-1 E5	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION	HYDRA	ULIC CO	NTROL	TOR	RC PUMP DISCH	I V-ACTUAT (C	CIV)
HY-V-35A	M530-1 E13	2 A	SO GB 1	C FC NO	G HJK	2Ÿ CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
			HYDRA	ULIC CO	NTROL	, TO R	RC PUMP DISCH	I V-ACTUAT (C	
HY-V-35B	M530-1 E5	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION	HYDRA	ULIC CO	NTROL	TO R	RC PUMP DISCH	I V-ACTUAT (C	XIV)
HY-V-36A	M530-1 E13	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
	DESC	RIPTION	HYDRA		NTROL	TOR	RC PUMP DISCH	I V-ACTUAT (C	CIV)
HY-V-36B	M530-1 E5	2 A	SO GB 1	C FC NO	G HJK	2Y CS	7.4.0.5.12 7.4.0.5.12	CSJ04	TV01,2
		<b>RIPTION</b>	HYDRA		NTROL	TO R	RC PUMP DISCH	V-ACTUAT (C	
LPCS-FCV-11	M520 B13	2 A	MO GB 3	O/C FAI NC	G HJ L	2Y Q 2Y	7.4.5.1.7 7.4.5.1.7 7.4.6.1.2.4		TV01,2
	DESC	RIPTION	-	1 MINIM				L	I

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<b></b>	Dwg &	Class	WNP- Type	Position				Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal		_	uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
LPCS-RV-18	M520 G12	2 AC	SA RV 1.5 X 2	NA NA NC	P L	RV 2Y	7.4.0.5.20 7.4.6.1.2.1	al	TV02,3
	DESC	RIPTION		-1 RV (CI	V)			Å	
LPCS-RV-31	M520	2	SA	NA	P	RV	7.4.0.5.20	[	TV02,3
	C12	AC	RV	NA	L	2Y	7.4.6.1.2.1		
			1 X 1	NC				•	
i	DESC	RIPTION	: LPCS-P	-2 SUCT I	RV (CI				
LPCS-V-1	M520	2	МО	O/C	G	2Y	7.4.5.1.7		TV01,2
	D11	A	GT	FAI	ш	Q	7.4.5.1.7		
			24	NO	L	RF	7.4.6.1.2.9		
							-P-1 SUCT (CIV	)	
LPCS-V-3	M520	2	SA	O/C	H	Q	7.4.5.1.7		
· · · · · · · · · · · · · · · · · · ·	B13	С	СК	NA					
· .			16	NC				<u> </u>	
				-1 DISCH			7406 00	00109	171/01 2
LPCS-V-5	M520		MO	O/C	G	2Y	7.4.0.5. 8B 7.4.0.5. 8B	CSJ08	TV01,2
	G11	A	GT 12	FAI NC	L L	CS RF	7.4.4.3.2.2		
		DIPTION		O RPV IS				I <u> </u>	<u> </u>
		·				RF	7.4.0.5. 7D	ROJ08	TV02
LPCS-V-6	M520		SA CK	O/C NA	HL	RF	7.4.4.3.2.2	KOJOS	1102
	G9	AC	12	NC		RP	1.4.4.3.2.2		
	DESC	NOITTIN		O RPV IS		INBD	CIV	I	
LPCS-V-12	M520	2			G	2Y	7.4.5.1.7	1	TV01,2
LPC3-V-12	E15	Â	GB	FAI	н	Q	7.4.5.1.7		,
	210		12	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION					SSION POOL ISC		
LPCS-V-33	M520	2	SA	C	н	Q	7.4.5.1.7	RV02	
21 00- 1-00	C12	Ē	СК	NA		•			
			I CL	1 110					
			1.50	NO					
	DESC	-	1.50		ER LEC	) DISC	н снк	<u></u>	
LPCS-V-34	DESC M520	-	1.50	NO	R LEC	) DISC	H CHK 7.4.5.1. 7	RV02	
LPCS-V-34		CRIPTION	1.50 : LPCS-F	NO -2 (WATE C NA				RV02	
LPCS-V-34	M520 C13	CRIPTION	1.50 : LPCS-P SA,MA SC 1.50	NO -2 (WATE C NA NO	н	Q	7.4.5.1.7	RV02	
LPCS-V-34	M520 C13	CRIPTION	1.50 : LPCS-P SA,MA SC 1.50	NO -2 (WATE C NA NO	н	Q		RV02	
	M520 C13	CRIPTION	1.50 : LPCS-P SA,MA SC 1.50 : LPCS-F MA	NO -2 (WATE NA NO -2 (WATE C	н	Q	7.4.5.1.7	RV02	TV02
	M520 C13 DESC	CRIPTION 2 C CRIPTION	1.50 : LPCS-F SA,MA SC 1.50 : LPCS-F MA GB	NO -2 (WATE NA NO -2 (WATE C NA	H ER LEC	Q 5) DISC	7.4.5.1. 7 H STOP CHK	RV02	TV02
	M520 C13 DESC M520 H10	CRIPTION 2 C CRIPTION 2 A	1.50 : LPCS-F SA,MA SC 1.50 : LPCS-F MA GB 1	NO -2 (WATE NA NO -2 (WATE C NA LC	H ER LEC	Q 5) DISC 2Y	7.4.5.1. 7 H STOP CHK 7.4.6.1.2.4	RV02	TV02
LPCS-V-66	M520 C13 DESC M520 H10 DESC	CRIPTION 2 C C CRIPTION 2 A CRIPTION	1.50 : LPCS-F SA,MA SC 1.50 : LPCS-F MA GB 1 : AIR TC	NO -2 (WATE C NA NO -2 (WATE C NA LC LC LPCS-V-	H ER LEC L 6 OPE	Q F) DISC 2Y RATOR	7.4.5.1. 7 H STOP CHK 7.4.6.1.2.4 (INBD CIV)	RV02	
LPCS-V-66	M520 C13 DESC M520 H10 DESC M520	CRIPTION 2 C CRIPTION 2 A CRIPTION 2	1.50 : LPCS-F SA,MA SC 1.50 : LPCS-F MA GB 1 : AIR TC MA	NO -2 (WATE C NA NO -2 (WATE C NA LC LC LPCS-V- C	H ER LEC	Q 5) DISC 2Y	7.4.5.1. 7 H STOP CHK 7.4.6.1.2.4	RV02	TV02
LPCS-V-66	M520 C13 DESC M520 H10 DESC	CRIPTION 2 C C CRIPTION 2 A CRIPTION	1.50 : LPCS-F SA,MA SC 1.50 : LPCS-F MA GB 1 : AIR TC MA GB	NO -2 (WATE C NA NO -2 (WATE C NA LC C NA	H ER LEC L 6 OPE	Q F) DISC 2Y RATOR	7.4.5.1. 7 H STOP CHK 7.4.6.1.2.4 (INBD CIV)	RV02	
LPCS-V-66	M520 C13 DESC M520 H10 DESC M520 H10	CRIPTION 2 C C CRIPTION 2 A CRIPTION 2 A	1.50 : LPCS-F SA,MA SC 1.50 : LPCS-F MA GB 1 : AIR TC MA GB 1	NO -2 (WATE C NA NO -2 (WATE C NA LC V LPCS-V- C NA LC	H ER LEC L 6 OPE L	Q B) DISC 2Y RATOR 2Y	7.4.5.1.7 H STOP CHK 7.4.6.1.2.4 (INBD CIV) 7.4.6.1.2.4	RV02	
LPCS-V-66 LPCS-V-67	M520 C13 DESC M520 H10 DESC H10 DESC	CRIPTION 2 C C CRIPTION 2 A CRIPTION 2 A	1.50 : LPCS-F SA,MA SC 1.50 : LPCS-F MA GB 1 : AIR TC : AIR TC	NO -2 (WATE C NA NO -2 (WATE C NA LC LPCS-V- LC LPCS-V-	H ER LEC L 6 OPE L 6 OPE	Q D) DISC 2Y RATOR 2Y	7.4.5.1. 7 H STOP CHK 7.4.6.1.2.4 (INBD CIV) 7.4.6.1.2.4 (OTBD CIV)		TV02
LPCS-V-66	M520 C13 DESC M520 H10 DESC H10 DESC M529	CRIPTION 2 C C C C C C C C C C C C C C C C C C	1.50 : LPCS-F SA,MA SC 1.50 : LPCS-F MA GB 1 : AIR TC AO,SA	NO -2 (WATE C NA NO -2 (WATE C NA LC LPCS-V- C NA LC LPCS-V- NA	H R LEC C C C C C C C C	Q a) DISC 2Y RATOR 2Y RATOR 2Y	7.4.5.1. 7 H STOP CHK 7.4.6.1.2.4 (INBD CIV) 7.4.6.1.2.4 (OTBD CIV) 7.4.4.2.1.2	RV02	
LPCS-V-66 LPCS-V-67	M520 C13 DESC M520 H10 DESC H10 DESC	CRIPTION 2 C C C C C C C C C C C C C C C C C C	1.50 : LPCS-F SA,MA SC 1.50 : LPCS-F MA GB 1 : AIR TC : AIR TC	NO -2 (WATE C NA NO -2 (WATE C NA LC LPCS-V- LC LPCS-V-	H ER LEC L 6 OPE L 6 OPE	Q D) DISC 2Y RATOR 2Y	7.4.5.1. 7 H STOP CHK 7.4.6.1.2.4 (INBD CIV) 7.4.6.1.2.4 (OTBD CIV)		TV02

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#### WNP-2 Valve Test Tables

<u> </u>			Туре	Position				Testing	Remarks (Notes &
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal	Tes	ts, Freq	uency & PPM	Exceptions (CSJ/ROJ/ Reliefs)	Technical Position)
MS-RV-1B	M529 D11	1 C	AO,SA SR	NA NA	G P	2Y RV	7.4.4.2.1.2 7.4.0.5.55	RV05	TV03
		DIDTION	6 X 10	NC STEAM SA	FFTY	RV		<u> </u>	
MS-RV-1C	M529		AO,SA	NA NA	G	2Y	7.4.4.2.1.2	RV05	TV03
MS-RV-IC	F6	Ċ	SR	NA	P	RV	7.4.0.5.55		
	1		6 X 10	NC	-				
•	DESC	RIPTION	: MAIN S	TEAM SA	FETY	RV			
MS-RV-1D	M529	1	AO,SA	NA	G	2Y	7.4.4.2.1.2	RV05	TV03
	E7	С	SR	NA	P	RV	7.4.0.5.55		
	DECC	DIPTION	6 X 10	NC STEAM SA	EETV	DV		<u> </u>	I
				NA	G	2Y	7.4.4.2.1.2	RV05	TV03
MS-RV-2A	M529 F10		AO,SA SR	NA	P	RV	7.4.0.5.55	I KV05	1,005
	110	Ŭ	6 X 10	NC	<b>·</b>				
	DESC	RIPTION		STEAM SA	FETY	RV			
MS-RV-2B	M529	1	AO,SA	NA	G	2Y	7.4.4.2.1.2	RV05	TV03
	D10	С	SR	NA	P	RV	7.4.0.5.55		
			6 X 10	NC				<u> </u>	
	DESC	RIPTION	: MAIN S	STEAM SA	FETY			<u></u>	
MS-RV-2C	M529	1	AO,SA	NA	G	2Y	7.4.4.2.1.2	RV05	TV03
	F7	С	SR	NA	P	RV	7.4.0.5.55		
	DESC	PIPTION	6 X 10	NC STEAM SA	L CETV	DV		<u> </u>	
MS-RV-2D	M529		AO,SA	NA	G	2Y	7.4.4.2.1.2	RV05	TV03
M3-K <b>V-</b> 2D	E7	ċ	SR	NA	P	RV	7.4.0.5.55		1.000
	-	, , , , , , , , , , , , , , , , , , ,	6 X 10	NC					
	DESC	RIPTION	: MAIN S	STEAM SA	FETY	RV			
MS-RV-3A	M529	1	AO,SA	NA	G	2Y	7.4.4.2.1.2	RV05	TV03
	F9	С	SR	NA	P	RV	7.4.0.5.55		
		ļ	6 X 10	NC				<u> </u>	<u> </u>
				STEAM SA				1 DITOS	1 muoo
MS-RV-3B	M529 D10	1 C	AO,SA SR	NA NA	G P	2Y RV	7.4.4.2.1.2 7.4.0.5.55	RV05	TV03
			6 X 10	NC	r	K.v	7.4.0.3.33		
	DESC	RIPTION		STEAM SA	I AFETY	RV		_1	.l
MS-RV-3C	M529	1	AO,SA	NA	G	2Y	7.4.4.2.1.2	RV05	TV03
	E7	c	SR	NA	P	RV	7.4.0.5.55		μ
			6 X 10	NC	l				1
	DESC	RIPTION	: MAIN S	STEAM SA	AFETY	RV			
MS-RV-3D	M529	1	AO,SA	0	GHJ	RF	7.4.4.2.1.2	ROJ05	TV01,3
	E8	, BC	SR	NA	P	RV	7.4.0.5.55	RV05	
			6 X 10	NC			771	I	1
		· · · · ·		STEAM &				I DOIOS	
MS-RV-4A	M529		AO,SA		GHJ	RF	7.4.4.2.1.2 7.4.0.5.55	ROJ05 RV05	TV01,3
	F9	BC	SR 6 X 10	NA NC	P	RV	7.4.0.3.33	ICV05	

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#### WNP-2 Valve Test Tables

		Class	Туре	Position				Testing Exceptions	Remarks (Notes &
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal	Test		uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
MS-RV-4B	M529 D9	1 BC	AO,SA SR	O NA	GHJ P	RF RV	7.4.4.2.1.2 7.4.0.5.55	ROJ05 RV05	TV01,3
	DESC	DIPTION	6 X 10	NC STEAM &	ADSS	AFETY	PV	1	<u> </u>
	M529		AO,SA		GHJ	RF	7.4.4.2.1.2	ROJ05	TV01,3
MS-RV-4C	F8	BC	SR	NA	P	RV	7.4.0.5.55	RV05	,.
4	10	20	6 X 10	NC	-			ι.	
	DESC	RIPTION		STEAM &	ADS S	AFETY	RV		
MS-RV-4D	M529	1	AO,SA	0	GHJ	RF	7.4.4.2.1.2	ROJ05	TV01,3
	E8	BC	SR	NA	Р	RV	7.4.0.5.55	RV05	
			6 X 10	NC					
	DESC	RIPTION	: MAIN S	STEAM &	ADS S.	AFETY	' RV		
MS-RV-5B	M529	1	AO,SA	0	GHJ	RF	7.4.4.2.1.2	ROJ05	TV01,3
• ;	E9	BC	SR	NA	P	RV	7.4.0.5.55	RV05	
			6 X 10	NC				<u> </u>	<u> </u>
		RIPTION		STEAM &					
MS-RV-5C	M529	1	AO,SA	0	GHJ	RF	7.4.4.2.1.2	ROJ05	TV01,3
	F8	BC	SR	NA	Р	RV	7.4.0.5.55	RV05	
			6 X 10	NC					<u> </u>
				STEAM &					TV01,2
MS-V-16	M529		MO	C	G	2Y CS	7.4.6.1.4.2B 7.4.6.1.4.2B	CSJ16	1 401,2
	B13	A	GT 3	FAI NC	L L	2Y	7.4.6.1.2.4		
	DESC	DIPTION	-	STEAM D				L	.L
	M529	· · · · · · · · · · · · · · · · · · ·	MAIN		G	2Y	7.4.6.1.4.2B	CSJ16	TV01,2
MS-V-19	M529 B14		GT	FAI	н	CS	7.4.6.1.4.2B		1 101,2
	D14		3	NC	L	2Y	7.4.6.1.2.4		ł
	DESC	RIPTION	1 -	STEAM D	RN ISO	OTBI		.1	<u></u>
MS-V-20	M529	2	мо	C	G	2Y	7.4.6.1.4.2B	1	T
110-1-20	C15	B	GB	FAI	-				
			3	NC					
	DESC	RIPTION	: MS LIN	E DRN IS	SO (MU	ST CL	OSE FOR MSLC	OPERATION)	· · ·
MS-V-22A	M529	1	AO	С	G	2Y	7.4.4.7	CSJ11	TV01,2 *
	F12	A	GB	FC	н	Q	7.4.3.1.1.9		
			26	NO	нік	CS	7.4.4.7		
			<u> </u>	<u> </u>	L	RF	7.4.6.1.2.7	<u> </u>	
				STEAM IS		-			
MS-V-22B	M529		AO	C	G	2Y	7.4.4.7	CSJ11	TV01,2
	E12	A	GB	FC	н нк	Q CS	7.4.3.1.1.9 7.4.4.7		
		1	26	NO		RF	7.4.6.1.2.7		
	DES		MAIN	STEAM IS				J	
NO 11 000		1				2Y	7.4.4.7	CSJ11	TV01,2
MS-V-22C	M529 F5	A I	AO GB	FC	н	Q 21	7.4.3.1.1.9		
	1.2		26	NO	ник	čs	7.4.4.7		
		J			L	RF	7.4.6.1.2.7		
	L	1	1	STEAM IS					



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			Туре	Position				Testing	Remarks
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal	Test	s, Freq	uency & PPM	Exceptions (CSJ/ROJ/ Reliefs)	(Notes & Technical Position)
MS-V-22D	M529	1	AO	С	G	2Y	7.4.4.7	CSJ11	TV01,2
	E5	Α	GB	FC	н	Q	7.4.3.1.1.9		
			26	NO	нк	CS	7.4.4.7		
						RF	7.4.6.1.2.7		
· · · · · · · · · · · · · · · · · · ·				TEAM IS		(INBD 2Y	7.4.4.7	CSJ11	TV01,2
MS-V-28A	M529	1	AO GB	C FC	H H	21 Q	7.4.3.1.1.9		1 401,2
	F13	A	26	NO	нік	cs	7.4.4.7		
*			20	NO	L	RF	7.4.6.1.2.7		
	DESC	RIPTION	: MAIN S	TEAM IS	O VLV			l	<u>.                                    </u>
MS-V-28B	M529	1	AO	C	G	2Y	7.4.4.7	CSJ11	TV01,2
110 1 202	E13	Ā	GB	FC	н	Q	7.4.3.1.1.9		
			26	NO	нік	Ċs	7.4.4.7		
					L	RF	7.4.6.1.2.7		
5	DESC	RIPTION	MAIN S	TEAM IS	O VLV	(OTBE	O CIV)		
MS-V-28C	M529	1	AO	С	G	2Y	7.4.4.7	CSJ11	TV01,2
	F4	Α	GB	FC	н	Q	7.4.3.1.1.9		
			26	NO	нјк	CS	7.4.4.7		
					L	RF	7.4.6.1.2.7		l
	DESC	RIPTION	: MAIN S	STEAM IS	O VLV	_			
MS-V-28D	M529	1	AO	С	G	2Y	7.4.4.7	CSJ11	TV01,2
	E4	A	GB	FC	H	Q	7.4.3.1.1.9		
			26	NO	НІК	CS	7.4.4.7		,
						RF	7.4.6.1.2.7	l	L
				TEAM IS				Dovor	[muoc
MS-V-37A (TYP 18)	M529	3	SA	0/C	HS	RF	7.4.0.5.11	ROJ07	TV06
	C11	С	CK 10	NA NC					· ·
		RIPTION				J MOD	V TAILPIPE		I
MS-V-38A (TYP 18)	M529	3	SA	O/C	HS	RF	7.4.0.5.11	ROJ07	TV06
M3-V-30A (11P 10)	C11	c	CK	NA	115	NI.	/.4.0.3.11		
		Ŭ	10	NC					
	DESC	RIPTION	-		KER OI	N MSR	V TAILPIPE	· · · · · · · · · · · · · · · · · · ·	<u>.</u>
MS-V-67A	M529	1	МО	С	G	2Y	7.4.6.1.4.2B	CSJ14	TV01,2
••••	F13	Ā	GT	FAI	нл	CS	7.4.6.1.4.2B		
			1.50	NC	L	RF	7.4.6.1.2.7		
	DESC	RIPTION	: MS-V-2	8A BODY	DRN (	OTBD	CIV)		
MS-V-67B	M529	1	MO	С	G	2Y	7.4.6.1.4.2B	CSJ14	TV01,2
	D13	A	GT	FAI	н	CS	7.4.6.1.4.2B		
			1.50	NC		RF	7.4.6.1.2.7	<u></u>	<u> </u>
	DESC	RIPTION	: MS-V-2	8B BODY	_			<u></u>	<b>.</b>
MS-V-67C	M529	1	MO	C	G	2Y	7.4.6.1.4.2B	CSJ14	TV01,2
	F4	A	GT	FAI	HJ	CS	7.4.6.1.4.2B		
	L		1.50	NC		RF	7.4.6.1.2.7	<u></u>	1
		·		8C BODY					1001010
MS-V-67D	M529	1	мо	С	G	2Y	7.4.6.1.4.2B	CSJ14	TV01,2
	D4	A	GT	FAI	HI	CS	7.4.6.1.4.2B		
		<u> </u>	1.50	NC	L	RF	7.4.6.1.2.7	I	.I
	DESC	RIPTION	: MS-V-2	8D BODY	DKN (	OIRD			



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				-2 valve	1 400			·	······
	Dwg &	Class	Туре	Position			6 DD16	Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal	16	sts, Fred	luency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
MS-V-146	M502-1	2	MO	C	G	2Y	7.4.6.1.4.2B	CSJ13	TV01
	B7	В	GT 24	FAI NO	HI	CS	7.4.6.1.4.2B		
	DESC	RIPTION	: MS SU	PPLY TO			<u> </u>		
MSLC-V-1A	M557	2	MO	O/C	G	2 <u>Y</u>	7.4.6.1.4.2A		TV01
	C7	В	GT	FAI -	нı	Q	7.4.6.1.4.2A	{	
			1.50	NC				<u> </u>	l
·		RIPTION					OR BUILDING		
MSLC-V-1B	M557	2	мо	O/C	G	$\overline{2Y}$	7.4.6.1.4.2A		TV01
	CS	B	GT 1.50	FAI NC	HI	Q	7.4.6.1.4.2A		
	DESC	RIPTION	MS VE	NT BYPAS	SS TO	REACT	OR BUILDING	<u></u>	
MSLC-V-1C	M557	2	МО	0/C	G	2Y	7.4.6.1.4.2A		TV01
• •	D7	В	GT	FAI	н	Q	7.4.6.1.4.2A		
			1.50	NC					[
	DESC	RIPTION	: MS VE	NT BYPAS	ss to	REACT	OR BUILDING		
MSLC-V-1D	M557	2	MO	0/C	G	2Y	7.4.6.1.4.2A		TV01
	D5	B	GT	FAI	н	Q	7.4.6.1.4.2A		ĺ
			1.50	NC				l	l
		RIPTION					OR BUILDING		
MSLC-V-2A	M557	1	МО	0	G	2Y	7.4.6.1.4.2B	CSJ12	TV01
	C8	В	GT	FAI	HI	CS	7.4.6.1.4.2B		
			1.50	NC				l	l
							TOR BUILDING		
MSLC-V-2B	M557	1	MO	0	G	2Y	7.4.6.1.4.2B	CSJ12	TV01
	C8	В	GT 1.50	FAI NC	ні	CS	7.4.6.1.4.2B		
		DIDTION				DRAC	TOR BUILDING	l	!
									1 million
MSLC-V-2C	M557 E8	1 B	MO GT	O FAI	G HJ	2Y CS	7.4.6.1.4.2B 7.4.6.1.4.2B	CSJ12	TV01
	63	Б	1.50	NC	LU1	6	7.4.0.1.4.2D		
		RIPTION			T ANI	PRAC	TOR BUILDING	l	I
MSLC-V-2D	M557	1	MO	0	G	2Y	7.4.6.1.4.2B	CSJ12	TV01
M520- 1-20	E8	B	GT	FAI	ш	CS	7.4.6.1.4.2B	C3512	
	~	2	1.50	NC			11110111120		
	DESC	RIPTION			T ANI	D REAC	TOR BUILDING	l	I
MSLC-V-3A	M557	1	MO	O/C	G	2Y	7.4.6.1.4.2B	CSJ12	TV01,2
	C9	Ā	GT	FAI	нл	CS	7.4.6.1.4.2B		
	1 1		1.50	NC	L	RF	7.4.6.1.2.7		
	DESC	RIPTION	MS VE	VT TO SG	T ANI	D REAC	TOR BUILDING	(OTBD CIV)	1
MSLC-V-3B	M557	1	MO	O/C	G	2Y	7.4.6.1.4.2B	CSJ12	TV01,2
	C8	Ā	GT	FAI	ні	CS	7.4.6.1.4.2B		
			1.50	NC	L	RF	7.4.6.1.2.7		ŕ
	DESC	RIPTION	MS VE	VT TO SG	T ANI	D REAC	TOR BUILDING	(OTBD CIV)	
MSLC-V-3C	M557	1	МО	O/C	G	2Y	7.4.6.1.4.2B	CSJ12	TV01,2
	DE9	Α	GT	FAI	ш	CS	7.4.6.1.4.2B		
			1.50	NC	L	RF	7.4.6.1.2.7		
	DESC	RIPTION	MS VEN	IT TO SG	T ANI	D REAC	TOR BUILDING	(OTBD CIV)	

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WNP-2 Valve Test Tables



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## WNP-2

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#### WNP-2 Valve Test Tables

				-2 valve	1				1 .
`	Dwg &	Class	Туре	Position		4- <b>T</b>	*	Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat,	Safety,	Tes	ts, Freq	uency & PPM	(CSJ/ROJ/	Technical
			Valve & Size	Failed, Normal	×			Reliefs)	Position)
MSLC-V-3D	M557	1	MO	O/C	G	2Y	7.4.6.1.4.2B	CSJ12	TV01,2
	E8	Α	GT	FAI	HJ	CS	7.4.6.1.4.2B		
· ·			1.50	NC	L	RF	7.4.6.1.2.7		
	DESC	RIPTION	: MS VE	NT TO SG		O REAC	TOR BUILDING		
MSLC-V-4	M557	2	MO	0	G	2Y	7.4.6.1.4.2B	CSJ12	TV01
	J5	В	GT 1.50	FAI NC	ш	CS	7.4.6.1.4.2B		
	DESC	DIDTION				M MSIV	'S TO REACTOR		I
MSLC-V-5	M557	2	MO		G	2Y	7.4.6.1.4.2B	CSJ12	TV01
MSLC-V-S	J5	B	GT	FAI	ш	CS	7.4.6.1.4.2B		
		5	1.50	NC			///////////////////////////////////////		
	DESC	RIPTION			I I FRO	M MSIV	'S TO REACTOR	RBUILDING	.!
MSLC-V-9	M557	, 2	MO	0	G	2Y	7.4.6.1.4.2B	CSJ12	TV01
	H5	B	GT	FAI	Ш	CS	7.4.6.1.4.2B		
· · · · · · · · · · · · · · · · · · ·			1.50	NC					
	DESC	RIPTION	: MS DE	PRESS VE	NT D	OWN FI	ROM MSIV'S TO	SGT ISO	
MSLC-V-10	M557	2	MO	0	G	2Y	7.4.6.1.4.2B	CSJ12	TV01
	H5	B	GT [.]	FAI	ш	CS	7.4.6.1.4.2B		
			1.50	NC	ļ				<u> </u>
							ROM MSIV'S TO		1
PI-EFC-X18A	M557	1	SA	0/C	GH	RF	7.4.6.3.4.1B	ROJ06	TV02
	G9	AC	CK	NA					
	DESC	DIDTION	1 X .5	NO		TO DDE	ESS INST EFC (C		
PI-EFC-X18B	M557	1	SA		GH	RF	7.4.6.3.4.1B	ROJ06	TV02
PI-EFC-Alod	G9	AC	CK	NA	On	Kr	7.4.0.3.4.10	KOJOO	1 102
		AU	1 X .5	NO					
	DESC	RIPTION		-	NE B	TO PRE	SS INST EFC (C	IV)	
PI-EFC-X18C	M557	1	SA	0/C	GH	RF	7.4.6.3.4.1B	ROJ06	TV02
	G9	AC	СК	NA					
			1 X .5	NO					
	DESC	RIPTION	: MAIN S	STEAM LI	NE C	to pre	SS INST EFC (C	IV)	_
PI-EFC-X18D	M557	1	SA	O/C	GH	RF	7.4.6.3.4.1B	ROJ06	TV02
	F9	AC	СК	NA					· ·
			1 X .5	NO				<u> </u>	<u> </u>
							ESS INST EFC (C		1
PI-EFC-X29B	M543-1	2 AC	SA CK	O/C NA	GH	RF	7.4.6.3.4.2	ROJ06	TV02
	H8	AC	1 X .5	NA NO					
		DIDTION				NS.PT.A	5 EFC (CIV)	l	1
PI-EFC-X29F	M543-1	2	SA	O/C	GH	RF	7.4.6.3.4.2	ROJ06	TV02
LPBPU-A27P	H7	AC	CK	NA NA		171.	1.7.0.3.7.2	1.0700	
			1 X .5	NO					Ι.
	DESC	RIPTION			TO C	MS-PT-2	2 EFC (CIV)	L	
PI-EFC-X30A	M543-1	2	SA	O/C	GH	RF	7.4.6.3.4.2	ROJ06	TV02
	G13	AC	СК	NA					
			1 X .5						
	DESC	RIPTION	DRYW	ELL ATM	TO C	MS-PT-S	5 EFC (CIV)	•	•

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#### WNP-2 Valve Test Tables

									<u> </u>
	Dwg &	Class	Туре	Position	Tor	to Fran	uency & PPM	Testing Exceptions	
Valve EPN	Coord	& Cat	Actuat, Valve	Safety, Failed,	103	is, rrey	luency & FFM	(CSJ/ROJ/	Technical
			& Size	Normal				Reliefs)	Position)
PI-EFC-X30F	M543-1	2	SA	O/C	GH	,RF	7.4.6.3.4.2	ROJ06	TV02
	F13	AC	СК	NA					
			1 X .5	NO		(0 D71 )		l	l
							EFC (CIV)	ROJ06	TV02
PI-EFC-X37E	M521-1 D6	1 AC	SA CK	O/C NA	GH	RF	7.4.6.3.4.1G	ROI06	1 02
	100	AC	1 X .5	NO					
	DESC	RIPTION			L PLY T	O DPIS	EFC (CIV)		
PI-EFC-X37F	M521-1	1	SA	0/C	GH	RF	7.4.6.3.4.1G	ROJ06	TV02
11-61-0-7671	D6	AC	СК	NA					_
			1 X .5	NO					
	DESC	RIPTION	RHR SI	CA SUP	PLY T	O DPIS	EFC (CIV)		
PI-EFC-X38A	M529	1	SA	O/C	GH	RF	7.4.6.3.4.1A	ROJ06	TV02
.:	C13	AC	СК	NA					
			1 X .5	NO			<u></u>		.l
							S HI SIDE EFC (		TV02
PI-EFC-X38B	M529		SA CK	O/C NA	GH	RF	7.4.6.3.4.1A	ROJ06	1002
	D13	AC	1 X .5	NO					
	DESC	RIPTION			NE B	TO DPI	S LO SIDE EFC		_L
PI-EFC-X38C	M519	1	SA	0/C	GH	RF	7.4.6.3.4.1E	ROJO6	TV02
11-21-0-7200	G6	AC	СК	NA	<b>.</b>				
			1 X .5	NO					
	DESC	RIPTION	RCIC S	TEAM SU	PPLY	TO DPI	S-7B EFC (CIV)	·A	
PI-EFC-X38D	M519	1	SA	0/C	GH	RF	7.4.6.3.4.1E	ROJ06	TV02
	G6	AC	СК	NA					
			1 X .5	NO	<u> </u>		A	<u> </u>	
			-				S-7B EFC (CIV)		1 100
PI-EFC-X38E	M519 G6	1 AC	SA CK	O/C NA	GH	RF	7.4.6.3.4.1E	ROJ06	TV02
	60	AC	1 X .5	NO					
	DESC	RIPTION			PPLY	TO DPI	S-13B EFC (CIV	)	<u> </u>
PI-EFC-X38F	M519	1	SA	0/C	GH	RF	7.4.6.3.4.1E	, ROJ06	TV02
	G6	AC	СК	NA					
			1 X .5	NO					•
	DESC	RIPTION	RCIC S	TEAM SU	PPLY	TO DPI	S-13B EFC (CIV	)	
PI-EFC-X39A	M521-2	1	SA	0/C	GH	RF	7.4.6.3.4.1A	ROJ06	TV02
	H13	AC	СК	NA				1	
			1 X .5	NO					
7 774 14427							S HI SIDE EFC (		1 173100
PI-EFC-X39B	M529 D13	1 AC	SA CK	O/C NA	GH	RF	7.4.6.3.4.1A	ROJ06	TV02
	נוע	AC	1 X .5	NA					
	DESC	RIPTION		[	NE B	TO DPI	S LO SIDE EFC		. <u>l                                    </u>
PI-EFC-X39D	M521-2	1	SA		GH	RF	7.4.6.3.4.1D	ROJO6	TV02
₩ 4-141, ₩ 194, ₩ 194, ₩ 194, ₩ 194, ₩ 194, ₩ 194, ₩ 194, ₩ 194, ₩ 194, ₩ 194, ₩ 194, ₩ 194, ₩ 194, ₩ 194, ₩ 19	H13	AC	СК	NA	[~]			1	
	1		1 X .5	NO					
	DESC	RIPTION		CI B INI	ÊCTIO	N TO D	PIS-29B EFC (CI	IV)	-

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#### WNP-2 Valve Test Tables

		<u>()</u>	Туре	Position				Testing Exceptions	Remarks (Notes &
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal		ts, Freq	uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
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
	DESC	RIPTION	: RHR LI				PIS-29B EFC (CI		
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
		DIDTION		TO FT-14	A 14B			<u> </u>	<u></u>
PI-EFC-X40D	M530-1	1	SA	0/C	GH	RF	7.4.6.3.4.1F	ROJ06	TV02
PI-ErC-A40D	F12	AC	CK 1 X .5	NA NO		I.I.	/14.0.0.4111	ACCOUNT OF THE PARTY OF THE PAR	
	DESC	RIPTION	RRC A	TO FT-14	A,14B,	11A EF	C (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
	DESC	RIPTION	: RRC A	(RRC-P-1.	-		02A 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
	DESC	RIPTION	RRC A	(RRC-P-1.	A) TO	PI-2A,6	03A 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
	DESC	PIPTION				DPT-15	B EFC (CIV)	!	I
PI-EFC-X41D	M530-1		SA		GH	RF	7.4.6.3.4.1D	ROJ06	TV02
11-21-0-7410	C4	AC	CK 1 X .5	NA NO					
	DESC	RIPTION	: RRC B	(RRC-P-1)	B) TO I	DPT-15	B 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
	DESC	RIPTION	: RRC B	(RRC-P-1)	B) TO	PI-1B,60	D2B EFC (CIV)		
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
	DESC	RIPTION	: RRC B	(RRC-P-1)	<b>B) TO</b>	PI-2B,60	03B 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
		RIPTION			I INE D		S HI SIDE EFC		.l
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
						ימת הד	S LO SIDE EFC		J
PI-EFC-X42C	M543-2	2			GH	RF	7.4.6.3.4.2	ROJ06	TV02
1-20 <b>0-14</b> 20	E6	ĂĊ	CK 1 X .5	NA NO		***	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	DESC	RIPTION		MONITOR	TOD	RYWE	LL ATM SAMPL	E EFC (CIV)	



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			Туре	Position				Testing	Remarks
Valve EPN	Dwg & Coord	Class & Cat	Actuat,	Safety,	Tes	ts, Freq	juency & PPM	Exceptions (CSJ/ROJ/	(Notes & Technical
			Valve & Size	Failed, Normal				Reliefs)	Position)
PI-EFC-X42F	M529	2	SA	O/C	GH	RF	7.4.6.3.4.2	ROJ06	TV02
	H5	AC	СК	NA					
			1 X .5	NO		Teo IN	AT TRA (AUD	l	L
							1ST EFC (CIV) 7.4.6.3.4.1C	ROJ06	TV02
PI-EFC-X44AA	M530-1 E2	I AC	SA CK	C NA	GH	RF	7.4.0.3.4.10	KO106	1 402
	EL	AC	1 X .5	NO					
	DESC	RIPTION			TO F	LOW II	NST EFC (CIV)	I	.t. <u></u>
PI-EFC-X44AB	M530-1	1	SA	С	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	E2	AC	СК	NA	1				
			1 X .5	NO					
	DESC	RIPTION	: JET PU				NST EFC (CIV)		·
PI-EFC-X44AC	M530-1	1	SA	С	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
•	E2	AC	CK	NA				-	
	DESC	DIPTION	1 X .5	NO			NST EFC (CIV)	l	<u>,I</u>
PI-EFC-X44AD	M530-1		SA		GH	RF	7.4.6.3.4.1C	ROJ06	TV02
PI-EFC-X44AD	E2	AC	CK	NA	on	KI.	7.4.0.3.4.10	KOJOO	1102
			1 X .5	NO					
	DESC	RIPTION		MP NO 14	TO F	LOW II	NST EFC (CIV)	J	1
PI-EFC-X44AE	M530-1	1	SA	0/C	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	J6	AC	СК	NA			it.		•
			1 X .5	NO					
	DESC	RIPTION					NST EFC (CIV)		
PI-EFC-X44AF	M530-1	1	SA	С	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	E2	AC	CK	NA NO					1
	DESC	DIPTION	1 X .5			TOW D	NST EFC (CIV)		1
PI-EFC-X44AG	M530-1		SA		GH	RF	7.4.6.3.4.1C	ROJ06	TV02
IPER-AHAO	E2	AC	СК	NA					
			1 X .5	NO					
	DESC	RIPTION	: JET PU	MP NO 1	7 TO F	LOW II	NST EFC (CIV)		
PI-EFC-X44AH	M530-1	1	SA	С	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	E2	AC	CK	NA					
			1 X .5					<u> </u>	J
							NST EFC (CIV)	Thomas	1 000
PI-EFC-X44AJ	M530-1 E2	1 AC	SA CK	C NA	GH	KF	7.4.6.3.4.1C	ROJ06	TV02
	E4	AC	1 X .5	NO					
	DESC	RIPTION			I B TO F	LOW I	NST EFC (CIV)		1
PI-EFC-X44AK	M530-1		SA	C	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	J6	AC	СК	NA					
			1 X .5	NO					
	DESC	RIPTION	: JET PU	MP NO 20	D TO F		NST EFC (CIV)		
PI-EFC-X44AL	M530-1	1	SA	0/C	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	H6	AC	СК	NA					1
			1 X .5	NO			tom whe felt	L	1
	DESC	KIPTION	: JET PU	MP NO I	5 TO F	LOW II	NST EFC (CIV)		



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			Туре	Position				Testing	Remarks
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal		ts, Freq	uency & PPM	Exceptions (CSJ/ROJ/ Reliefs)	(Notes & Technical Position)
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
	DESC	RIPTION	: JET PU				IST EFC (CIV)		
PI-EFC-X44BA	M530-1	1	SA	С	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	F2	AC	СК	NA					
			1 X .5	NO				<u> </u>	1
، 							T EFC (CIV)	1.20106	1 1000
PI-EFC-X44BB	M530-1	1	SA	C	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	F2	AC	CK 1 X .5	NA NO					
	DECO	DIPTION				NW INC	T EFC (CIV)		
NI DEG VIIDO			SA		GH	RF	7.4.6.3.4.1C	ROJ06	TV02
PI-EFC-X44BC	M530-1 F2	1 AC	CK	NA	on	Kr	7.4.0.3.4.10	KOJOO	1102
	F2		1 X .5	NO					
	DESC	NIPTION			L TO FLO	W INS	T EFC (CIV)		h
PI-EFC-X44BD		1	SA		GH	RF	7.4.6.3.4.1C	ROJ06	TV02
FI-Ero-A44bD	F2	AC	СК	NA			////////		}
			1 X .5	NO					
	DESC	RIPTION	,	•	TO FLO	OW INS	T EFC (CIV)	I	
PI-EFC-X44BE	M530-1	1	SA	0/C	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	J11	AC	СК	NA				ł	,
			1 X .5	NO					
	DESC	RIPTION	: JET PU	MP NO 5	TO FLO	OW INS	T EFC (CIV)		
PI-EFC-X44BF	M530-1	1	SA	С	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	F2	AC	СК	NA					1
			1 X .5	NO					<u> </u>
	DESC	RIPTION	: JET PU				T EFC (CIV)		
PI-EFC-X44BG	M530-1	1	SA	С	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	F2	AC	СК	NA				1	
		l	1 X .5	NO				l	
		RIPTION			_		T EFC (CIV)	1	1 001100
PI-EFC-X44BH	M530-1		SA	C	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	F2	AC	CK	NA NO					
		DIPTION				DIV INC	T EFC (CIV)	!	4
								ROJ06	TV02
PI-EFC-X44BJ	M530-1 F2	1 AC	SA CK	C NA	GH	RF	7.4.6.3.4.1C		1 102
	<b>F</b> 2	AC	1 X .5	NO					
		NOITTIN				OW INS	T EFC (CIV)	1,	
PI-EFC-X44BK	M530-1		SA		GH	RF	7.4.6.3.4.1C	ROJ06	TV02
F1-2F <b>U-</b> A44DA	J11	AC	CK	NA		A-4 .	×		
	<b> </b>		1 X .5	NO					
•	DESC	RIPTION	1		TO F	LOW II	NST EFC (CIV)	4	_l
PI-EFC-X44BL	M530-1		SA	0/C	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	H11	AC	СК	NA				1	
		_	1 X .5	NO				ļ	
	DESC	RIPTION		MP NO 5	TO FL	OW INS	T EFC (CIV)		

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			WINP						
	Dwg &	Class	Туре	Position				Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal	Tes	s, Freq	uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
PI-EFC-X44BM	M530-1	1	SA	С	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	H11	AC	СК	NA					
			1 X .5	NO				<u> </u>	
	DESC	RIPTION	: JET PU				IST EFC (CIV)		<u></u>
PI-EFC-X61A	M530-1	1	SA	O/C	GH	RF	7.4.6.3.4.1F	ROJ06	TV02
	F12	AC	CK	NA					
			1 X .5	NO		<b>FFQ (0</b>	110		<u> </u>
				TO FT-14				ROJ06	TV02
PI-EFC-X61B	M530-1	1	SA	O/C NA	GH	RF	7.4.6.3.4.1F	ROIDO	1 402
	F12	AC	CK 1 X .5	NA					
		DIDTION				PEO (O	117	l	<u> </u>
				TO FT-14 0/C	GH	RF	7.4.6.3.4.2	ROJ06	TV02
PI-EFC-X61C	M529 G5	2 AC	SA CK	NA		ĸr	/.4.0.2.4.4	KOIOO	
ية م يلاء في	GS	AC	1 X .5	NO					
	DESC	DIDTION			TO PE	ESS IN	ST EFC (CIV)	!	L
			SA	· O/C	GH	RF	7.4.6.3.4.2	ROJ06	TV02
PI-EFC-X62B	M529 H12	2 AC	CK	NA	on	KI.	7.4.0.3.4.2	10.00	1.02
	1112		1 X .5	NO					
		DIDTION			TO PE	ESS IN	ST EFC (CIV)	l	1
	M530-1		SA	O/C	GH	RF		ROJ06	TV02
PI-EFC-X62C	F6	1 AC	CK	NA	on	M.	7.4.0.3.4.11	Koroo	1.02
	FO	AC	1 X .5	NO					
	DESC	PIPTION		TO FT-24	L C.24D	EFC (C	IV)		
PI-EFC-X62D	M530-1	1	SA	0/C	GH		7.4.6.3.4.1F	ROJ06	TV02
FIEFCAULD	F6	AC	СК	NA	0	14			_
			1 X .5	NO					1
	DESC	RIPTION		TO FT-24	C,24D	EFC (C	IV)		
PI-EFC-X66	M543-1							ROJ06	TV02
	1 111.77.77.77	1 2	I SA	I 0/C	GH	RF	7.4.6.3.4.2	I KOJOO	
	B6	2 AC	SA CK	O/C NA	GH	RF	7.4.6.3.4.2	ROJOG	-
					GH	RF	7.4.6.3.4.2	ROJOG	
	B6	AC	CK 1 X .5	NA NO			7.4.6.3.4.2 -5 EFC (CIV)	ROJOG	
PI-EFC-X67	B6	AC	CK 1 X .5	NA NO				ROJO6	TV02
PI-EFC-X67	B6 DESC	AC RIPTION	CK 1 X .5 : WETW	NA NO ELL ATM	TOC	SP-DPT	-5 EFC (CIV)		
PI-EFC-X67	B6 DESC M543-1 B13	AC RIPTION 2 AC	CK 1 X .5 : WETW SA CK 1 X .5	NA NO ELL ATM O/C NA NO	TO C	SP-DPT RF	-5 EFC (CIV) 7.4.6.3.4.2		
PI-EFC-X67	B6 DESC M543-1 B13	AC RIPTION 2 AC	CK 1 X .5 : WETW SA CK 1 X .5	NA NO ELL ATM O/C NA NO ELL ATM	TO C	SP-DPT- RF	-5 EFC (CIV) 7.4.6.3.4.2 -4 EFC (CIV)	R0J06	TV02
	B6 DESC M543-1 B13	AC RIPTION 2 AC	CK 1 X .5 : WETW SA CK 1 X .5 : WETW SA	NA NO ELL ATM O/C NA NO	TO C	SP-DPT RF	-5 EFC (CIV) 7.4.6.3.4.2 -4 EFC (CIV)		
	B6 DESC M543-1 B13 DESC	AC RIPTION 2 AC RIPTION	CK 1 X .5 : WETW SA CK 1 X .5 : WETW SA CK	NA NO ELL ATM O/C NA NO ELL ATM O/C NA	TO C	SP-DPT- RF	-5 EFC (CIV) 7.4.6.3.4.2 -4 EFC (CIV)	R0J06	TV02
	B6 DESC M543-1 B13 DESC M529 C4	AC RIPTION 2 AC RIPTION 1 AC	CK 1 X .5 : WETW SA CK 1 X .5 : WETW SA CK 1 X .5	NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO	TO C	SP-DPT- RF SP-DPT- RF	-5 EFC (CIV) 7.4.6.3.4.2 -4 EFC (CIV) 7.4.6.3.4.1A	ROJ06 ROJ06	TV02
	B6 DESC M543-1 B13 DESC M529 C4	AC RIPTION 2 AC RIPTION 1 AC	CK 1 X .5 : WETW SA CK 1 X .5 : WETW SA CK 1 X .5 : MAIN	NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO STEAM L	TO C GH TO C GH	SP-DPT RF SP-DPT RF TO DPI	-5 EFC (CIV) 7.4.6.3.4.2 -4 EFC (CIV) 7.4.6.3.4.1A S HI SIDE EFC	ROJ06 ROJ06 (CIV)	TV02
PI-EFC-X69A	B6 DESC M543-1 B13 DESC M529 C4 DESC M529	AC RIPTION 2 AC RIPTION 1 AC CRIPTION 1	CK 1 X .5 : WETW SA CK 1 X .5 : WETW SA CK 1 X .5 : MAIN SA	NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO STEAM L O/C	TO C	SP-DPT- RF SP-DPT- RF	-5 EFC (CIV) 7.4.6.3.4.2 -4 EFC (CIV) 7.4.6.3.4.1A	ROJ06 ROJ06	TV02
PI-EFC-X69A	B6 DESC M543-1 B13 DESC M529 C4 DESC	AC RIPTION 2 AC RIPTION 1 AC	CK 1 X .5 : WETW SA CK 1 X .5 : WETW SA CK 1 X .5 : MAIN SA CK	NA NO ELL ATM O/C NA NO ELL ATM O/C NA STEAM L O/C NA	TO C GH TO C GH	SP-DPT RF SP-DPT RF TO DPI	-5 EFC (CIV) 7.4.6.3.4.2 -4 EFC (CIV) 7.4.6.3.4.1A S HI SIDE EFC	ROJ06 ROJ06 (CIV)	TV02
PI-EFC-X69A	B6 DESC M543-1 B13 DESC M529 C4 DESC M529 C4	AC RIPTION 2 AC CRIPTION 1 AC 1 AC	CK 1 X .5 : WETW SA CK 1 X .5 : WETW SA CK 1 X .5 : MAIN SA CK 1 X .5	NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO STEAM L O/C NA NO	TO C GH TO C GH INE D GH	SP-DPT RF SP-DPT RF TO DPI RF	-5 EFC (CIV) 7.4.6.3.4.2 -4 EFC (CIV) 7.4.6.3.4.1A S HI SIDE EFC 7.4.6.3.4.1A	ROJ06 ROJ06 (CIV) ROJ06	TV02
PI-EFC-X69A	B6 DESC M543-1 B13 DESC M529 C4 DESC M529 C4	AC RIPTION 2 AC CRIPTION 1 AC 1 AC	CK 1 X .5 : WETW SA CK 1 X .5 : WETW SA CK 1 X .5 : MAIN SA CK 1 X .5 : MAIN	NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO STEAM L O/C NA NO STEAM L	TO C GH TO C GH INE D GH	SP-DPT RF SP-DPT RF TO DP RF	-5 EFC (CIV) 7.4.6.3.4.2 -4 EFC (CIV) 7.4.6.3.4.1A S HI SIDE EFC 7.4.6.3.4.1A S LO SIDE EFC	ROJ06 ROJ06 (CIV) ROJ06 (CIV)	TV02
PI-EFC-X67 PI-EFC-X69A PI-EFC-X69B PI-EFC-X69E	B6 DESC M543-1 B13 DESC M529 C4 DESC M529 C4 DESC M529 C4 DESC	AC RIPTION 2 AC RIPTION 1 AC 2 RIPTION 1 CRIPTION 1	CK 1 X .5 : WETW SA CK 1 X .5 : WETW SA CK 1 X .5 : MAIN SA CK 1 X .5 : MAIN SA SA	NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO STEAM L O/C NA NO STEAM L O/C	TO C GH TO C GH INE D GH	SP-DPT RF SP-DPT RF TO DPI RF	-5 EFC (CIV) 7.4.6.3.4.2 -4 EFC (CIV) 7.4.6.3.4.1A S HI SIDE EFC 7.4.6.3.4.1A	ROJ06 ROJ06 (CIV) ROJ06	TV02
PI-EFC-X69A PI-EFC-X69B	B6 DESC M543-1 B13 DESC M529 C4 DESC M529 C4 DESC	AC RIPTION 2 AC RIPTION 1 AC CRIPTION	CK 1 X .5 : WETW SA CK 1 X .5 : WETW SA CK 1 X .5 : MAIN SA CK 1 X .5 : MAIN	NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO STEAM L O/C NA NO STEAM L	TO C GH TO C GH INE D GH	SP-DPT RF SP-DPT RF TO DP RF	-5 EFC (CIV) 7.4.6.3.4.2 -4 EFC (CIV) 7.4.6.3.4.1A S HI SIDE EFC 7.4.6.3.4.1A S LO SIDE EFC	ROJ06 ROJ06 (CIV) ROJ06 (CIV)	TV02

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#### WNP-2 Valve Test Tables

		<u></u>	Туре	Position				Testing Exceptions	Remarks (Notes &
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal	Tes	_	uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
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
	DESC	RIPTION	DRYW	ELL ATM	TO PS	-48A,48	C,2B EFC (CIV)		
PI-EFC-X70A	M529	1	SA	0/C	GH	RF	7.4.6.3.4.1A	ROJ06	TV02
	E4	AC	СК	NA				1	
ŕ			1 X .5	NO					<u> </u>
•		RIPTION					S HI SIDE EFC (		1
PI-EFC-X70B	M529	1	SA	0/C	GH	RF	7.4.6.3.4.1A	ROJ06	TV02
	E4	AC	CK	NA					
			1 X .5	NO			CLOSIDE FEG		<u> </u>
							S LO SIDE EFC	(CIV)	TV02
PI-EFC-X70C	M529		SA	O/C NA	GH	RF	7.4.6.3.4.1A	KO100	1 402
• • •	E13	AC	CK	NA					
•		DIPTION					S HI SIDE EFC (		
DI REG VIOD			SA		GH	RF	7.4.6.3.4.1A	ROJO6	TV02
PI-EFC-X70D	M529 E13	I AC	CK	NA NA	0n	KI.	/.4.0.3.4.11		1.02
			1 X .5	NO					
	DESC	RIPTION			NE A	TO DPI	S LO SIDE EFC		J
PI-EFC-X70E	M530-1		SA	C	GH	RF	7.4.6.3.4.1D	ROJ06	TV02
FI-EFC-AIUE	B14	AC	СК	NA	<b>.</b>	14			
			1 X .5	NO					
	DESC	RIPTION	: RRC A	(RRC-P-1	A) TO	DPT-15	A EFC (CIV)		
PI-EFC-X70F	M530-1	1	SA	C	GH	RF	7.4.6.3.4.1D	ROJ06	TV02
	B14	AC	СК	NA					1
			1 X .5	NO					
	DESC	RIPTION	: RRC A	(RRC-P-1	A) TO	DPT-15	A EFC (CIV)		
PI-EFC-X71A	M529	1	SA	O/C	GH	RF	7.4.6.3.4.1A	ROJ06	TV02
	E4	AC	СК	NA					
			1 X .5	NO				<u> </u>	<u> </u>
		RIPTION			_		S HI SIDE EFC (		1
PI-EFC-X71B	M529		SA	O/C	GH	RF	7.4.6.3.4.1A	ROJ06	TV02
	E4	AC	CK	NA					
		DIDTION	1 X .5	NO		TO DDI	S LO SIDE EFC		
N. 554 No. 4					GH	RF	7.4.6.3.4.1E	ROJ06	TV02
PI-EFC-X71C	M519 G6	1 AC	SA CK	O/C NA	GH	KP	7.4.0.3.4.1E	ROIDO	1 02
	60	AC	1 X .5	NO					
	L	DIPTION			PPL V		IS-7A EFC (CIV)	<u></u>	1
DI PEG VIID		· · · · · · · · · · · · · · · · · · ·	SA	0/C	GH	RF	7.4.6.3.4.1E	ROJ06	TV02
PI-EFC-X71D	M519 G6	1 AC	CK	NA NA		1/1.	//*///////////////////////////////////		
			1 X .5	NO					
	DESC	RIPTION		1	PPLY	TO DP	IS-7A EFC (CIV)	1	
PI-EFC-X71E	M519	1	SA	0/C	GH	RF	7.4.6.3.4.1E	ROJ06	TV02
+ + + + + + + + + + + + + + + +	G6	AC	СК	NA		_			
			1 X .5	NO			_	ļ	
	DESC	RIPTION	: RCIC S	TEAM SU	PPLY	TO DP	IS-13A EFC (CIV	)	



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			Туре	2 Valve Position				. Testing Exceptions	Remarks (Notes &
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal			uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
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
		RIPTION					S-13A EFC (CIV)		1
PI-EFC-X72A	M529	1	SA	O/C	GH	RF	7.4.6.3.4.1G	ROJ06	TV02
	J6	AC	CK 1 X .5	NA NO					
		DIPTION			AR TO	DDECC	INST EFC (CIV	<u> </u>	!
				O/C	GH	RF	7.4.6.3.4.1E	, ROJ06	TV02
PI-EFC-X73A	M520 J8	I AC	SA CK	NA	п	Kr	7.4.0.3.4.16	KOJUU	1.02
	10	AC	1 X .5	NO					
	DESC	RIPTION		O RPV TO	DPIS	-9 EFC	(CIV)	<u> </u>	P
PI-EFC-X74A	M530-1	1	SA	0/C	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
	G12	AC	СК	NA					
* <b>*</b>			1 X .5	NO					
	DESC	RIPTION		J BELOW	CORE	PLATE	TO FLOW INST	TR EFC (CIV)	
PI-EFC-X74B	M521-1	1	SA	С	GH	RF	7.4.6.3.4.1D	ROJ06	TV02
	H5 ·	AC	СК	NA					ь.
			1 X .5	NO					,
	DESC	RIPTION	: RHR LI	PCI A INJ	ECTIO	N TO D	PIS-29A EFC (C	IV)	
PI-EFC-X74E	M530-1	1	SA	0/C	GH	RF	7.4.6.3.4.1D	ROJ06	TV02
	H11	AC	СК	NA					
			1 X .5	NO					
		RIPTION					PIS-12A EFC (CI		
PI-EFC-X74F	M530-1	1	SA	0/C	GH	RF	7.4.6.3.4.1D	ROJ06	TV02
	H11	AC	СК	NA					
			1 X .5	NO				L	I
						RF	PIS-12A EFC (CI 7.4.6.3.4.1C	ROJ06	TV02
PI-EFC-X75A	M530-1 G6	AC	SA CK	C NA	GH	RP	7.4.0.3.4.10	ROIDO	1 402
	00	AC	1 X .5	NO					
		DIPTION			CORE	PLATE	TO FLOW INS	I FR EFC (CIV)	·
			SA	0/C	GH	RF	7.4.6.3.4.1E	ROJO6	TV02
	1 M530-1								
PI-EFC-X75B	M530-1	1 AC				M.	7.4.0.3.4.16		
PI-EFC-X75B	M530-1 G12	AC	СК	NA		N.	7.4.0.5.4.16		
р <b>і-е</b> гс-х75в	G12	AC	CK	NA NO			TO FLOW INST	TR EFC (CIV)	
	G12 DESC	AC	CK 1 X .5 : SLC IN	NA NO J ABOVE				R EFC (CIV)	TV02
	G12	AC RIPTION	CK	NA NO	CORE	PLATE	TO FLOW INST		TV02
	G12 DESC M529	AC RIPTION	CK 1 X .5 : SLC IN SA	NA NO J ABOVE O/C	CORE	PLATE	TO FLOW INST		TV02
	G12 DESC M529 E12	AC RIPTION 1 AC	CK 1 X .5 : SLC IN SA CK 1 X .5	NA NO J ABOVE O/C NA NO	CORE GH	PLATE RF	TO FLOW INST		
PI-EFC-X75C	G12 DESC M529 E12	AC RIPTION 1 AC	CK 1 X .5 : SLC IN SA CK 1 X .5	NA NO J ABOVE O/C NA NO	CORE GH	PLATE RF	2 TO FLOW INST 7.4.6.3.4.1A		TV02
PI-EFC-X75B PI-EFC-X75C PI-EFC-X75D	G12 DESC M529 E12 DESC	AC RIPTION 1 AC RIPTION	CK 1 X .5 : SLC IN SA CK 1 X .5 : MAIN S SA CK	NA NO J ABOVE O/C NA NO STEAM L O/C NA	CORE GH	PLATE RF TO DPI	TO FLOW INST 7.4.6.3.4.1A S EFC (CIV)	ROJ06	
PI-EFC-X75C	G12 DESC M529 E12 DESC M529 E12	AC RIPTION 1 AC RIPTION 1 AC	CK 1 X .5 SLC IN SA CK 1 X .5 : MAIN S SA CK 1 X .5	NA NO J ABOVE O/C NA NO STEAM L O/C NA NO	CORE GH INE A GH	PLATE RF TO DPI RF	TO FLOW INST 7.4.6.3.4.1A S EFC (CIV) 7.4.6.3.4.1A	ROJ06	
PI-EFC-X75C	G12 DESC M529 E12 DESC M529 E12	AC RIPTION 1 AC RIPTION 1 AC	CK 1 X .5 SLC IN SA CK 1 X .5 : MAIN S SA CK 1 X .5	NA NO J ABOVE O/C NA NO STEAM L O/C NA NO STEAM L	CORE GH INE A GH	PLATE RF TO DPI RF TO DPI	2 TO FLOW INST 7.4.6.3.4.1A S EFC (CIV) 7.4.6.3.4.1A S EFC (CIV)	ROJ06 ROJ06	TV02
PI-EFC-X75C	G12 DESC M529 E12 DESC M529 E12 DESC M530-1	AC RIPTION 1 AC RIPTION 1 AC RIPTION 1	CK 1 X .5 : SLC IN SA CK 1 X .5 : MAIN : SA CK 1 X .5 : MAIN : SA	NA NO J ABOVE O/C NA NO STEAM L O/C NA NO STEAM L O/C	CORE GH INE A GH	PLATE RF TO DPI RF	TO FLOW INST 7.4.6.3.4.1A S EFC (CIV) 7.4.6.3.4.1A	ROJ06	
PI-EFC-X75C PI-EFC-X75D	G12 DESC M529 E12 DESC M529 E12 DESC	AC RIPTION 1 AC RIPTION 1 AC RIPTION	CK 1 X .5 : SLC IN SA CK 1 X .5 : MAIN : SA CK 1 X .5 : MAIN :	NA NO J ABOVE O/C NA NO STEAM L O/C NA NO STEAM L	CORE GH INE A GH	PLATE RF TO DPI RF TO DPI	2 TO FLOW INST 7.4.6.3.4.1A S EFC (CIV) 7.4.6.3.4.1A S EFC (CIV)	ROJ06 ROJ06	TV02

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#### WNP-2 Valve Test Tables

Valve EPN	Dwg &	Class -	Туре	Position	Tests, Frequency & PPM			Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal	Tes			(CSJ/ROJ/ Reliefs)	Technical Position)
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
	DESC	RIPTION	RRC B	TO FT-24.					<u> </u>
PI-EFC-X78A -	M543-2	2	SA	0/C	GH	RF	7.4.6.3.4.2	ROJ06	TV02
	E13	AC	СК	NA			5		
			1 X .5	NO				·	
*		RIPTION					L ATM SAMPL		1
PI-EFC-X78B	M520	1	SA	С	GH	RF	7.4.6.3.4.1D	ROJ06	TV02
	J10	AC	CK	NA					
		DIDTION	1 X .5	NO O DDV T		DDC 00	A REO (OIN)	l	<u> </u>
							A EFC (CIV)		17102
PI-EFC-X78C	M523	1	SA	C	GH	RF	7.4.6.3.4.1C	ROJ06	TV02
2 5	F12	AC	CK 1 X .5	NA NO					
× ×		DIPTION		TO RWC		TEEO	<u></u>		l
						RF	7.4.6.3.4.1D	ROJ06	TV02
PI-EFC-X78F	M530-1	1	SA CK	O/C NA	GH	RP	7.4.0.3.4.1D	KOJUG	1 402
	H12	AC	1 X .5	NO					
		DIDTION					S-18A EFC (CIV		!
N 1700 3/00 4				0/C	GH	RF	7.4.6.3.4.1E	ROJ06	TV02
PI-EFC-X79A	M523 F15	1 AC	SA CK	NA	GH	KP	7.4.0.3.4.1E	ROJUG	1 402
	FIS	AC	1 X .5	NO				}	
		DIDTION		TO RWCI	LET-3	SEEC (			J
DI FEG VOD	M523		SA	0/C	GH	RF	7.4.6.3.4.1E	ROJ06	TV02
PI-EFC-X79B	F15	I AC	CK	NA	on	KF	/.4.0.3.4.115	KOJOO	1.02
	115	AU	1 X .5	NO					
				TO RWC	L LFT-3	6 EFC (		<u>.</u>	L
	DESC	RIPTION				~ ~ \			
DI-FEC-Y82D					GH	RE		ROI06	TV02
PI-EFC-X82B	M543-1	2	SA	O/C	GH	RF	7.4.6.3.4.2	ROJ06	TV02
PI-EFC-X82B			SA CK		GH	RF		ROJ06	TV02
PI-EFC-X82B	M543-1 B14	2 AC	SA CK 1 X .5	O/C NA NO			7.4.6.3.4.2	ROJ06	TV02
	M543-1 B14 DESC	2 AC RIPTION	SA CK 1 X .5 WETW	O/C NA NO ELL ATM	TO PI		7.4.6.3.4.2	ROJ06	TV02
PI-EFC-X82B PI-EFC-X84A	M543-1 B14 DESC M543-1	2 AC RIPTION 2	SA CK 1 X .5	O/C NA NO		-3 EFC	7.4.6.3.4.2 (CIV)		4
	M543-1 B14 DESC	2 AC RIPTION	SA CK 1 X .5 : WETWI SA CK	O/C NA NO ELL ATM O/C	TO PI	-3 EFC	7.4.6.3.4.2 (CIV)		4
	M543-1 B14 DESC M543-1 B6	2 AC RIPTION 2 AC	SA CK 1 X .5 : WETWI SA CK 1 X .5	O/C NA NO ELL ATM O/C NA	TO PI GH	-3 EFC RF	7.4.6.3.4.2 (CIV) 7.4.6.3.4.2		4
PI-EFC-X84A	M543-1 B14 DESC M543-1 B6	2 AC RIPTION 2 AC	SA CK 1 X .5 : WETWI SA CK 1 X .5	O/C NA NO ELL ATM O/C NA NO	TO PI GH	-3 EFC RF	7.4.6.3.4.2 (CIV) 7.4.6.3.4.2		4
	M543-1 B14 DESC M543-1 B6 DESC	2 AC RIPTION 2 AC RIPTION	SA CK 1 X .5 WETW SA CK 1 X .5 : WETW	O/C NA NO ELL ATM O/C NA NO ELL ATM	TO PT GH TO PT	T-3 EFC RF T-4 EFC	7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 (CIV)	ROJ06	TV02
PI-EFC-X84A	M543-1 B14 DESC M543-1 B6 DESC M543-1	2 AC RIPTION 2 AC RIPTION 2	SA CK 1 X .5 WETWI SA CK 1 X .5 : WETWI SA	O/C NA NO ELL ATM O/C NA NO ELL ATM O/C	TO PT GH TO PT	T-3 EFC RF T-4 EFC	7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 (CIV)	ROJ06	TV02
PI-EFC-X84A	M543-1 B14 DESC M543-1 B6 DESC M543-1 B14	2 AC RIPTION 2 AC RIPTION 2 AC	SA CK 1 X .5 WETWI SA CK 1 X .5 WETWI SA CK 1 X .5	O/C NA NO ELL ATM O/C NA NO ELL ATM O/C NA	TO P GH TO P GH	r-3 EFC RF r-4 EFC RF	7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 )	ROJ06	TV02
PI-EFC-X84A	M543-1 B14 DESC M543-1 B6 DESC M543-1 B14	2 AC RIPTION 2 AC RIPTION 2 AC	SA CK 1 X .5 : WETWI SA CK 1 X .5 : WETWI SA SA	O/C NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO ELL TO L O/C	TO P GH TO P GH	r-3 EFC RF r-4 EFC RF	7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 (CIV) 7.4.6.3.4.2	ROJ06	TV02
PI-EFC-X84A PI-EFC-X86A	M543-1 B14 DESC M543-1 B6 DESC M543-1 B14 DESC	2 AC RIPTION 2 AC RIPTION 2 AC RIPTION	SA CK 1 X .5 : WETWI SA CK 1 X .5 : WETWI SA CK 1 X .5 : WETWI SA CK	O/C NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO ELL TO L O/C NA	TO PI GH TO PI GH T-1 EF	r-3 EFC RF r-4 EFC RF C (CIV	7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 )	ROJ06 ROJ06	TV02
PI-EFC-X84A PI-EFC-X86A	M543-1 B14 DESC M543-1 B6 DESC M543-1 B14 DESC M543-1 B14	2 AC RIPTION 2 AC RIPTION 2 AC RIPTION 2 AC	SA CK 1 X .5 : WETWI SA CK 1 X .5 : WETWI SA CK 1 X .5 : WETWI SA CK 1 X .5	O/C NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO ELL TO L O/C NA NO	TO P GH GH GH T-1 EF GH	<u>r-3 EFC</u> RF <u>r-4 EFC</u> RF <u>r</u> C (CIV RF	7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 ) 7.4.6.3.4.2	ROJ06 ROJ06	TV02
PI-EFC-X84A PI-EFC-X86A	M543-1 B14 DESC M543-1 B6 DESC M543-1 B14 DESC M543-1 B14	2 AC RIPTION 2 AC RIPTION 2 AC RIPTION 2 AC	SA CK 1 X .5 : WETWI SA CK 1 X .5 : WETWI SA CK 1 X .5 : WETWI SA CK 1 X .5	O/C NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO ELL TO L O/C NA NO ELL TO L	TO P GH GH GH T-1 EF GH	<u>r-3 EFC</u> RF <u>r-4 EFC</u> RF <u>r</u> C (CIV RF	7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 ) 7.4.6.3.4.2	ROJ06 ROJ06 ROJ06	TV02 TV02 TV02
PI-EFC-X84A PI-EFC-X86A	M543-1 B14 DESC M543-1 B6 DESC M543-1 B14 DESC M543-1 B14 DESC M543-1	2 AC RIPTION 2 AC RIPTION 2 AC RIPTION 2 AC RIPTION 2	SA CK 1 X .5 WETWI SA CK 1 X .5 WETWI SA CK 1 X .5 WETWI SA CK 1 X .5	O/C NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO ELL TO L O/C NA NO ELL TO L O/C	TO P GH GH GH T-1 EF GH	<u>r-3 EFC</u> RF <u>r-4 EFC</u> RF <u>r</u> C (CIV RF	7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 ) 7.4.6.3.4.2	ROJ06 ROJ06	TV02
PI-EFC-X84A PI-EFC-X86A PI-EFC-X86B	M543-1 B14 DESC M543-1 B6 DESC M543-1 B14 DESC M543-1 B14 DESC	2 AC RIPTION 2 AC RIPTION 2 AC RIPTION RIPTION	SA CK 1 X .5 WETWI SA CK 1 X .5 WETWI SA CK 1 X .5 WETWI SA CK 1 X .5 WETWI	O/C NA NO ELL ATM O/C NA NO ELL ATM O/C NA NO ELL TO L O/C NA NO ELL TO L O/C NA	TO P GH GH TO P GH T-1 EF GH	r-3 EFC RF r-4 EFC RF C (CIV RF	7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 (CIV) 7.4.6.3.4.2 ) 7.4.6.3.4.2 )	ROJ06 ROJ06 ROJ06	TV02 TV02 TV02



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Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve	Position Safety, Failed,	Tes	ts, Freq	uency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
			& Size	Normal				Reliefs	I USILIUII)
PI-EFC-X87B	M543-1	2	SA	O/C	GH	RF	7.4.6.3.4.2	ROJ06	TV02
	B6	AC	СК	NA					
			1 X .5	NO					<u> </u>
	DESC	RIPTION	: WETWI	ell to L					
PI-EFC-X106	M529	1	SA	O/C	GH	RF	7.4.6.3.4.1G	ROJ06	TV02
	H12	AC	СК	NA					
			1 X .5	NO					
×		RIPTION	: RPV TO	) PRESS I					1
PI-EFC-X107	M529	1	SA	0/C	GH	RF	7.4.6.3.4.1G	ROJ06	TV02
	H12	AC	СК	NA					
			1 X .5	NO					
				PRESS I	_		-	DOING	TV02
PI-EFC-X108	M529	1	SA	O/C	GH	RF	7.4.6.3.4.1G	ROJ06	1 1 02
· · ;	G12	AC	CK	NA NO					
e e	DESC	DIPTION		D PRESS I	NOT E	FC (CIV	<u></u>	L	<u> </u>
DI DEG 3/100			_	O/C	GH	RF	7.4.6.3.4.1G	ROJ06	TV02
PI-EFC-X109	M529 H5	1 AC	SA CK	NA		ĸr	7.4.0.3.4.10	KOJOO	1.402
		AC	1 X .5	NO					
		DIPTION		PRESS I	I NST F	FC (CIV	<u></u>	I	.1
PI-EFC-X110	M529	1		0/C	GH	RF	7.4.6.3.4.1G	ROJ06	TV02
PI-EFC-AII0	H5	AC	СК	NA		M.	7.4.0.0.4110		
		AU	1 X .5	NO					
	DESC	RIPTION		PRESS I	NST E	FC (CIV	Ŋ	J	
PI-EFC-X111	M529	1	SA	0/C	GH	RF	7.4.6.3.4.1G	ROJ06	TV02
	H5	AC	СК	NA	•				
			1 X .5	NO					
	DESC	RIPTION	: RPV TO	PRESS I	NST E	FC (CIV	<u>か</u>		
PI-EFC-X112	M529	1	SA	0/C	GH	RF	7.4.6.3.4.1G	ROJ06	TV02
	H5	AC	СК	NA					
			1 X .5	NO					
	DESC	RIPTION	: RPV TO	) PRESS I	NST E	FC (CIV	り		
PI-EFC-X113	M529	1	SA	O/C	GH	RF	7.4.6.3.4.1G	ROJ06	TV02
	H5	AC	СК	NA					,
			1 X .5	NO					1
	DESC	RIPTION	: RPV TO	D PRESS I					
PI-EFC-X114	M529	1	SA	0/C	GH	RF	7.4.6.3.4.1G	ROJ06	TV02
	H12	AC	СК	NA					
			1 X .5	NO		PO /011	<u> </u>	<u> </u>	1
				D PRESS I				DOIOC	1772/02
PI-EFC-X115	M529		SA	O/C	GH	RF	7.4.6.3.4.1G	ROJ06	TV02
	H12	AC	CK 1 X 5	NA NO					
				D PRESS I	NOT T	EO (OIN	<u></u>	<u>I</u>	
N. NDA 3/110					GH	RF	7.4.6.3.4.2	ROJ06	TV02
PI-EFC-X119	M543-1 B6	2 AC	SA CK	O/C NA	on	Kľ	7.4.0.3.4.2	KOJO0	1.02
			1 X .5	NO	1				1
	L	L	1		TOO	CD DDT	-6 EFC (CIV)	1	



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#### WNP-2 Valve Test Tables

	<u> </u>			-2 valve	161	140165			
	Dwg &	Class	Туре					Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat,	Safety,	Tests, Frequency & PPM			(CSJ/ROJ/ Reliefs)	Technical Position)
			Valve & Size	Failed, Normal					
					ļ	2Y	7.4.6.1.2.4	<u> </u>	TV02
PI-V-X42D	M521-1 F5	2 A	MA GB	C NA	L	21	7.4.0.1.2.4		1 102
	FJ	А	1	LC					
	DESC	DIDTION	-	-		FRATO	R (INBD CIV)	<u></u>	L
DLV-YSARE	M521-2	2				2Y	7.4.6.1.2.4	T	TV02
PI-V-X54BF	H13	Ā	GB	NA	<b>~</b>	21	7141011211	ŕ	
	mis	•	1	LC					
	DESC	RIPTION	AIR TO	RHR-V-4	1B OP	ERATO	R (INBD CIV)		
PI-V-X61F	M521-1	2	MA	C	L	2Y	7.4.6.1.2.4		TV02
· · · · · · · · · · · · · · · · · ·	G5	Ā	GB	NA					
			1	LC					
	DESC	RIPTION	: AIR TO	RHR-V-4	IA OF	ERATO	R (INBD CIV)		
PI-V-X62F	M521-2	2	MA	С	L	2Y	7.4.6.1.2.4		TV02
· .:	D12	A	GB	NA					
• (			1	LC				l	
	DESC	RIPTION	: AIR TO	RHR-V-4	IC OF	ERATO	R (INBD CIV)		-
PI-V-X69C	M521-2	2	MA	_ C	L	2Y	7.4.6.1.2.4		TV02
	F13	A	GB	NA					
			1	LC				<u> </u>	
							R (INBD CIV)		
PI-V-X72F/1	M543-1	2	SA	C	н	RF	7.4.0.5. 7G	ROJ04	TV02
	F13	AC	СК	NA	L	2Y	7.4.6.1.2.4		4
				NO			IA EEG (CIND	<u> </u>	<u>.                                    </u>
					H	RF	12A EFC (CIV) 7.4.0.5.7G	ROJ04	TV02
PI-V-X73E/1	M543-1 F7	2 AC	SA CK	C NA		кг 2Y	7.4.6.1.2.4	KOJ04	1 402
	<b>Г</b> /	AC		NO	1	21	7.4.0.1.2.4		
		NOTTON		4	TOR	AD-RE-	12B EFC (CIV)	.!	
PI-VX-216	M521-1	2	MA	C		2Y	7.4.6.1.2.4	1	TV02
FI- VX-210	G6	Ã	GB	NA	1	~.	7111012121		
			1	LC					
	DESC	RIPTION	: AIR TO	RHR-V-5	OA OF	ERATO	R (OTBD CIV)	4	1
PI-VX-218	M521-2	2	MA	С	L	2Ÿ	7.4.6.1.2.4	1	TV02
	H13	A	GB	NA					
			1	LC					<u> </u>
	DESC	RIPTION	: AIR TO	RHR-V-4		ERATO	R (OTBD CIV)		
PI-VX-219	M521-1	2	MA	C	L	2Y	7.4.6.1.2.4		TV02
	H6	A	GB	NA					
			1	LC					
							R (OTBD CIV)		1.000
PI-VX-220	M521-2	2	MA	С	L	2Y	7.4.6.1.2.4		TV02
	D12	A	GB	NA	1			1	ļ
						DDATO	D (OTDD OILD	<u> </u>	J
NT 191 AA.							R (OTBD CIV)	1	1 TV02
PI-VX-221	M521-2	2	MA	C	L	2Y	7.4.6.1.2.4	1	TV02
PI-VX-221	C12		CD						
PI-VX-221	G13	A	GB 1	NA LC					

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#### WNP-2 Valve Test Tables

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			Туре	Position	1			Testing	Remarks
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal	Tes	ts, Fre	quency & PPM	Exceptions (CSJ/ROJ/ Reliefs)	(Notes & Technical Position)
PI-VX-250	M543-1	2	so	С	G	2Y	7.4.0.5.13		TV01,2
	F13	A	sv	FC	нк	Q	7.4.0.5.13		
			1	NO	L	2Y	7.4.6.1.2.4		
·····							IONITOR ISO (CI	<u>v)</u>	
PI-VX-251	M543-1	2	SO	С	G	2Y	7.4.0.5.13		TV01,2
	F13	A	sv	FC	НІК	Q	7.4.0.5.13		
		DIPTION		NO	L	2Y	7.4.6.1.2.4		
,		RIPTION					IONITOR ISO (CI	v)	
PI-VX-253	M543-1 F13	2	SO SV	C FC	G HJK	2Y	7.4.0.5.13		TV01,2
	F15	Α	3V 1	NO	L	Q 2Y	7.4.0.5.13 7.4.6.1.2.4		
	DESC	DIDTION	-				IONITOR ISO (CI		[
PI-VX-256			_		G			v)	
PI-VA-200	M543-1 F7	2 A	SO SV	C FC	НІК	2Y Q	7.4.0.5.13 7.4.0.5.13		TV01,2
		~	1	NO	L	2Y	7.4.6.1.2.4		
		DIDTION					IONITOR ISO (CI	L	
PI-VX-257	M543-1				G			v)	TV01,2
P1- V X-257	M543-1 F7	2 A	SO SV	C FC	НІК	2Y Q	7.4.0.5.13 7.4.0.5.13		1 1 1 1 2
	<b>F</b> '	~	1	NO	L	2Y	7.4.6.1.2.4		
	DESCRIPTION: DRYWELL TO RADIATION MONITOR ISO (CIV)								
PI-VX-259	M543-1	2	SO	C	G	2Y	7.4.0.5.13	•)	TV01,2
[]-   A-2.37	F7	Â	sv	FC	НІК	Q	7.4.0.5.13		1 001,2
		A	1	NO	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	-				ONITOR ISO (CI	v	l
PI-VX-262	M543-2	2	SO	C	G	2Y	7.4.0.5.13		TV01,2
	E13	Ā	sv	FC	нік	Q	7.4.0.5.13		1.101,2
	L	•••	1	NO		•			
8	DESC	RIPTION	DRYWE	LL TO H	2-02 M	IONITO	DR ISO (CIV)		
PI-VX-263	M543-2	2	SO	С	G	2Y	7.4.0.5.13		TV01,2
	E13	Α	sv	FC	нјк	Q	7.4.0.5.13		
			1	NO	:	•			
	DESC	RIPTION	DRYWE	LL TO H	2-02 M	IONITO	DR ISO (CIV)	· · · · · ·	
PI-VX-264	M543-2	2	SO	С	G	2Y	7.4.0.5.13		TV01,2
	E13	Α	sv	FC	нјк	Q	7.4.0.5.13		
			1	NO			,		
	DESC	RIPTION:	DRYWE	LL TO H	2-02 M	IONITO	DR ISO (CIV)		·····
PI-VX-265	M543-2	2	so	С	G	2Y	7.4.0.5.13		TV01,2
	B14	A	sv	FC	нік	Q	7.4.0.5.13		
			1	NO					
	DESC	RIPTION:	DRYWE		2-02 M		DR ISO (CIV)		
PI-VX-266	M543-2	2	SO	С	G	2Y	7.4.0.5.13		TV01,2
	E7	A	sv	FC	HJK	Q	7.4.0.5.13		
*			1	NO					
							DR ISO (CIV)	,	
PI-VX-268	M543-2	2	SO	С	G	2Y	7.4.0.5.13		TV01,2
	E7	A	sv	FC	НЈК	Q	7.4.0.5.13		
	L		1	NO					
	DESCI	RIPTION:	DRYWE	LL TO H	2-02 M	ONITC	R ISO (CIV)		

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WNP-2 Valve Test Tables

			Туре	Position				Testing	Remarks
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal	Tes	ts, Fre	quency & PPM	Exceptions (CSJ/ROJ/ Reliefs)	(Notes & Technical Position)
PI-VX-269	M543-2	2	so	С	G	2Y	7.4.0.5.13	1	TV01,2
	D6	Α	sv	FC	НІК	Q	7.4.0.5.13		
1			1	NO				<u> </u>	
		RIPTION					OR ISO (CIV)		
PSR-V-003/A	M896	2	SO	С	G	2Y	7.4.0.5.51		TV01
	E12	В	sv	FC	ш	Q	7.4.0.5.51		
			1	NC	<u> </u>			<u> </u>	<u> </u>
		RIPTION		DOP A SA				·····	
PSR-V-003/B	M896	2	SO	С	G	2Y	7.4.0.5.51		TV01
	D12	В	sv	FC	н	Q	7.4.0.5.51		
			1	NC	<u> </u>			1	1
				DOP B SA					
PSR-V-X73/1	M896	2	SO	C	G	2Y	7.4.6.1.2.4	RV04	TV01,2
	J14	Α	GB 1	FC NC	L HJK	Q 2Y	7.4.0.5.51 7.4.6.1.2.4		
		DIPTION						I	1
DOD 11 1/20 /0				LL ATM				·····	
PSR-V-X73/2	M896	2	SO	20	G	2Y	7.4.6.1.2.4		TV01,2
×	J12	Α	GB 1	FC NC	нк	Q	7.4.0.5.51		
	DESC	DIDTION		ELL ATM	L	2Y	7.4.6.1.2.4		
NOD 11 1/77 + /1									
PSR-V-X77A/1	M896 E13	I	SO GB	C FC	G HJK	2Y	7.4.6.1.2.4	RV04	TV01,2
¥	E13	Α	- 1	FC NC	L	Q 2Y	7.4.0.5.51 7.4.6.1.2.4		}
	DESC	DIDTION	-	MP SAMP	_			<u> </u>	
PSR-V-X77A/2	M896					$\frac{1}{2Y}$		1	
F3K-V-A11A12	E12	1 A	SO GB	C FC	G НЈК		7.4.6.1.2.4 7.4.0.5.51		TV01,2
	512	~	1	NC	L	Q 2Y	7.4.6.1.2.4		
		RIPTION	- 1	MP SAMP				1	
PSR-V-X77A/3	M896	1	SO	C	<u>G</u>	$\frac{1}{2Y}$	7.4.6.1.2.4	RV04	TV01,2
	F13	Å	GB	FC	нік	Q	7.4.0.5.51	K 104	1 101,2
		<b>^</b>	1	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	- 1	MP SAMP				ļ	
PSR-V-X77A/4	M896	1	so	С	G	2Y	7.4.6.1.2.4	1	TV01,2
	F12	Ā	GB	FC	ык	õ	7.4.0.5.51	2	1 101,2
			1	NC	L	2Y	7.4.6.1.2.4	4	
	DESC	RIPTION		MP SAMP				<u>!</u>	Į
PSR-V-X80/1	M896	2	so	C	G	2Y	7.4.6.1.2.4	RV04	TV01,2
· · · · · · · · · · · · · · · · · · ·	K14	Ā	GB	FC	нјк	Q	7.4.0.5.51		
			1	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	DRYWE	LL ATM	SAMPI			I	I
PSR-V-X80/2	M896	2	so	C	G	2Y	7.4.6.1.2.4	1	TV01,2
	K12	Ā	GB	FC	шк	Q	7.4.0.5.51		
			1	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION:	DRYWE	LL ATM	SAMPI			1	L
PSR-V-X82/1	M896	2	SO	C	G	2Y	7.4.6.1.2.4	RV04	TV01,2
	B12	Ā	GB	FC	нік	Q	7.4.0.5.51		, .
			1	NC	L	2Y	7.4.6.1.2.4		
		RIPTION	SAMDIT			-	DOL ISO (CIV)	1	L <u></u>

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**WNP-2** Valve Test Tables

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Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Test	s, Freq	luency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
PSR-V-X82/2	M896	2	SO	С	G	2Y	7.4.6.1.2.4		TV01,2
P3K-V-A0212	B11	Â	GB	FC	нік	Q	7.4.0.5.51		
	<b>D</b> II			NC	L	2Y	7.4.6.1.2.4		
	DESC	DIDTION	-				OOL ISO (CIV)	l	L
DOD XI MOON			SO SO		G	2Y	7.4.6.1.2.4	RV04	TV01,2
PSR-V-X82/7	M896	2	GB	FC	нік	Q	7.4.0.5.51		1.101,2
,	G13 -	A	1	NC	L	2Y	7.4.6.1.2.4		
							ELL ISO (CIV)	l	<u>.                                    </u>
<u> </u>		RIPTION						r · · · · · · · · · · · · · · · · · · ·	
PSR-V-X82/8	M896	2	SO	C	G	2Y	7.4.6.1.2.4		TV01,2
	G12	A	GB	FC	нк	Q	7.4.0.5.51		
			1	NC	L	2Y	7.4.6.1.2.4	l	I
	DESC	RIPTION	: SAMPL	E RETUR			ELL ISO (CIV)		
PSR-V-X83/1	M896	2	SO	С	G	2Y	7.4.6.1.2.4	RV04	TV01,2
· · · ·	J13	A	GB	FC	нк	Q	7.4.0.5.51		,
' <b>*</b>			1	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	: WETW	ELL ATM	SAMP	LE ISC	(CIV)		
PSR-V-X83/2	M896	2	SO	С	G	2Y	7.4.6.1.2.4		TV01,2
	J12	Ā	GB	FC	НЈК	Q	7.4.0.5.51		
			1	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	· WETW	ELL ATM	SAMP	LE ISC	(CIV)	1	.1
PSR-V-X84/1	M896	2	so	С	G	2Y	7.4.6.1.2.4	RV04	TV01,2
PSK• V•A04/1	H12	Â	GB	FC	нік	Q	7.4.0.5.51		
				NC .	L	2Y	7.4.6.1.2.4		
		DIPTION	-	ELL ATM	1				l
		RIPTION						r	TV01,2
PSR-V-X84/2	M896	2	SO	C	G	2Y	7.4.6.1.2.4		1 1 1 1 1 2
	H11	A	GB	FC	ник	Q 2Y	7.4.0.5.51 7.4.6.1.2.4		
			1	NC	L				ļ
		RIPTION		ELL ATM				1 =	1
PSR-V-X88/1	M896	2	SO	С	G	2Y	7.4.6.1.2.4	RV04	TV01,2
	D13	A	GB	FC	НЈК	Q	7.4.0.5.51		
			1	NC	L	2Y	7.4.6.1.2.4		<u> </u>
	DESC	RIPTION	: SUPP F	OOL SAN	IPLE IS	50 (CIV			
PSR-V-X88/2	M896	2	SO	C	G	2Y	7.4.6.1.2.4		TV01,2
	D11	A	GB	FC	нк	Q	7.4.0.5.51		
			1	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	SUPP P	OOL SAN	IPLE IS	SO (CIV	<b>ク</b>		
RCC-RV-34A	M525	3	SA	NA	P	RV	7.4.0.5.20	T	TV03
	H05	l c	RV	NA					
	*		.75 X 1	NC					
	DESC	RIPTION		- K-1A SHE	LL SID	ERV		<u></u>	• • • • • • • • • • • • • • • • • • • •
RCC-RV-34B	M525	3	SA	NA	P	RV	7.4.0.5.20	1	TV03
NOC-N 1-J-JD	G06	Ċ	RV	NA	1		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		l
		Ĭ	.75 X 1	NC	1			1	
		DIDTION		K-1B SHE		FRV		<u> </u>	
DOO V C		· · · · · · · · · · · · · · · · · · ·					7405 00	0.02102	TV01 2
KCC-V-3		1		1				1002	1 101,2
	EIU	A .						1	
	L								<u>.</u>
RCC-V-5	M525 E10 DESC	2 A CRIPTION	MO GB 10 : RCC TO	C FAI NO O DRYWE	G HJ L LL CO	2Y CS 2Y OLINC	7.4.0.5. 9C 7.4.0.5. 9C 7.4.6.1.2.4 3 LOADS (IST O	CSJ02 TBD CIV)	TV01,2

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#### WNP-2 Valve Test Tables

<u> </u>			Туре	Position		Tables	<u>_</u> <u></u>	Testing	Remarks
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal	Tes	sts, Freq	uency & PPM	Exceptions (CSJ/ROJ/ Reliefs)	(Notes & Technical Position)
RCC-V-21	M525	2	МО	С	G	2Y	7.4.0.5. 9C	CSJ02	TV01,2
	D10	Α	GT	FAI	HI	CS	7.4.0.5. 9C		
			10	NO	L	2Y	7.4.6.1.2.4		l
	DESC	RIPTION					NG LOADS (OT		T
RCC-V-40	M525	2	мо	С	G	2Y	7.4.0.5. 9C	CSJ02	TV01,2
,	D11	A	GT	FAI	HI	CS	7.4.0.5. 9C		
			10	NO	L	2Y	7.4.6.1.2.4	·	
•		_					ING LOADS (INI		
RCC-V-104	M525	2	MO	С	G	2Y	7.4.0.5. 9C	CSJ02	TV01,2
	E10	A	GT 10	FAI NO	HJ L	CS 2Y	7.4.0.5. 9C 7.4.6.1.2.4		
							LOADS (2ND C		<u> </u>
									TV01
RCC-V-129	M525	3	MO	C	G HJ	2Y	7.4.0.5. 6D 7.4.0.5. 6D		1 1 1 1 1
	E5	В	GT 8	FAI NO		Q	7.4.0.5. 00		
•		DIDTION	RCC TO		1 1 0-	10 100		I	L
D G G 11 100						2Y		r	TV01
RCC-V-130	M525 E6	3 B	MO GT	C FAI	G HJ	21 Q	7.4.0.5. 6D 7.4.0.5. 6D		1 401
	EO	<u>م</u>	8	NO	1.11	Q	7.4.0.5. 00		i
	DESC	DIDTION	RCC FI	•••=	UY-1/	& IR	150	!	<u>.                                    </u>
DCO V 121	M525		MO		G	2Y	7.4.0.5. 6D	r	TV01
RCC-V-131	M525 E6	3 B	GT	FAI	HI	Q	7.4.0.5. 6D		
	EU		8	NO	1.00	×	7.4.0.5.00		
	DESC	I RIPTION	RCC FI		I .HX-1/	& 1B	ISO	l	
RCC-V-133A	M525	3	SA		TH I	Q	7.4.0.5.16	I	T
RCC-V-IJJA	H05	c	CK	NA	1	×	/1410/0110		
	1105	Ŭ	6	NO					•
	DESC	RIPTION	RCC TO	D FPC-HX	-1A C	нк		I	J
RCC-V-133B	M525	3	SA	С	Н	Q	7.4.0.5.17	r	1
	G05	c	СК	NA				-	
			6	NO					
	DESC	RIPTION	6 RCC TO		-1B C	HK			
RCIC-RD-1	DESC M519	RIPTION			-1B C	HK		 	   N08 -
RCIC-RD-1			RCC TO	<b>БРС-НХ</b>	-1B C	HK			N08 -
RCIC-RD-1	M519 D12	2 D	RCC TO SA RD 10	D FPC-HX NA NA NC					N08 -
RCIC-RD-1	M519 D12	2 D	RCC TO SA RD 10	D FPC-HX NA NA NC			ie rupture di	sc	N08 -
	M519 D12	2 D	RCC TO SA RD 10	D FPC-HX NA NA NC			NE RUPTURE DI	sc	N08 -
	M519 D12 DESC	2 D RIPTION	RCC TC SA RD 10 RCIC T	D FPC-HX NA NC URBINE 1 NA NA			ie rupture di	sc	,
	M519 D12 DESC M519 C12	2 D RIPTION 2 D	RCC TO SA RD 10 RCIC T SA RD 10	D FPC-HX NA NC URBINE NA NA NA NC	EXHA	UST LIN			,
	M519 D12 DESC M519 C12	2 D RIPTION 2 D	RCC TO SA RD 10 RCIC T SA RD 10	D FPC-HX NA NC URBINE NA NA NA NC	EXHA	UST LIN UST LIN	ie rupture di Ne rupture di		N08
RCIC-RD-2	M519 D12 DESC M519 C12 DESC M519	2 D RIPTION 2 D RIPTION 2	RCC TO SA RD 10 RCIC T SA RD 10 RCIC T SA	D FPC-HX NA NC URBINE 1 NA NC URBINE 1 NA	EXHA	UST LIN			,
RCIC-RD-2	M519 D12 DESC M519 C12 DESC	2 D RIPTION 2 D RIPTION	RCC TO SA RD 10 RCIC T SA RD 10 RCIC T SA RV	D FPC-HX NA NC URBINE 1 NA NC URBINE 1 NA NA	EXHA)	UST LIN UST LIN	NE RUPTURE DI		N08
RCIC-RD-2	M519 D12 DESC M519 C12 DESC M519 C13	2 D RIPTION 2 D RIPTION 2 C	RCC TC SA RD 10 RCIC T SA RD 10 RCIC T SA RV 1 X 1	D FPC-HX NA NA NC URBINE 1 NA NC URBINE 1 NA NA NA NA NC	EXHA) EXHA) P	UST LIN UST LIN	NE RUPTURE DI		N08
RCIC-RD-1 RCIC-RD-2 RCIC-RV-17	M519 D12 DESC M519 C12 DESC M519 C13 DESC	2 D RIPTION 2 D RIPTION 2 C	RCC TO SA RD 10 RCIC T SA RD 10 RCIC T SA RV	D FPC-HX NA NC URBINE 1 NA NC URBINE 1 NA NA NC UMP SUC	EXHA EXHA P	UST LIN UST LIN RV	NE RUPTURE DI 7.4.0.5.20		N08
RCIC-RD-2 RCIC-RV-17	M519 D12 DESC M519 C12 DESC M519 C13 DESC M519	2 D RIPTION 2 D RIPTION 2 C RIPTION 2	RCC TO SA RD 10 RCIC T SA RD 10 RCIC T SA RV 1 X 1 RCIC P MO	D FPC-HX NA NA NC URBINE I NA NC URBINE I NA NA NC UMP SUC C	EXHAN EXHAN P TT RV	UST LIN UST LIN RV 2Y	NE RUPTURE DI 7.4.0.5.20 7.4.7.3.3C		N08
RCIC-RD-2	M519 D12 DESC M519 C12 DESC M519 C13 DESC	2 D RIPTION 2 D RIPTION 2 C RIPTION	RCC TC SA RD 10 RCIC T SA RD 10 RCIC T SA RV 1 X 1 RCIC P	D FPC-HX NA NC URBINE 1 NA NC URBINE 1 NA NA NC UMP SUC	EXHA EXHA P	UST LIN UST LIN RV	NE RUPTURE DI 7.4.0.5.20		N08



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#### WNP-2 Valve Test Tables

		r				Tables		· · · · · · · · · · · · · · · · · · ·	·
¥7. J . 171557	Dwg &	Class	Туре	Position	_	-4- <b>D</b>		Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal		sts, freq	luency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
RCIC-V-8	M519	1	MO	С	G	2Y	7.4.7.3.3C		TV01,2
	F6	A	GT	FAI	HJ	Q	7.4.7.3.3C		
			4	NO	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	: RCIC T	URBINE	STEAN	A SUPPI	LY (OTBD CIV)	4	
RCIC-V-10	M519	2	MO	С	G	2Y	7.4.7.3.3C		TV01
	B14	В	GT	FAI	HJ	Q,	7.4.7.3.3C		-
			8	NO					
	DESC	RIPTION	CST TO	RCIC-P-	1 SUC	T			
RCIC-V-13	M519	1	МО	С	G	2Y	7.4.0.5. 8C	CSJ07	TV01,2
	H7	A	GT	FAI	HI	CS	7.4.0.5. 8C		1
			6	NC	L	RF	7.4.4.3.2.2		
	DESC	RIPTION	RCIC T	o rpv h	EAD S		SO (OTBD CIV)		
RCIC-V-19	M519	2	МО	С	G	2Y	7.4.7.3.3C		TV01,2
-	F7	A	GB	FAI	HI	Q	7.4.7.3.3C		
		l	2	NC		<u>2Y</u>	7.4.6.1.2.4		[
	DESC	RIPTION	RCIC-P				o supp pool (o	TBD CIV)	
RCIC-V-22	M519	2	МО	С	G	2Y	7.4.7.3.3C		TV01
	<b>J</b> 8	В	GB	FAI	НЛ	Q	7.4.7.3.3C		
			6	NC					
		RIPTION	RCIC-P						
RCIC-V-28	M519	2	SA	C	H	Q	7.4.7.3.3C		TV02
i -	D8	AC	СК	NA	H	Q	7.4.7.3.3B		
			1.50	NC	L	2Y	7.4.6.1.2.4		
		RIPTION			_		L CHK (CIV)		
RCIC-V-30	M519	2	SA	NA	H	Q	7.4.7.3.3B		N01
	C7	С	СК	NA	н	RF	7.4.7.3.6		
			8	NC				l	l
		RIPTION		OOL TO					
RCIC-V-31	M519	2	MO	С	G	2Y	7.4.7.3.3C		TV01,2
	C7	A	GT	FAI	HI	Q	7.4.7.3.3C		
			8	NC		RF	7.4.6.1.2.9		I
		· · · · · · · · · · · · · · · · · · ·					-P-1 SUCT (OTB	D CIV)	Langella
RCIC-V-40	M519	2	SA	C	H	Q	7.4.7.3.3B		TV02
	E8	AC	CK	NA	H	Q	7.4.7.3.3C		
			10	NC	L	2Y	7.4.6.1.2.4		
			RCIC T				SUPP POOL CH	K (CIV)	1
RCIC-V-45	M519	2	RCIC T MO	NA	G	2Y	7.4.7.3.3C		N01
RCIC-V-45			RCIC T MO GB	NA FAI					N01 TV01
RCIC-V-45	M519 F11	2 B	RCIC T MO GB 4	NA FAI NC	G HJ	2Y Q	7.4.7.3.3C 7.4.7.3.3C		
	M519 F11 DESC	2 B RIPTION	MO GB 4 RCIC T	NA FAI NC URB STM	G HJ SUPF	2Y Q PLY ISO	7.4.7.3.3C 7.4.7.3.3C (MAIN TURBIN		TV01
RCIC-V-45 RCIC-V-46	M519 F11 DESC M519	2 B RIPTION 2	RCIC T MO GB 4 RCIC T MO	NA FAI NC URB STM C	G HJ SUPP	2Y Q PLY ISO 2Y	7.4.7.3.3C 7.4.7.3.3C (MAIN TURBIN 7.4.7.3.3C		
	M519 F11 DESC	2 B RIPTION	RCIC T MO GB 4 RCIC T MO GB	NA FAI NC URB STM C FAI	G HJ SUPF	2Y Q PLY ISO	7.4.7.3.3C 7.4.7.3.3C (MAIN TURBIN		TV01
	M519 F11 DESC M519 F11	2 B RIPTION 2 B	RCIC T MO GB 4 RCIC T MO GB 2	NA FAI NC URB STM C FAI NC	G HJ SUPF G HJ	2Y Q LY ISO 2Y Q	7.4.7.3.3C 7.4.7.3.3C (MAIN TURBIN 7.4.7.3.3C 7.4.7.3.3C	E TRIP I/L)	TV01
RCIC-V-46	M519 F11 DESC M519 F11 DESC	2 B RIPTION 2 B RIPTION	RCIC T MO GB 4 RCIC T MO GB 2 RCIC A	NA FAI NC URB STM C FAI NC UXILIAR	G HJ G HJ Y COO	2Y Q 2Y ISO 2Y Q DLING T	7.4.7.3.3C 7.4.7.3.3C (MAIN TURBIN 7.4.7.3.3C 7.4.7.3.3C TO LO COOLER	E TRIP I/L)	TV01
	M519 F11 DESC M519 F11 DESC M519	2 B RIPTION 2 B RIPTION	RCIC T MO GB 4 RCIC T MO GB 2 RCIC A SA	NA FAI NC URB STM C FAI NC UXILIAR C	G HJ G HJ Y COC	2Y Q LY ISO 2Y Q DLING T 2Y	7.4.7.3.3C 7.4.7.3.3C (MAIN TURBIN 7.4.7.3.3C 7.4.7.3.3C O LO COOLER 7.4.7.3.3C	E TRIP I/L)	TV01
RCIC-V-46	M519 F11 DESC M519 F11 DESC	2 B RIPTION 2 B RIPTION	RCIC T MO GB 4 RCIC T MO GB 2 RCIC A	NA FAI NC URB STM C FAI NC UXILIAR	G HJ G HJ Y COO	2Y Q 2Y ISO 2Y Q DLING T	7.4.7.3.3C 7.4.7.3.3C (MAIN TURBIN 7.4.7.3.3C 7.4.7.3.3C TO LO COOLER	E TRIP I/L)	TV01



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Valve EPN	Dwg & Coord	Class & Cat	Type Actuat, Valve & Size	Position Safety, Failed, Normal	Te	sts, Freq	uency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
									TV01
RCIC-V-50	M519	2	мо	С	G	2Y	7.4.7.3.3C		1 1 1 1
-	F10	B	GB	FAI	н	Q	7.4.7.3.3C		
			2	LO	L_	RF	7.4.6.1.2.9		
	DESC	RIPTION	: RCIC-H	X-2 CW S	SUPPL	Y ISO			
RCIC-V-63	M519	1	МО	C	G	2Y	7.4.7.3.3C	l l	TV01,2
	H3	Ā	GT	FAI	HJ	Q	7.4.7.3.3C	· ·	
			10	NO	L	2Y	7.4.6.1.2.4		
		I					Y (INBD CIV)	· · · · · · · · · · · · · · · · · · ·	
								1	TV02
RCIC-V-64	M519		MO	C	L	2Y	7.4.6.1.2.4		1 402
	G6	A	GT	NA					
			10	LC					· · · · · · · · · · · · · · · · · · ·
1	DESC	RIPTION	: RCIC T	URBINE S	STEAN	M SUPPI	Y TO RHR STM	I-COND (CIV)	
RCIC-V-65	M519	1	SA	NA	G	2Y	7.4.0.5.7F		N01
	H6	l c	СК	NA	н	RF	7.4.0.5.7F		ļ
			6	NC					
	DESC	PIPTION	RCIC-P		TOR	PV HEA	D SPRAY CHK	1	l
Dava VI (		·			IG	2Y	7.4.0.5. 7F	ROJ08	N02
RCIC-V-66	M519		SA					ROJUS	TV02
	J4	AC	СК	NA	H	RF	7.4.0.5.7F		1 402
			6	NC	HL	RF	7.4.4.3.2.2	l	
	DESC	CRIPTION	: RCIC T	O RPV H	EAD S	SPRAY C	HK (INBD CIV)		
RCIC-V-68	M519	2	MO	C	G	2Y	7.4.7.3.3C		TV01,2
	E7	A	GT	FAI	HI	Q,	7.4.7.3.3C		
			10	NO	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	RCIC T	URBINE	EXHA	UST TO	SUPP POOL (OT	BD CIV)	<u></u>
RCIC-V-69	M519	2	МО	C	ĪG	2Y	7.4.7.3.3C	, , , , , , , , , , , , , , , , , , ,	TV01,2
KCIC-V-05	D7	Â	GT	FAI	Ш	Q	7.4.7.3.3C		,2
			1.50	NO	L	2Y	7.4.6.1.2.4		
					I				I
		CRIPTION					PP POOL (OTBD		T
RCIC-V-76	M519	1	МО	С	G	2Y	7.4.7.3.3C		TV01,2
	H3	A	GB	FAI	HI -	Q	7.4.7.3.3C		
			1	NC	L	2Y	7.4.6.1.2.4		
	DESC	CRIPTION	: RCIC-V	-63 BYPA	lss (IN	<b>IBD CIV</b>	)		
RCIC-V-110	M519	2	MO	0	G	2Y	7.4.7.3.3C		TV01
	E7	В	GT	FAI	HI	Q	7.4.7.3.3C		
			2	NO		•		1	
				· · · · · · · · · · · · · · · · · · ·	EXH 1	O SLIPP	POOL VAC RE		L
DOIO VIII							7.4.7.3.3B		N04
RCIC-V-111	M519	2 C	SA			Q	7.4.7.J.JD	-	1404
	E7		СК	NA					
		<u> </u>	2	NC	<u> </u>			<u> </u>	I
	DESC	RIPTION	: RCIC T				CUUM BREAKE	R ISO	•
RCIC-V-112	M519	2	SA	O/C	Н	Q	7.4.7.3.3B		N04
	E7	C C	СК	NA	1				
		1	2	NC					
	DESC	RIPTION	: RCIC T	URBINE I	EXHA	UST VA	CUUM BREAKE	R ISO	
RCIC-V-113	M519	2	МО	0	G	2Y	7.4.7.3.3C	Ŧ	TV01
	E7	B	GT	FAI	ш	Q	7.4.7.3.3C		
1	<u> </u>	1	2	NO	<b></b>	×			
1	1	1			1			I	I

DESCRIPTION: RCIC TURB EXH TO SUPP POOL VAC REL ISO

#### WNP-2 Valve Test Tables



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#### WNP-2 Valve Test Tables

					Test			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
	Dwg &	Class	Туре	Position		_		Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal	Test	s, Freq	uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
RCIC-V-184	M519	2	MA	С	L	2Y	7.4.6.1.2.4		TV02
	H6	A	GB	NA					
			1	LC					·
	DESC	RIPTION	: AIR TO				R MAN ISO (OTE	D CIV)	
RCIC-V-204	M519	2	SA	С	Н	Q	7.4.7.3.3C		
	B14	С	СК	NA	Н	Q	7.4.7.3.3B		
			8	NC				l	ļ
		RIPTION		UMP SUC				·	1.000
RCIC-V-740	M519	2	MA	С	L	2Y	7.4.6.1.2.4		TV02
	H6	A	GB	NA					
			1	LC					l
		RIPTION					R MAN ISO (INB		TV02
RCIC-V-742	M519	1	MA	С	L	RF	7.4.4.3.2.2		102
	J6	A	GB	NA					
•			0.75	LC				I	
	DESC	RIPTION		E PROBE				r	1
REA-V-1	M545-3	3	AO	C	G	2Y	7.4.3.7.5.1A		TV01
	H1	В	BF	FC	нк	Q	7.4.6.5.2.1		ł
			72	NO					
				OR BUILI				·	
REA-V-2	M545-3	3	AO	С	G	2Y	7.4.3.7.5.1A		TV01
	H1	В	BF	·FC	нік	Q	7.4.6.5.2.1		
	L		72	NO					l
		RIPTION		OR BUILI					1 777 100
RFW-V-10A	M529	1	SA	C	H	CS	7.4.0.5. 9D	CSJ03	TV02
	G12	AC	СК	NA	GL	2Y	7.4.6.1.2.4		
			24	NO	<u> </u>				1
		RIPTION		O RPV CH					<b>T</b> 100
RFW-V-10B	M529		SA	C	H	CS	7.4.0.5. 9D	CSJ03	TV02
	G6	AC	СК	NA	GL	2Y	7.4.6.1.2.4		
-					1				•
			24	NO				l	
			RFW T	O RPV CI					
RFW-V-32A	M529	1	RFW T	O RPV CH	H	CS	7.4.0.5. 9D	CSJ03	N02
RFW-V-32A			RFW T AO,SA CK	O RPV CH C NA				CSJ03	N02 TV02
RFW-V-32A	M529 G13	1 AC	RFW T AO,SA CK 24	O RPV CH C NA NO	H GL	CS 2Y	7.4.0.5. 9D 7.4.6.1.2.4	CSJ03	
	M529 G13 DESC	1 AC	RFW T AO,SA CK 24 RFW T	O RPV CH C NA NO O RPV CH	H GL IK (157	CS 2Y T OTBE	7.4.0.5. 9D 7.4.6.1.2.4 O CIV)	<u> </u>	TV02
	M529 G13 DESC M529	1 AC RIPTION	RFW T AO,SA CK 24 RFW T AO,SA	O RPV CH C NA NO O RPV CH C	H GL IK (151 H	CS 2Y T OTBL CS	7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D	CSJ03 CSJ03	TV02
	M529 G13 DESC	1 AC RIPTION	: RFW T AO,SA CK 24 : RFW T AO,SA CK	O RPV CH C NA NO O RPV CH C NA	H GL IK (157	CS 2Y T OTBE	7.4.0.5. 9D 7.4.6.1.2.4 O CIV)	<u> </u>	TV02
	M529 G13 DESC M529 G5	1 AC RIPTION 1 AC	RFW T AO,SA CK 24 RFW T AO,SA CK 24	O RPV CH C NA NO O RPV CH C NA NO	H GL IK (151 H GL	CS 2Y TOTBE CS 2Y	7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D 7.4.6.1.2.4	<u> </u>	TV02
RFW-V-32B	M529 G13 DESC M529 G5 DESC	1 AC RIPTION 1 AC CRIPTION	: RFW T AO,SA CK 24 : RFW T AO,SA CK 24 : RFW T	O RPV CH C NA NO O RPV CH C NA NO O RPV CH	H GL IK (IST H GL IK (IST	CS 2Y TOTBE CS 2Y	7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D 7.4.6.1.2.4 D CIV)	CSJ03	TV02 N02 TV02
RFW-V-32B	M529 G13 DESC M529 G5 DESC M529	1 AC CRIPTION 1 AC CRIPTION 1	: RFW T AO,SA CK 24 : RFW T AO,SA CK 24 : RFW T MO	O RPV CH C NA NO O RPV CH C NA NO O RPV CH C	H GL IK (IST H GL IK (IST	CS 2Y TOTBE CS 2Y TOTBE 2Y	7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D	<u> </u>	TV02
RFW-V-32B	M529 G13 DESC M529 G5 DESC	1 AC RIPTION 1 AC CRIPTION	: RFW T AO,SA CK 24 : RFW T AO,SA CK 24 : RFW T MO GT	O RPV CH C NA NO O RPV CH C NA NO O RPV CH C FAI	H GL H GL H K (IST K (IST G HJ	CS 2Y CS 2Y CS 2Y CS	7.4.0.5. 9D 7.4.6.1.2.4 0 CIV) 7.4.0.5. 9D 7.4.6.1.2.4 0 CIV) 7.4.0.5. 9D 7.4.0.5. 9D 7.4.0.5. 9D	CSJ03	TV02 N02 TV02
RFW-V-32B	M529 G13 DESC M529 G5 DESC M529 G13	1 AC RIPTION 1 AC RIPTION 1 A	: RFW T AO,SA CK 24 : RFW T AO,SA CK 24 : RFW T MO GT 24	O RPV CH C NA NO O RPV CH C NA NO O RPV CH C FAI NO	H GL H GL HK (IST HK (IST G HJ L	CS 2Y TOTBE CS 2Y TOTBE 2Y CS 2Y	7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D 7.4.0.5. 9D 7.4.0.5. 9D 7.4.0.5. 9D 7.4.6.1.2.4	CSJ03	TV02 N02 TV02
RFW-V-32A RFW-V-32B RFW-V-65A	M529 G13 DESC M529 G5 DESC M529 G13 DESC	1 AC RIPTION 1 AC RIPTION 1 A	: RFW T AO,SA CK 24 : RFW T AO,SA CK 24 : RFW T MO GT 24 : RFW T	O RPV CH C NA NO O RPV CH C NA NO O RPV CH C FAI NO O RPV IS	H GL IK (IST H GL IK (IST H J L O (2ND	CS 2Y TOTBE CS 2Y TOTBE 2Y CS 2Y CS 2Y	7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D 7.4.0.5. 9D 7.4.0.5. 9D 7.4.6.1.2.4 D CIV)	CSJ03 CSJ03	TV02 TV02 TV02
RFW-V-32B RFW-V-65A	M529 G13 DESC M529 G5 DESC M529 G13 DESC M529	1 AC RIPTION 1 AC RIPTION 1 A RIPTION 1	: RFW T AO,SA CK 24 : RFW T AO,SA CK 24 : RFW T MO GT 24 : RFW T MO	O RPV CH C NA NO O RPV CH C NA NO O RPV CH C FAI NO O RPV IS C	H GL IK (IST H GL IK (IST H J L O (2ND	CS 2Y TOTBE CS 2Y TOTBE 2Y CS 2Y OTBD 2Y	7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D 7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D 7.4.6.1.2.4	CSJ03	TV02 N02 TV02
RFW-V-32B	M529 G13 DESC M529 G5 DESC M529 G13 DESC	1 AC RIPTION 1 AC CRIPTION 1 A CRIPTION	: RFW T AO,SA CK 24 : RFW T AO,SA CK 24 : RFW T MO GT 24 : RFW T	O RPV CH C NA NO O RPV CH C NA NO O RPV CH C FAI NO O RPV IS	H GL IK (IST H GL IK (IST H J L O (2ND	CS 2Y TOTBE CS 2Y TOTBE 2Y CS 2Y CS 2Y	7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D 7.4.6.1.2.4 D CIV) 7.4.0.5. 9D 7.4.0.5. 9D 7.4.0.5. 9D 7.4.6.1.2.4 D CIV)	CSJ03 CSJ03	TV02 TV02 TV02

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	Dwg &	Class	Туре	Position				Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal	Tes		uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
RHR-FCV-64A	M521-1	2	МО	O/C	G	2Y	7.4.5.1.8		TV01,2
	B12	A	GB	FAI	н	Q	7.4.5.1.8		-
		D I D I D I D I D I D I D I D I D I D I	3	NO		2Y	7.4.6.1.2.4	<u>-</u>	<u> </u>
			-	2A MININ	G	2Y	7.4.5.1.9		TV01,2
RHR-FCV-64B	M521-2 B6	2 A	MO GB	O/C FAI	HI	Q	7.4.5.1.9		1 101,2
*	BO	^	3	NO	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	-	2B MININ				L	I
RHR-FCV-64C		2	MO	0/C	G	2Y	7.4.5.1.10	[	TV01,2
MIK-I-CV-O+C	D6	Ã	GB	FAI	н	Q	7.4.5.1.10		,
			3	NO	L	2 <b>Y</b>	7.4.6.1.2.4		
	DESC	RIPTION	RHR-P-	2C MININ	IUM F	CV (CI	v)	·	
RHR-RV-1A	M521-1	2	SA	NA	P	RV	7.4.0.5.20		TV02,3
<b>;</b>	H13	AC	RV	NA	L	2Y	7.4.6.1.2.1		
			.75 X 1	NC					<u> </u>
	DESC	RIPTION	: RHR-H	X-1A SHE	ll si				
RHR-RV-1B	M521-2	2	SA	NA	Р	RV	7.4.0.5.20		TV02,3
	Н5	AC	RV	NA	L	2Y	7.4.6.1.2.1		
			.75 X 1	NC				l	<u> </u>
<u> </u>				X-1B SHE					1
RHR-RV-5	M521-1		SA	NA	P	RV	7.4.0.5.20		TV02,3
	C8	AC	RV 1 X 2	NA NC	L	2Y	7.4.6.1.2.1		
	DESC	DIPTION				I ING S	UCT RV (CIV)	I	
RHR-RV-25A		2	SA	NA	P	RV	7.4.0.5.20	ſ ·· ··· <del>··</del>	TV02,3
KHK-KV-ZJA	D10	AC	RV	NA	L	2Y	7.4.6.1.2.1		1 + 02,5
	210		1 X 2	NC	<b> </b> ~		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	DESC	RIPTION		DOP A TE	ST LI	NE RV (	CIV)	I	
RHR-RV-25B	M521-2	2	SA	NA	P	RV	7.4.0.5.20	l	TV02,3
	C10	AC	RV	NA	L	2Y	7.4.6.1.2.1		
			1 X 2	NC					
	DESC	RIPTION	: RHR LO	OOP B TE	ST LII	NE RV (	CIV)		
RHR-RV-25C	M521-2	2	SA	NA	P	RV	7.4.0.5.20		TV02,3
	E8	AC	RV	NA	L	2Y	7.4.6.1.2.1		
			1 X 2	NC	<u> </u>			l	<u>I</u>
				DOP C TE				·	1 777 100 0
RHR-RV-30	M521-2		SA	NA	P	RV	7.4.0.5.20		TV02,3
	C4	AC	RV .75 X 1	NA NC	L	2Y	7.4.6.1.2.1		
		DIDTION	· · ·	LUSH LIN	E DV			<u>l</u>	I
RHR-RV-88A	M521-1	2		NA	P	RV	7.4.0.5.20	I	TV02,3
MIN-N 9-00A	C7	ÂC	RV	NA	L	2Y	7.4.6.1.2.1		1.02,0
	- '		.75 X 1	NC	Γ				
	DESC	RIPTION	1	2A SUCT	RV (C	UV)		I	<u> </u>
RHR-RV-88B	M521-2	2	SA	NA	P	RV	7.4.0.5.20	1	TV02,3
	B9	AC	RV	NA	L	2Y	7.4.6.1.2.1		
			.75 X 1	NC	1				1
	DESC	RIPTION	: RHR-P-	2B SUCT	RV (C	IV)			

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Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal	Te	sts, Freq	juency & PPM	Exceptions (CSJ/ROJ/ Reliefs)	(Notes & Technical Position)
RHR-RV-88C .	M521-2 C8	2 AC	SA RV .75 X 1	NA NA NC	P L	RV 2Y	7.4.0.5.20 7.4.6.1.2.1		TV02,3
	DESC	RIPTION	: RHR-P-	2C SUCT	RV (C	LIV)			
RHR-V-3A	M521-1 G10	2 B	MO GT 18	O/C FAI NO	G НЈ	2Y Q	7.4.5.1. 8 7.4.5.1. 8	x	TV01
	DESC	RIPTION	RHR-H	X-1A OUT	LET I	SO		* <u></u>	
RHR-V-3B	M521-2 J9	2 B	MO GT 18	O/C FAI NO	G HJ	2Y Q	7.4.5.1.9 7.4.5.1.9		TV01
	DESC	RIPTION	RHR-H	K-1B OUT	LET I	so	·····	······	I,
RHR-V-4A	M521-1 C7	2 A	MO GT 24	O/C FAI NO	G HJ L	2Y Q RF	7.4.5.1. 8 7.4.5.1. 8 7.4.6.1.2.9		TV01,2
	DESC	RIPTION	: SUPPRI	ESSION PO	DOL 1	O RHR-	P-2A SUCT (OT	BD CIV)	
RHR-V-4B	M521-2 B11	2 A	MO GT 24	O/C FAI NO	G HJ L	2Y Q RF	7.4.5.1. 9 7.4.5.1. 9 7.4.6.1.2.9		TV01,2
	DESC	RIPTION	: SUPPRE	ESSION PO	DOLI	O RHR-	P-2B SUCT (OTH	BD CIV)	

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	Dwg &	Class	Туре	Position		ta Kasa	manage & DDM	Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat, Valve	Safety, Failed,	Tes	sts, Freq	uency & PPM	(CSJ/ROJ/	Technical
			& Size	Normal				Reliefs)	Position)
RHR-V-4C	M521-2	2	МО	O/C	G	2Y	7.4.5.1.10		TV01,2
	B11	Ā	GT	FAI	ні	Q	7.4.5.1.10		
			24	NO	L	RF	7.4.6.1.2.9		
	DESC	RIPTION	: SUPPRI		00L I		P-2C SUCT (OT	BD CIV)	<u></u>
RHR-V-6A ·	M521-1	2	MO	O/C	G	2Y	7.4.5.1.8		TV01
	B8	В	GT	FAI	ш	Q	7.4.5.1.8		
*			18	NC				<u>،</u>	l
۱		RIPTION		O RHR-P-2					L
RHR-V-6B	M521-1	2	мо	O/C	G	2Y	7.4.5.1.9		TV01
	C7	В	GT	FAI	ш	Q	7.4.5.1.9		
			18	NC					
				RHR-P-2	_			DOUD	
RHR-V-8	M521-1	1	MO	O/C	G	2Y	7.4.0.5. 8D 7.4.0.5. 8D	ROJ10	TV01,2
	E6	A	GT 20	FAI NC	HJ L	RF RF	7.4.4.3.2.2		
•	DEC	DIPTION					R A & B FROM I	PV (OTBD CIV	<u> </u>
					G	2Y	7.4.0.5. 8D	ROJ10	/ TV01,2
RHR-V-9	M521-1 D6		MO GT	O/C FAI	HI HI	RF	7.4.0.5. 8D	ROTO	1 401,2
	Do	A	20	NC	L	RF	7.4.4.3.2.2		
	DESC						RA&BFROM I	I PV (INBD CIV)	<u></u>
RHR-V-11A	M521-1	2	MO		L	2Y	7.4.6.1.2.4		TV02
KHK-V-IIA	E11	Â	GT	NA	1	21	7.4.0.1.2.4	*1	1.02
			4	LC					
	DESC	RIPTION		-	TOS	UPP PO	OL ISO (CIV)	1	<u></u>
RHR-V-11B	M521-2	2	MO	C	L	2Y	7.4.6.1.2.4	r	TV02
	CII	Ã	GT	NA	<b>-</b> .				-
			4	LC					
	DESC	RIPTION	: RHR B	STM-CON	TO TO	SUPP F	POOL ISO (CIV)		
RHR-V-16A	M521-1	2	MO	0/C	G	2Y	7.4.0.5. 8A	CSJ15	TV01,2
	H7	A	GT	FAI	ЦН	CS	7.4.0.5. 8A		÷
			16	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	: RHR TO	D DRYWE	ELL SI	PRAY H	EADER (2ND OT	IBD CIV)	
RHR-V-16B	M521-2	2	MO	O/C	G	2Y	7.4.0.5. 8A	CSJ15	TV01,2
	D10	A	GT	FAI	HJ	CS	7.4.0.5. 8A		
			16	NC	L	2Y	7.4.6.1.2.4	<u> </u>	ļ
							EADER (2ND O		
RHR-V-17A	M521-1		мо	0/C	G	2Y	7.4.0.5. 8A	CSJ15	TV01,2
	H5	A	GT	FAI	HI	CS	7.4.0.5. 8A		
			16	NC		2Y	7.4.6.1.2.4		1
							EADER (IST OT		
RHR-V-17B	M521-2	2	MO	O/C FAI	G HJ	2Y CS	7.4.0.5. 8A 7.4.0.5. 8A	CSJ15	TV01,2
	D11	A	GT 16	AI NC	L	2Y	7.4.0.5. 8A 7.4.6.1.2.4		
							EADER (IST OT	BD CIV	
					G G	2Y	7.4.5.1.10		TV01,2
RHR-V-21	M521-2 E8	2 A	MO GB	FAI	HI HI	Q	7.4.5.1.10		1 101,2
	100		18	NC	L	2Y	7.4.6.1.2.4	1	
		l					SUPP POOL (OT		.1

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Valve EPN	Dwg &	Class	Type Actuat.	Position Safety.	Tes	ts. Freq	uency & PPM	Exceptions (CSJ/ROJ/	(Notes & Technical
	Coord	& Cat	Valve & Size	Failed, Normal				Reliefs)	Position)
RHR-V-23	M521-2	1	МО	С	G	2Ÿ	7.4.0.5. 8A	CSJ01	TV01,2
	J13	A	GB	FAI	HI	CS	7.4.0.5. 8A		
	<u> </u>	DIDONION	6	NC		RF	7.4.4.3.2.2	L	
					G FV HE	AD SPR	AY (OTBD CIV) 7.4.5.1.8	<u></u>	TV01,2
RHR-V-24A	M521-1 E9	2 A	MO GB	O/C FAI	HI HI	Q	7.4.5.1.8		1 101,2
	£9	А	18	NC	L	2Y	7.4.6.1.2.4		
		NOITTION					UPP POOL (OT	BD CIV)	L
RHR-V-24B	M521-2	2		0/C	G	2Y	7.4.5.1.9	1	TV01,2
KNK• V-24D	C11	Â	GB	FAI	н	Q	7.4.5.1.9		
			18	NC	L	2 <b>Y</b>	7.4.6.1.2.4		
	DESC	RIPTION	: RHR LO	DOP B TE	ST LI	NE TO S	UPP POOL (OT	BD CIV)	
RHR-V-27A	M521-1	2	MO	0/C	G	2Y	7.4.5.1.8		TV01,2
* *	D7	A	GT	FAI	НJ	Q	7.4.5.1.8		
- A			6	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	: RHR TO	O SUPPRE	SSION	I CHAM	BER SPRAY HE	ADER (OTBD C	
RHR-V-27B	M521-2	2	MO	O/C	G	2Y	7.4.5.1.9		TV01,2
	C11	A	GT	FAI	ні	Q	7.4.5.1.9		
			6	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	: RHR TO				BER SPRAY HE	ADER (OTBD C	(VI)
RHR-V-31A	M521-1	2	SA	0	н	Q	7.4.5.1.8		
	C14	С	СК	NA					
			18	NC				l	<u> </u>
		·	· · · · · · · · · · · · · · · · · · ·	2A DISCH				T	· · · · · · · · · · · · · · · · · · ·
RHR-V-31B	M521-2 C3	2 C	SA CK	O NA	н	Q	7.4.5.1.9		
	6		18	NC					
		NOITTION		2B DISCH				<u> </u>	
RHR-V-31C	M521-2	2	SA	0	H	Q	7.4.5.1.10	T	T
KIIK-V-JIC	C5	ĉ	СК	NA	<b>.</b>	×	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	
			18	NC					
	DESC	RIPTION	: RHR-P	2C DISCH	СНК				
RHR-V-40	M521-2	2	MO	С	G	2Y	7.4.5.1.9		TV01
	" G4	В	GB	FAI	HI	Q	7.4.5.1.9		
			4	NC				<u> </u>	
	DESC	RIPTION	: RHR L				ARMUP LINE)		
RHR-V-41A	M521-1	1	SA	0/C	Н	RF	7.4.0.5. 7A	ROJ08	TV02
	F5	AC	СК	NA	HL	RF	7.4.4.3.2.2		
			14	NC				<u> </u>	·
		·		LPCI TO				1 00109	TUOD
RHR-V-41B	M521-2		SA	O/C	H HL	RF RF	7.4.0.5. 7B 7.4.4.3.2.2	ROJ08	TV02
	G13	AC	CK 14	NA NC		KP	1.7.7.J.L.L		· ·
	DESC			LPCI TO	PPV /			I	
		r .		O/C	H	RF	7.4.0.5. 7C	ROJ08	TV02
RHR-V-41C	M521-2 D13	1 AC	SA CK	NA	HL	RF	7.4.4.3.2.2		
		AC	14	NC	1	***	F B-T L-T B & A do A do		
		1	1 47		1				1

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#### WNP-2 Valve Test Tables

			Туре	Position	[		· · · · · · · · · · · · · · · · · · ·	Testing	Remarks
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal	Tes	ts, Freq	uency & PPM	Exceptions (CSJ/ROJ/ Reliefs)	(Notes & Technical Position)
RHR-V-42A	M521-1	1	MO	O/C	G	2Y	7.4.0.5. 8A	CSJ08	TV01,2
	G7	A	GT	FAI	HI	CS	7.4.0.5. 8A		
			14	NC	L	RF	7.4.4.3.2.2		
	DESC	RIPTION	RHR A	LPCI MO	DE TO	RPV (	OTBD CIV)		
RHR-V-42B	M521-2	1	MO	O/C	G	2Y	7.4.0.5. 8A	CSJ08	TV01,2
	F12	Α	GT	FAI	HI	CS	7.4.0.5. 8A		•
			14	NC	L	RF	7.4.4.3.2.2		
e e	DESC	RIPTION	RHR B	LPCI MO	DE TO	RPV (	OTBD CIV)		
RHR-V-42C	M521-2	1	MO	0/C	G	2Y	7.4.0.5. 8A	CSJ08	TV01,2
	E12	Α	GT	<b>FAI</b>	HI	CS	7.4.0.5. 8A		
•			14	NC	L	RF	7.4.4.3.2.2		
	DESC	RIPTION	: RHR B	LPCI MO	DE TO	RPV (	OTBD CIV)		
RHR-V-47A	M521-1	2	MO	0	G	2Y	7.4.5.1.8		TV01
	J13	В	GT	FAI	ш	Q	7.4.5.1.8		
			18	NO		-	1		
	DESC	RIPTION	: RHR-H	X-1A INL	ET ISC	)			· · · · · · · · · · · · · · · · · · ·
RHR-V-47B	M521-2	2	MO	0	G	2Y	7.4.5.1.9		TV01
	J3	В	GT	FAI	н	Q	7.4.5.1.9		
			18	NO					
	DESC	RIPTION	: RHR-H	X-1B INL	ET ISO	)		<u> </u>	
RHR-V-48A	M521-1	2	MO	O/C	G	2Y	7.4.5.1.8		TV01
	J11	В	GB	FAI	НJ	Q	7.4.5.1.8		
			18	NO		-			
	DESC	RIPTION	: RHR-H	X-1A BYP	ASS			· · · · · · · · · · · · · · · · · · ·	
RHR-V-48B	M521-2	2	MO	0/C	G	2Y	7.4.5.1.9	1	TV01
	18	В	GB	FAI	нл	Q	7.4.5.1.9		
			18	NO		-			
	DESC	RIPTION	: RHR-H	X-1B BYP	ASS				
RHR-V-49	M521-2	2	MO	С	G	2Y	7.4.5.1.9		TV01
	G4	В	GT	FAI	нJ	Q	7.4.5.1.9		
	1		4	NC	1	-			
	DESC	RIPTION	: RHR LO	DOP B TO	EDR	(SDC W	ARMUP LINE)	ISO	
RHR-V-50A	M521-1	1	SA	0/C	н	RF	7.4.0.5. 7A	ROJ08	TV02
	F5	AC	СК	NA	HL	RF	7.4.4.3.2.2		•
			12	NC					
	DESC	DIDTION	DUD A	SDC TO	PPV C	HK (IN	RD CIV)		

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### WNP-2 Valve Test Tables

	Class	Туре	Position				Testing	Remarks (Notes &
Dwg & Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal	Test	s, Freq	uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
M521-2	1	SA	O/C	Н	RF	7.4.0.5. 7B	ROJ08	TV02
1 1	-		NA	HL	RF	7.4.4.3.2.2		
		12	NC					
DESC	RIPTION	RHR B	SDC TO I	RPV (IN	IBD CI	V)		
M521-1	1	MO	O/C	G	2Y	7.4.0.5. 8A	CSJ01	TV01,2
F6	Α	GT	FAI	HI	CS			
		12	NC	L	RF		•	<u> </u>
DESC	RIPTION	: RHR A	SDC MOI	DE TO	RPV (C			
M521-2	1	MO	O/C	G	2Y		C\$101	TV01,2
F12	A	GT	FAI	н				
		12		L				
DESC	RIPTION	: RHR B	SDC MOI	DE TO	RPV (C			
M521-1	2	SO	С	G	2Y			TV01
G11	В			нік	Q	7.4.5.1.8		
1								<u> </u>
DESC	RIPTION	: RHR A	SAMPLE	PROBE				
M521-2	2	SO	C	G			1	TVOĮ
H9	В	SV		нік	Q	7.4.5.1.9		
							<u> </u>	.l
DESC	RIPTION	: RHR B	SAMPLE					
M524-1	3	MO	0	G	2Y	7.4.0.5.16		TV01
D14	В	GT		ні	Q	7.4.0.5.16		
		16					I	
DESC	RIPTION	: SW FR	OM RHR-	HX-1A	ISO			<u>.</u>
M524-2	3	MO	0	G	2Y		1	TV01
G14	В	GT		Н	Q	7.4.0.5.17		1
		16						<u> </u>
DESC	RIPTION	: SWBF	ROM RH	R-HX-1	B ISO			
M521-1	2	MO	C	G	2Y			TV01,2
H14	A	GB		нл	Q			
		2		L			1	
DESC	RIPTION	: RHR-H	X-1A SHE	ELL SIC	DE VEN			
M521-2	2	МО	C	G	2Y			TV01,2
H4	A	GB	FAI	ні	Q	7.4.5.1.9		
DESC	RIPTION	: RHR-H		LL SID				
		SO	С	G		7.4.5.1.8		TV01
G11	В	sv	FC	нјк	Q	7.4.5.1.8		
	l	0.75	NC					1
DESC	RIPTION	RHR A		_			<u> </u>	1
M521-2	2	so	C	G	2Y	7.4.5.1.9		TV01
H8	В	SV	FC	НІК	Q	7.4.5.1.9		
		0.75	NC					
	M521-2 E13 DESC M521-1 F6 DESC M521-2 F12 DESC M521-2 G11 DESC M521-2 H9 DESC M521-2 H9 DESC M521-2 H9 DESC M524-2 G14 DESC M524-2 G14 DESC M521-1 H14 DESC M521-2 H4	Coord         & Cat           M521-2         1           E13         AC           DESCRIPTION         M521-1           M521-2         1           F6         A           DESCRIPTION         M521-2           M521-1         2           G11         B           DESCRIPTION         M521-2           M521-1         2           G11         B           DESCRIPTION         M521-2           M521-2         2           H9         B           DESCRIPTION         M524-1           M524-1         3           G14         B           DESCRIPTION         M521-1           M521-1         2           H14         A           DESCRIPTION         M521-1           M521-1         2           H4         A           DESCRIPTION         M521-1           M521-1         2           H4         A           DESCRIPTION         M521-1           M521-1         2           G11         B           DESCRIPTION         M521-2           M521-2         2	Dwg & Coord         Class & Cat         Actuat, Valve & Size           M521-2         1         SA           E13         AC         CK           B13         AC         CK           DESCRIPTION:         RHR B           M521-1         1         MO           F6         A         GT           DESCRIPTION:         RHR A           M521-2         1         MO           F12         A         GT           DESCRIPTION:         RHR A           M521-1         2         SO           G11         B         SV           0.75         DESCRIPTION:         RHR A           M521-2         2         SO           G11         B         SV           0.75         DESCRIPTION:         RHR A           M521-2         2         SO           H9         B         SV           0.75         DESCRIPTION:         RHR B           M524-1         3         MO           D14         B         GT           16         DESCRIPTION:         SW FR           M524-2         3         MO           G14         B	Dwg & Coord         Class & Cat         Actuat, Valve & Size         Safety, Failed, & Size           M521-2         1         SA         O/C           E13         AC         CK         NA           12         NC         Normal           DESCRIPTION:         RHR B SDC TO I           M521-1         1         MO         O/C           F6         A         GT         FAI           12         NC         DESCRIPTION:         RHR A SDC MOI           M521-2         1         MO         O/C           F12         A         GT         FAI           12         NC         DESCRIPTION:         RHR A SDC MOI           M521-2         1         MO         O/C           G11         B         SV         FC           0.75         NC         DESCRIPTION:         RHR A SAMPLE           M521-2         2         SO         C           H9         B         SV         FC           0.75         NC         DESCRIPTION:         RHR B SAMPLE           M524-1         3         MO         O           D14         B         GT         FAI           16	Dwg & CoordClass & CatActuat, Valve & SizeSafety, Failed, & SizeTest Failed, & SizeM521-21SA ACO/CHE13ACCK CKNAHLDESCRIPTION:RHR B SDC TO RPV (INM521-11MO TFAIO/CGF6AGT GTFAIHJ12NCLDESCRIPTION:RHR A SDC MODE TOM521-21MO GTO/CGF12AGT GTFAIHJ12NCLDESCRIPTION:RHR B SDC MODE TOM521-12SO SO CCGG11BSV SVFCHJK0.75NCNCDESCRIPTION:RHR A SAMPLE PROBEM521-22SO SOCGH9BSV SVFCHJKDESCRIPTION:RHR B SAMPLE PROBEM524-13MO GTGD14BGT GTFAIM524-23MO GTGG14BGT GTFAIM521-12MO CCGH14AGB GBFAIM521-22MO CCGH4AGB GBFAIM521-12MO CCGH14AGB GBFAIM521-22MO CCGH4 <td>Dwg &amp; CoordClass &amp; CatActuat, Valve &amp; SizeSafety, Failed, NormalTests, FreqM521-21SAO/CHRFE13ACCKNAHLRFE13ACCKNAHLRFDESCRIPTION:RHR B SDC TO RPV (INBD CIM521-11MOO/CG2YF6AGTFAIHJCS12NCLRFDESCRIPTION:RHR A SDC MODE TO RPV (CM521-21MOO/CG2YF12AGTFAIHJCSM521-12SOCG2YF12AGTFAIHJCSM521-12SOCG2YG11BSVFCHJKQ0.75NCDESCRIPTION:RHR A SAMPLE PROBE 22A IMS21-2M521-22SOCG2YH9BSVFCHJKQDESCRIPTION:RHR B SAMPLE PROBE 22B ISMS24-13M524-13MOOG2YD14BGTFAIHJQI6NOI62YDESCRIPTION:SW FROM RHR-HX-1A ISOM521-12M521-12MOCG2YDESCRIPTION:RHR-HX-1A SHELL SIDE VENMS21-22M521-12MOCG2Y</td> <td>Dwg &amp; Coord         Class &amp; Cat         Actual, Actual, Valve &amp; Size         Tests, Frequency &amp; PPM           M521-2         1         SA         O/C         H         RF         7.4.0.5.7B           E13         AC         CK         NA         HL         RF         7.4.0.5.7B           E13         AC         CK         NA         HL         RF         7.4.0.5.7B           DESCRIPTION:         RHR B SDC TO RPV (INBD CIV)         DESCRIPTION:         RHR A SDC MODE TO RPV (OTBD CIV)           M521-1         1         MO         O/C         G         2.Y         7.4.0.5.8A           F6         A         GT         FAI         HJ         CS         7.4.0.5.8A           M521-2         1         MO         O/C         G         2.Y         7.4.0.5.8A           F12         A         GT         FAI         HJ         CS         7.4.0.5.8A           M521-2         1         MO         O/C         G         2.Y         7.4.0.5.8A           G11         B         SV         FC         HJK         Q         7.4.5.1.8           G11         B         SV         FC         G         2.Y         7.4.5.1.9           <td< td=""><td>$\begin{array}{ c c c c c c c c c c c c c c c c c c c$</td></td<></td>	Dwg & CoordClass & CatActuat, Valve & SizeSafety, Failed, NormalTests, FreqM521-21SAO/CHRFE13ACCKNAHLRFE13ACCKNAHLRFDESCRIPTION:RHR B SDC TO RPV (INBD CIM521-11MOO/CG2YF6AGTFAIHJCS12NCLRFDESCRIPTION:RHR A SDC MODE TO RPV (CM521-21MOO/CG2YF12AGTFAIHJCSM521-12SOCG2YF12AGTFAIHJCSM521-12SOCG2YG11BSVFCHJKQ0.75NCDESCRIPTION:RHR A SAMPLE PROBE 22A IMS21-2M521-22SOCG2YH9BSVFCHJKQDESCRIPTION:RHR B SAMPLE PROBE 22B ISMS24-13M524-13MOOG2YD14BGTFAIHJQI6NOI62YDESCRIPTION:SW FROM RHR-HX-1A ISOM521-12M521-12MOCG2YDESCRIPTION:RHR-HX-1A SHELL SIDE VENMS21-22M521-12MOCG2Y	Dwg & Coord         Class & Cat         Actual, Actual, Valve & Size         Tests, Frequency & PPM           M521-2         1         SA         O/C         H         RF         7.4.0.5.7B           E13         AC         CK         NA         HL         RF         7.4.0.5.7B           E13         AC         CK         NA         HL         RF         7.4.0.5.7B           DESCRIPTION:         RHR B SDC TO RPV (INBD CIV)         DESCRIPTION:         RHR A SDC MODE TO RPV (OTBD CIV)           M521-1         1         MO         O/C         G         2.Y         7.4.0.5.8A           F6         A         GT         FAI         HJ         CS         7.4.0.5.8A           M521-2         1         MO         O/C         G         2.Y         7.4.0.5.8A           F12         A         GT         FAI         HJ         CS         7.4.0.5.8A           M521-2         1         MO         O/C         G         2.Y         7.4.0.5.8A           G11         B         SV         FC         HJK         Q         7.4.5.1.8           G11         B         SV         FC         G         2.Y         7.4.5.1.9 <td< td=""><td>$\begin{array}{ c c c c c c c c c c c c c c c c c c c$</td></td<>	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$

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#### WNP-2 Valve Test Tables

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	D-a fi	Class	Туре	Position				Testing Exceptions	Remarks (Notes &
Valve EPN	Dwg & Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal	Te	sts, Freq	uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
RHR-V-84A	M521-1 D15	2 C	SA CK	C NA	н	Q	7.4.5.1.8	RV02	
	DESC	DIPTION	1.50	NC		TO R	HR A CHK		
RHR-V-84B	M521-2	2	SA		H	Q	7.4.5.1.9	RV02	<u> </u>
MIN- 1-04D	B4	ĉ	СК	NA		•	,		
1			1.50	NC					
	DESC	RIPTION	RHR-P-	3 (WATEI		) DISCH	TO RHR B CH		
RHR-V-84C	M521-2	2	SA	С	Н	Q	7.4.5.1.10	RV02	
	C6	С	CK 1.50	NA NC					
	DESC	RIPTION	RHR-P-	3 (WATER	LEG	) DISCH	TO RHR C CH	ĸ	
RHR-V-85A	M521-1	2	SA,MA	С	Н	Q	7.4.5.1.8	RV02	
	C14	С	SC	NA	ſ				
• •			1.50	NC			HR A STOP CHI	ļ	<u> </u>
RHR-V-85B	M521-2			-2 (wate	H	<u>Q</u>	7.4.5.1. 9	RV02	<u>.</u>
KHK-V-82B	M521-2 C4	2 C	SA,MA SC	NA	п	Q	7.4.3.1.9	RV02	
		Ŭ	1.50	NC					
	DESC	RIPTION		3 (WATE	LEG	) DISCH	TO RHR B STO	P CHK	
RHR-V-85C	M521-2	2	SA,MA	Ċ	Н	Q	7.4.5.1.10	RV02	1
	C6	С	sc	NA		-			
			1.50	NC				<u> </u>	l
		RIPTION					TO RHR C STO	OP CHK	I
RHR-V-120	M521-1	2	MA	C	L	2Y	7.4.6.1.2.4		TV02
	C11	A	GT 3	NA LC					
	DESC	RIPTION	-	TO FDR S	SVS M	AN ISO			I
RHR-V-121	M521-1	2	MA			2Y	7.4.6.1.2.4	I	TV02
	C11	Ā	GT	NA	-				4
			3	LC					
	DESC	RIPTION	: RHR A	TO FDR	SYS M	IAN ISO	(CIV)		
RHR-V-123A	M521-1	1	МО	С	G	2Y	7.4.0.5. 8D	ROJ11	TV01,2
	E5	A	GT	FAI	HJ L	RF	7.4.0.5. 8D		
				NC		RF	7.4.4.3.2.2 V) (MOTOR DEF	NEDCIZED	I
RHR-V-123B	M521-2		MO		135 (L G	2Y	7.4.0.5. 8D	ROJ11	TV01,2
КПК-V-1255	E13	Ā	GT	FAI	н	RF	7.4.0.5. 8D	KOJII	1 101,2
			1	NC	L	RF	7.4.4.3.2.2	Į	<b>.</b>
	DESC	RIPTION	RHR-V	50B BYP	ss (II	NBD CIV	V) (MOTOR DEE	NERGIZED)	*
RHR-V-124A	M521-1	2	МО	С	L	2Y	7.4.6.1.2.4	T	TV02
	B13	Α	GB	NA				1	
	1010			1 10	1			1	1
			1.50	LC				1	
	DESC		RHR ST	M-COND			PP POOL (CIV)	1	1
RHR-V-124B	DESC M521-1	2	RHR ST	M-COND	DRN L	TO SUP 2Y	PP POOL (CIV) 7.4.6.1.2.4	I	TV02
RHR-V-124B	DESC		RHR ST	M-COND					TV02

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#### WNP-2 Valve Test Tables

		<u></u>		-2 valve	1			1	1
	Dwg &	Class	Туре	Position		_		Testing Exceptions	Remarks (Notes &
Valve EPN	Coord	& Cat	Actuat, Valve & Size	Safety, Failed, Normal	Test	s, Freq	juency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
RHR-V-125A	M521-2	2	МО	С	L	2Y	7.4.6.1.2.4		TV02
	D4	A	GB 1.50	NA LC					
	DESC	RIPTION			DRN 7	TO SUF	PP POOL (CIV)	1	·1,
RHR-V-125B	M521-2	2	МО	C	L	2Y	7.4.6.1.2.4	<u> </u>	TV02
	D4	Ā	GB	NA	<b> </b>				
			1.50	LC				•	
	DESC	RIPTION	RHR ST	M-COND	DRN 7	ro sui	PP POOL (CIV)		
RHR-V-134A	M521-1	2	MO	O/C	G	2Y	7.4.0.5.14A		TV01,2
	E14	Α	GB	FAI	H	Q	7.4.0.5.14A		
			2	NC	L	2Y	7.4.6.1.2.4		<u> </u>
				E TO RH					
RHR-V-134B	M521-2	2	MO	O/C	G	2Y	7.4.0.5.14B		TV01,2
2 T 4	F6	Α	GB	FAI	L L	Q 2Y	7.4.0.5.14B 7.4.6.1.2.4		
×		DIMION	2	NC	-			I	<u> </u>
				E TO RHI				100102	N04
RHR-V-209	M521-1	1 AC	SA CK	O/C NA	H L	RF RF	7.4.0.5. 7A 7.4.4.3.2.2	ROJ03	TV02
	D5	AC	0.75	NA NC		Kr	1.4.4.3.2.2		1102
		DIDTION	•		ER CHI	C RETU	VEEN RHR-V-8	AND 9 (CIV)	I
RHR-V-503	M521-1	2	SA		H	Q	7.4.5.1.8		ī
КПК• •-303	B8	ĉ	CK	NA		X	7.4.5.1.0		
	20	Ŭ	0.50	NC					
	DESC	RIPTION	RHR-V	6A LEAK	BY-PA	SS CH	K	1, ···	.1
ROA-V-1	M545-3	3	AO	С	G	2Y	7.4.3.7.5.1A	1	TV01
	D1	В	BF	FC	нјк	Q	7.4.6.5.2.1		
		1	84	NO					
		RIPTION	: REACT	OR BUILI	DING I	SO			
ROA-V-2	M545-3	3	AO	С	G	2Y	7.4.3.7.5.1A		TV01
	D2	В	BF	FC	нк	Q	7.4.6.5.2.1		
			84	NO					I
				OR BUILI				1.0000	1 771 100
RRC-V-13A	M530	2	SA	C	н	CS	7.4.0.5. 9B	CSJ06	TV02
	C13	AC	CK 0.75	NA NO	L	2Y	7.4.6.1.2.4	£	
		DIPTION			DUD	TO INIT	ET CHK (INBD O		I
DDA W 10D			SA		H		7.4.0.5. 9B	CSJ06	TV02
RRC-V-13B	M530 B13	2 AC	CK	NA		2Y	7.4.6.1.2.4		1 402
	<b>B13</b>	AC	0.75	NO	1	21	714.0111214		
	DESC	RIPTION			L L PURC	E INL	ET CHK (INBD (		
RRC-V-16A	M530	2	МО	C	G	2Y	7.4.0.5. 9B	CS106	TV01,2
	C14	Ā	GT	FAI	н	CS	7.4.0.5. 9B		e
			0.75	NO	L	2Y	7.4.6.1.2.4	1	
	DESC	RIPTION			L PURC		ET (OTBD CIV)		
RRC-V-16B	M530	2	МО	С	G	2Y	7.4.0.5. 9B	CS106	TV01,2
	B14	Ā	GT	FAI	HI	CS	7.4.0.5. 9B		
			0.75	NO	L	2Y	7.4.6.1.2.4		<u> </u>
	DESC	RIPTION	: RRC PU	JMP SEAL	L PURC	<b>JE INL</b>	ET (OTBD CIV)		



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Ŷalve EPN	Dwg & Coord	Class & Cat	Type Actuat,	Position Safety,	Test	s, Freq	uency & PPM	Testing Exceptions (CSJ/ROJ/	Remarks (Notes & Technical
			Valve & Size	Failed, Normal	ĺ		ų	Reliefs)	Position)
RRC-V-19	M530	1	SO	С	G	2Y	7.4.0.5. 6C		TV01,2
	F11	Ā	SV	FC	нлк	Q	7.4.0.5. 6C		
			0.75	NC	L	2Y	7.4.6.1.2.4		
	DESC	RIPTION	RRC SA	MPLE PF	ROBE 1	ISO (C	IV)		,
RRC-V-20	M530	1 *	SO	C ·	Ģ	2Y	7.4.0.5. 6C		TV01,2
	F12	Α	SV	FC	нк	Q	7.4.0.5. 6C		
			0.75	NC	L	2Y	7.4.6.1.2.4	·	
	DESC	RIPTION	RRC SA	MPLE PI	ROBE 1	ISO (C	IV)		
RWCU-V-1	M523	1	MO	С	G	2Y	7.4.0.5. 9A	CSJ10	TV01,2
	F15	Α	GT	FAI	н	CS	7.4.0.5. 9A		
			6	NO	L	2Y	7.4.6.1.2.4		<u> </u>
	DESC	RIPTION	RWCU	FROM RI	PV ISO	-			
RWCU-V-4	M523	1	MO	С	G	2Y	7.4.0.5. 9A	CSJ10	TV01,2
	E15	A	GT	FAI	ш	CS	7.4.0.5. 9A		
			6	NO	L	2Y	7.4.6.1.2.4		I
	DESC	RIPTION	: RWCU	FROM RI	PV ISO	(OTBD			
RWCU-V-40	M523	1	МО	C	G	2Y	7.4.0.5. 9A	CSJ10	TV01,2
•	H11	A	GT	FAI	HI	CS	7.4.0.5. 9A		
		3	6	NO	L	<u>2Y</u>	7.4.6.1.2.4		<u> </u>
	DESC	RIPTION	: RWCU	TO RFW	ISO (O	TBD Cl	(V)		
SA-V-109	M510-3	2	MA	С	L	2Y	7.4.6.1.2.4		TV02
	H8	Α	GB	NA					Į
			2	LC_				<u></u>	J
	DESC	RIPTION	: AIR LI	NE ISO U	SED FC		NT (CAPPED IN	DW) (CIV)	
SGT-V-1A	M544	2	MO	С	G	2Y	7.4.3.7.5.1A		TV01
	H14	В	BF	FAI	ні	Q	7.4.0.5.58A		-
			18	NC					<u> </u>
	DESC	RIPTION	: SGT IN		_			·	
SGT-V-1B	M544	2	мо	С	G	2Y	7.4.3.7.5.1A		TV01
	E14	В	l BF	FAI	HJ	Q	7.4.0.5.58B		
						•			1
-			18	NC		<u> </u>			1
•	DESC	RIPTION	18 : SGT IN	NC LET				<u> </u>	
	DESC M544	RIPTION 3	18 : SGT IN AO	NC LET O	G	2Y	7.4.3.7.5.1A	 	TV01
SGT-V-2A	DESC	RIPTION	18 : SGT IN AO BF	NC LET O FO					TV01
SGT-V-2A	DESC M544 H15	RIPTION 3 B	18 : SGT IN AO BF 18	NC LET O FO NO	G HJK	2Y	7.4.3.7.5.1A		TV01
SGT-V-2A	DESC M544 H15 DESC	RIPTION 3 B RIPTION	18 : SGT IN AO BF 18 : SGT-FU	NC LET FO NO J-1A INLE	G HJK ET	2Y Q	7.4.3.7.5.1A 7.4.0.5.58A		<u> </u>
SGT-V-2A SGT-V-2B	DESC M544 H15 DESC M544	RIPTION 3 B CRIPTION 3	18 : SGT IN BF 18 : SGT-FU AO	NC LET FO NO J-1A INLE O	G HJK ST G	2Y Q 2Y	7.4.3.7.5.1A 7.4.0.5.58A 7.4.3.7.5.1A		TV01
	DESC M544 H15 DESC	RIPTION 3 B RIPTION	18 : SGT IN BF 18 : SGT-FU AO BF	NC LET FO NO J-1A INLI O FO	G HJK ET	2Y Q	7.4.3.7.5.1A 7.4.0.5.58A		
	DESC M544 H15 DESC M544 D15	RIPTION 3 B CRIPTION 3 B	18 : SGT IN BF 18 : SGT-FU AO BF 18	NC LET FO NO J-1A INLE O FO NO	G HJK ST G HJK	2Y Q 2Y	7.4.3.7.5.1A 7.4.0.5.58A 7.4.3.7.5.1A		
SGT-V-2B	DESC M544 H15 DESC M544 D15 DESC	RIPTION 3 B RIPTION 3 B CRIPTION	18 : SGT IN AO BF 18 : SGT-FU AO BF 18 : SGT-FU	NC LET FO NO J-1A INLI O FO NO J-1B INLE	G HJK ST G HJK ST	2Y Q 2Y Q	7.4.3.7.5.1A 7.4.0.5.58A 7.4.3.7.5.1A 7.4.0.5.58B		TV01
SGT-V-2B	DESC M544 H15 DESC M544 D15 DESC M544	RIPTION 3 B RIPTION 3 B CRIPTION 2	18 : SGT IN BF 18 : SGT-FU AO BF 18 : SGT-FU MO	NC LET FO NO J-1A INLI O FO NO J-1B INLE O/C	G HJK 3T G HJK 3T G	2Y Q 2Y Q 2Y	7.4.3.7.5.1A 7.4.0.5.58A 7.4.3.7.5.1A 7.4.0.5.58B		
SGT-V-2B	DESC M544 H15 DESC M544 D15 DESC	RIPTION 3 B RIPTION 3 B CRIPTION	18 : SGT IN AO BF 18 : SGT-FU AO BF 18 : SGT-FU MO BF	NC LET FO NO J-1A INLI O FO NO J-1B INLE O/C FAI	G HJK ST G HJK ST	2Y Q 2Y Q	7.4.3.7.5.1A 7.4.0.5.58A 7.4.3.7.5.1A 7.4.0.5.58B		TV01
SGT-V-2B	DESC M544 H15 DESC M544 D15 DESC M544 J5	RIPTION 3 B RIPTION 3 B CRIPTION 2 B	18 : SGT IN AO BF 18 : SGT-FU AO BF 18 : SGT-FU MO BF 18	NC LET O FO NO J-1A INLI O FO NO J-1B INLI FAI NC	G HJK 3T G HJK T T G HJ	2Y Q 2Y Q 2Y	7.4.3.7.5.1A 7.4.0.5.58A 7.4.3.7.5.1A 7.4.0.5.58B		TV01
SGT-V-2B SGT-V-4A1	DESC M544 H15 DESC M544 D15 DESC M544 J5 DESC	RIPTION 3 B CRIPTION 3 CRIPTION 2 B CRIPTION	18 SGT IN AO BF 18 SGT-FU AO BF 18 SGT-FU MO BF 18 SGT-FU 18 SGT-FU	NC LET O FO NO J-1A INLI O FO NO J-1B INLE O/C FAI NC V-1A1 DIS	G HJK T G HJK T G HJ CCH	2Y Q 2Y Q 2Y Q	7.4.3.7.5.1A 7.4.0.5.58A 7.4.3.7.5.1A 7.4.0.5.58B 7.4.3.7.5.1A 7.4.0.5.58A		TV01
	DESC M544 H15 DESC M544 D15 DESC M544 J5 DESC M544	RIPTION 3 B CRIPTION 3 CRIPTION 2 B CRIPTION 2 CRIPTION 2	18 SGT IN AO BF 18 SGT-FU AO BF 18 SGT-FU MO BF 18 SGT-FU MO BF 18 MO BF 18 MO BF 18	NC LET O FO NO J-1A INLI O FO NO J-1B INLE O/C FAI NC V-1A1 DIS O/C	G HJK T G HJK T G HJ CH G	2Y Q 2Y Q 2Y Q 2Y Q	7.4.3.7.5.1A 7.4.0.5.58A 7.4.3.7.5.1A 7.4.0.5.58B 7.4.3.7.5.1A 7.4.0.5.58A 7.4.3.7.5.1A		TV01
SGT-V-2B SGT-V-4A1	DESC M544 H15 DESC M544 D15 DESC M544 J5 DESC	RIPTION 3 B CRIPTION 3 CRIPTION 2 B CRIPTION	18 SGT IN AO BF 18 SGT-FU AO BF 18 SGT-FU MO BF 18 SGT-FU 18 SGT-FU	NC LET O FO NO J-1A INLI O FO NO J-1B INLE O/C FAI NC V-1A1 DIS	G HJK T G HJK T G HJ CCH	2Y Q 2Y Q 2Y Q	7.4.3.7.5.1A 7.4.0.5.58A 7.4.3.7.5.1A 7.4.0.5.58B 7.4.3.7.5.1A 7.4.0.5.58A		TV01

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			Туре	Position				Testing Exceptions	Remarks (Notes &
Valve EPN	Dwg & Coord	Class & Cat	Actuat, Valve & Size	Safety, Failed, Normal	Tes	sts, Freq	uency & PPM	(CSJ/ROJ/ Reliefs)	Technical Position)
SGT-V-4B1	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
	DESC	RIPTION	SGT-FN	-1B1 DIS	СН				
SGT-V-4B2	M544	2	мо	O/C	G	2Y	7.4.3.7.5.1A		TV01
	D5	В	BF	FAI	HI	Q	7.4.0.5.58B		
e			18	NC_					L
	DESC	RIPTION	: SGT-FN	-1B2 DIS					
SGT-V-5A1	M544	2	мо	O/C	G	2Y	7.4.3.7.5.1A		TV01
	J5	В	BF 18	FAI NC	н	Q	7.4.0.5.58A		
	DESC	RIPTION		-1A1 OU	TLET				<u></u>
SGT-V-5A2	M544	2	мо	O/C	G	2Y	7.4.3.7.5.1A	[	TV01
	GS	B	BF	FAI	ш	Q	7.4.0.5.58A		
й <u>5</u> 1	•		18	NC		-			
	DESC	RIPTION	: SGT-FN	I-1A2 OU	<b>ILET</b>			,	
SGT-V-5B1	M544	2	MO	O/C	G	2Y	7.4.3.7.5.1A		TV01
	CS	В	BF	FAI	н	Q	7.4.0.5.58B		
			18	NC					
	DESC	RIPTION		I-1B1 OUT	-				v 1
SGT-V-5B2	M544	2	MO	O/C	G	2Y	7.4.3.7.5.1A		TV01
	E5	В	BF 18	FAI NC	HI	Q	7.4.0.5.58B		
	DECC	DIPTION		1-1B2 OUT				L	1
OL O DV OOA			SOI-FA	NA	I P	RV	7.4.0.5.20	r	TV03
SLC-RV-29A	F6	2 C	RV	NA	r	KV	7.4.0.3.20		
	1.	Ŭ	1 X 2	NC					
	DESC	RIPTION	: SLC-P-	A DISCH	RV				
SLC-RV-29B	M522	2	SA	NA	P	RV	7.4.0.5.20		TV03
	D6	С	RV	NA	1				·
			1 X 2	NC					
		RIPTION	: SLC-P-	IB DISCH					
SLC-V-1A	M522	2	MO	0	G	2Y	7.4.1.5.3		TV01
	E4	В	GB 4	FAI NC	ш	Q	7.4.1.5.3		
		DIPTION			DACE	TANK	TO SLC-P-1A SU		<u> </u>
		_	MO		G	2Y	7.4.1.5.3		TV01
SLC-V-1B	M522 D4	2 B	GB	FAI	н	Q	7.4.1.5.3		
			4	NC		×			
	DESC	RIPTION	: SLC-TH		RAGE	TANK)	TO SLC-P-1B SU	JCT ISO	· · · · · · · · · · · · · · · · · · ·
SLC-V-4A	M522	1	so	0/C	L	2Y	7.4.6.1.2.4	1	TV02
	F8	AD	EX	NA	v	EX	7.4.1.5A		1
			1.50	NC					
	DESC	RIPTION	: SLC-P-				(EXPLOSIVE OT	BD CIV)	
SLC-V-4B	M522	1	so	O/C	L	2Y			TV02
	D8	AD	EX	NA	V	EX	7.4.1.5B		1
			1.50	NC		DII 100			
	DESC	RIPTION	: SLC-P-	IR DISCH		TA 120	(EXPLOSIVE OT		*

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<u></u>			Туре	Position		Tables		Testing	Remarks
Valve EPN	Dwg & Coord	Class & Cat	Actuat,	Safety,	Tes	s, Freq	uency & PPM	Exceptions (CSJ/ROJ/	(Notes & Technical
			Valve & Size	Failed, Normal					Position)
SLC-V-6	M522	1	SA	0	н	RF	7.4.1.5A, B	ROJ01	
	F11	С	CK 1.50	NA NC					
	DESC	PIPTION		RPV CH	<u>і         </u> к			<u> </u>	!
SLC-V-7	M522	1	SA	O/C	ПН	RF	7.4.1.5A, B	ROJ01	TV02
320-4-7	H13	AC	СК	NA	L	2Y	7.4.6.1.2.4		
			1.50	NC					
*	DESC	RIPTION	SLC TC	RPV CH					
SLC-V-33A	M522	2	SA	0/C	н	Q	7.4.1.5.3		
	F7	С	CK	NA NC					
	DESC	DIDTION	1.50	A DISCH					· · ·
SLC-V-33B	M522	2	SLC-P-	O/C	H	Q	7.4.1.5.3	1	1
	D7	ć	CK	NA	n	Y	7.4.1.3.3		
	21	v	1.50	NC					
	DESC	RIPTION	SLC-P-	B DISCH	СНК				
SW-RV-001A	M524-1	3	SA	NA	P	RV	7.4.0.5.20		TV03
	C14	С	RV	NA					
			.75 X 1	NC					<u> </u>
				X-1A TUB				<del></del>	TV03
SW-RV-001B	M524-2 F14	3 C	SA RV	NA NA	Р	RV	7.4.0.5.20		1 1 1 0 3
	P14	C	.75 X 1	NC					
	DESC	RIPTION		X-1B TUB	E SIDE	RV		1	<u> </u>
SW-TCV-11A	M775	3	НО	0	НК	RF	7.4.0.5.52	RV03	1
	H5	В	GB	FO					
			2.50	NT				<u> </u>	
		RIPTION						-CC-51A-1 TCV	<b>.</b>
SW-TCV-11B	M775	3	НО	0	HK			RV03	
					1	RF	7.4.0.5.52	IN TOS	
	CS	В	GB	FO		KF	7.4.0.3.32	I WOO	1
		_	2.50	FO NT					q
SW-V-1A	DESC	RIPTION	2.50 : EMERC	FO NT GENCY CI	HILLEI	O WATI	ER FROM WMA	-CC-51B-1 TCV	· 
SW-V-1A	DESC M524-1	_	2.50	FO NT					· ·
SW-V-1A	DESC M524-1 H5	RIPTION 3 C	2.50 : EMERC SA CK 20	FO NT GENCY CI O NA NC	HILLEI	O WATI	ER FROM WMA		
SW-V-1A	DESC M524-1 H5	RIPTION 3 C	2.50 : EMERC SA CK 20	FO NT GENCY CI O NA	HILLEI H CHK	O WATI	ER FROM WMA 7.4.0.5.16		
	DESC M524-1 H5 DESC M524-2	RIPTION 3 C RIPTION 3	2.50 : EMERC SA CK 20 : SW-P-1 SA	FO NT JENCY CI O NA NC A DISCH O	HILLEI	O WATI	ER FROM WMA		
	DESC M524-1 H5 DESC	RIPTION 3 C RIPTION	2.50 : EMERC SA CK 20 : SW-P-1 SA CK	FO NT JENCY CI O NA NC A DISCH O NA	HILLEI H CHK	Q Q	ER FROM WMA 7.4.0.5.16		
	DESC M524-1 H5 DESC M524-2 G5	RIPTION 3 C RIPTION 3 C	2.50 : EMERC SA CK 20 : SW-P-1 SA CK 20	FO NT GENCY CI O NA NC A DISCH O NA NC	HILLEI H CHK H	Q Q	ER FROM WMA 7.4.0.5.16		
SW-V-1B	DESC M524-1 H5 DESC M524-2 G5 DESC	RIPTION 3 C RIPTION 3 C RIPTION	2.50 : EMERC SA CK 20 : SW-P-1 SA CK 20 : SW-P-1	FO NT SENCY CI O NA NC A DISCH O NA NC B DISCH	HILLEI H CHK H CHK	Q Q Q	ER FROM WMA 7.4.0.5.16 7.4.0.5.17		
SW-V-1A SW-V-1B SW-V-2A	DESC M524-1 H5 DESC M524-2 G5 DESC M524-1	RIPTION 3 C RIPTION 3 C RIPTION 3	2.50 : EMERC SA CK 20 : SW-P-1 SA CK 20 : SW-P-1 MO	FO NT SENCY CI O NA NC A DISCH O O/C	HILLEI H CHK H CHK G	Q Q Q 2Y	ER FROM WMA 7.4.0.5.16 7.4.0.5.17 7.4.0.5.16		TV01
SW-V-1B	DESC M524-1 H5 DESC M524-2 G5 DESC	RIPTION 3 C RIPTION 3 C RIPTION	2.50 : EMERC SA CK 20 : SW-P-1 SA CK 20 : SW-P-1	FO NT SENCY CI O NA NC A DISCH O NA NC B DISCH	HILLEI H CHK H CHK	Q Q Q	ER FROM WMA 7.4.0.5.16 7.4.0.5.17		TV01
SW-V-1B	DESC M524-1 H5 DESC M524-2 G5 DESC M524-1 H6	RIPTION 3 C RIPTION 3 C RIPTION 3 B	2.50 : EMERC SA CK 20 : SW-P-1 SA CK 20 : SW-P-1 MO BF 20	FO NT BENCY CI O NA NC A DISCH O NA NC B DISCH O/C FAI	HILLEI H CHK H CHK G HJ	Q Q Q 2Y	ER FROM WMA 7.4.0.5.16 7.4.0.5.17 7.4.0.5.16		TV01
SW-V-1B	DESC M524-1 H5 DESC M524-2 G5 DESC M524-1 H6	RIPTION 3 C RIPTION 3 C RIPTION 3 B	2.50 : EMERC SA CK 20 : SW-P-1 SA CK 20 : SW-P-1 MO BF 20	FO NT BENCY CI O NA NC A DISCH O NA NC B DISCH O/C FAI NC	HILLEI H CHK H CHK G HJ	Q Q Q 2Y	ER FROM WMA 7.4.0.5.16 7.4.0.5.17 7.4.0.5.16 7.4.0.5.16 7.4.0.5.16		TV01
SW-V-1B SW-V-2A	DESC M524-1 H5 DESC M524-2 G5 DESC M524-1 H6 DESC	RIPTION 3 C RIPTION 3 C RIPTION 3 B RIPTION	2.50 : EMERC SA CK 20 : SW-P-1 SA CK 20 : SW-P-1 MO BF 20 : SW-P-1	FO NT DENCY CI O NA NC A DISCH O/C FAI NC A DISCH	HILLEI H CHK H CHK G HJ ISO	Q Q Q 2Y Q	ER FROM WMA 7.4.0.5.16 7.4.0.5.17 7.4.0.5.16 7.4.0.5.16		

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	<u> </u>			-2 valve	1000		,		Remarks
Valve EPN	Dwg &	Class	Type Actuat,	Position Safety,	Tes	ts. Fred	quency & PPM	Exceptions (N	
	Coord	& Cat	Valve & Size	Failed, Normal				(CSJ/ROJ/ Reliefs)	Technical Position)
SW-V-12A	M524-1 G3	3 B	MO GT 18	O/C FAI NC	G НЛ	2Y Q	7.4.0.5.16 7.4.0.5.16		TV01
	DESC	RIPTION	SWAF	ETURN T	O SPR	AY PO	ND B ISO		
SW-V-12B	M524-2	3	мо	O/C	G	2Y	7.4.0.5.17		TV01
	G3	В	GT	FAI	ні	Q	7.4.0.5.17		
		DIPTION	18	NC ETURN T	YO SPR	AVDON		<u>I'</u>	<u> </u>
			MO	O/C	G	2Y	7.4.0.5.18	1	TV01
SW-V-29	M524-1 G6	3 B	BF 8	FAI NC	ш	Q	7.4.0.5.18		
	DESC	RIPTION	: HPCS-I	-2 DISCH	ISO			1	
SW-V-34	M524-2	3	SO	0	G	2Y	7.4.0.5.17	l	TV01
	C11	В	GB	FO	нік	Q	7.4.0.5.17		
' + '			1.50	NO					
							RA-CC-6 ISO		1 000 10 1
SW-V-75A	M524-1	3	MO	O/C	G	2Y	7.4.0.5.16 7.4.0.5.16		TV01
	B13	B	GB 2	FAI NC	HJ	Q	/.4.0.3.10		
				TO FPC			<u></u>	·····	γ <u> </u>
SW-V-75AA	M524-1 A13	3 B	MA GB 2	O/C FAI NC	H	Q	7.4.0.5.16		
		PIPTION		OSSTIE T	O FPC	MAN	ISO	! <u></u>	<u> </u>
SW-V-75B	M524-2			0/0	IG	2Y	7.4.0.5.17	I	TV01
011-1-100	B14	B	GB 2	FAI NC	н	Q	7.4.0.5.17		
	DESC	RIPTION	: SW TIE	TO FPC	LOOP	B			
SW-V-75BB	M524-2 B14	3 B	MA GB	O/C FAI	Н	Q	7.4.0.5.17		
•		l	2	NC					<u> </u>
			·	OSSTIE T				T	T
SW-V-165A	M524-1 D3	3 B	MA BF	O/C NA	н	Q	7.4.0.5.16		
	DESC		18 18	NO		AVDO	ND B SPRAY RI	NG HDP BYPA	22
SW-V-165B	M524-2		MA		IU SPR		7.4.0.5.17		
9 M- A-1020	M524-2 K3	B	BF	NA NA	**	×	/ /		
			18	NO	<u> </u>				1
	DESC	-					ND A SPRAY RI	NG HDR BYPA	SS ′
SW-V-170A	M524-1	3	MA	O/C	н	Q	7.4.0.5.16		
	D3	В	BF 18	NA NC	l				
	DESC	RIPTION		-	I FO SPR	AY PC	ND B SPRAY RI	NG HDR MAN	ISO
SW-V-170B	M524-2	3	MA	0/C	Н	Q	7.4.0.5.17		1
	K4	В	BF	NA		•		,	
		<u> </u>	18	NC					<u> </u>
	DESC	RIPTION	SWBI	<b>ETURN</b>	O SPR	AY PO	ND A SPRAY RI	NG HDR MAN	ISO



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			·	-2 valve	1				
Valve EPN	Dwg &			uency & PPM	Testing Exceptions	Remarks (Notes &			
VAIVE EFIN	Coord	& Cat	Valve & Size	Failed, Normal				Reliefs) Positio	Technical Position)
SW-V-187A .	M524-1	3	МО	0	G	2Y	7.4.0.5.16		TV01
	G14	B	GT 6	FAI NC	HI	Q	7.4.0.5.16		l
				FPC-HX-				·	
SW-V-187B	M524-2 C13	3 B	MO GT	O FAI	G HJ	2Y Q	7.4.0.5.17 7.4.0.5.17		TV01
	CIS	Б	6	NC		Q	7.4.0.3.17		
	DESC	RIPTION	: SW TO	FPC-HX-	IB INI	.ET			J
SW-V-188A	M524-1	3	МО	0	G	2Y	7.4.0.5.16		TV01
	H13	В	GT 6	FAI NC	н	Q	7.4.0.5.16		
	DESC	RIPTION	: SW FR	OM FPC-I	IX-1A	OUTLE	T		
SW-V-188B	M524-2	3	мо	0	G	2Y	7.4.0.5.17		TV01
, · .;	D12	В	GT	FAI	HI	Q	7.4.0.5.17		
· ,			6	NC M FPC-I		OUTT			
0111120061					H H		7.4.0.5.52	r	
SW-V-226A	M775 F6	3 C	SA CK	NA	n –	Q	7.4.0.3.32		
		Ŭ	3	NC				•	
	DESC	RIPTION	CCH-E	V-1A (EV/	APOR/	TOR)	DUTLET CHK	. <u></u>	<u>I</u>
SW-V-226B	M775	3	SA	Ċ	H	Q	7.4.0.5.52		1
	B6	С	СК	NA	1				· ·
			3	NC	<u> </u>				<u> </u>
		RIPTION					DUTLET CHK		·
SW-V-227A	M775 H7	3 B	MA GT	C NA	н	Q	7.4.0.5.52		*
	·   ⁿ /	В	3	NC					
	DESC	RIPTION	-	IA SUCT	MAN	ISO		I	
SW-V-227B	M775	3	MA	С	H	Q	7.4.0.5.52	l	I
	C7	В	GT	NA					
	,		3	NO					٠
		_		1B SUCT				· · · · · · · · · · · · · · · · · · ·	·····
SW-V-822A	M775 J5	3 B	MA GT	O NA	н	Q	7.4.0.5.52		
	33	D	3	NO	1				
	DESC	RIPTION			-51A-1	I (CR C	HILLER) MAN IS	50	1
SW-V-822B	M775	3	MA	0	H	Q	7.4.0.5.52		
	E5	В	GT	NA					
			3	NC				l	
							HILLER) MAN IS	0	
SW-V-823A	M775	3	MA	0	н	Q	7.4.0.5.52		
	J5	В	GT 3	NA NO					
	DESC	RIPTION	-		-CC-51	A-1 (C	ONTROL RM CH	ILLER) MAN IS	50
SW-V-823B	M775	3	MA	0	H	Q	7.4.0.5.52		T
	E5	B	GT	NA		•			
			3	NC		+			
	DESC	RIPTION	: SW FR	OM WMA	-CC-5	IB-1 (CO	ONTROL RM CH	ILLER) MAN IS	50

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#### WNP-2 Valve Test Tables

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Valve EPN	Dwg & Coord	Ciass & Cat	Type Actuat, Valve	Position Safety, Failed,	Test	s, Freq	uency & PPM	Testing Exceptions (CSJ/ROJ/ Reliefs)	Remarks (Notes & Technical Position)
			& Size	Normal				Reneis)	Fosition
	M604	2	SO	С	G	2Y	7.4.0.5.13	,	TV01,2
TIP-V-1	G13	Â	BA	FC	нік	Q	7.4.0.5.13		1
	015	~	0.375	NC	L	2Y	7.4.6.1.2.4		
	DESC	DIDTION			-		/ (IST OTBD CI	۱ ۷	L
			SO	C	G	2Y	7.4.0.5.13	1	TV01,2
TIP-V-2	M604	2 A	BA	FC	ник	Q	7.4.0.5.13		
	G13	А	0.375	NC		2Y	7.4.6.1.2.4		
		DIPTION					/ (IST OTBD CI	U	I
· · · · · · · · · · · · · · · · · · ·								*)	TV01,2
TIP-V-3	M604	2	SO	C FC	G HJK	2Y	7.4.0.5.13 7.4.0.5.13		1 1 1 1 1 2
	G12	A	BA 0.375	NC	L	Q 2Y	7.4.6.1.2.4		•
					1				l
							/ (IST OTBD CI	v)	
TIP-V-4	M604	2	so	С	G	2Y	7.4.0.5.13		TV01,2
• •	H12	A	BA	FC	нк	Q	7.4.0.5.13		•
,			0.375	NC	L	2Y	7.4.6.1.2.4	<u> </u>	l
	DESC	RIPTION	: TIP LIN				V (IST OTBD CI	V)	<u></u>
TIP-V-5	M604	2	so	С	G	2Y	7.4.0.5.13		TV01,2
	H12	A	BA	FC	нік	Q	7.4.0.5.13		
			0.375	NC	L	2Y	7.4.6.1.2.4	l	
	DESC	RIPTION	TIP LIN	IE BALL-	TYPE I	so vly	V (IST OTBD CI	V)	
TIP-V-6	M604	2	SA	С	Н	RF	7.4.0.5. 7H	ROJ04	TV02
	F12	AC	СК	NA	L	2Y	7.4.6.1.2.4		
			0.375	NO					
	DESC	RIPTION	TIP PU	RGE LINE	CHK	(INBD	CIV)		•
					1 17	EX	7.4.6.3.5.2	1	TV02
TIP-V-7	M604	D	so	C	V	Lin			
TIP-V-7			SO EX	C FAI	ľ	LA			
TIP-V-7	M604	D			V	LA			
TIP-V-7	M604 G13	D AD	EX 0.375	FAI NO			LV (2ND OTBD	CIV)	
	M604 G13 DESC	D AD	EX 0.375 : TIP LIN	FAI NO IE SHEAR					TV02
	M604 G13	D AD RIPTION D	EX 0.375 : TIP LIN SO	FAI NO	-TYPE	ISO VI	LV (2ND OTBD		TV02
	M604 G13 DESC M604	D AD RIPTION	EX 0.375 : TIP LIN	FAI NO JE SHEAR C	-TYPE	ISO VI	LV (2ND OTBD		TV02
	M604 G13 DESC M604 G13	D AD RIPTION D AD	EX 0.375 : TIP LIN SO EX 0.375	FAI NO IE SHEAR C FAI NO	-TYPE V	ISO VI EX	LV (2ND OTBD 7.4.6.3.5.2		TV02
TIP-V-8	M604 G13 DESC M604 G13 DESC	D AD RIPTION D AD	EX 0.375 : TIP LIN SO EX 0.375 : TIP LIN	FAI NO IE SHEAR C FAI NO IE SHEAR	-TYPE V -TYPE	ISO VI EX ISO VI	LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD		
TIP-V-8	M604 G13 DESC M604 G13 DESC M604	D AD RIPTION D AD RIPTION D	EX 0.375 : TIP LIN SO EX 0.375 : TIP LIN SO	FAI NO IE SHEAR C FAI NO IE SHEAR C	-TYPE V	ISO VI EX	LV (2ND OTBD 7.4.6.3.5.2	CIV)	TV02
TIP-V-8	M604 G13 DESC M604 G13 DESC	D AD RIPTION D AD	EX 0.375 : TIP LIN SO EX 0.375 : TIP LIN SO EX	FAI NO IE SHEAR FAI NO IE SHEAR C FAI	-TYPE V -TYPE	ISO VI EX ISO VI	LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD	CIV)	
TIP-V-8	M604 G13 DESC M604 G13 DESC M604 H12	D AD RIPTION D AD RIPTION D AD	EX 0.375 : TIP LIN SO EX 0.375 : TIP LIN SO EX 0.375	FAI NO IE SHEAR C FAI NO IE SHEAR C FAI NO	-TYPE V -TYPE V	ISO VI EX ISO VI EX	LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2	CIV)	
TIP-V-8 TIP-V-9	M604 G13 DESC M604 G13 DESC M604 H12 DESC	D AD RIPTION D AD RIPTION RIPTION	EX 0.375 : TIP LIN SO EX 0.375 : TIP LIN SO EX 0.375 : TIP LIN	FAI NO E SHEAR FAI NO E SHEAR C FAI NO E SHEAR	-TYPE V -TYPE -TYPE	ISO VI EX ISO VI EX ISO VI	LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD	CIV)	TV02
TIP-V-8 TIP-V-9	M604 G13 DESC M604 G13 DESC M604 H12 DESC M604	D AD RIPTION D AD RIPTION D RIPTION D	EX 0.375 : TIP LIN SO EX 0.375 : TIP LIN SO EX 0.375 : TIP LIN SO	FAI NO E SHEAR FAI NO E SHEAR FAI NO E SHEAR C	-TYPE V -TYPE V	ISO VI EX ISO VI EX	LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2	CIV)	
TIP-V-8 TIP-V-9	M604 G13 DESC M604 G13 DESC M604 H12 DESC	D AD RIPTION D AD RIPTION RIPTION	EX 0.375 : TIP LIN SO EX 0.375 : TIP LIN SO EX SO EX	FAI NO E SHEAR FAI NO E SHEAR C FAI NO E SHEAR C FAI	-TYPE V -TYPE -TYPE	ISO VI EX ISO VI EX ISO VI	LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD	CIV)	TV02
TIP-V-8 TIP-V-9	M604 G13 DESC M604 G13 DESC M604 H12 DESC M604 H12	D AD RIPTION D AD RIPTION D AD AD	EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO EX 0.375	FAI NO IE SHEAR C FAI NO IE SHEAR C FAI NO IE SHEAR C FAI NO	-TYPE V -TYPE V -TYPE	ISO VI EX ISO VI EX ISO VI EX	LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2	CIV) CIV)	TV02
TIP-V-8 TIP-V-9 TIP-V-10	M604 G13 DESC M604 G13 DESC M604 H12 DESC M604 H12 DESC	D AD RIPTION D AD RIPTION D AD RIPTION	EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO EX 0.375 TIP LIN	FAI NO IE SHEAR C FAI NO IE SHEAR C FAI NO IE SHEAR NO IE SHEAR	-TYPE V -TYPE -TYPE V -TYPE	ISO VI EX ISO VI EX ISO VI EX	LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD	CIV) CIV)	TV02
TIP-V-8 TIP-V-9 TIP-V-10	M604 G13 DESC M604 G13 DESC M604 H12 DESC M604 H12 DESC M604	D AD RIPTION D AD RIPTION D AD RIPTION D	EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO SO	FAI NO IE SHEAR C FAI NO IE SHEAR C FAI NO IE SHEAR C FAI NO IE SHEAR C	-TYPE V -TYPE V -TYPE	ISO VI EX ISO VI EX ISO VI EX	LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2	CIV) CIV)	TV02
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TIP-V-8 TIP-V-9 TIP-V-10 TIP-V-11	M604 G13 DESC M604 G13 DESC M604 H12 DESC M604 H12 DESC	D AD RIPTION D AD RIPTION D AD RIPTION D AD RIPTION	EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO EX 0.375 TIP LIN	FAI NO IE SHEAR C FAI NO IE SHEAR C FAI NO IE SHEAR C FAI NO IE SHEAR	-TYPE V -TYPE V -TYPE V -TYPE	ISO VI EX ISO VI EX ISO VI EX ISO VI	LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2		TV02 TV02 TV02
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TIP-V-7 TIP-V-8 TIP-V-9 TIP-V-10 TIP-V-11 TIP-V-15	M604 G13 DESC M604 G13 DESC M604 H12 DESC M604 H12 DESC	D AD RIPTION D AD RIPTION D AD RIPTION D AD RIPTION	EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO EX 0.375 TIP LIN SO EX 0.375 TIP LIN	FAI NO IE SHEAR C FAI NO IE SHEAR C FAI NO IE SHEAR C FAI NO IE SHEAR	-TYPE V -TYPE V -TYPE V -TYPE	ISO VI EX ISO VI EX ISO VI EX ISO VI	LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2 LV (2ND OTBD 7.4.6.3.5.2		TV02 TV02 TV02

#### 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.

#### <u>NOTE N01</u>

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

<u>NOTE N02</u>

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

#### <u>NOTE N03</u>

These valves are operated by a programmer with a geared nylon wheel. The programmer is activated by a pressure switch which trips on low header pressure. The nylon wheel rotates one position to deenergize a solenoid and open a nitrogen bottle isolation valve. If the low pressure condition persists, in 30 seconds, the nylon gear rotates and another solenoid is deenergized to open another nitrogen bottle isolation valve. The geared nylon 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 are energized or not.

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

#### <u>NOTE N04</u>

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	С	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	В	Drive Water AOV	4.1.3.2(a, b, & c)
CRD-V-127	В	Withdraw AOV	4.1.3.2 (a, b, & c)
CRD-V-138	C	Cooling Water Check Valve	4.1.3.1.2.a

#### <u>NOTE N06</u>

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.

<u>Valve</u>

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



#### <u>NOTE N07</u>

The following valves are skid-mounted and are tested during refueling outages during the skid performance test to verify proper valve functions.

CAC-V-3A, 3B CAC-TCV-4A, 4B

#### 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

#### <u>NOTE N09</u>

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

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#### 4.5 <u>Technical Positions</u>

#### Technical Position - TV01

#### <u>Title</u>

#### 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 value or group of values. The acceptance criteria is a percentage  $\pm$  of the reference value. Part 10 recognizes that operating characteristics of electric motor operated values are more consistent than those of other power operated values.

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 values:

Туре	Acceptance Criteria (Alert)	Limiting Value (Action)
MOVs $\leq$ 10 seconds	± .25 Tref*	1.50 Tref**
MOVs > 10 seconds	$\pm$ .15 Tref	1.30 Tref
SOVs/AOVs/HOVs $\leq$ 10 seconds	$\pm$ .50 Tref	2.00 Tref
SOVs/AOVs/HOVs > 10 seconds	± .25 Tref	1.50 Tref

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

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

#### Technical Position -- TV01 (Continued)

Notes:

- 1) Tref is the reference or average stroke value in seconds for an individual value or value 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

<u>Title</u>

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 ( $\pm$  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

#### <u>Title</u>

Inservice Performance Testing of Pressure Relief Valves

#### **Issue Discussion**

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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. Based on review of these the following clarifications will be used when implementing testing requirements for safety and relief valves.

- Replacement value (Para. 2.1(c) and (d)): New values 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)).
- Additional valves will be tested only if the as-found set pressure exceeds the stamped set pressure by 3% or greater. Additional testing due to set pressure failure applies only to installed valves.
- Set pressure adjustment is an acceptable corrective action.

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### WNP-2

Technical Position -- TV03 (Continued)

- 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 value actuation includes zero pressure (paragraph 3.4.1.1(d))
- "Code tolerance" for set pressure testing implies Owner's acceptance criteria.

Technical Position -- TV04

<u>Title</u>

Inservice Testing of Primary Containment Vacuum Relief Valves (Valves CSP-V-5, 6, 7, 8, 9, 10)

#### Issue Discussion

Para 1.3.4.3 of OM Part 1 specifies the following test frequency for primary containment vacuum relief valves

- (a) operability tests every 6 months
- (b) leak tests every 2 years

Para. 3.3.2.3 specifies the following testing requirements for vacuum relief valves

- (a) The values 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.

#### <u>Position</u>

At WNP-2 these primary containment vacuum relief valves are operability tested in accordance with Technical Specification 4.6.4.2, and leakage tested once every two years per 10CFR50 Appendix J. 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. These testing requirements will also apply to replacement and refurbished valves, as applicable.

Each reactor building - suppression chamber vacuum breaker shall be:

- a. Verified closed at least once per 7 days.
- b. Demonstrated OPERABLE:
  - 1. At least once per 31 days by:
    - a) Cycling each vacuum breaker through at least one test cycle.
    - b) Verifying both position indicators OPERABLE by observing expected valve movement during the cycling test.

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### WNP-2

Technical Position -- TV04 (Continued)

- 2. At least once per 18 months by:
  - a) Demonstrating that the force required to open each vacuum breaker relying upon differential pressure to open does not exceed the equivalent of 0.5 psid.
  - b) Visual inspection.
  - c) Verifying both position indicators OPERABLE by performance of a CHANNEL CALIBRATION.
- 3. By demonstrating the vacuum breaker actuation instrumentation OPERABLE by performance of a:
  - a) CHANNEL FUNCTIONAL TEST at least once per 31 days.
    - b) CHANNEL CALIBRATION at least once per 18 months.

#### Technical Position -- TV05

<u>Title</u>

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. Draft 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

<u>Title</u>

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. Draft 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. 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 <u>Cold Shutdown Justifications</u>

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.

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. However, it is not the intent of the Code to keep the plant in cold shutdown in order to complete cold shutdown testing. Cold shutdown testing will be conducted in a manner which will not impede plant startup. 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 testing; or other particular conditions. All cold shutdown valves will be tested during each refueling outage. 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. Such exercising is not required if the time period since the previous full-stroke exercise is less than 3 months.

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	Α	RHR supply to vessel head spray	
RHR-V-53A, B	1	А	Loop A, B outboard isolation valve for shutdown cooling return	.Residual Heat Removal

#### **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

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## 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		
RCC-V-21	2	A	Isolation valves for reactor closed cooling water lines penetrating the primary	Reactor Closed Cooling
RCC-V-40	2	Α	containment.	Water
RCC-V-104	2	Α		

## **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

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## 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	
RFW-V-32A, B	1	AC	Reactor feedwater outboard check valves	· Reactor Feedwater
RFW-V-65A, B	1	Α	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 values are held open by feedwater flow and cannot be closed during power operations.

## Alternative Frequency

## Cold Shutdown Justification -- CSJ04

## Description

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

Affected Valves	Class	Cat.	Function	System(s)
HY-V-17A, B	2	Α		
HY-V-18A, B	2	Α		
HY-V-19A, B	2	Α	Valves isolate hydraulic control fluid to the reactor recirculation flow control valve hydraulic operators. Recirculation flow control valves are RRC-V-60A and RRC-V-60B.	Reactor Recirculation Hydraulic Control
HY-V-20A, B	2	Α		
HY-V-33A, B	2	A		
HY-V-34A, B	2	Α		
HY-V-35A, B .	2	Α		
HY-V-36A, B	2	, A		

## **Justification**

Exercising of the hydraulic valves may cause repositioning of the reactor recirculation flow control valve, causing undesirable reactivity changes in the core.

## Alternative Frequency

## 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)
СІА-V-39А, В	3	В	These valves cross connect the normal nitrogen supply for the Main Steam Isolation Valves and Main Steam Relief Valves	Containment Instrument
CIA-V-41A, B	3	С	(including the 7 ADS Valves) accumulators to the backup nitrogen supply for the 7 ADS valves.	Air

## **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

## 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	Reactor Recirculation
RRC-V-16A, B	2	Α	recirculation pumps seal purge line	,

### 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

## 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







## 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	Α	RHR discharge isolation to the reactor vessel.	<b>Residual Heat Removal</b>

## **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

## 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	В	- Emergency nitrogen supply isolation valve.	Containment Instrument Air
CIA-SPV-1A to 15A	3	В	Emergency mirogen supply isolation valve.	
CIA-V-52A to 66A	3	С		
CIA-V-52B to 70B	3	С	Emergency nitrogen supply check valve.	
CIA-V-103A, B	3	с	Remote Emergency nitrogen supply check valve.	
CIA-V-104A, B	3	В	Remote Emergency nitrogen supply isolation valve.	

## **Justification**

Valve testing requires overriding valve control circuitry. This would inhibit the system from performing its designed safety function in case of an emergency.

#### Alternative Frequency

## 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	А	Containment Iso., RWCU Pump Suction Iso.	
RWCU-V-4	1	Α	Containment Iso., RWCU Pump Suction Iso.	Reactor Water Cleanup
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

## 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	Α	Main Steam Line A Inboard Isolation Valve	ĺ
MS-V-22B	1	A	Main Steam Line B Inboard Isolation Valve	<b>,</b>
MS-V-22C	1	Α	Main Steam Line C Inboard Isolation Valve	
MS-V-22D	1	Α	Main Steam Line D Inboard Isolation Valve	Main Starm
MS-V-28A	1	Α	Main Steam Line A Outboard Isolation Valve	Main Steam
MS-V-28B	1	A	Main Steam Line B Outboard Isolation Valve	
MS-V-28C , .	1	Α	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	В	Prevent Radioactive Material Release	
MSLC-V-3A, B, C, D	1	А	CIV, Prevent Radioactive Material Release	Main Steam Leakage Control
MSLC-V-4, 5, 9, 10	2	В	Prevent Radioactive Material Release	

## Justification

Testing the valves quarterly during normal plant operation subjects the valves to operation with 1005 psi across the seat. While the valves and operators are designed for the 1005 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 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. 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

## -WNP-2

## 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	В	Isolation Valve, Main Steam Supply to Auxiliary Equipment	Main Steam

## **Justification**

This value is normally open at power. Closing this value 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

## 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, eg. 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

## 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	Α	Drywell Spray Header (2nd outboard CIV)	Residual Heat Removal
RHR-V-17A, B	2	Α	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 values are located in relatively high radiation areas and require operators to attach test hoses to supplement the testing of these values. Reduced exercising frequency is justified by ALARA.
- 3) Each time these values 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



## 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	Α	Containment Isolation	Main Steam
MS-V-19	1	Α	Containment Isolation	Main Steam

## **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 operatin produces severe thermal cycles and stress on the drain line piping (reference calculation ME-02-94-37). Each thermal cycle is an unecessary 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

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## 4.7 <u>Refueling Outage Justifications</u>

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 valves during normal plant operation or cold shutdown.

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

### **Justification**

- 1) Valves have no operator with which they may be stroked.
- 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 during cold shutdown 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) These values 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 refueling outages 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. Valve closure capability for SLC-V-7 will be verified in conjunction with 10CFR50 Appendix J (Type C) testing.

## 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)	
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)	Containment Instrument Air
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) Draft NUREG-1482 Section 4.1.3 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) Draft 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 values 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 values 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.]

#### Alternative Frequency

- 1) During refueling outages, 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.		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 value is located inside the containment and does not have value 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 Specifications). 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 refueling outages. 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) Draft 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 at refueling outages.

## 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 values are located on the discharge of the radiation leak detection monitors and on the purge system for the TIP. These containment isolation values 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 values quarterly during power operations or during cold shutdowns when containment remains inerted.
- 2) Draft 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 refueling outages.

## 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 draft 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 refueling outages 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	<b>Process Instrumentation</b>
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	<b>Process Instrumentation</b>
PI-EFC-X38A, B, C, D, E, F	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X39A, B, D, E	1	AC	Containment Isolation	<b>Process Instrumentation</b>
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	<b>Containment Isolation</b>	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	<b>Containment Isolation</b>	<b>Process Instrumentation</b>
PI-EFC-X61C	2	AC	<b>Containment Isolation</b>	Process Instrumentation
PI-EFC-X62B	2	AC	<b>Containment Isolation</b>	Process Instrumentation
PI-EFC-X62C, D	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X66	2	AC	<b>Containment Isolation</b>	Process Instrumentation
PI-EFC-X67	2	AC	<b>Containment Isolation</b>	Process Instrumentation
PI-EFC-X69A, B, E	1	AC	<b>Containment Isolation</b>	Process Instrumentation
PI-EFC-X69F	2	AC	<b>Containment Isolation</b>	Process Instrumentation
PI-EFC-X70A, B, C, D, E, F	1	AC	<b>Containment Isolation</b>	Process Instrumentation
PI-EFC-X71A, B, C, D, E, F	1	AC	Containment Isolation	Process Instrumentation
PI-EFC-X72A	1	AC	<b>Containment Isolation</b>	Process Instrumentation
PI-EFC-X73A	1	AC	<b>Containment Isolation</b>	Process Instrumentation
PI-EFC-X74A, B, E, F	1	AC	<b>Containment Isolation</b>	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	<b>Containment Isolation</b>	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 values 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 refueling outages 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	с	Open: To break vacuum in the downcomers of the main steam relief valves.	Main Steam
MS-V-38 Series (Typ 18)	3	С	Close: To direct steam to the quenchers in the wetwell.	Walli Steam

## **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) Draft 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 refueling outages. 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.

## 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 values have been inspected internally and have exhibited no signs of wear which could affect the ability of the values to stroke full open or closed. These check values 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) Draft 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) Draft NUREG-1482 Section 4.1.3 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	с	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 depressurization of the supply header. 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 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 depressurized and would be performed in conjunction with the pressure decay test to verify closure of CSP-V-65. This testing will require replacement of 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 affects pertaining to PRA (Probabalistic Risk Assessment) core melt frequency indicates a neglible increase in containment failure frequency.

### Alternative Frequency

During refueling outages, 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		Isolate RHR shutdown cooling suction line	Residual Heat Removal
RHR-V-9	1	Α	from reactor recirculation loop 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 refueling outages, each of these valves will be exercised per the requirements of OM Part 10.

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## 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	Α	CIV, HI-LO Pressure Isolation	Residual Heat Removal

## **Justification**

- 1) These values are normally closed with the motor operator deenergized during power operations and function as Reactor Coolant Pressure Boundary/Containment Isolation Values. Opening the values 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 values have no active safety function. WNP-2 Technical Specification 4.6.3.1 requires the value to be stroked following repair and maintenance.

## Alternative Frequency

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

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## WNP-2

## 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 values cannot be tested individually therefore, assigning a limiting leakage rate for each value 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 values.

## 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.

### Previous NRC Acceptance for 1st 10 Year Interval

SER dated May 7, 1991, TER Section 3.10.1.1, Relief Request No. RV-6





## Relief Request -- RV02

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

## Code Requirement for Which Relief is Requested

## Part 10 Paragraph 4.3.2, Exercising Tests for Check Valves

## **Basis for Relief**

These valves cannot be verified to be closed 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.

The operability of these valves in the open direction 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.

### Alternate Testing to be Performed

The stop-check and check valve will be tested in combination and verified closed (one or both) during the quarterly surveillance test. In addition, the stop-check valve will be cycled manually to ensure no binding exists. If excessive leakage is noted, both valves shall be repaired or replaced.

### Quality/Safety Impact

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.



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## WNP-2

### Relief Request -- RV02 (Continued)

Previous NRC Acceptance for 1st 10 Year Interval

SER dated May 7, 1991, TER Section 3.1.6.1, Relief Request No. RV-17

Relief requested granted, provided if excessive leakage is noted, both valves shall be repaired or replaced.

### Relief Request -- RV03

Affected Valves	Class	Cat.	Function	System(s)
SW-TCV-11A, B	3	В	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

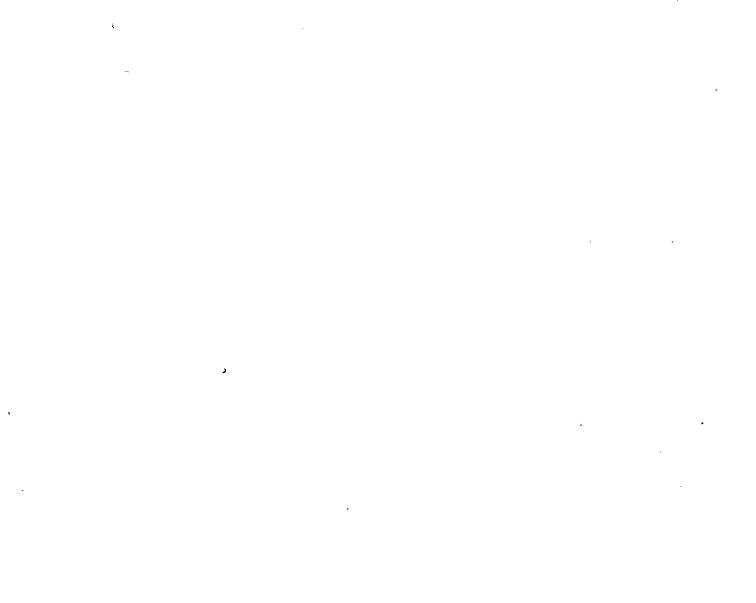
1) These hydraulically actuated valves serve as regulating thermostatic control valves. The valves do not function to rapidly isolate or de-isolate the piping into which they are installed. Rather, their function is to slowly regulate throughout their entire stroke range to control the outlet temperatures 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.

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.







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### 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.

### **Ouality/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.

Previous NRC Acceptance for 1st 10 Year Interval

SER letter dated September 30, 1993, TAC No. M84553, Relief Request No. RV-22.

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

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

### Alternate Testing to be Performed

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, then the stroke times of all valves will be considered acceptable.

### **<u>Ouality/Safety Impact</u>**

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.

### Previous NRC Acceptance for 1st 10 Year Interval

SER dated May 7, 1991, TER Section 3.1.4.1.1, Relief Request No. RV-23



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

Code Requirement for Which Relief is Requested

- 1. Part 1, Paragraph 1.3.3.1(b): Test Frequency, Subsequent 5 year periods; All valves of each type and manufacture shall be tested within each subsequent 5 year period with a minimum of 20% of the valves tested within any 24 months.
- 2. Part 1, Paragraph 3.3.1.1: Sequence of Testing Main Steam Pressure Relief Valves with Auxiliary Actuating Devices.
- 3. Part 1, Para. 4.1.1.4: Temperature Stability: The test method shall be such that the temperature of the valve body is known and stabilized before commencing set pressure testing, with no change in measured temperature of more than 10°F (5°C) in 30 minutes.

### 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. With 18 installed MSRV positions in the plant, and a total of 28 individual valves that can be used in those positions (provided valve set pressure matches the required set pressure for the position), it is impractical to perform on-line as-found set pressure testing on each of the 28 valves in each 5 year period. Some valves may be installed for only one or two consecutive years in the 5 year period while others may not be installed at all during the period.

Changing from testing all valves in each subsequent 5 year period to testing individual valves every 5 years is consistent with OMc Code-1994 Appendix I, paragraph I 1.3.3(a). Valves removed for maintenance will be set pressure tested, either on-line or bench test, prior to return to service.

### Relief Request -- RV05 (Continued)

2. "Valves" and "accessories" (actuators, solenoids, etc.) have different population sizes due to the methods used for maintenance and testing at WNP-2 and should be considered separately for the purposes of meeting the required test frequency and testing requirements. Actuators and solenoids remain in place when MSRVs are removed for maintenance. Therefore, the total population of MSRVs is 28 valves which includes spare valves which may be installed at some time during the 5 year period, whereas the total population of accessories is 18 since they are not removed with the valves.

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

3. 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 at refueling 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. MSRV set pressure testing is performed on-line. There are no permanently installed temperature sensors mounted on the installed valve bodies to measure valve body temperature. When on-line testing is performed, the valves are mounted on the steam lines and the plant and drywell are at normal operating temperature and pressure conditions. For on-line tests, the plant has been at operating conditions for an extended period of time, or has undergone a slow heat-up to low power, and both valve and ambient drywell temperatures are at, or near, their normal operating conditions. In addition, the on-line set pressure test procedure requires that the system be held at nominal operating temperature and pressure for a minimum of four hours soak time prior to commencing testing to allow the valve temperature to stabilize.

### Relief Request -- RV05 (Continued)

### Alternate Testing to be Performed

- 1. All pressure relief valves shall be as-found tested at least once every 5 years. The test interval for any individual valve (serial number) shall not exceed 5 years, with the following exceptions:
  - If the valve was as-found tested immediately prior to its removal from the plant, its subsequent on-line as-found test shall be performed within 5 years from its next installation in the plant;
  - If the valve was not as-found tested immediately prior to its removal from the plant and its next installation is delayed such that its previous as-found test occurred 5 or more years ago, then the as-found test on the valve after installation in the plant shall be performed during the next refueling outage. However, the valve shall meet the post maintenance test requirements of paragraph 3.4.1.1 prior to installation.
- a) Valves: As-found set pressure tests shall be performed on a minimum of 20% of the total population of 28 valves (or 6 valves) in any 24 months. Valves will be tracked by serial number to assure that the Code required test frequency is met.
  - b) Actuators and Solenoids: The required tests shall be performed on a minimum of 20% of the total population of 18 (or 4 actuators with solenoids) in any 24 months. The actuators will be tracked by plant position to assure that each is tested within an interval not to exceed 5 years. Since the valve and actuator population sizes 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/solenoids will be tested at the end of the outage after other maintenance is complete.
- 3. 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 refueling outage frequency. These tests will be credited for satisfying the requirements of paragraph 3.3.1.1(g) of this Part.
- 4. 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 this Part.



### Relief Request -- RV05 (Continued)

5. For on-line set pressure testing of MSRVs, a minimum of four hours soak time at nominal system operating conditions (greater than 862 psig) will be required prior to commencing testing to allow valve temperatures to stabilize; there will be no direct measurement of valve body temperature to indicate stabilization.

#### **Quality/Safety Impact**

Due to different population sizes 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. 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. Installation of remote temperature sensing instrumentation to comply with Part 1 requirement will be undue hardship for WNP-2. Four hour soak time prior to commencing testing provides adequate assurance that temperature stability is achieved prior to as-found testing. 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.

#### 4.9 <u>Records and Reports of Valves</u>

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

		OPE	NING TIME IN SI	ECONDS			CLOSING TIME IN SECONDS								
VALVE ID	Ref. Value	Alert Lo (+1)	Measured Value (+2)	Alert 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.	., <b>:</b> N/A		N/A	N/A	50	43		57	65					
HPCS-V-12 †	7	5	ø	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 values 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.

(+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.



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			VER	IFIED O	PEN			VERI	FIED CL	OSED						
Valve No.	Valve Condition	LOCA	L INDIC.	ATION	REM INDIC.	IOTE ATION	1	IOTE ATION	LOÇA	L INDICA	ATION		lve ration	% Full Open	Cycle MOV	
VALVE INC.	Inspected	Initial	As Found	Full Open	SAT	UNSAT	SAT	UNSAT	Initial	(+1) As Found	Full Close	4		(+2)		
	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 value in its As Found condition is not fully closed, write a PER. For throttle values, verify the value 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 value is less than 85% Full Open as calculated below, write a PER.

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

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

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

(+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. Page

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Revision

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### 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.	Title	Ref. No.
Main & Exhaust Steam System	M502	Reactor Recirculation Cooling	M530
Control & Service Air	M510	Equipment Drain Radioactive	M537
Diesel Oil & Misc. Systems	M512	Floor Drain Radioactive	M539
Demineralized Water	M517	Containment Cooling & Purge	M543
Reactor Core Isolation Cooling	M519	Standby Gas Treatment	M544
High/Low Pressure Core Spray	M520	Reactor Building HVAC	M545
Residual Heat Removal	M521	Containment Atmosphere Control	M554
Standby Liquid Control	M522	Containment Instrument Air	M556
Reactor Water Cleanup	M523	Main Steam Leakage Control	M557
Standby Service Water	M524	Undervessel Neutron Monitoring System	M604
Reactor Closed Cooling	M525	Class I Air System for Containment Vacuum Breaker	M619
Fuel Pool Cooling	M526	Emergency Chilled Water	M775
Control Rod Drive	M528	Primary Containment Nitrogen Inerting	M783
Main Steam and Reactor Feedwater	M529	Post Accident Sampling	M896





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ARE LOCATED ON CSP-SPV-G IS NOWNTED ON IR-63		12	SEC	URE T	AWK	<u> </u>	BOTH	I_FLO	OR A	קאו	MAL	<u></u>		·	<b>↓</b>  _		16	sol	EN	יאי סוכ	<i>4.L V Ę</i> Ś	CSP-9	spý:	7A ;:	5° - , 		••••••		-	•		
And CSP-SPU-G IS NOUNTED ON IR-63	2)	1.3	50	101A	<u>b</u> v	ALVES	01	2 <u>~3 P1</u>	1-5	9:5A	RET	1347	TAP	044	IR-6	4		CSI	p-sp	Y-78,0	csP'is	PV-IOA	AN	Dècs.	P-SPY	108-						
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12 COWG, NO. M619 411197 - FIL 7 12 10/10/201 - SHEET 161 NOTES VALV'ES CSP-V-5 CISPIN ND ARE ¢\$P-NORMALL - -OPEN FAI LOSED ON OFAI <u>exi</u> NOTENS (TYP) ENOID sol TN SHOWN DEENERGIZED NOMA ENOIDS ARE മ CODE GROUP 3 DISC To WETHEN 1' of. FLODR - 15 REFER SET VA CONTR 58 ŀ PSI DELETED 5 DELETED NOTES 2,3, 11, \$ 13, 7. SUPPLIED WITH ASSOCIATED EQUIRMENT 8 CGA TYPE AL NE CYLINDERE EL. 501 SUPPLIED BY OWNER BLDG. IA SUPPLY BOTTLE RACK HA-PIRING ON THIS SHEET TO EXCEPT CAS SYSTEM AND UPSTREAM DE GAS BOTTLE ISOLATION, VALVES ICSP-V-BOTHRUB9) SHALL BE QUALITY CEASS 1, D SEISMIC CATEGORY T ASME IL CLASS. 2 .... EQUIPMENT UPSTREAM OF GAS BOTTLE-ISOLATION VALVES SHALL BE QUALITY PRESSURE SS OTHER-CLASS I, CODE GROUP D. (ANSI B31.1), & MOUNTED SEISMIC CATEGORY IT. BOTTLESTAL REGULATORS SHALL BE QUALITY ECTIONS HOSE -06-12-12-12-64 CLASS I : SP=PRV=51-60)= 10 ACG TANK SHALL BE FABRICATED IN ACCORDANCE WITH DATA SHEET ACC 9412220206-