

DUQUESNE LIGHT COMPANY

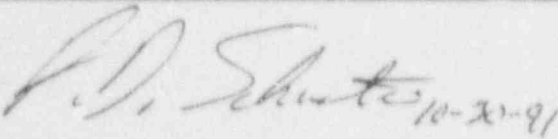
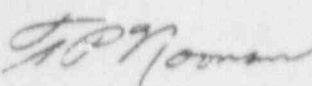
Beaver Valley Power Station

## Unit 2

### INSERVICE TESTING (IST) PROGRAM FOR PUMP AND VALVES

Issue 1

Revision 8

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**SECTION I: PUMP TESTING REQUIREMENTS**

The Inservice Test (IST) Program for pumps at Beaver Valley Power Station (BVPS), Unit 2, is based on subsection IWP - Inservice Testing of Pumps of the ASME Boiler and Pressure Vessel Code, Section XI, 1983 edition through the summer 1983 addenda (the code) and Generic Letter 89-04, "Guidance on Developing Acceptable Inservice Testing Programs". The pumps included in this program are all ASME "class 1, 2, or 3 centrifugal or displacement type pumps that are required to perform a specific function in shutting down the reactor or in mitigating the consequences of an accident, and that are provided with an emergency power source" at BVPS, Unit 2.

The requirements of the code will be followed at all times unless specific relief has been granted by the NRC. An inservice test, run quarterly, to measure or observe the test quantities listed in Table IWP-3100-1, below, is required for all pumps in the IST Program by the code.

**Table IWP-3100-1**  
**INSERVICE TEST QUANTITIES**

Quantity	Measure	Observe
Speed N (if variable speed)	✓	
Inlet pressure $P_i$	✓ (1)	
Differential pressure $\Delta P$	✓	
Flow rate Q	✓	
Vibration amplitude V	✓	
Proper lubricant level or pressure		✓
Bearing temperature $T_b$	✓	

NOTE:  
(1) Measure before pump startup and during test.

Table IWP-3100-2 shows the allowable ranges for test results that will be used to determine if corrective action is required following performance of BVPS-2 Surveillance Tests. The test data will be compared to the ranges applied to the reference values for each parameter. If these ranges cannot be met, reduced range limits that allow the pump to fulfill its function will be used in lieu of the ranges given in Table IWP-3100-2.

**Table IWP-3100-2**  
**ALLOWABLE RANGES OF TEST QUANTITIES**

Test Quantity	Acceptable Range	Alert Range (Note (1))		Required Action Range (Note (1))	
		Low Values	High Values	Low Values	High Values
$P_i$	(Note (2))	(Note (2))	(Note (2))	(Note (2))	(Note (2))
$\Delta P$	0.93-1.02 $\Delta P_r$	0.90-0.93 $\Delta P_r$	1.02-1.03 $\Delta P_r$	< 0.90 $\Delta P_r$	> 1.03 $\Delta P_r$
Q	0.94-1.02 $Q_r$	0.90-0.94 $Q_r$	1.02-1.03 $Q_r$	< 0.90 $Q_r$	> 1.03 $Q_r$
V when $0 \leq V_r \leq 0.5$ mils	0-1 mil	None	1-1.5 mils	None	> 1.5 mils
V when $0.5 \text{ mils} < V_r \leq 2.0$ mils	0-2V <sub>r</sub> mils	None	2V <sub>r</sub> -3V <sub>r</sub> mils	None	> 3V <sub>r</sub> mils
V when $2.0 \text{ mils} < V_r \leq 5.0$ mils	0-(2 + V <sub>r</sub> ) mils	None	(2 + V <sub>r</sub> )-(4 + V <sub>r</sub> ) mils	None	> (4 + V <sub>r</sub> ) mils
V when $V_r > 5.0$ mils	0-1.4V <sub>r</sub> mils	None	1.4V <sub>r</sub> -1.8V <sub>r</sub> mils	None	> 1.8V <sub>r</sub> mils
$T_b$	(Note (3))	(Note (3))	(Note (3))	(Note (3))	(Note (3))

NOTES  
(1) See IWP-3230.  
(2)  $P_i$  shall be within the limits specified by Owner in the record of tests (IWP-6000).  
(3)  $T_b$  shall be within the limits specified by Owner in the record of tests (IWP-6000).

Corrective action shall be taken if necessary using the following:

1. If deviations fall within the "Alert Range" of Table IWP-3100-2, the frequency of testing shall be doubled until the cause of the deviation is determined and corrected and either the existing reference values reverified or a new set established.
2. If the deviations fall within the "Required Action Range" of Table IWP-3100-2, the pump shall be declared inoperative immediately and an evaluation of the pump's condition with respect to system operability and technical specifications shall be made as follows:
  - a. If the inoperable pump is specifically identified in the technical specifications, then the applicable technical specification action statements must be followed.
  - b. If the inoperable pump is in a system covered by a technical specification, an assessment of its condition must be made to determine if it makes the system inoperable. If the condition of the pump renders the system inoperable, then the applicable system technical specification action statements must be followed.
  - c. Corrective action shall be either replacement or repair per IWP-3111, or shall be an analysis to demonstrate that the condition does not impair pump operability and that the pump will still fulfill its function. A new set of reference values shall be established after such analysis.
  - d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supercede the requirements of any technical specification.
3. When tests show deviations greater than allowed (see Table IWP-3100-2), the instruments involved may be recalibrated and the test rerun. This is an alternative to replacement or repair, not an additional action that can be taken before declaring the pump inoperable.
4. The pump shall not be returned to service until the condition has been corrected. The corrective action shall be considered completed when a satisfactory inservice test has been conducted in accordance with IWP-3111.

Per IWP-3500 each pump shall run at least 5 minutes under conditions as stable as the system permits prior to measurement of the specified parameters (when bearing temperature measurements are not required). When bearing temperature measurements are required, each pump shall be run until the bearing temperatures stabilize prior to making the specified measurements. A bearing temperature is considered stable when three successive readings taken at 10 minute intervals do not vary by more than 3%. Bearing temperature measurements are required annually (normally in August).

At certain times plant conditions may preclude returning a pump to the same reference condition for its normally scheduled surveillance. Since IWP-3112 permits the establishment of additional sets of reference values, a pump curve which is merely a graphical representation of these reference values will be used.

Records of the results of inservice tests and corrective actions as required by subsection IWP-6000 are trended in tabular form. Pump performance characteristics will be examined for trends.

The following two sections of this document are the "Pump Testing Outlines" and "Pump Relief Requests" sections. The "Pump Testing Outlines" section is a listing of all the pumps in the IST Program, their testing requirements, and their specific relief request reference numbers. The pumps are arranged according to system and pump mark number. The following abbreviations and designations are used on the Pump Testing Outlines and throughout the IST Program for pumps:

1. Under Parameter column
  - a. (N) - Speed
  - b. (Pi) - Inlet Pressure
  - c. ( $\Delta P$ ) - Differential Pressure
  - d. (Q) - Flowrate
  - e. (V) - Vibration
  - f. (Tb) - Bearing Temperature
  - g. (L) - Lubricant Level or Pressure
2. Under 2OST column
  - a. (2BVT) - Unit 2 Beaver Valley Test
  - b. (2OST) - Unit 2 Operating Surveillance Test
  - c. (Q) - Quarterly Test Frequency
  - d. (A) - Annual Test Frequency
  - e. (CSD) - Cold Shutdown Frequency
  - f. (R) - Refueling Test Frequency
  - g. (NA) - Not Applicable
3. Under Req'd column
  - a. (RR) - Relief Request
  - b. (X) - Meets or exceeds ASME requirements
  - c. (E) - Exempt
  - d. (NA) - Not Applicable

The "Pump Relief Requests" section contains the detailed technical description of particular conditions and equipment installations prohibiting the testing of some of the characteristics of safety-related pumps. An alternate test method and the frequency of revised testing is also included to meet the intent of 10CFR50.55a. The relief request(s) for a specific pump is referenced by the number(s) listed on the pump's testing outline sheet.

## SECTION II: PUMP TESTING OUTLINES



BVPS-2 IST

PUMP TESTING OUTLINE

Pump Name: 21A Charging Pump		Pump Number: 2CHS-P21A	Code Class: 2	Dwg. OM No.: 7-1 Dwg. Coord.: D-8	System: 7 Chemical and Volume Control
Function: To provide normal RCS inventory makeup, Seal Injection and High Head Safety Injection		Type: Centrifugal	Remarks: Pump is tested quarterly on recirculation flow and at full flow during Refueling outages.		
Parameter	20ST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	7.4 (O)	X	Pump Suction Pressure Indicator [2CHS-PI151A], local.		
	11.14 (R)	X	Pump Suction Pressure Indicator [2HCS-PI151A], local.		
ΔP	7.4 (O)	X	Calculated using Pump Discharge Pressure Indicator [2CHS-PI151B] and Pump Suction Pressure, local.		
	11.14 (R)	X	Calculated using Pump Discharge Pressure Indicator [2CHS-PI151B] and Pump Suction Pressure, local.		
Q	7.4 (O)	X	Summation of flow rates from Flow Indicators [2CHS-FI122A, 124A, 127A, 130A, 160], Control Room, and [2CHS-FI170], local.		
	11.14 (R)	X	Summation of flow rates from Flow Indicators [2CHS-FI122A, 124A, 127A, 130A] and [2SIS-FI943], Control Room.		
V	7.4 (O)	X	Portable monitoring equipment - Fixed vibration probe.		
	11.14 (R)	X	Portable monitoring equipment - Fixed vibration probe.		
Tb	7.4 (A)	X	Control Room computer address points for thermocouples provided for each pump end and thrust bearing. Inboard Pump Bearing (T0110A), Outboard Pump Bearing (T0111A), Pump Thrust Bearing (T0102A).		
	NA	NA	Not required during refueling test. Bearing temperatures are obtained in quarterly test annually.		
L	7.4 (O)	X	Sight glass on oil reservoir, local.		
	11.14 (R)	X	Sight glass on oil reservoir, local.		

BVPS-2 IST

PUMP TESTING OUTLINE

Pump Name: 21B Charging Pump		Pump Number: 2CHS-P21B	Code Class: 2	Dwg. OM No.: 7-1	System: 7 Chemical and Volume Control
Dwg. Coord.: D-9		Function: To provide normal R/S inventory makeup, Seal Injection and High Rad Seal Injection		Type: Centrifugal	Remarks: Pump is tested quarterly on recirculation flow and at full flow during Refueling outages.
Parameter	ROST	Req	Comments		
N	7.5 (Q)	NA	Constant speed induction motor.		
Pi	7.5 (Q)	X	Pump Suction Pressure Indicator [2CHS-PI152A], local.		
	11.14 (R)	X	Pump Suction Pressure Indicator [2HCS-PI152A], local.		
ΔP	7.5 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2CHS-PI152B] and Pump Suction Pressure, local.		
	11.14 (R)	X	Calculated using Pump Discharge Pressure Indicator [2CHS-PI152B] and Pump Suction Pressure, local.		
Q	7.5 (Q)	X	Summation of flow rates from Flow Indicators [2CHS-FI122A, 124A, 127A, 130A, 160], Control Room, and [2CHS-FI170], local.		
	11.14 (R)	X	Summation of flow rates from Flow Indicators [2CHS-FI122A, 124A, 127A, 130A] and [2SIS-FI943], Control Room.		
V	7.5 (Q)	X	Portable monitoring equipment - Fixed vibration probe.		
	11.14 (R)	X	Portable monitoring equipment - Fixed vibration probe.		
Tb	7.5 (A)	X	Control Room computer address points for thermocouples provided for each pump end and thrust bearing. Inboard Pump Bearing (T0120A), Outboard Pump Bearing (T0121A), Pump Thrust Bearing (T0104A).		
	NA	NA	Not required during refueling test. Bearing temperatures are obtained in quarterly test annually.		
L	7.5 (Q)	X	Sight glass on oil reservoir, local.		
	11.14 (R)	X	Sight glass on oil reservoir, local.		

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 21C Charging Pump		<b>Pump Number:</b> 2CHS-P21C	<b>Code Class:</b> 2	<b>Dwg. OM No.:</b> 7-1 <b>Dwg. Coord.:</b> D-10	<b>System:</b> 7 Chemical and Volume Control
<b>Function:</b> To provide normal RCS inventory makeup, Seal Injection and High Head Safety Injection		<b>Type:</b> Centrifugal	<b>Remarks:</b> Pump is tested quarterly on recirculation flow and at full flow during Refueling outages.		
Parameter	20ST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	7.6 (Q)	X	Pump Suction Pressure Indicator [2CHS-P1153A], local.		
	11.14 (R)	X	Pump Suction Pressure Indicator [2CHS-P1153A], local.		
ΔP	7.6 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2CHS-P1153B] and Pump Suction Pressure, local.		
	11.14 (R)	X	Calculated using Pump Discharge Pressure Indicator [2CHS-P1153B] and Pump Suction Pressure, local.		
Q	7.6 (Q)	X	Summation of flow rates from Flow Indicators [2CHS-F1122A, 124A, 127A, 130A, 160], Control Room, and [2CHS-F1170], local.		
	11.14 (R)	X	Summation of flow rates from Flow Indicators [2CHS-F1122A, 124A, 127A, 130A] and [2SIS-F1943], Control Room.		
V	7.6 (Q)	X	Portable monitoring equipment - Fixed vibration probe.		
	11.14 (R)	X	Portable monitoring equipment - Fixed vibration probe.		
Tb	7.6 (A)	X	Control Room computer address points for thermocouples provided for each pump end and thrust bearing. Inboard Pump Bearing (T0130A), Outboard Pump Bearing (T0131A), Pump Thrust Bearing (T0106A).		
	NA	NA	Not required during refueling test. Bearing temperatures are obtained in quarterly test annually.		
L	7.6 (Q)	X	Sight glass on oil reservoir, local.		
	11.14 (R)	X	Sight glass on oil reservoir, local.		

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 22A Boric Acid Transfer Pump		<b>Pump Number:</b> 2CHS-P22A	<b>Code Class:</b> 3	<b>Dwg. OM No.:</b> 7-2 <b>Dwg. Coord.:</b> C-3	<b>System:</b> 7 Chemical and Volume Control
<b>Function:</b> Chemical Shim and Emergency Boration Supply		<b>Type:</b> Centrifugal	<b>Remarks:</b> None.		
Parameter	20ST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	7.1 (Q)	X	Pump Suction Pressure Indicator [2CHS-P1123A] local		
$\Delta P$	7.1 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2CHS-P1105] and Pump Suction Pressure, local		
Q	7.1 (Q)	X	Flow Indicator [2CHS-F1123A] local		
V	7.1 (Q)	X	Portable Monitoring Equipment - Fixed vibration probe		
Tb	7.1 (A)	X	Portable monitoring equipment required (i.e., Contact Pyrometer)		
L	7.1 (Q)	X	Level indication provided at the constant level oiler (local) on bearing housing		

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 22B Boric Acid Transfer Pump		<b>Pump Number:</b> 2CHS-P22B	<b>Code Class:</b> 3	<b>Dwg. OM No.:</b> 7-2 <b>Dwg. Coord.:</b> F-3	<b>System:</b> 7 Chemical and Volume Control
<b>Function:</b> Chemical Shim and Emergency Boration Supply		<b>Type:</b> Centrifugal	<b>Remarks:</b> None		
Parameter	20ST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
PI	7.2 (Q)	X	Pump Suction Pressure Indicator [2CHS-PI123B], local		
ΔP	7.2 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2CHS-PI110] and Pump Suction Pressure, local		
Q	7.2 (Q)	X	Flow Indicator [2CHS-FI123B], local.		
V	7.2 (Q)	X	Portable Monitoring Equipment - Fixed vibration probe		
Tb	7.2 (A)	X	Portable monitoring equipment required (i.e., Contact Pyrometer)		
L	7.2 (Q)	X	Level indication provided at the constant level oiler (local) on bearing housing		

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 21A Residual Heat Removal Pump		<b>Pump Number:</b> 2RHS-P21A	<b>Code Class:</b> 2	<b>Dwg. OM No.:</b> 10-1 <b>Dwg. Coord.:</b> B-3	<b>System:</b> 10 Residual Heat Removal
<b>Function:</b> Long term decay heat removal		<b>Type:</b> Vertical	<b>Remarks:</b> See RR1. Pump is tested quarterly during Cold Shutdowns and Refueling outages		
Parameter	20ST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	10.1 (CSD,R)	X	Pump Suction Pressure Indicator [2RHS-PI603A], Control Room.		
$\Delta P$	10.1 (CSD,R)	X	Calculated using Pump Discharge Pressure Indicator [2RHS-PI602A] and Pump Suction Pressure. Control Room.		
Q	10.1 (CSD,R)	X	Summation of flow rates from Recirculation Line flow Indicator [2RHS-FI607A], Return Line Flow Indicator to Cold Leg 22 [2RHS-FI605A], and Letdown Line Flow [2CHS-FI150]. Control Room.		
V	10.1 (CSD,R)	X	Motor equipped with vibration sensors wired to a remote location outside containment.		
Tb	10.1 (A)	X	Pump bearings in the driver. Control Room computer address points for thermocouples provided for motor bearings. Upper motor bearing (T0687A), lower motor bearing (T0686A).		
L	10.1 (CSD,R)	X	Motor bearings upper and lower - oil sight glass - locz <sup>1</sup> (pump and driver bearings integral in motor).		

BVP-2 IST									
PUMP TESTING OUTLINE									
Pump Name: 21B Residual Heat Removal Pump		Pump Number: 2RHS-P21B	Code Class: 2	Dwg. OM No.: 10-1	System: 16 Residual Heat Removal				
Function: Long term decay heat removal		Type: Vertical	Remarks: See RRI Pump is tested quarterly during Cold Shutdowns and Refueling outages		Dwg. Coord.: E-3				
Parameter	2CST (Frequency)	Req'd	Comments						
N	NA	NA	Constant speed induction motor						
PI	10.2 (CSD,R)	X	Pump Suction Pressure Indicator [2RHS-P1603B]. Control Room						
ΔP	10.2 (CSD,R)	X	Calculated using Pump Discharge Pressure Indicator [2RHS-P1602B] and Pump Suction Pressure. Control Room						
Q	10.2 (CSD,R)	X	Summation of flow rates from Recirculation Line flow Indicator [2RHS-F1607B]. Return Line Flow Indicator to Cold Leg 22 [2RHS-F1605B]. and Letdown Line Flow [2CHS-F1150]. Control Room						
V	10.2 (CSD,R)	X	Motor equipped with vibration sensors wired to a remote location outside containment						
Tb	10.2 (A)	X	Pump bearings in the driver. Control Room computer address points for thermocouples provided for motor bearings. Upper motor bearing (T0697A). lower motor bearing (T0696A)						
L	10.2 (CSD,R)	X	Motor bearings upper and lower - oil sight glass - local (pump and driver bearings integral in motor)						



BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 21A Low Head Safety Injection Pump		<b>Pump Number:</b> 2SIS-P21A	<b>Code Class:</b> 2	<b>Dwg. OM No.:</b> 11-1 <b>Dwg. Coord.:</b> E-2	<b>System:</b> 11 Safety Injection
<b>Function:</b> Low Pressure - High Volume Safety Injection		<b>Type:</b> Centrifugal	<b>Remarks:</b> Pump is tested quarterly on recirculation flow and at full flow during Refueling outages.		
Parameter	2GST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	11.1 (O)	X	Pump Suction Pressure Indicator [2SIS-PI938], local.		
	11.14 (R)	X	Pump Suction Pressure Indicator [2SIS-PI938], local.		
ΔP	11.1 (O)	X	Calculated using Pump Discharge Pressure Indicator [2SIS-PI943] and Pump Suction Pressure, local.		
	11.14 (R)	X	Calculated using Pump Discharge Pressure Indicator [2SIS-PI943] and Pump Suction Pressure, local.		
Q	11.1 (O)	X	Flow Indicator Switch [2SIS-FI970A], local.		
	11.14 (R)	X	Flow Indicator Switch [2SIS-FI945], Control Room.		
V	11.1 (O)	X	Portable monitoring equipment - Fixed vibration probe.		
	11.14 (R)	X	Portable monitoring equipment - Fixed vibration probe.		
Tb	11.1 (A)	X	Control Room computer address points for thermocouples provided for pump bearings. Inboard bearing (T2676A), outboard bearing (T2677A).		
	NA	NA	Not required during refueling test. Bearing temperatures are obtained in quarterly test annually.		
L	11.1 (O)	X	Level indication provided at the constant level oiler (local) on each bearing housing.		
	11.14 (R)	X	Level indication provided at the constant level oiler (local) on each bearing housing.		



BVPS-2 IST

PUMP TESTING OUTLINE

Pump Name: 21B Low Head Safety Injection Pump		Pump Number: 2SIS-P21B	Code Class: 2	Dwg. OM No.: 11-1 Dwg. Coord.: G-2	System: 11 Safety Injection
Function: Low Pressure - High Volume Safety Injection		Type: Centrifugal	Remarks: Pump is tested quarterly on recirculation flow and at full flow during Refueling outages.		
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	11.2 (O)	X	Pump Suction Pressure Indicator [2SIS-PI939], local.		
	11.14 (R)	X	Pump Suction Pressure Indicator [2SIS-PI939], local.		
ΔP	11.2 (O)	X	Calculated using Pump Discharge Pressure Indicator [2SIS-PI944] and Pump Suction Pressure, local.		
	11.14 (R)	X	Calculated using Pump Discharge Pressure Indicator [2SIS-PI944] and Pump Suction Pressure, local.		
Q	11.2 (O)	X	Flow Indicator Switch [2SIS-F1970B], local.		
	11.14 (R)	X	Flow Indicator Switch [2SIS-F1946], Control Room.		
V	11.2 (O)	X	Portable monitoring equipment - Fixed vibration probe		
	11.14 (R)	X	Portable monitoring equipment - Fixed vibration probe		
Tb	11.2 (A)	X	Control Room computer address points for the thermocouples provided for pump bearings. In-board bearing (T2678A), outboard bearing (T2679A)		
	NA	NA	Not required during refueling test. Bearing temperatures are obtained in quarterly test annually.		
L	11.2 (O)	X	Level indication provided at the constant level oiler (local) on each bearing housing.		
	11.14 (R)	X	Level indication provided at the constant level oiler (local) on each bearing housing.		

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 21A Quench Spray Pump	<b>Pump Number:</b> 2QSS-P21A	<b>Code:</b> 21A	<b>Bay:</b> 21	<b>QTY:</b> No: 13-2	<b>System:</b> 13 Containment Depressurization
<b>Function:</b> To provide borated water from 1 to 2 to the Containment Spray Header for boron depression following a DBI		<b>Type:</b> Centrifugal			

Parameter	2OST (Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
Pi	13.1 (Q)	X	Pump Suction Pressure Indicator [2QSS-FI102A], Control Room.
ΔP	13.1 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2QSS-FI101A] and Pump Suction Pressure, Control Room.
Q	13.1 (Q)	X	Flow Indicator [2QSS-FIS101A], local.
V	13.1 (Q)	X	Portable Monitoring Equipment - Fixed vibration probe.
Tb	13.1 (A)	X	Portable monitoring equipment required (i.e., Contact Pyrometer).
L	13.1 (Q)	X	Level indication provided at the constant level oilers (local) on each bearing housing.

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 21B Quench Spray Pump		<b>Pump Number:</b> 20SS-F21C	<b>Code Class:</b> 2	<b>Dwg. OM No.:</b> 13-2 <b>Dwg. Cont'd:</b> G-9	<b>System:</b> 13 Containment Depressurization
<b>Function:</b> To provide borated water from the RWST to the Containment Spray Header for containment depressurization following a DBA.		<b>Type:</b> Centrifugal		<b>Remarks:</b> None	
<b>Parameter</b>	<b>20ST (Frequency)</b>	<b>Req'd</b>	<b>Comments</b>		
N	NA	NA	Constant speed induction motor		
Pi	13.2 (O)	X	Pump Suction Pressure Indicator [20SS-Pi102B] Control Room		
ΔP	13.2 (O)	X	Calculated using Pump Discharge Pressure Indicator [20SS-Pi101B] and Pump Suction Pressure, Control Room.		
Q	13.2 (O)	X	Flow Indicator [20SS-FIS101B], local		
V	13.2 (O)	X	Portable Monitoring Equipment - Fixed vibration probe.		
Tb	13.2 (A)	X	Portable monitoring equipment required (i.e. Contact Pyrometer)		
L	13.2 (O)	X	Level indication provided at the constant level oilers (local) on each bearing housing		

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 24A Chemical Injection Pump		<b>Pump Number:</b> 2QSS-P24A	<b>Code Class:</b> 2	<b>Dwg. OM No.:</b> 13-2 <b>Dwg. Coord.:</b> C-6	<b>System:</b> 13 Containment Depressurization
<b>Function:</b> Chemical injection to the Quench Spray System during Containment depressurization.		<b>Type:</b> Positive Displacement		<b>Remarks:</b> None.	
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	13.10A (C)	X	Pump Suction Pressure Indicator [2QSS-PI110A], local.		
$\Delta P$	13.10A (O)	X	Calculated using Pump Discharge Pressure Indicator [2QSS-PI111A] and Pump Suction Pressure, local.		
Q	13.10A (O)	X	Flow Indicator [2QSS-FIS105A], local.		
V	13.10A (O)	X	Portable Monitoring Equipment.		
Tb	13.10A (A)	X	Portable monitoring equipment required (i.e., Contact Pyrometer).		
L	NA	NA	Pump bearing is grease lubricated via grease fitting - no observable lubrication level.		

BVPS-1 IST

PUMP TESTING OUTLINE

Pump Name: 24B Chemical Injection Pump		Pump Number: 2QSS-P24B	Code Class: 2	Dwg. OM No.: 13-2 Dwg. Coord.: E-6	System: 13 Containment Depressurization
Function: Chemical injection to the Quench Spray System during Containment depressurization.		Type: Positive Displacement	Remarks: None		
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor		
PI	13.10B (O)	X	Pump Suction Pressure Indicator [2QSS-PI110B], local		
$\Delta P$	13.10B (O)	X	Calculated using Pump Discharge Pressure Indicator [2QSS-PI111B] and Pump Suction Pressure, local		
Q	13.10B (O)	X	Flow Indicator [2QSS-FIS105B], local		
V	13.10B (O)	X	Portable Monitoring Equipment		
Tb	13.10B (A)	X	Portable monitoring equipment required (i.e., Contact Pyrometer)		
L	NA	NA	Pump bearing is grease lubricated via grease fitting - no observable lubrication level		



BVPS-2 IST

PUMP TESTING OUTLINE

Pump Name: 21A Recirculation Spray Pump		Pump Number: 2RSS-P21A	Code Class: 2	Dwg. OM No.: 13-1 Dwg. Coord.: F-2	System: 13 Containment Depressurization
Function: Circulate containment sump water for long term containment depressurization		Type: Vertical	Remarks: See RR2. Pump is normally tested dry in Modes 1 through 4, and with flow during Refueling outages only		
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	13.3 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds		
	2BVT 1 13.5 (R)	X	No permanently installed suction pressure gauge. Test connection for local temporary test gauge.		
ΔP	13.3 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds		
	2BVT 1 13.5 (P)	X	Calculated using Pump Discharge Pressure Indicator [2RSS-Pi156A], Control Room, and local pressure test gauge.		
Q	13.3 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds		
	2BVT 1 13.5 (R)	X	Flow Indicator [2RSS-Fi157A], Control Room.		
V	13.3 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds		
	2BVT 1 13.5 (R)	X	Portable monitoring equipment - Fixed vibration probes on pump shaft.		
Tb	13.3 (A)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.		
	2BVT 1 13.5 (R)	X	Pump and motor integral unit. All pump bearings are exempt since located in the main flow path. Control Room computer address points for thermocouples provided for motor bearing - outboard bearing (T0701A)		
L	NA	NA	Motor bearings grease lubricated no observable level. Pump has self-lubricated bearing - internal pump fluid porting not observable.		

BVPS-2 IST

PUMP TESTING OUTLINE

Pump Name: 21B Recirculation Spray Pump		Pump Number: 2RSS-P21B	Code Class: 2	Dwg. OM No.: 13-1 Dwg. Coord.: E-6	System: 13 Containment Depressurization
Function: Circulate containment sump water for long term containment depressurization		Type: Vertical	Remarks: See RR2. Pump is normally tested dry in Modes 1 through 4, and with flow during Refueling outages only		
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
PI	13.4 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.		
	2BVT 1.13.5 (R)	X	No permanently installed suction pressure gauge. Test connection for local temporary test gauge.		
ΔP	13.4 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.		
	2BVT 1.13.5 (R)	X	Calculated using Pump Discharge Pressure Indicator [2RSS-PI156B], Control Room, and local pressure test gauge.		
Q	13.4 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.		
	2BVT 1.13.5 (R)	X	Flow Indicator [2RSS-FI157B], Control Room.		
V	13.4 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.		
	2BVT 1.13.5 (R)	X	Portable monitoring equipment - Fixed vibration probes on pump shaft.		
Tb	13.4 (A)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.		
	2BVT 1.13.5 (R)	X	Pump and motor integral unit. All pump bearings are exempt since located in the main flow path. Control Room computer address points for thermocouples provided for motor bearing - outboard bearing (T0711A).		
L	NA	NA	Motor bearings grease lubricated no observable level. Pump has self-lubricated bearing - internal pump fluid porting not observable.		

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 21C Recirculation Spray Pump		<b>Pump Number:</b> 2RSS-P21C	<b>Code Class:</b> 2	<b>Dwg. UM No.:</b> 13-1 <b>Dwg. Coord.:</b> E-5	<b>System:</b> 13 Containment Depressurization
<b>Function:</b> Circulate containment sump water for long term containment depressurization and long term core recirculation		<b>Type:</b> Vertical		<b>Remarks:</b> See RR2. Pump is normally tested dry in Modes 1 through 4, and with flow during Refueling outages only.	
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	13.5 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.		
	2BVT 1 13.5 (R)	X	No permanently installed suction pressure gauge. Test connection for local temporary test gauge.		
ΔP	13.5 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.		
	2BVT 1 13.5 (R)	X	Calculated using Pump Discharge Pressure Indicator [2RSS-P1156C], Control Room, and local pressure test gauge.		
Q	13.5 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.		
	2BVT 1 13.5 (R)	X	Flow Indicator [2RSC-F1157C], Control Room.		
V	13.5 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.		
	2BVT 1 13.5 (R)	X	Portable monitoring equipment - Fixed vibration probes on pump shaft.		
Tb	13.5 (A)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.		
	2BVT 1 13.5 (R)	X	Pump and motor integral unit. All pump bearings are exempt since located in the main flow path. Control Room computer address points for thermocouples provided for motor bearing - outboard bearing (T0721A).		
L	NA	NA	Motor bearings grease lubricated no observable level. Pump has self-lubricated bearing - internal pump fluid porting not observable.		



BVPS-2 IST

PUMP TESTING OUTLINE

Pump Name: 21D Recirculation Spray Pump	Pump Number: 2RSS-P21D	Code Class: 2	Dwg. OM No.: 13-1	System: 13 Containment Depressurization
			Dwg. Coord.: E-6	

Function: Circulate containment sump water for long term containment depressurization and long term core recirculation	Type: Vertical	Remarks: See RR2. Pump is normally tested dry in Modes 1 through 4, and with flow during Refueling outages only
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Parameter	2OST (Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
Pi	13.6 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.
	2BVT 1 13.5 (R)	X	No permanently installed suction pressure gauge. Test connection for local temporary test gauge.
ΔP	13.6 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.
	2BVT 1 13.5 (R)	X	Calculated using Pump Discharge Pressure Indicator [2RSS-Pi156D], Control Room, and local pressure test gauge.
Q	13.6 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.
	2BVT 1 13.5 (R)	X	Flow Indicator [2RSS-Fi157D], Control Room
V	13.6 (Q)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.
	2BVT 1 13.5 (R)	X	Portable monitoring equipment - Fixed vibration probes on pump shaft.
Tb	13.6 (A)	RR2	Pump run dry and stopped as soon as pump start is verified, pump not run more than 60 seconds.
	2BVT 1 13.5 (R)	X	Pump and motor integral unit. All pump bearings are exempt since located in the main flow path. Control Room computer address points for thermocouples provided for motor bearing - outboard bearing (T0731A).
L	NA	NA	Motor bearings grease lubricated no observable level. Pump has self-lubricated bearing - internal pump fluid porting not observable.

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 21A Component Cooling Water Pump		<b>Pump Number:</b> 2CCP-P21A	<b>Code Class:</b> 3	<b>Dwg. OM No.:</b> 15-1 <b>Dwg. Coord.:</b> B-4	<b>System:</b> 15 Primary Component Cooling Water
<b>Function:</b> Provide Cooling Water to Residual Heat Removal Heat Exchangers and Rx Plant Components			<b>Type:</b> Centrifugal	<b>Remarks:</b> None	
Parameter	20ST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor		
Pi	15.1 (Q)	X	Suction Pressure Indicator [2CCP-Pi150A], local		
ΔP	15.1 (Q)	X	Calculated using Discharge Pressure Indicator [2CCP-Pi145A], Control Room, and Pump Suction Pressure, local		
Q	15.1 (Q)	X	Containment Cooling Water Supply Header Flow Indicator [2CCP-Fi117A1(A2)], Control Room		
V	15.1 (Q)	X	Portable Monitoring Equipment - Fixed vibration probe		
Tb	15.1 (A)	X	Control room computer address points for thermocouples provided for Pump Bearing Oil (T0638A)		
L	15.1 (Q)	X	Level indication provided at the constant level oiler (local) on bearing housing		

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 21B Component Cooling Water Pump		<b>Pump Number:</b> 2CCP-P21B	<b>Code Class:</b> 3	<b>Dwg. OM No.:</b> 15-1 <b>Dwg. Coord.:</b> F-4	<b>System:</b> 15 Primary Component Cooling Water
<b>Function:</b> Provide Cooling Water to Residual Heat Removal Heat Exchangers and Rx Plant Components		<b>Type:</b> Centrifugal	<b>Remarks:</b> None		
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
PI	15.2 (Q)	X	Suction Pressure Indicator [2CCP-PI150B], local.		
ΔP	15.2 (Q)	X	Calculated using Discharge Pressure Indicator [2CCP-PI145B], Control Room, and Pump Suction Pressure, local.		
Q	15.2 (Q)	X	Summation of flow rates from Containment Cooling Water Supply Header Flow Indicator [2CCP-FI117B1(B2)], Control Room. Nonregenerative Heat Exchanger Branch Flow Indicator [2CCP-FI103] and Seal Water Heat Exchanger Branch Flow Indicator [2CCP-FI102], local.		
V	15.2 (Q)	X	Portable Monitoring Equipment - Fixed vibration probe.		
Tb	15.2 (A)	X	Control room computer address points for thermocouples provided for Pump Bearing Oil (T0648A).		
L	15.2 (Q)	X	Level indication provided at the constant level oiler (local) on bearing housing.		

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 21C Component Cooling Water Pump		<b>Pump Number:</b> 2CCP-P21C	<b>Code Class:</b> 3	<b>Dwg. OM No.:</b> 15-1 <b>Dwg. Coord.:</b> D-4	<b>System:</b> 15 Primary Component Cooling Water
<b>Function:</b> Provide Cooling Water to Residual Heat Removal Heat Exchangers and Rx Plant Components		<b>Type:</b> Centrifugal	<b>Remarks:</b> None		
Parameter	20ST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor		
PI	15.3 (Q)	X	Suction Pressure Indicator [2CCP-PI150C], local		
ΔP	15.3 (Q)	X	Calculated using Discharge Pressure Indicator [2CCP-PI145C], Control Room, and Pump Suction Pressure, local		
Q	15.3 (Q)	X	Containment Cooling Water Supply Header Flow Indicator [2CCP-FI117A1,A2], Control Room, OR summation of flow rates from Containment Cooling Water Supply Header Flow Indicator [2CCP-FI117B1(B2)], Control Room, Nonregenerative Heat Exchanger Branch Flow Indicator [2CCP-FI103] and Seal Water Heat Exchanger Branch Flow Indicator [2CCP-FI102], local		
V	15.3 (Q)	X	Portable Monitoring Equipment - Fixed vibration probe		
Tb	15.3 (A)	X	Control room computer address points for thermocouples provided for: Pump Bearing Oil (T0658A)		
L	15.3 (Q)	X	Level indication provided at the constant level oiler (local) on bearing housing		

BVPS-2 IST

PUMP TESTING OUTLINE

Pump Name: Turbine Driven Auxiliary Feed Pump		Pump Number: 2FWE-P22	Code Class: 3	Dwg. OM No.: 24-3 Dwg. Coord.: E-4	System: 24 Auxiliary Feedwater
Function: Provide emergency makeup to Steam Generator during loss of normal feedwater		Type: Centrifugal	Remarks: Pump is tested monthly on recirculation flow and at full flow when in Mode 3 during startup from cold shutdowns and refueling outages.		
Parameter	20ST (Frequency)	Req'd	Comments		
N	24.4 (O)	X	Tachometer may be provided with steam turbine depending on governor installed, local, or use portable monitoring equipment - Stroboscope		
	24.4 (CSD,R)	X	Tachometer may be provided with steam turbine depending on governor installed, local, or use portable monitoring equipment - Stroboscope		
PI	24.4 (O)	X	Pump Suction Pressure Indicator [2FWE-PI156], local		
	24.4 (CSD,R)	X	Pump Suction Pressure Indicator [2FWE-PI156], local		
ΔP	24.4 (O)	X	Calculated using Pump Discharge Pressure Indicator [2FWE-PI155] and Pump Suction Pressure, local		
	24.4 (CSD,R)	X	Calculated using Pump Discharge Pressure Indicator [2FWE-PI155] and Pump Suction Pressure, local		
Q	24.4 (O)	X	Flow Indicator [2FWE-FI155], local		
	24.4 (CSD,R)	X	Summation of flow rates from SG Aux FW Line Flow Indicators [2FWE-FI100A,B,C], Control Room		
V	24.4 (O)	X	Portable monitoring equipment - Fixed vibration probe		
	24.4 (CSD,R)	X	Portable monitoring equipment - Fixed vibration probe		
Tb	24.4 (A)	X	Control Room computer address points for thermocouples provided for each pump end and thrust bearing Inboard Pump Bearing (T2652A), Outboard Pump Bearing (T2653A), Thrust Bearing (T2404A)		
	NA	NA	Not required during cold shutdown or refueling test. Bearing temperatures are obtained in quarterly test annually		
L	24.4 (O)	X	Sight glass on oil reservoir, local		
	24.4 (CSD,R)	X	Sight glass on oil reservoir, local		



BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 23A Motor Driven Auxiliary Feed Pump		<b>Pump Number:</b> 2FWE-P23A	<b>Code Class:</b> 3	<b>Dwg. OM No.:</b> 24-3 <b>Dwg. Coord.:</b> F-4	<b>System:</b> 24 Auxiliary Feedwater
<b>Function:</b> Provide emergency makeup to Steam Generator during loss of normal feedwater		<b>Type:</b> Centrifugal		<b>Remarks:</b> Pump is tested monthly on recirculation flow and at full flow during cold shutdowns and refueling outages.	
Parameter	20ST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	24.2 (O)	X	Pump Suction Pressure Indicator [2FWE-P1156A], local.		
	24.6 (CSD,R)	X	Pump Suction Pressure Indicator [2FWE-P1156A], local.		
ΔP	24.2 (O)	X	Calculated using Pump Discharge Pressure Indicator [2FWE-P1155A] and Pump Suction Pressure, local.		
	24.6 (CSD,R)	X	Calculated using Pump Discharge Pressure Indicator [2FWE-P1155A] and Pump Suction Pressure, local.		
Q	24.2 (O)	X	Flow Indicator [2FWE-F1155A], local.		
	24.6 (CSD,R)	X	Summation of flow rates from SG Aux FW Line Flow Indicators [2FWE-F1100A,B,C], Control Room.		
V	24.2 (O)	X	Portable monitoring equipment - Fixed vibration probe.		
	24.6 (CSD,R)	X	Portable monitoring equipment - Fixed vibration probe.		
Tb	24.2 (A)	X	Control Room computer address points for thermocouples provided for each pump end and thrust bearing. Inboard Pump Bearing (T2332A), Outboard Pump Bearing (T2333A), Thrust Bearing (T2402A).		
	NA	NA	Not required during cold shutdown or refueling test. Bearing temperatures are obtained in quarterly test annually.		
L	24.2 (O)	X	Sight glass on oil reservoir, local.		
	24.6 (CSD,R)	X	Sight glass on oil reservoir, local.		

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PUMP TESTING OUTLINE

Pump Name: 23B Motor Driven Auxiliary Feed Pump		Pump Number: 2FWE-P23B	Code Class: 3	Dwg. OM No.: 24-3 Dwg. Coord.: G-4	System: 24 Auxiliary Feedwater
Function: Provide emergency makeup to Steam Generator during loss of normal feedwater		Type: Centrifugal	Remarks: Pump is tested monthly on recirculation flow and at full flow during cold shutdowns and refueling outages.		
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	24.3 (O)	X	Pump Suction Pressure Indicator [2FWE-PI156B], local.		
	24.6 (CSD,R)	X	Pump Suction Pressure Indicator [2FWE-PI156B], local.		
ΔP	24.3 (O)	X	Calculated using Pump Discharge Pressure Indicator [2FWE-PI155B] and Pump Suction Pressure, local.		
	24.6 (CSD,R)	X	Calculated using Pump Discharge Pressure Indicator [2FWE-PI155B] and Pump Suction Pressure, local.		
Q	24.3 (O)	X	Flow Indicator [2FWE-FI155B], local.		
	24.6 (CSD,R)	X	Summation of flow rates from SG Aux FW Line Flow Indicators [2FWE-FI100A,B,C], Control Room.		
V	24.3 (O)	X	Portable monitoring equipment - Fixed vibration probe.		
	24.6 (CSD,R)	X	Portable monitoring equipment - Fixed vibration probe.		
Tb	24.3 (A)	X	Control Room computer address points for thermocouples provided for each pump end and thrust bearing. Inboard Pump Bearing (T2392A), Outboard Pump Bearing (T2393A), Thrust Bearing (T2403A)		
	NA	NA	Not required during cold shutdown or refueling test. Bearing temperatures are obtained in quarterly test annually.		
L	24.3 (O)	X	Sight glass on oil reservoir, local.		
	24.6 (CSD,R)	X	Sight glass on oil reservoir, local.		

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PUMP TESTING OUTLINE

Pump Name: 21A Service Water Pump		Pump Number: 2SWS-P21A	Code Class: 3	Dwg. OM No.: 30-1 Dwg. Coord.: C-2	System: 30 Service Water
Function: Provide cooling water to Recirculation Spray Heat Exchangers and Reactor Plant components under normal and emergency conditions		Type: Vertical	Remarks: See RR3		
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
PI	30.2 (O)	RR3	No installed instrumentation to measure suction pressure. Calculate Pi using Unit No. 1 Ohio River Intake Water Level Indicator [LR-1CW-101], local.		
ΔP	30.2 (O)	X	Calculated using Pump Discharge Pressure Indicator [2SWS-PI101A], local, and Intake Water Level.		
Q	30.2 (O)	X	Portable Flow Indicator [2SWS-FIT100], local.		
V	30.2 (O)	X	Portable Monitoring Equipment.		
Tb	30.2 (A)	X	Pump and motor vertically mounted unit. Pump shaft bearings exempt since located within main flow path. Control Room computer address points for thermocouples provided for motor, upper guide bearing (T0751A), thrust bearing (T0752A).		
L	30.2 (O)	X	Upper motor bearing oil level sight glass, bottom motor bearing grease lubricated, bottom pump bearing grease lubricated and sealed at factory. Shaft bearing freshwater lubricated and can be observed with Supply Pressure indicator [2SWS-PI105A], local.		



BVPS-2 IST

PUMP TESTING OUTLINE

Pump Name: 21B Service Water Pump		Pump Number: 2SWS-P21B	Code Class: 3	Dwg. OM No.: 30-1 Dwg. Coord.: D-2	System: 30 Service Water
Function: Provide cooling water to Recirculation Spray Heat Exchangers and Reactor Plant components under normal and emergency conditions		Type: Vertical	Remarks: See RR3.		
Parameter	ZOST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	30.3 (Q)	RR3	No installed instrumentation to measure suction pressure. Calculate Pi using Unit No. 1 Ohio River Intake Water Level Indicator [LR-1CW-101], local.		
ΔP	30.3 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2SWS-Pi101B], local, and Intake Water Level.		
Q	30.3 (Q)	X	Portable Flow Indicator [2SWS-FIT100S], local.		
V	30.3 (Q)	X	Portable Monitoring Equipment.		
Tb	30.3 (A)	X	Pump and motor vertically mounted unit. Pump shaft bearings exempt since located within main flow path. Control Room computer address points for thermocouples provided for motor, upper guide bearing (T0761A), thrust bearing (T0762A).		
L	30.3 (Q)	X	Upper motor bearing oil level sight glass, bottom motor bearing grease lubricated, bottom pump bearing grease lubricated and sealed at factory. Shaft bearing freshwater lubricated and can be observed with Supply Pressure Indicator [2SWS-Pi105B], local.		

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 21C Service Water Pump		<b>Pump Number:</b> 2SWS-P21C	<b>Code Class:</b> 3	<b>Dwg. OM No.:</b> 30-1 <b>Dwg. Coord.:</b> G-2	<b>System:</b> 30 Service Water
<b>Function:</b> Provide cooling water to Recirculation Spray Heat Exchangers and Reactor Plant components under normal and emergency conditions		<b>Type:</b> Vertical	<b>Remarks:</b> See RR3		
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	30.6 (Q)	RR3	No installed instrumentation to measure suction pressure. Calculate Pi using Unit No. 1 Ohio River Intake Water Level Indicator [LR-1CW-101], local.		
ΔP	30.6 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2SWS-Pi101C], local, and Intake Water Level.		
Q	30.6 (Q)	X	Portable Flow Indicator [2SWS-FIT100(S)], local.		
V	30.6 (Q)	X	Portable Monitoring Equipment		
Tb	30.6 (A)	X	Pump and motor vertically mounted unit. Pump shaft bearings exempt since located within main flow path. Control Room computer address points for thermocouples provided for motor, upper guide bearing (T0771A), thrust bearing (T0772A).		
L	30.6 (Q)	X	Upper motor bearing oil level sight glass, bottom motor bearing grease lubricated, bottom pump bearing grease lubricated and sealed at factory. Shaft bearing freshwater lubricated and can be observed with Supply Pressure Indicator [2SWS-Pi105C], local.		

BVFS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 21A Fuel Oil Transfer Pump		<b>Pump Number:</b> 2EGF-P21A	<b>Code Class:</b> 3	<b>Dwg. OM No.:</b> 36-1 <b>Dwg. Coord.:</b> F-3	<b>System:</b> 36 Diesel Fuel Oil System
<b>Function:</b> Transfer Fuel from underground storage tank to the day tank		<b>Type:</b> Vertical	<b>Remarks:</b> See RR4 and RR5. Pump is normally tested bi-monthly.		
Parameter	20ST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	36.1 (Q)	RR5	No suction pressure indication provided. Suction pressure will remain almost constant.		
$\Delta P$	36.1 (Q)	RR5	Based on pump Discharge Pressure Indicator [2EGF-PI201A], local.		
Q	36.1 (Q)	RR4	No instrumentation provided - Level change over time in the day tank will be measured and converted to flowrate.		
V	36.1 (Q)	X	Portable Monitoring Equipment - Fixed vibration probe.		
Tb	NA	E	Pump bearings located within main flow path (IWP-4310).		
L	NA	NA	Self-lubricated bearings, internal pumped fluid lubrication.		

BVPS-2 IST

PUMP TESTING OUTLINE

<b>Pump Name:</b> 21B Fuel Oil Transfer Pump		<b>Pump Number:</b> 2EGF-P21B	<b>Code Class:</b> 3	<b>Dwg. OM No.:</b> 36-1 <b>Dwg. Coord.:</b> E-3	<b>System:</b> 36 Diesel Fuel Oil System
<b>Function:</b> Transfer Fuel from underground storage tank to the day tank		<b>Type:</b> Vertical	<b>Remarks:</b> See RR4 and RR5. Pump is normally tested bi-monthly.		
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	36.1 (Q)	RR5	No suction pressure indication provided. Suction pressure will remain almost constant.		
$\Delta P$	36.1 (Q)	RR5	Based on pump Discharge Pressure Indicator [2EGF-Pi201B], local.		
Q	36.1 (Q)	RR4	No instrumentation provided - Level change over time in the day tank will be measured and converted to flowrate.		
V	36.1 (Q)	X	Portable Monitoring Equipment - Fixed vibration probe		
Tb	NA	E	Pump bearings located within main flow path (IWP-4310).		
L	NA	NA	Self-lubricated bearings. internal pumped fluid lubrication.		

BVPS-2 IST

PUMP TESTING OUTLINE

Pump Name: 21C Fuel Oil Transfer Pump		Pump Number: 2EGF-P21C	Code Class: 3	Dwg. OM No.: 36-1 Dwg. Coord.: F-8	System: 36 Diesel Fuel Oil System
Function: Transfer Fuel from underground storage tank to the day tank		Type: Vertical	Remarks: See RR4 and RR5. Pump is normally tested bi-monthly		
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
Pi	36.2 (O)	RR5	No suction pressure indication provided. Suction pressure will remain almost constant.		
ΔP	36.2 (O)	RR5	Based on pump Discharge Pressure Indicator [2EGF-PI201C], local		
Q	36.2 (O)	RR4	No instrumentation provided - Level change over time in the day tank will be measured and converted to flowrate.		
V	36.2 (O)	X	Portable Monitoring Equipment - Fixed vibration probe		
Tb	NA	E	Pump bearings located within main flow path (IWP-4310).		
L	NA	NA	Self-lubricated bearings, internal pumped fluid lubrication.		

BVPS-2 IST

PUMP TESTING OUTLINE

Pump Name: 21D Fuel Oil Transfer Pump		Pump Number: 2EGF-P21D	Code Class: 3	Dwg. OM No.: 36-1 Dwg. Coord.: E-8	System: 36 Diesel Fuel Oil System
Function: Transfer Fuel from underground storage tank to the day tank		Type: Vertical	Remarks: See RR4 and RR5 Pump is normally tested bi-monthly		
Parameter	2OST (Frequency)	Req'd	Comments		
N	NA	NA	Constant speed induction motor.		
PI	36.2 (Q)	RR5	No suction pressure indication provided. Suction pressure will remain almost constant.		
$\Delta P$	36.2 (Q)	RR5	Based on pump Discharge Pressure Indicator [2EGF-PI201D], local.		
Q	36.2 (Q)	RR4	No instrumentation provided - Level change over time in the day tank will be measured and converted to flowrate.		
V	36.2 (Q)	X	Portable Monitoring Equipment - Fixed vibration probe.		
Tb	NA	E	Pump bearings located within main flow path (IWP-4310).		
L	NA	NA	Self-lubricated bearings, internal pumped fluid lubrication.		



**SECTION III: PUMP TESTING RELIEF REQUESTS**

**RELIEF REQUEST**   1  **Pump Mark No(s):**

2RHS\*P21A

2RHS\*P21B

**Code Test Requirement:** Quarterly pump testing.

**Basis for Relief:** These pumps are not required to be run at power or fulfill any safety function to mitigate a design basis accident. Possible overheating of the pumps could occur during pump testing on recirculation only and could compromise the system integrity. The system has no associated surge tank and the only available expansion protection is the system relief valve. Test personnel would have to make a containment entry to properly monitor pump operation.

**Alternate Test:** These pumps will be tested quarterly during cold shutdowns and refueling outages per 2OST-10.1 and 10.2.

**RELIEF REQUEST**   2  **Pump Mark No(s):**

2RSS\*P21A

2RSS\*P21C

2RSS\*P21B

2RSS\*P21D

**Code Test Requirement:** Quarterly pump tests.

**Basis for Relief:** The function of these pumps is to take suction on the containment sump and discharge to the spray rings on the containment ceiling during a DBA. In order to test these pumps, a temporary dike must be installed in the containment around the safeguards sump to ensure adequate NPSH for each pump. Quarterly testing at power in this manner is a safety concern since it would block off the sump from the containment in the event of an accident. Pump testing during cold shutdowns, while not involving the same safety concern, would increase personnel radiation exposure, create additional radioactive liquid waste, divert maintenance from higher priority items, and could extend the length of a plant shutdown due to the extensive preparatory work required to properly install the dike.

**Alternate Test:** Dry run quarterly per 2OST-13.3, 13.4, 13.5, and 13.6 for not more than 60 seconds and stopped as soon as pump start is verified. Also, run on test line recirculation per 2BVT 1.13.5 during Refueling Outages.

**RELIEF REQUEST** 3**Pump Mark No(s):**

2SWS\*P21A

2SWS\*P21B

2SWS\*P21C

**Code Test Requirement:** Measurement of pump suction pressure before pump startup and during test.

**Basis for Relief:** No installed instrumentation exists to measure suction pressure for these pumps, therefore, relief is requested from this requirement.

**Alternate Test:** The static head of the Ohio River water level will be used to calculate suction pressure, once per test per 2OST-30.2, 30.3, and 30.6.

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**RELIEF REQUEST** 4**Pump Mark No(s):**

2EGF\*P21A

2EGF\*P21B

2EGF\*P21C

2EGF\*P21D

**Code Test Requirement:** Flow rate shall be measured using a rate or quantity meter installed in the pump test circuit.

**Basis for Relief:** There is no installed instrumentation provided to measure flow rate for these pumps, therefore, relief is requested from this requirement.

**Alternate Test:** Flow rate will be calculated by measuring the level change over time of the diesel fuel oil day tank and converting this data to diesel fuel oil transfer pump flow rate per 2OST-2.36.1 and 36.2.

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**RELIEF REQUEST**   5  **Pump Mark No(s):**

2EGF\*P21A

2EGF\*P21B

2EGF\*P21C

2EGF\*P21D

**Code Test Requirement:** Measurement of pump suction pressure (before pump startup and during test) and delta-P.

**Basis for Relief:** There is no installed instrumentation provided to measure suction pressure for these pumps. Suction pressure is dependent on the level in the diesel generator fuel oil storage tank. Due to the minimum technical specification level permitted in the tank (91.2%), suction pressure will remain almost constant (within 1/2 psig). The pump performance is dependent on flowrate and delta-P. Since suction pressure will remain almost constant, any pump degradation due to changes in delta-P would solely be dependent on discharge pressure.

**Alternate Test:** Discharge pressure will be recorded and trended as an indication of pump performance in 2OST-36.1 and 36.2.

**SECTION IV: VALVE TESTING REQUIREMENTS**



The Inservice Test (IST) Program for valves at Beaver Valley Power Station (BVPS), Unit 2, is based on subsection 1wV - Inservice Testing of Valves of the ASME Boiler and Pressure Vessel Code, Section XI, 1983 edition through the summer 1983 addends (the code) and Generic Letter No. 89-04, "Guidance on Developing Acceptable Inservice Testing Programs". The valves included in this section are all ASME "Class 1, 2, or 3 valves (and their actuating and position indicating systems) which are required to perform a specific function in shutting down the reactor to cold shutdown or in mitigating the consequences of an accident" at BVPS, Unit 2.

The requirements of the code will be followed at all times unless specific relief has been granted by the NRC.

- A. Category A valves are valves for which seat leakage in the closed position is limited to a specific maximum amount for fulfillment of their function. Category B valves are valves for which seat leakage in the closed position is inconsequential for fulfillment of their function. Category A and B valves will be exercised at least once every three months to the position required to fulfill their function unless such operation is not practical during plant operation. If only limited operation is practical during plant operation, the valves will be part-stroke exercised at power and full-stroke exercised during cold shutdowns. In the case of frequent cold shutdowns, these valves need not be tested more often than once every three months. For a valve in a system declared inoperable or not required to be operable, the exercising test schedule need not be followed. Within 30 days prior to return of the system to operable status, the valves shall be exercised and the schedule resumed.

The time to full-stroke exercise each power-operated valve will also be measured and compared to a limiting stroke time. Full-stroke time is that time interval from initiation of the actuating signal to the end of the actuating cycle. The stroke time of all power-operated valves shall be measured to at least the nearest second, for stroke times 10 seconds or less, or 10% of the specified limiting stroke time for full-stroke times longer than 10 seconds, whenever such a valve is full-stroke tested. Position indication lights on the Control Board are used for valve stroke indication for all testing of power-operated valves with remote position indicators. In addition, valves with remote position indicators will be observed at least once every 2 years (normally at refuelings) to verify that valve operation is accurately indicated.

Exception is taken to part-stroke timing motor-operated valves, unless specifically stated. This is necessary because the motor-operated valve circuitry prevents throttling of these valves. Under normal operation, the valves must travel to either the full open or shut position prior to reversing direction.

The necessary valve disk movement shall be determined by exercising the valve while observing an appropriate indicator, which signals the required change of disk position, or observing indirect evidence (such as changes in system pressure, flow rate, level, or temperature), which reflect stem or disk position.

All valves with fail-safe actuators (ie. Air-Operated Valves) that are applicable to this program are tested from the Control Room by the remote operating switch. By placing the control switch to the closed position, or de-energizing the control power, air is vented off of the valve actuator thus positioning the valve in the fail-safe position.

Corrective action shall be taken if necessary, using the following:

1. If the stroke time of a power-operated valve exceeds its previous stroke time by 25% for valves with full-stroke times greater than 10 seconds, or 50% for valves with full-stroke times less than or equal to 10 seconds, the test frequency will be increased to monthly. Stroke times of the valves will be examined for trends. During the trend review, it will be determined if corrective action is necessary for any valve based on its stroke time history. When either the corrective action is complete or the review determines it is unnecessary, the original test frequency will be resumed.
2. If a valve fails to exhibit the required change of valve stem or disk position or exceeds its specified ASME limiting value of full-stroke time, then the valve shall be declared inoperable immediately and an evaluation of the valve's condition with respect to system operability and technical specifications shall be made as follows:
  - a. If the inoperable valve is specifically identified in the technical specifications, then the applicable technical specification action statements must be followed.
  - b. If the inoperable valve is in a system covered by a technical specification, an assessment of its condition must be made to determine if it makes the system inoperable. If the condition of the valve renders the system inoperable, then the applicable system technical specification action statements must be followed.
  - c. Corrective action (ie., MWR) shall be initiated immediately for the valve's repair or replacement.
  - d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supercede the requirements of any technical specification.
  - e. If the valve is not covered by any technical specifications and the condition of the valve cannot be corrected within 24 hours, then the valve shall be declared inoperable per ASME.
3. When a valve or its control system has been replaced or repaired or has undergone maintenance that could affect its performance, and prior to the time it is returned to service, it shall be tested to demonstrate that the performance parameters, which could be affected by the replacement, repair, or maintenance, are within acceptable limits. Examples of maintenance that could affect valve performance parameters are adjustment of stem packing, removal of the bonnet, stem assembly, or actuator, and disconnection of hydraulic or electrical lines.

The ASME limiting valve stroke time is based on the following criteria:

1. The Technical Specification value.
2. ESF Response Time requirements.
3. Establishing a two (2) second limit for valves with stroke times under one (1) second. (rapid-acting valves)
4. The average of past stroke times plus 100% for valves with stroke times less than or equal to ten (10) seconds.

5. The average of past stroke times plus 50% for valves with stroke times greater than ten (10) seconds.
6. The design time listed in the UFSAR.

In addition, Category A valves are leak rate tested at the same (or greater) frequency as scheduled refueling outages, not to exceed every two years. If the leak rate exceeds the allowable limit, the valve will be repaired or replaced.

- B. Category C valves are valves which are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves). Category C valves are divided into two groups: safety or relief valves and check valves.

Safety and relief valves are setpoint tested in accordance with ASME PTC 25.3-1976 at least once every five (5) years, with a portion of the valves from each system included in the IST Program tested during each refueling outage. If any valves fail the setpoint test, additional valves from that system must be tested in accordance with Table IWV-3510-1. If a safety or relief valve fails to function properly during a test, it will be repaired or replaced.

Check valves will be exercised to the position required to fulfill their function every three months, unless such operation is not practical during plant operation. If only limited operation is practical during plant operation, the check valve will be part-stroke exercised at power and full-stroke exercised every cold shutdown, not to exceed more than once every three months. Check valves that are normally open during plant operation and whose function is to prevent reversed flow shall be tested in a manner that proves that the disk travels to the seat promptly on cessation or reversal of flow. Check valves that are normally closed during plant operation and whose function is to open on reversal of pressure differential shall be tested by proving that the disk moves promptly away from the seat when the closing pressure differential is removed and flow through the valve is initiated, or when a mechanical opening force is applied to the disk.

If a check valve fails to exhibit the required change of disk position by this testing, then the check valve shall be declared inoperable immediately and an evaluation of the check valve's condition with respect to system operability and technical specifications shall be made as follows:

1. If the inoperable check valve is specifically identified in the technical specifications, then the applicable technical specification action statements must be followed.
  2. If the inoperable check valve is in a system covered by a technical specification, an assessment of its condition must be made to determine if it makes the system inoperable. If the condition of the check valve renders the system inoperable, then the applicable system technical specification action statements must be followed.
  3. Corrective action (i.e., MWR) shall be initiated immediately for the check valve's repair or replacement.
  4. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supercede the requirements of any technical specification.
-

5. If the check valve is not covered by any technical specifications and the condition of the check valve cannot be corrected within 24 hours, then the check valve shall be declared inoperable per ASME.

Before returning the check valve to service after corrective action, a retest showing acceptable operation will be run.

- C. Category D valves are valves which are actuated by an energy source capable of only one operation, such as rupture disks or explosively actuated valves. There are no ASME Class 1, 2, or 3 Category D valves at Beaver Valley Power Station, Unit 2.

All the inservice testing requirements for each different category of valve in the IST Program are summarized in Table IWV-3700-1. This table lists the subarticles of the code that apply to each different type of valve.

Table IWV-3700-1  
INSERVICE TEST QUANTITIES (1)

Category	Valve Function (IWV-2100)	Leak Test Procedure	Exercise Test Procedure	Special Test Procedure
A	Active	IWV-3420	IWV-3410	None
A	Passive	IWV-3420	None	None
B	Active	None	IWV-3410	None
C-Safety & Relief	Active	None	IWV-3510	None
C-Check	Active	None	IWV-3520	None
D	Active	None	None	IWV-3600

NOTE  
(1) No tests required for Category B, C and D passive valves

Passive valves are valves which are not required to change position to accomplish a specific function. As stated in the table, passive valves are not required to be exercised. Therefore, relief is not required from exercising any passive valve and no testing requirement is listed in the outline section except where remote position verification is required.

Certain exemptions from the valve testing requirements of the ASME code defined by subsection IWV-1200 are listed below:

1. Valves used only for operating convenience (ie., manual vent, drain, instrument and test valves);
2. Valves used only for system control (ie., pressure, temperature or flow regulating valves);
3. Valves used only for maintenance; and
4. External control and protection systems responsible for sensing plant conditions and providing signals for valve operation.

Records of the results of inservice tests and corrective actions as required by subsection IWV-6000 are maintained in tabular form. Stroke times of valves will be reviewed for developing trends.

If a question on valve testability exists, the IST program should be the controlling document since each component is individually assessed for testability and inclusion in the IST Program. If a valve is specifically called out in the Tech. Specs. (ie., specific valve mark number or uniquely specified by valve nomenclature) to be tested at one frequency and the IST Program endorses another frequency, then the more restrictive test frequency would be applicable.

The following three sections of this document are the "Valve Testing Outlines", "Cold Shutdown Justifications" and "Valve Relief Requests" sections.

- A. The "Valve Testing Outlines" section is a listing of all the valves in the IST Program, their class, category, size, type, NSA, drawing number and coordinates, testing requirements, specific cold shutdown justification reference numbers, relief request reference numbers, and test procedure numbers and comments.
1. The valve class will be 1, 2 or 3, corresponding to the safety classifications.
  2. The category of the valve will be A, B, C or D in accordance with the guidelines of subsection IWV-2200. In addition, combinations of categories may be utilized. If the valve is not required to change position during an accident or bring the reactor down to a cold shutdown condition, the fact that it is Passive (P) will also be indicated. For example, a containment isolation check valve that does not change position would be a category A/C/P valve. From the valve mark number given, the valve actuator can be determined from the list of abbreviations below:
    - AOV - Air Operated Valve
    - FCV - Flow Control Valve
    - HCV - Hand Control Valve
    - HYV - Hydraulic Valve
    - LCV - Level Control Valve
    - MOD - Motor Operated Damper
    - MOV - Motor Operated Valve
    - PCV - Pressure Control Valve
    - RV - Relief Valve
    - SOV - Solenoid Operated Valve
    - SV - Safety Valve
    - DMP - Damper (Manual)
  3. The normal system arrangement will be listed using the abbreviations below:
    - NSA - Normal System Arrangement
    - O - Open
    - S - Shut
    - A - Automatic
    - T - Throttled
    - LO - Locked Open
    - LS - Locked Shut
    - SS - Sealed Shut
  4. The drawing number and coordinates will be the ones used in the Operating Manual.



5. The test requirements will be listed using the abbreviations below:
- QS - Quarterly Stroke
  - QST - Quarterly Stroke & Time
  - LT - Leak Rate Test
  - SPT - Set Point Test
  - LM - Leakage Monitoring
  - POS - Position Verification
  - NA - Not Applicable
6. The specific Cold Shutdown Justification (CSJ) reference number or the Relief Request (RR) reference number will be listed.
7. The specific test procedure number, frequency of testing, and any comments will be listed using the following abbreviations:
- 2OM - Operating Manual (Unit 2)
  - 2BVT - Beaver Valley Test (Unit 2)
  - 2OST - Operating Surveillance Test (Unit 2)
  - CMP - Corrective Maintenance Procedure
  - CSD - Cold Shutdown Frequency
  - R - Refueling Frequency
  - SA - Semiannually Frequency
  - Q - Quarterly Frequency
  - M - Monthly Frequency
  - FS - Full Stroke
  - PS - Partial Stroke
  - FD - Forward Direction
  - RD - Reverse Direction
  - RPV - Remote Position Verification normally at Refueling
- B. The "Cold Shutdown Justification" section contains the detailed technical description of conditions prohibiting the required testing of safety-related valves and an alternate test method to be performed during cold shutdowns. Cold Shutdown valve testing will commence within 48 hours of reaching cold shutdown conditions, but need not be completed more often than once every 92 days. Attempts will be made to complete testing prior to entering Mode 4. However, completion will not be a Mode 4 requirement. The testing will resume where left off when next entering Mode 5. For planned cold shutdowns, where ample time is available to complete testing on all valves identified for the cold shutdown test frequency, exceptions to the 48 hour requirement can be taken.
- Beaver Valley Unit 2 reactor containment is maintained subatmospheric as required by technical specifications. The subatmospheric condition presents a hazardous working environment for station personnel and is considered inaccessible for surveillance testing. Surveillance testing that requires reactor containment entry will be performed at cold shutdown and refueling.
- C. The "Valve Relief Requests" section contains the detailed technical description of conditions prohibiting the required testing of safety-related valves, an alternate test method and frequency of revised testing.



**SECTION IV: VALVE TESTING OUTLINES**

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

SYSTEM NAME: Reactor Coolant										SYSTEM NUMBER: 6	
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						OM No.	Coord.				
2RCS*68	2	A/C	2 1/2	Check		6-2	E-2	QS	CS/J1	205T-1 10-FS (R) By Mechanical Exerciser (CSO)	
2RCS*72	2	A/C	3	Check		6-2	F-2	QS	CS/J2	205T-1 10-FS (R) By Mechanical Exerciser (CSO)	
2RCS*RV100	2	A/C	N/A	Relief		6-2	G-2	SPT	RR1	205T-1 47.5-Leak Test (R)	
2RCS*ADV101	2	A	N/A	Diaphragm	S	6-2	E-2	QST	RR1,RR2B	205T-1 47.5-Leak Test (R)	
2RCS*SOV200A	1	B	1	Globe	S	6-2	E-6	QST	RR1	205T-1 47.5-Leak Test (R)	
2RCS*SOV200B	1	B	1	Globe	S	6-2	F-6	QST	CS/J3	205T-1 10-Stroke & Time Open (CSO) 205T-4.9-(RPV)	
2RCS*SOV201A	1	B	1	Globe	S	6-2	E-6	QST	CS/J3	205T-1 10-Stroke & Time Open (CSO) 205T-6.9-(RPV)	
2RCS*SOV201B	1	B	1	Globe	S	6-2	F-6	QST	CS/J3	205T-1 10-Stroke & Time Open (CSO) 205T-6.9-(RPV)	
2RCS*HCV250A	2	B	1	Globe	S	6-2	G-6	QST	CS/J3	205T-1 10-Stroke & Time Open (CSO) 205T-6.9-(RPV)	
2RCS*HCV250B	2	B	1	Globe	S	6-2	G-6	QST	CS/J3	205T-1 10-Stroke & Time Open (CSO) 205T-6.9-(RPV)	
2RCS*PCV435C	1	B	3	Globe	A	6-1	F-1	QST	CS/J4	205T-6.9-Stroke & Time Open (CSO) (RPV)	
2RCS*PCV435D	1	B	3	Globe	A	6-1	F-1	QST	CS/J4	205T-6.9-Stroke & Time Open (CSO) (RPV)	
2RCS*PCV436	1	B	3	Globe	A	6-1	E-1	QST	CS/J4	205T-6.9-Stroke & Time Open (CSO) (RPV)	

SYSTEM NAME: Reactor Coolant										SYSTEM NUMBER: 0	
BVPS 2 IST										SYSTEM NUMBER: 0	
VALVE TESTING OUTLINE										SYSTEM NUMBER: 0	
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	SYSTEM NUMBER: 0
						OM No.	Coord.				
2RCS-MOV-519	2	A	3	Diaphragm	5	6-2	F-1	QST		205T-47-3a(2B) Stroke & Time Closed (Q) (RPV)	
								LT	RR 1 6/26	2BVT 1-47.5-Loop Test (R)	
2RCS-MOV-535	1	B	1	Gate	0	6-1	F-2	QST		205T-6-6 Stroke & Time Open/Closed (Q) (RPV)	
2RCS-MOV-536	1	B	1	Gate	0	6-1	E-2	QST		205T-6-6 Stroke & Time Open/Closed (Q) (RPV)	
2RCS-MOV-537	1	B	1	Gate	0	6-1	F-2	QST		205T-6-6 Stroke & Time Open/Closed (Q) (RPV)	
2RCS-RV-551A	1	C	6x6	Relief		6-1	D-3	SPT		2BVT 1-60.5 (R)	
2RCS-RV-551B	1	C	6x6	Relief		6-1	D-3	SPT		2BVT 1-60.5 (R)	
2RCS-RV-551C	1	C	6x6	Relief		6-1	D-4	SPT		2BVT 1-60.5 (R)	

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

SYSTEM NAME: Chemical and Volume Control										SYSTEM NUMBER: 7	
BVP-2 IST VALVE TESTING OUTLINE											
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	HSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						Ord No.	Coord.				
ZOHS-22	2	C	3	Check		7-1	C-8	QS		ZOST-7-4-FS-FD (Q)	
ZOHS-23	2	C	3	Check		7-1	C-10	QS	RR3	ZOST-7-5(B)-FS-RD (Q) ZOST-11-14-FS-FD (R)	
ZOHS-24	2	C	3	Check		7-1	C-9	QS	RR3	ZOST-7-4(B)-FS-RD (Q) ZOST-11-14-FS-FD (R)	
ZOHS-31	2	A/C	3	Check		7-1	B-6	QS	CSJ6	ZOST-7-6-FS-FD (Q) ZOST-7-4(B)-FS-RD (Q) ZOST-11-14-FS-FD (R)	
ZOHS-75	3	C	2	Check		7-2	B-3	QS		ZOST-1-10-FS-RD by Mechanical Exerciser (CSO)	
ZOHS-76	3	C	2	Check		7-2	F-3	QS		ZBVT-1-47-11-Leak Test (R)	
ZOHS-78	3	C	2	Check		7-2	E-7	QS	CSJ7	ZOST-7-1-4-FS-FD (Q) ZOST-7-2-FS-FD (Q) ZOST-7-13-FS-FD (CSO)	
ZOHS-FCV113A	3	B	2	Globe	A	7-2	E-7	QST		ZOST-47-3A(B)-Stroke & Time Open (Q) (RPV)	
ZOHS-LCV115B	2	B	4	Gate	A	7-1	F-8	QST		ZOST-47-3A(B)-Stroke & Time Open (Q) (RPV)	
ZOHS-LCV115C	2	B	4	Gate	A	7-1	G-7	QST	CSJ6	ZOST-1-10-Stroke & Time Closed (CSO) (RPV)	

BVP5 2 IST VALVE TESTING OUTLINE											SYSTEM NUMBER: 7
SYSTEM NAME: Chemical and Volume Control											
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						OM No.	Coord.				
ZCHS*LCV115D	2	B	8	Gate	A	7-1	F-10	QST		ZOST-47-3A/3B: Stroke & Time Open (Q) (RPV)	
ZCHS*LCV115E	2	B	4	Gate	A	7-1	G-7	QST	CS-4	ZOST-1-10: Stroke & Time Closed (CSO) (RPV)	
ZCHS*13E	2	C	2	Check		7-2	E-8	QS	CS-17	ZOST-7-13-FS-FD (CSO)	
ZCHS*141	2	C	2	Check		7-2	F-9	QS	CS-17	ZOST-7-13-FS-FD (CSO)	
ZCHS*HCV142	2	A	2	Globe	S	7-1	F-1	QST		ZOST-47-3A/3B: Stroke & Time Closed (Q) (RPV)	
ZCHS*13Z	2	C	2	Check		7-1	B-7	QS		ZOST-7-4-FS-FD (Q)	
ZCHS*153	2	C	2	Check		7-1	D-7	QS		ZOST-7-5-FS-FD (Q)	
ZCHS*154	2	C	2	Check		7-1	D-7	QS		ZOST-7-4-FS-FD (Q)	
ZCHS*FCV160	2	A/F	2	Globe	S	7-1	B-7	POS		ZOST-47-3A/3B: RPV	
ZCHS*RV160	2	C	1.5	Relief		7-1	A-7	SPT		ZOST-1-40-5 (R)	
ZCHS*ADV200A	2	A	2	Globe	S	7-1	B-1	QST		ZOST-47-3A/3B: Stroke & Time Closed (Q) (RPV)	
ZCHS*ADV200B	2	A	2	Globe	O	7-1	D-1	QST	RR1-RR2 RR3-4	ZOST-47-3A/3B: Stroke & Time Closed (Q) (RPV)	
								LT		ZOST-1-47-5: Leak Test (R)	
								LT		ZOST-1-47-5: Leak Test (R)	

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BPPS-2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 1	
SYSTEM NAME: Chemical and volume Control	Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
							OM No.	Coord.			
ZCHS-ADV200C	2	A	A	2	Globe	S	7-1	E-1	QST	RR-1 RR2 RR2A	20ST-47 3A/3B) Stroke & Time Closed (Q) (RPV)
ZCHS-RV200	2	A/C	A/C	2x3	Relief		7-1	E-1	SPT		2BVT 1-47 5-Leak Test (R)
ZCHS-ADV204	2	A	A	2	Globe	O	7-1	G-2	QST	CSJ-B	20ST-1 10 Stroke & Time Closed (CSJ) (RPV)
ZCHS-SOV206	2	B	B	1	Globe	S	7-2	E-8	QST		20ST-47 3A/3B) Stroke & Time Open (Q) 20ST-7 13 (RPV)
ZCHS-RV206A	2	C	C	1.5x1	Relief		7-3	B-4	SPT		2BVT 1-60 5 (R)
ZCHS-RV206B	2	C	C	1.5x1	Relief		7-3	E-3	SPT		2BVT 1-60 5 (R)
ZCHS-RV206C	2	C	C	1.5x1	Relief		7-3	G-4	SPT		2BVT 1-60 5 (R)
ZCHS-MOV275A	2	B	B	2	Globe	O	7-1	F-6	QST		20ST-47 3A/3B) Stroke & Time Closed (Q) (RPV)
ZCHS-MOV275B	2	B	B	2	Globe	O	7-1	F-7	QST		20ST-47 3A/3B) Stroke & Time Closed (Q) (RPV)
ZCHS-MOV275C	2	B	B	2	Globe	O	7-1	F-7	QST		20ST-47 3A/3B) Stroke & Time Closed (Q) (RPV)
ZCHS-MOV289	2	A	A	2	Gate	D	7-1	B-6	QST	CSJ-B	20ST-1 10 Stroke & Time Closed (CSJ) (RPV)
ZCHS-MOV289A	2	A	A	2	Globe	O	7-3	B-3	QST		2BVT 1-47 11-Leak Test (R)
									LT		
									QST		20ST-1 10 Stroke & Time Closed (CSJ) (RPV)
									LT		2BVT 1-47 11-Leak Test (R)



BUVS 2 IST VALVE TESTING OUTLINE													SYSTEM NUMBER: 7
SYSTEM NAME: Chemical and Volume Control													Comments
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	OM No.	Coord.	Test Requirements	CSJ or Relief Requests	CSJ or Relief Requests	Test Requirements	Comments	
2CHS-MOV308B	2	A	2	Globe	O	7-3	D-3	QST	CSJ10	CSJ10	QST	20ST-1-10 Stroke & Time Closed (CSD) (RPV)	
								LT			LT	2BVT-1-47-11-Leak Test (R)	
2CHS-MOV308C	2	A	2	Globe	O	7-3	G-3	QST	CSJ10	CSJ10	QST	20ST-1-10 Stroke & Time Closed (CSD) (RPV)	
								LT			LT	2BVT-1-47-11-Leak Test (R)	
2CHS-MOV310	2	B	3	Gate	O	7-1	A-9	QST	CSJ11	CSJ11	QST	20ST-1-10 Stroke & Time Closed (CSD) (RPV)	
2CHS-MOV350	2	B	2	Globe	S	7-2	F-8	QST			QST	20ST-47-34(3B) Stroke & Time Open (Q) (RPV)	
2CHS-MOV373	2	B	3	Gate	O	7-3	F-10	QST	CSJ12		QST	20ST-1-10 Stroke & Time Closed (CSD) (RPV)	
2CHS-MOV378	2	A	3	Gate	O	7-3	E-8	QST	CSJ13	CSJ13	QST	20ST-1-10 Stroke & Time Closed (CSD) (RPV)	
								LT	RR1 RR23		LT	2BVT-1-47-5-Leak Test (R)	
2CHS-MOV380A	2	B	2	Gate	S	7-1	D-8	QST			QST	20ST-47-34(3B) Stroke & Time Open/Closed (Q) (RPV)	
2CHS-MOV380B	2	B	2	Gate	S	7-1	E-6	QST			QST	20ST-47-34(3B) Stroke & Time Open/Closed (Q) (RPV)	
2CHS-MOV381	2	A	1	Gate	O	7-3	F-6	QST	CSJ13	CSJ13	QST	20ST-1-10 Stroke & Time Closed (CSD) (RPV)	
								LT	RR1		LT	2BVT-1-47-5-Leak Test (R)	
2CHS-RV382A	2	C	2x3	Relief		7-3	C-8	SPT				2BVT-1-60-5 (R)	
2CHS-MOV383A	2	B	2	Gate	O	7-1	D-6	QST			QST	20ST-47-34(3B) Stroke & Time Open/Closed (Q) (RPV)	
2CHS-MOV383B	2	B	2	Gate	O	7-1	F-6	QST			QST	20ST-47-34(3B) Stroke & Time Open/Closed (Q) (RPV)	
2CHS-RV450A	2	C	11x2	Relief		7-1	D-6	SPT				2BVT-1-60-5 (R)	

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

SYSTEM NAME: Chemical and Volume Control										SYSTEM NUMBER: 7	
BVP5 2 IST VALVE TESTING OUTLINE											
Value Mark Number	Value Class	Value Category	Value Size (in.)	Valve Type	MS4	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						OM No.	Coord.				
2CHS-RV456B	2	C	1 1/2"	Relief		7-1	E-6	SPT		2BUT 1 10-5 (R)	
2CHS-LCV460A	1	B	2	Globe	0	7-1	A-1	QST	CS-114	2OST 1 10-Stroke & Time Closed (CSJ) (RPV)	
2CHS-LCV466B	1	B	2	Globe	0	7-1	A-3	QST	CS-114	2OST 1 10-Stroke & Time Closed (CSJ) (RPV)	
2CHS-472	2	A/C/P	2 1/2	Check		7-1	B-7	LT		2BUT 1 47 11-Leak Test (R)	
2CHS-473	2	A/C	2 1/2	Check		7-3	E-8	QS	CS-115	2OST 1 10-PS,FD,PD by Mechanical Exerciser (CSJ)	
2CHS-474	2	A/C	2 1/2	Check		7-3	B-4	QS	RR-1,RR-23	2BUT 1 47 5-Leak Test (R)	
2CHS-475	2	A/C	2 1/2	Check		7-3	G-4	QS	CS-116	2OST 1 10-PS,PD by Mechanical Exerciser (CSJ)	
2CHS-476	2	A/C	2 1/2	Check		7-3	D-4	QS	CS-116	2OST 1 10-PS,PD by Mechanical Exerciser (CSJ)	
2CHS-MOV8130A	2	B	8	Gate	LO	7-1	E-9	QST	CS-117	2OST 1 10-Stroke & Time Closed (CSJ) (RPV)	
2CHS-MOV8130B	2	B	8	Gate	LO	7-1	E-9	QST	CS-117	2OST 1 10-Stroke & Time Closed (CSJ) (RPV)	
2CHS-MOV8131A	2	B	8	Gate	LO	7-1	E-9	QST	CS-117	2OST 1 10-Stroke & Time Closed (CSJ) (RPV)	
2CHS-MOV8131B	2	B	8	Gate	LO	7-1	E-10	QST	CS-117	2OST 1 10-Stroke & Time Closed (CSJ) (RPV)	
2CHS-MOV8132A	2	B	4	Gate	LO	7-1	C-9	QST	CS-117	2OST 1 10-Stroke & Time Closed (CSJ) (RPV)	

BVPS 2 IST VALVE TESTING OUTLINE											SYSTEM NUMBER: 7
SYSTEM NAME: Chemical and Volume Control											
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						DM No.	Conrd.				
2CHS-MOV-8132B	2	B	4	Gate	LO	7-1	C-9	QST	CS-317	2021-1 10-Stroke & Time Closed at (50) (RPV)	
2CHS-MOV-8133A	2	B	4	Gate	LO	7-1	C-9	QST	CS-317	2021-1 10-Stroke & Time Closed at (50) (RPV)	
2CHS-MOV-8133B	2	B	4	Gate	LO	7-1	C-9	QST	CS-317	2021-1 10-Stroke & Time Closed at (50) (RPV)	
2CHS-PR-8144	2	C	1/2	Relief		7-1	A-5	SPT		2021-1 10-Stroke & Time Closed at (50) (RPV)	

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BVP5 2 IST VALVE TESTING OUTLINE											
SYSTEM NAME: Reactor Plant vents and Downcomers (Assembled Drawings)											
Value Mark Number	Value Class	Value Category	Value Size (in.)	Valve Type	NLSL	Drawing		Test Requirement	CSJ or Relief Requests	Comments	SYSTEM NUMBER: 9
						OM No.	Coord.				
20AS-ACV100A	2	A	2	Globe	O	9-1	F-4	QST	RR1	20ST-47 3A(2B) Stroke & Time Closed (Q) (RPU)	
20AS-ACV100B	2	A	2	Globe	O	9-1	F-2	QST	RR1 RR2B	2BVT 147 5-Leak Test (R)	
20AS-RV110	2	A/C	1 1/2x2 1/2	Relief		8-1	F-3	ST		2BVT 140 5 (R)	
								LT	RR1 RR2B	2BVT 147 5-Leak Test (R)	

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BVPS 2 IST VALVE TESTING OUTLINE											
SYSTEM NAME: Reactor Plant Vents and Drains (Hydrogenated Drains)											
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSP	Drawing		Test Requirement	CSJ or Relief Requests	Comments	SYSTEM NUMBER: 9
						OM No.	Coord.				
2DGS-ADV108A	2	A	2	Globe	D	9-1	F-10	QST		20ST 47 3A(3B) Stroke & Time Closed (Q) (RPV)	
2DGS-ADV108B	2	A	2	Globe	C	9-1	E-10	QST	RR1	2BVT 1 47 5-Leak Test (R)	
2DGS-RV115	2	A/C	1 1/2	Relief		9-1	E-9	ST	RR1 RR2B	20ST 47 3A(3B) Stroke & Time Closed (Q) (RPV)	
								LT	RR1 RR2B	2BVT 1 47 5-Leak Test (R)	

BUPS 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 9
SYSTEM NAME: Reactor Plant Vents and Drains (Hydrogenated Gaseous Vents)										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSI or Relief Requests	Comments
						OM No.	Coord.			
2VRS-AOV109A1	2	A	1 1/2	Globe	0	9-1	C-9	QST		205T-47 3A(1B) Stroke & Time Closed (Q) (RPV)
								LT	RR1	28VT 1 47 5 Leak Test (R)
2VRS-AOV109A2	2	A	1 1/2	Globe	0	9-1	C-9	QST		205T-47 3A(1B) Stroke & Time Closed (Q) (RPV)
								LT	RR1	28VT 1 47 5 Leak Test (R)



BUPS 2 IST VALVE TESTING OUTLINE												SYSTEM NUMBER: 10
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	SYSTEM NUMBER: 10	
						OM No.	Coord.					
2RHS-3	2	C	10	Check		10-1	E-3	QS	CS-118	20ST-10-3-FS, PD (CSD)		
2RHS-4	2	C	10	Check		10-1	E-3	QS	CS-118	20ST-10-1-FS, PD (CSD)		
2RHS-15	2	A/P	6	Globe	LS	10-1	D-8	LT	RR-1, RR-2, RR-2B	20ST-10-4-FS, PD (CSD)		
2RHS-RV100	2	A/C	1/2	Relief		10-1	D-8	SPT		20ST-10-2-FS, PD (CSD)		
2RHS-107	2	A/P	6	Globe	LS	10-1	D-7	LT	RR-1, RR-2, RR-2B	20ST-10-5-Leak Test (R)		
2RHS-FC-100A	2	B	8	Butterfly	T	10-1	B-5	OST	CS-119	20ST-10-3-Stroke Time & Fail-Closed (CSD), (RPV)		
2RHS-FC-100B	2	B	8	Butterfly	T	10-1	F-5	OST	CS-119	20ST-10-4-Stroke Time & Fail-Closed (CSD), (RPV)		
2RHS-MOV701A	1	A	12	Gate	S	10-1	L-1	OST	CS-120	20ST-10-3-Stroke & Time-Closed (CSD), (RPV)		
2RHS-MOV701B	1	A	12	Gate	S	10-1	D-1	OST	CS-120	20ST-10-4-Stroke & Time-Closed (CSD), (RPV)		
2RHS-MOV700A	1	A	12	Gate	S	10-1	C-1	OST	CS-120	20ST-10-2-Stroke & Time-Closed (CSD), (RPV)		
								LT		20ST-10-5-Leak Test (R)		
								LT		20ST-10-5-Leak Test (R)		

BVPS 2 IST VALVE TESTING OUTLINE												
SYSTEM NAME: Residual Heat Removal												
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	SYSTEM NUMBER: 10	
						OM No.	Coord.					
2RHS-MOV702B	1	A	12	Gate	S	10-1	D-1	QST	CSJ09	20ST-10 4 Stroke & Time Closed (CSD) (RPV)		
								LT		20ST-10 5 Leak Test (R)		
2RHS-MOV720A	1	A	10	Gate	S	10-1	C-B	QST	CSJ28	20ST-10 3 Stroke & Time Closed (CSD) (RPV)		
								LM		Continuously Monitored by 20M 54 Station Log LS-126		
2RHS-MOV720B	1	A	10	Gate	S	10-1	F-B	QST	CSJ20	20ST-10 4 Stroke & Time Closed (CSD) (RPV)		
								LM		Continuously Monitored by 20M 54 Station Log LS-126		
2RHS-RV721A	2	C	3-4	Relief		10-1	C-1	SPT		2BVT-1-60 5 (R)		
2RHS-RV721B	2	C	3-4	Relief		10-1	E-1	SPT		2BVT-1-60 5 (R)		
2RHS-HC-V758A	2	B	10	Butterfly	T	10-1	D-5	QST	CSJ21	20ST-10 3 Stroke, Time & Fail Open (SO) (RPV)		
2RHS-HC-V758B	2	B	10	Butterfly	T	10-1	F-5	QST	CSJ21	20ST-10 4 Stroke, Time & Fail Open (CSD) (RPV)		

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BVP5-2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 11
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No	Conrd.			
25IS-6	2	C	10	Check		11-1	E-4	QS		20ST-11 2 FS RD (R)
25IS-7	2	C	10	Check		11-1	G-4	QS	RR4	20ST-11 14 FS FD (R)
25IS-27	2	C	8	Check		11-1	F-1	QS	RR5	20ST-11 1 FS RD (R)
25IS-41	2	A/P	1	Globe	5	11-2	C-2	LT	RR1, RR26	2BVT 1 47 5-Leak Test (R)
25IS-42	2	A/C	2 1/2	Check		11-2	E-2	QS	CSJ22	20ST-1 10 FS RD by Mechanical Exerciser (CSD)
25IS-46	2	C	10	Check		11-1	F-5	QS	RR1	2BVT 1 47 5-Leak Test (R)
25IS-47	2	C	10	Check		11-1	D-5	QS	CSJ33	20ST-1 10 FS FD RD by Mechanical Exerciser (CSD)
25IS-83	2	A/C	3	Check		11-1	A-4	QS	CSJ33	20ST-1 10 FS FD RD by Mechanical Exerciser (CSD)
25IS-84	2	A/C	3	Check		11-1	B-4	QS	CSJ33	20ST-1 10 FS FD RD by Mechanical Exerciser (CSD)
25IS-94	2	A/C	3	Check		11-1	D-6	QS	CSJ33	20ST-1 10 FS FD RD by Mechanical Exerciser (CSD)
								LT		2BVT 1 47 11-Leak Test (R)

SYSTEM NAME: Safety Injection										SYSTEM NUMBER: 11		
BVP5 2 IST										VALVE TESTING OUTLINE		
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments		
						Dim No.	Coord.					
ZSIS*95	2	A/C	3	Check		11-1	C-6	QS	CSJ23	20ST-1 10-PS,FD,FD by Mechanical Exerciser (FSD)		
ZS-S*107	1	A/C	6	Check		11-1	G-9	QS	RR6	2BVT 1 47 11-Leak Test (R)		
ZSIS*108	1	A/C	6	Check		11-1	E-9	QS	RR6	20ST-11 14-PS,FD (R)		
ZSIS*109	1	A/C	6	Check		11-1	F-9	QS	RR6	20ST-11 16-Leak Test (R)		
ZSIS*122	1	C	2	Check		11-1	A-7	QS	RR7	20ST-11 14-PS,FD (R)		
ZSIS*123	1	C	2	Check		11-1	A-7	QS	RR7	20ST-11 14-PS,FD (R)		
ZSIS*124	1	C	2	Check		11-1	A-7	QS	RR7	20ST-11 14-PS,FD (R)		
ZSIS*125	1	C	2	Check		11-1	B-7	QS	RR7	20ST-11 14-PS,FD (R)		
ZSIS*126	1	C	2	Check		11-1	B-7	QS	RR7	20ST-11 14-PS,FD (R)		
ZSIS*127	1	C	2	Check		11-1	B-2	QS	RR7	20ST-11 14-PS,FD (R)		
ZSIS*128	1	A/C	6	Check		11-1	B-8	QS	RR6	20ST-11 14-PS,FD (R)		
								LT		20ST-11 16-Leak Test (R)		

SYSTEM NAME: Safety Injection										SYSTEM NUMBER: 11		
BVP5 2 IST										VALVE TESTING OUTLINE		
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments		
						OM No.	Coord.					
25IS-129	1	A/C	6	Check		11-1	B-10	QS	RR3	20ST-11 14 PS FD (R)		
25IS-130	2	A/C	10	Check		11-1	F-9	QS	CS-04	20ST-11 16 Leak Test (R) 20ST-11 10 PS FD RD by Mechanical Exerciser (CSD)		
25IS-RV130	2	A/C	5/8	Relief		11-2	D-2	SPT		28VT-1 47 11 Leak Test (R) 28VT-1 60 5 (R)		
25IS-132	2	A/C	10	Check		11-1	F-9	QS	RR1 RR28	28VT-1 47 5 Leak Test (R) 20ST-11 10 PS FD RD by Mechanical Exerciser (CSD)		
25IS-133	2	A/C	10	Check		11-1	E-9	QS	CS-04	20ST-11 16 Leak Test (R) 20ST-11 10 PS FD RD by Mechanical Exerciser (CSD)		
25IS-134	1	C	2	Check		11-1	C-9	QS	RR3	20ST-11 14 PS FD (R)		
25IS-135	1	C	2	Check		11-1	D-9	QS	RR3	20ST-11 14 PS FD (R)		
25IS-136	1	C	2	Check		11-1	D-9	QS	RR3	20ST-11 14 PS FD (R)		
25IS-137	1	C	2	Check		11-1	C-9	QS	RR3	20ST-11 14 PS FD (R)		
25IS-138	1	C	2	Check		11-1	C-9	QS	RR3	20ST-11 14 PS FD (R)		
25IS-139	1	C	2	Check		11-1	C-9	QS	RR3	20ST-11 14 PS FD (R)		

SYSTEM NAME: Safety Injection										SYSTEM NUMBER: 11		
BVPS-2 IST VALVE TESTING OUTLINE												
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments		
						OM No.	Coord.					
2SIS-141	1	A/C	12	Check		E-1	E-6	QS	RR10	2BVT 1 11 3 FS FD (R)		
2SIS-142	1	A/C	12	Check		1-2	F-9	QS	RR10	2BVT 1 11 3 FS FD (R)		
2SIS-145	1	A/C	12	Check		E-1	D-6	QS	RR10	2BVT 1 11 3 FS FD (R)		
2SIS-147	1	A/C	12	Check		11-2	F-7	QS	RR10	2BVT 1 11 3 FS FU (R)		
2SIS-148	1	A/C	12	Check		11-2	F-4	QS	RR10	2BVT 1 11 3 FS FD (R)		
2SIS-151	1	A/C	12	Check		E-1	D-5	QS	RR10	2BVT 1 11 3 FS FD (R)		
2SIS-RV175	2	A/C	Nx1	Relief		11-2	F-1	SPT		2BVT 1 60 S (R)		
2SIS-545	1	C	6	Check		11-1	A-9	QS	RR11, RR26	2BVT 1 17 5-Leak Test (R)		
2SIS-546	1	C	6	Check		11-1	A-9	QS	RR11	2OST 11 14 FS FD (R)		
2SIS-547	1	C	6	Check		11-1	A-9	QS	RR11	2OST 11 14 FS FD (R)		



BVP5-2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 11
SYSTEM NAME: Safety Injection										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						DM No.	Coord.			
ZSIS-548	1	C	6	Check	S	11-1	A-10	QS	RR12	ZOST-11-14-FS-FD (R)
ZSIS-550	1	C	6	Check	S	11-1	A-10	QS	RR12	ZOST-11-14-FS-FD (R)
ZSIS-552	1	C	6	Check	S	11-1	A-10	QS	RR12	ZOST-11-14-FS-FD (R)
ZSIS-MOV836	2	A	3	Gate	S	11-1	D-5	QST	CSJ25	ZOST-11-10-Stroke & Time (CSD) (RPV)
ZSIS-MOV840	2	A	1	Globe	S	11-1	C-5	QST	LT	ZBVT-1-47-11-Leak Test (R)
ZSIS-MOV841	2	B	3	Gate	O	11-1	B-2	QST		ZOST-47-3A(3B)-Stroke & Time Closed (Q) (RPV)
ZSIS-MOV842	2	A	2	Globe	S	11-2	F-2	QST		ZOST-47-3A(3B)-Stroke & Time Closed (Q) (RPV)
ZSIS-RV858A	2	C	1x2	Relief		11-2	D-4	SPT	RR1	ZBVT-1-47-5-Leak Test (R)
ZSIS-RV858B	2	C	1x2	Relief		11-2	D-7	SPT		ZBVT-1-60-5 (R)
ZSIS-RV858C	2	C	1x2	Relief		11-2	D-10	SPT		ZBVT-1-60-5 (R)
ZSIS-MOV863A	2	B	8	Gate	S	11-1	D-7	QST		ZOST-47-3A(3B)-Stroke & Time Open (Q) (RPV)
ZSIS-MOV863B	2	B	8	Gate	S	11-1	F-6	QST		ZOST-47-3A(3B)-Stroke & Time Open (Q) (RPV)
ZSIS-MOV865A	2	B/P	12	Gate	O	11-2	F-4	POS		ZOM-54 Log L5-35 Position Verified ZBVT-1-11-3 (RPV)
ZSIS-MOV865B	2	B/P	12	Gate	O	11-2	F-6	POS		ZOM-54 Log L5-35 Position Verified ZBVT-1-11-3 (RPV)

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BVP5 2 IST VALVE TESTING OUTLINE											
SYSTEM NAME: Safety Injection											
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSI or Relief Requests	Comments	SYSTEM NUMBER - 11
						OM No.	Coord.				
ZSIS-MOV-865C	2	B/F	12	Gate	5	11-2	F-9	POS		ZOM-54 Ling L5-35 Pipeloon Verified ZBVT 147 3 (RPV)	
ZSIS-MOV-867A	2	B	3	Gate	5	11-1	B-2	QST		ZOST-47 3A/2B) Stroke & Time Open (Q) (RPV)	
ZSIS-MOV-867B	2	B	3	Gate	5	11-1	C-2	QST		ZOST-47 3A/2B) Stroke & Time Open (Q) (RPV)	
ZSIS-MOV-867C	2	A	3	Gate	5	11-1	C-6	QST		ZOST-47 3A/2B) Stroke & Time Open (Q) (RPV)	
ZSIS-MOV-867D	2	A	3	Gate	5	11-1	C-5	QST		ZBVT 147 11 Leak Test (R)	
ZSIS-HCVR68A	2	B	1	Globe	5	11-1	D-5	QST		ZOST-47 3A/2B) Stroke & Time Open/Closed (Q) ZOST-11 14 (RPV)	
ZSIS-HCVR68B	2	B	1	Globe	5	11-1	B-3	QST		ZOST-47 3A/2B) Stroke & Time Open/Closed (Q) ZOST-11 14 (RPV)	
ZSIS-MOV-869A	2	A	3	Gate	5	11-1	-1-9	QST	CS,DR	ZOST-11 10 Stroke & Time Open (CSO) (RPV)	
ZSIS-MOV-869B	2	A	3	Gate	5	11-1	B-3	QST	CS,DR	ZBVT 147 11 Leak Test (R)	
ZSIS-40-985	2	A	24	Globe	5	11-2	F-1	QST		ZOST-11 10 Stroke & Time Open (CSO) (RPV)	
ZSIS-894	2	C	4	Check		11-1	E-3	CJ		ZBVT 147 3 Leak Test (R)	
								Q5		ZOST-11 1 FS FD (Q) ZOST-11 2 FS FD (Q)	

SYSTEM NAME: Safety Injection										SYSTEM NUMBER: 11		
BVPS 2 IST VALVE TESTING OUTLINE												
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments		
						OM No.	Coord.					
2SIS-RS	2	C	4	Check		11-1	F-4	QS		20ST-11-2-FS-FD (Q)		
2SIS-MOV8809A	2	B	14	Gate	O	11-1	E-1	QST		20ST-11-1-FS-RD (Q)		
2SIS-MOV8809B	2	B	14	Gate	O	11-1	G-1	QST		20ST-47-3A(3B) Stroke & Time Closed (Q) (RPV)		
2SIS-MOV8811A	2	B	10	Gate	S	11-1	E-5	QST		20ST-47-3A(3B) Stroke & Time Closed (Q) (RPV)		
2SIS-MOV8811B	2	B	10	Gate	S	11-1	F-5	QST		20ST-47-3A(3B) Stroke & Time Open (Q) (RPV)		
2SIS-RV8864A	2	C	1/2x1	Relief		11-1	F-7	SPT		2BVT-1-20-5 (R)		
2SIS-RV8864B	2	C	1/2x1	Relief		11-1	G-6	SPT		2BVT-1-60-5 (R)		
2SIS-RV8865	2	C	1/2x1	Relief		11-1	F-7	SPT		2BVT-1-60-5 (R)		
2SIS-MOV8867A	2	B	10	Gate	O	11-1	F-7	QST		20ST-47-3A(3B) Stroke & Time Closed (Q) (RPV)		
2SIS-MOV8867B	2	B	10	Gate	O	11-1	E-8	QST		20ST-47-3A(3B) Stroke & Time Closed (Q) (RPV)		
2SIS-MOV8868A	2	A	10	Gate	O	11-1	E-8	QST		20ST-47-3A(3B) Stroke & Time Closed (Q) (RPV)		
								LT		2BVT-1-47-11-Leak Test (R)		
2SIS-MOV8868B	2	A	10	Gate	O	11-1	G-8	QST		20ST-47-3A(3B) Stroke & Time Closed (Q) (RPV)		
								LT		2BVT-1-47-11-Leak Test (R)		
2SIS-MOV8869	2	A	10	Gate	S	11-1	F-9	QST	CS-07	20ST-1-10-Stroke & Time Open (CS) (RPV)		
								LT		2BVT-1-47-11-Leak Test (R)		

BVP5 2 IST VALVE TESTING OUTLINE										
SYSTEM NAME: Safety Injection										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2SIS-MOV8890A	2	B	4	Gate	S	11-1	F-4	QST		QOST-47 2A(2B) Stroke & Time Open (Q) (RPV)
2SIS-MOV8890B	2	B	4	Gate	S	11-1	F-4	QST		QOST-47 2A(2B) Stroke & Time Open (Q) (RPV)

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BVT5-2 IST  
VALVE TESTING OUTLINE

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Aviller Requests	Comments	SYSTEM NUMBER: 11
						OM No.	Coord.				
2GNS-AOV101-1	2	A	1	Globe	O	11-2	C-3	QST	RR1	2OST 47 3A(2B)-Stroke & Time Close (O) 2BVT 1 11 3 (RPV)	
2GNS-AOV101-2	2	A	1	Globe	O	11-2	C-3	QST		2OST 47 3A(2B)-Stroke & Time Close (O) 2BVT 1 11 3 (RPV)	
2GNS-SOV853A	2	B	1	Globe	S	11-2	D-4	QST		2OST 47 3A(2B)-Stroke & Time Open (O) 2BVT 1 11 3 (RPV)	
2GNS-SOV853B	2	B	1	Globe	S	11-2	C-6	QST		2OST 47 3A(2B)-Stroke & Time Open (O) 2BVT 1 11 3 (RPV)	
2GNS-SOV853C	2	B	1	Globe	S	11-2	C-9	QST		2OST 47 3A(2B)-Stroke & Time Open (O) 2BVT 1 11 3 (RPV)	
2GNS-SOV853D	2	B	1	Globe	S	11-2	C-4	QST		2OST 47 3A(2B)-Stroke & Time Open (O) 2BVT 1 11 3 (RPV)	
2GNS-SOV853E	2	B	1	Globe	S	11-2	C-6	QST		2OST 47 3A(2B)-Stroke & Time Open (O) 2BVT 1 11 3 (RPV)	
2GNS-SOV853F	2	B	1	Globe	S	11-2	D-9	QST		2OST 47 3A(2B)-Stroke & Time Open (O) 2BVT 1 11 3 (RPV)	
2GNS-SOV854A	2	B	1	Globe	S	11-2	C-2	QST		2OST 47 3A(2B)-Stroke & Time Open (O) 2BVT 1 11 3 (RPV)	
2GNS-SOV854B	2	B	1	Globe	S	11-2	D-2	QST		2OST 47 3A(2B)-Stroke & Time Open (O) 2BVT 1 11 3 (RPV)	

SYSTEM NAME: Containment Vacuum										SYSTEM NUMBER: 12	
BVPS 2 IST VALVE TESTING OUTLINE											
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	HSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						OM No.	Coord.				
2CVS-93	2	A/C	1	Check		12-1	E-2	QS	RR13	2BVT 147.5-FS RD (L) Leak Test (R)	
								LT	RR1	2BVT 147.5-Leak Test (R)	
2CVS-SOV102	2	A	1	Globe	O	12-1	E-3	QST	CSJ52	2OST 110 Stroke & Time Closed (CSD)	
								LT	R:1	2BVT 147.5-Leak Test (R) (RPV)	
2CVS-151	2	A/P	8	Butterfly	LS	12-1	A-2	LT	RR1 RR2	2BVT 147.5-Leak Test (R)	
2CVS-151-1	2	A/P	8	Butterfly	LS	12-1	A-3	LT	RR1 RR2	2BVT 147.5-Leak Test (R)	
2CVS-SOV151A	2	A	2	Globe	O	12-1	C-4	QST		2OST 47.3A (B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 147.5-Leak Test (R) (RPV)	
2CVS-SOV151B	2	A	2	Globe	O	12-1	D-4	QST		2OST 34 (B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 147.5-Leak Test (R) (RPV)	
2CVS-SOV152A	2	A	2	Globe	O	12-1	C-5	QST		2OST 47.3A (B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 147.5-Leak Test (R) (RPV)	
2CVS-SOV152B	2	A	2	Globe	O	12-1	D-4	Qb		2OST 47.3A (B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 147.5-Leak Test (R) (RPV)	
2CVS-SOV153A	2	A	1	Globe	O	12-1	F-3	QST	CSJ52	2OST 110 Stroke & Time Closed (CSD)	
								LT	RR1	2BVT 147.5-Leak Test (R) (RPV)	



BVPS-2 IST VALVE TESTING OUTLINE										
SYSTEM NAME: Containment Vacuum										
SYSTEM NUMBER: 12										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2CVS-SOV153B	2	A	1	Globe	G	12.1	F.2	QST	CSJ52	20ST-1 10 Stroke & Time Closed (CSD)
								LT	RR1	28VT : 27.5-Leak Test (R) (RPV)

BVPS 2 IST VALVE TESTING OUTLINE											
SYSTEM NAME: Leakage Monitoring											SYSTEM NUMBER: 12
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						OM No.	Coord.				
2LMS-51	2	A/P	1/2	Gate	SS	12-2	E-6	LT	RR1	2BVT 147.5 Leak Test (R)	
2LMS-52	2	A/F	1/2	Gate	SS	12-2	E-6	LT	RR1	23VT 147.5 Leak Test (R)	
2LMS-SOV950	2	B/P	1/4	Globe	O	12-1	F-9	POS		20M-12.4 A. (RPV)	
2LMS-SOV951	2	B/P	1/4	Globe	O	12-1	E-9	POS		20M-12.4 A. (RPV)	
2LMS-SOV952	2	B/P	1/4	Globe	O	12-1	C-9	POS		20M-12.4 A. (RPV)	
2LMS-SOV953	2	B/P	1/4	Globe	O	12-1	B-9	POS		20M-12.4 A. (RPV)	

BVP5 2 IST VALVE TESTING OUTLINE												SYSTEM NUMBER: 17
SYSTEM NAME: Containment Depressurization (Quench Spray)												Comments
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	SYSTEM NUMBER: 17	
						OM No.	Coord.					
2QSS-3	2	A/C	10	Check		13-2	E-10	QS	CSJ28	20ST-110-FS-FD-RD By Mechanical Exerciser (CSD)		
2QSS-4	2	A/C	10	Check		13-2	C-9	LT	RR1-RR2	2BVT-147-5-Leak-Test (R)		
2QSS-MOV100A	2	B	12	Gate	O	13-2	A-8	QST		20ST-147-3A(2B)-Stroke & Time Open (Q) (RPV)		
2QSS-MOV100B	2	B	12	Gate	O	13-2	G-6	QST		20ST-147-3A(2B)-Stroke & Time Open (Q) (RPV)		
2QSS-SOV100A	2	A	2	Globe	S	13-2	D-7	QST	CSJ29	20ST-110-Stroke & Time Open/Closed (CSD)		
2QSS-SOV100B	2	A	2	Globe	S	13-2	E-7	LT	RR1-RR27	2BVT-147-5-Leak-Test (R) (RPV)		
2QSS-MOV101A	2	A	10	Gate	C	13-1	C-9	QST		20ST-110-Stroke & Time Open/Closed (CSD)		
2QSS-MOV101B	2	A	10	Gate	O	13-2	D-9	LT	RR1-RR2, RR26	2BVT-147-5-Leak-Test (R)		
2QSS-RV101A	2	A/C	N/A	Reverse		13-2	C-9	SPT		2BVT-147-7 (R)		
								LT	RR1-RR2, RR26	2BVT-147-5-Leak-Test (R)		

BVPS 2 IST VALVE TESTING OUTLINE										
SYSTEM NAME: Containment Depressurization (Quench Spray)							SYSTEM NUMBER: 12			
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM N.	Coord.			
2QSS-RV101B	2	A/C	1½x1	Relief		13-2	E-9	SPT		2BVT 140 5-(R)
								LT	RR1 RR2 RR2B	2BVT 147 5-Leak Test (R)
2QSS-SOV101A	2	B	2	Globe	D	13-2	D-7	QST		2OST-47 3A(3B) Stroke & Time Open/Closed (Q) 2OST-13 10A (RPV-Open) 2BVT 147 5-(RPV-Closed)
2QSS-SOV101B	2	B	2	Globe	O	13-2	E-7	QST		2OST-47 3A(3B) Stroke & Time Open/Closed (Q) 2OST-13 10B (RPV-Open) 2BVT 147 5-(RPV-Closed)
2QSS-MOV102A	2	B	6	Gate	S	13-2	E-5	QST	CSJST	2OST-1 10 Stroke & Time Open (CSJ) (RPV)
2QSS-MOV102B	2	B	6	Gate	S	13-2	E-5	QST	CSJST	2OST-1 10 Stroke & Time Open (CSJ) (RPV)
2QSS-RV102A	2	C	1½x2	Relief		13-2	C-6	SPT		2BVT 140 5-(R)
2QSS-RV102B	2	C	1½x2	Relief		13-2	E-6	SPT		2BVT 140 5-(R)
2QSS-SOV102A	2	B	2	Globe	D	13-2	D-7	QST		2OST-47 3A(3B) Stroke & Time Open/Closed (Q) 2OST-13 10A (RPV-Open) 2BVT 147 5-(RPV-Closed)
2QSS-SOV102B	2	B	2	Globe	O	13-2	E-7	QST		2OST-47 3A(3B) Stroke & Time Open/Closed (Q) 2OST-13 10B (RPV-Open) 2BVT 147 5-(RPV-Closed)
2QSS-ADV120A	2	B	6	Globe	O	13-2	D-3	QST		2OST-47 3A(3B) Stroke & Time Closed (Q) (RPV)
2QSS-ADV120B	2	B	6	Globe	O	13-2	D-3	QST		2OST-47 3A(3B) Stroke & Time Closed (Q) (RPV)
2QSS-227	2	C	2	Check		13-2	C-6	QS		2OST-13 10A FS RD (Q)
								QS		2OST-13 10B FS RD (Q)
2QSS-228	2	C	2	Check		13-2	D-6	QS		2OST-13 10B FS RD (Q)
								QS		2OST-13 10A FS RD (Q)

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BVP5 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 13
SYSTEM NAME: Containment Depressurization (Quench Spray)										Comments
Valve Mark Number	Valve Class	Valve Category	Valve Size (In.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	
						OM No.	Coord.			
2QSS*301	2	A/C	2 1/2	Check		13-2	C-9	QS	CSJ/30	2QSS-1 10 FS FD RD by Mechanical Exerciser (CSE)
2QSS*303	2	C	2	Check		13-2	A-B	LT	RR1	2BVT 1 47.5 Leak Test (R)
2QSS*304	2	C	2	Check		13-2	F-9	QS		2QSS-13 10A FS FD RD (Q)
										2QSS-13 10B FS FD RD (Q)



BVP5 2 IST VALVE TESTING OUTLINE												SYSTEM NUMBER: 13
SYSTEM NAME: Containment Depressurization (Recirculation Spray)												Comments
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	OM No.	Coord.	Test Requirement	CSJ or Relief Requests	CSJ or Relief Requests	Comments	
2RSS-29	2	C	12	Check		13-1	B-2	QS	CSJ31	CSJ31	20ST-1 10 FS FD by Mechanical Exerciser (CSD)	
2RSS-30	2	C	12	Clear		13-1	B-9	QS	CSJ31*	CSJ31*	20ST-1 10 FS FD by Mechanical Exerciser (CSD)	
2RSS-31	2	C	12	Check		13-1	B-4	QS	CSJ31	CSJ31	20ST-1 10 FS FD by Mechanical Exerciser (CSD)	
2RSS-32	2	C	12	Check		13-1	B-7	QS	CSJ31	CSJ31	20ST-1 10 FS FD by Mechanical Exerciser (CSD)	
2RSS-RV101C	2	C	N/A	Relief		13-1	C-4	SPT			2BVT 1 60 S-(R)	
2RSS-RV101D	2	C	N/A	Relief		13-1	C-7	SPT			2BVT 1 60 S-(R)	
2RSS-MOV154C	2	B	3	Gate	S	13-1	C-4	QST			20ST 47 3A(3B) Stroke & Time Open/Closed (Q) (RPV)	
2RSS-MOV154F	2	B	3	Gate	S	13-1	C-7	QST			20ST 47 3A(3B) Stroke & Time Open/Closed (Q) (RPV)	
2RSS-MOV155A	2	B	12	Butterfly	O	13-1	G-4	QST			20ST 47 3A(3B) Stroke & Time Open (Q) (RPV)	
2RSS-MOV155B	2	B	12	Butterfly	O	13-1	G-7	QST			20ST 47 3A(3B) Stroke & Time Open (Q) (RPV)	
2RSS-MOV155C	2	B	12	Butterfly	O	13-1	F-5	QST			20ST 47 3A(3B) Stroke & Time Open (Q) (RPV)	
2RSS-MOV155D	2	B	12	Butterfly	O	13-1	F-6	QST			20ST 47 3A(3B) Stroke & Time Open (Q) (RPV)	
2RSS-MOV156A	2	B	12	Gate	O	13-1	B-2	QST			20ST 47 3A(3B) Stroke & Time Open (Q) (RPV)	
2RSS-MOV156B	2	B	12	Gate	O	13-1	B-9	QST			20ST 47 3A(3B) Stroke & Time Open (Q) (RPV)	
2RSS-MOV156C	2	B	12	Gate	O	13-1	B-4	QST			20ST 47 3A(3B) Stroke & Time Open (Q) (RPV)	
2RSS-MOV156D	2	B	12	Gate	O	13-1	B-7	QST			20ST 47 3A(3B) Stroke & Time Open (Q) (RPV)	
2RSS-RV154A	2	C	N/A	Relief		13-1	B-2	SPT			2BVT 1 60 S-(R)	



INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BVP5 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 21
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						DM No.	Coord.			
2RSS-RV156B	2	C	15x1	Relief		13-1	B-9	SPT		2BVT 160 S (R)
2RSS-RV156C	2	C	15x1	Relief		13-1	B-4	SPT		2BVT 160 S (R)
2RSS-RV156D	2	C	15x1	Relief		13-1	B-7	SPT		2BVT 160 S (R)

BVPS 2 (ST)  
VALVE TESTING OUTLINE

SYSTEM NAME: Reactor Plant Sample

SYSTEM NUMBER: 14A

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ o/ Relief Requests	Comments
						OM No.	Coord.			
2SSR*AOV100A1	2	A	1/4	Globe	O	14A-1	C-9	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
								LT	RR1	2BVT 1 47 5-Leak Test (R)
2SSR*AOV100A2	2	A	1/4	Globe	O	14A-1	D-9	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
								LT	RR1 RR2B	2BVT 1 47 5-Leak Test (R)
2SSR*AOV102A1	2	A	1/4	Globe	O	14A-2	C-1	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
								LT	RR1	2BVT 1 47 5-Leak Test (R)
2SSR*AOV102A2	2	A	1/4	Globe	O	14A-2	D-1	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
								LT	RR1 RR2B	2BVT 1 47 5-Leak Test (R)
2SSR*AOV109A1	2	A	1/4	Globe	O	14A-1	C-7	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
								LT	RR1	2BVT 1 47 5-Leak Test (R)
2SSR*AOV109A2	2	A	1/4	Globe	O	14A-1	D-7	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
								LT	RR1 RR2B	2BVT 1 47 5-Leak Test (R)
2SSR*AOV112A1	2	A	1/4	Globe	O	14A-1	C-8	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
								LT	RR1	2BVT 1 47 5-Leak Test (R)
2SSR*AOV112A2	2	A	1/4	Globe	O	14A-1	D-8	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
								LT	RR1 RR2B	2BVT 1 47 5-Leak Test (R)
2SSR*AOV117A	2	B	1/4	Globe	O	14A-1	B-1	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)

BVPS 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 14A
SYSTEM NAME: Reactor Plant Sample										Comments
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drafting		Test Requirement	CSJ or Relief Requests	
						OM No.	Coord.			
25SR-ADV117B	2	B	1/2	Globe	O	14A.1	B.4	QST		20ST 47.3A(B), Stroke & Time Closed (Q) (RPV)
25SR-ADV117C	2	B	1/2	Globe	O	14A.1	B.5	QST		20ST 47.3A(B), Stroke & Time Closed (Q) (RPV)
25SR-RV117	2	A/C	1/2x1	Relief		14A.1	D.7	SPT		2BVT 1.60.5 (R)
								LT	RR1,RR2B	2BVT 1.47.5-Leak Test (R)
25SR-RV118	2	A/C	1/2x1	Relief		14A.2	C.1	SPT		2BVT 1.60.5 (R)
								LT	RR1,RR2B	2BVT 1.47.5-Leak Test (R)
25SR-RV119	2	A/C	1/2x1	Relief		14A.1	D.9	SPT		2BVT 1.60.5 (R)
								LT	RR1,RR2B	2BVT 1.47.5-Leak Test (R)
25SR-RV120	2	A/C	1/2x1	Relief		14A.2	C.2	SPT		2BVT 1.60.5 (R)
								LT	RR1,RR2B	2BVT 1.47.5-Leak Test (R)
25SR-RV121	2	A/C	1/2x1	Relief		14A.1	D.8	SPT		2BVT 1.60.5 (R)
								LT	RR1,RR2B	2BVT 1.47.5-Leak Test (R)
25SR-RV122	2	A/C	1/2x1	Relief		14A.2	C.3	SPT		2BVT 1.60.5 (R)
								LT	RR1,RR2B	2BVT 1.47.5-Leak Test (R)
25SR-SDV128A1	2	A	1/2	Globe	O	14A.2	B.3	QST		20ST 47.3A(B), Stroke & Time Closed (Q)
								LT	RR1	2BVT 1.47.5-Leak Test (R) (RPV)

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BVPs 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 14A
SYSTEM NAME: Reactor Plant Sample										Comments
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	
						OM No.	Coord.			
2SSR-SOV129A2	2	A	1/2	Globe	O	14A-2	D-2	GST	RR1 RR28	20ST-47 3A(UB) Stroke & Time Closed (Q) 2BVT 147 5-Leak Test (R) (RPV)
2SSR-SOV129A1	2	A	1/2	Globe	O	14A-2	B-4	GST		20ST-47 3A(UB) Stroke & Time Closed (Q)
2SSR-SOV129A3	2	A	1/2	Globe	O	14A-2	D-2	GST	RR1	20ST-47 3A(UB) Stroke & Time Closed (Q) 2BVT 147 5-Leak Test (R) (RPV)
2SSR-SOV130A1	2	A	1/2	Globe	O	14A-2	B-10	GST	RR1 RR28	20ST-47 3A(UB) Stroke & Time Closed (Q) 2BVT 147 5-Leak Test (R) (RPV)
2SSR-SOV130A2	2	A	1/2	Globe	O	14A-2	C-10	GST		20ST-47 3A(UB) Stroke & Time Closed (Q)
								LT	RR1	2BVT 147 5-Leak Test (R) (RPV)

BVPS 2 IST VALVE TESTING OUTLINE										
SYSTEM NUMBER: 14C										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CS2 or Relief Requests	Comments
						OM No.	Coord.			
2PAS-SOV105A1	2	A	1/4	Globe	S	14C-2	A-2	QST		20ST 147 3A(3B)-Stroke & Time Close (Q)
								LT	RR1	2BVT 147 5-Leak Test (R) (RPV)
2PAS-SOV105A2	2	A	1/4	Globe	S	14C-2	A-3	QST		20ST 147 3A(3B)-Stroke & Time Close (Q)
								LT	RR1	2BVT 147 5-Leak Test (R) (RPV)



BVPs 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 15
SYSTEM NAME: Primary Component Cooling Water										Comments
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	
						OM No.	Coord.			
2CCP-4	3	C	20	Check		15-1	B-5	QS		ZOST-15.1-FS-FD-RD (Q)
2CCP-5	3	C	20	Check		15-1	F-5	QS		ZOST-15.2-FS-FD-RD (Q)
2CCP-6	3	C	20	Check		15-1	D-5	QS		ZOST-15.3-FS-FD-RD (Q)
2CCP-27A	3	B	20	Butterfly	O	15-1	C-6	QS	CSJ54	ZOST-110-Stroke Only Closed (CSD)
2CCP-27B	3	B	20	Butterfly	O	15-1	E-6	QS	CSJ54	ZOST-110-Stroke Only Closed (CSD)
2CCP-RV102	2	A/C	1.5x1	Relief		15-2	D-4	SPT		2BvT 1.60 S (R)
2CCP-RV103	2	A/C	1.5x1	Relief		15-2	D-5	SPT	RR1-RR2 RR2B	2BvT 1.47 S-Leak Test (R)
2CCP-RV104	2	A/C	1.5x1	Relief		15-2	D-4	SPT		2BvT 1.60 S (R)
2CCP-RV105	2	A/C	1.5x1	Relief		15-2	E-4	SPT	RR1-RR2 RR2B	2BvT 1.47 S-Leak Test (R)
2CCP-ADV107A	3	B	6	Globe	D	15-3	C-5	QST	CSJ32	2OST-110-Stroke Time & Fail Closed (CSD) (RPV)
2CCP-ADV107B	3	B	2	Globe	O	15-3	F-5	QST	CSJ32	2OST-110-Stroke Time & Fail Closed (CSD) (RPV)
2CCP-ADV107C	3	B	2	Globe	O	15-3	F-10	QST	CSJ32	2OST-110-Stroke Time & Fail Closed (CSD) (RPV)
2CCP-MOV-112A	3	B	18	Butterfly	5	15-2	D-6	QST		2OST-47.3A(B)-Stroke & Time Open (Q) (RPV)



BVPS 2 IST VALVE TESTING OUTLINE												SYSTEM NUMBER: 15
SYSTEM NAME: Primary Component Cooling Water												Comments
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	QST	SPT	
						OM No.	Coord.					
2CCP-MOV112B	3	B	18	Butterfly	S	15-2	F-8	QST		20ST-47-3A(3B)-Stroke & Time Open (Q); (RPV)		
2CCP-RV116A	3	C	1/2x1	Relief		15-3	C-2	SPT		2BVT-160.5-(R)		
2CCP-RV116B	3	C	1/2x1	Relief		15-3	F-1	SPT		2BVT-160.5-(R)		
2CCP-RV116C	3	C	1/2x1	Relief		15-3	F-6	SPT		2BVT-160.5-(R)		
2CCP-MOV118	3	B	2	Ball	O	15-2	C-2	QST		20ST-47-3A(3B)-Stroke & Time Closed (Q); (RPV)		
2CCP-MOV119	3	B	2	Ball	O	15-2	C-2	QST		20ST-47-3A(3B)-Stroke & Time Closed (Q); (RPV)		
2CCP-MOV120	3	B	2	Ball	O	15-2	A-1	QST		20ST-47-3A(3B)-Stroke & Time Closed (Q); (RPV)		
2CCP-RV120A	3	C	1/2x1	Relief		15-2	C-2	SPT		2BVT-160.5-(R)		
2CCP-RV140	3	C	1/2x1	Relief		15-2	E-7	SPT		2BVT-160.5-(R)		
2CCP-RV141	3	C	1/2x1	Relief		15-2	B-7	SPT		2BVT-160.5-(R)		
2CCP-MOV150-1	2	A	18	Butterfly	O	15-2	D-4	QST	CSJ33	20ST-1-10-Stroke & Time Closed (CSD); (RPV)		
2CCP-MOV150-2	2	A	18	Butterfly	O	15-2	D-5	QST	RR1-RR2 RR2B	2BVT-147.5-Leak Test (R)		
									CSJ33	20ST-1-10-Stroke & Time Closed (CSD); (RPV)		
2CCP-MOV151-1	2	A	18	Butterfly	O	15-2	E-4	QST	RR1-RR2	2BVT-147.5-Leak Test (R)		
									CSJ33	20ST-1-10-Stroke & Time Closed (CSD); (RPV)		
2CCP-MOV151-1	2	A	18	Butterfly	O	15-2	E-4	LT	RR1-RR2 RR2B	2BVT-147.5-Leak Test (R)		
									CSJ33	20ST-1-10-Stroke & Time Closed (CSD); (RPV)		

**BVPS 2 IST  
VALVE TESTING OUTLINE**

SYSTEM NAME: Primary Component Cooling Water

SYSTEM NUMBER: 15

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2CCP*MOV151-2	2	A	18	Butterfly	O	15-2	E-5	QST	CSJ33	2OST-1 10-Stroke & Time Closed (CSD) (RPV)
								LT	RR1 RR2	2BVT 1 47 5-Leak Test (R)
2CCP*MOV156-1	2	A	18	Butterfly	O	15-2	D-3	QST	CSJ33	2OST-1 10-Stroke & Time Closed (CSD) (RPV)
								LT	RR1 RR2 RR2B	2BVT 1 47 5-Leak Test (R)
2CCP*MOV156-2	2	A	18	Butterfly	O	15-2	U-4	QST	CSJ33	2OST-1 10-Stroke & Time Closed (CSD) (RPV)
								LT	RR1 RR2	2BVT 1 47 5-Leak Test (R)
2CCP*MOV157-1	2	A	18	Butterfly	O	15-2	E-3	QST	CSJ33	2OST-1 10-Stroke & Time Closed (CSD) (RPV)
								LT	RR1 RR2 RR2B	2BVT 1 47 5-Leak Test (R)
2CCP*MOV157-2	2	A	18	Butterfly	O	15-2	E-4	QST	CSJ33	2OST-1 10-Stroke & Time Closed (CSD) (RPV)
								LT	RR1 RR2	2BVT 1 47 5-Leak Test (R)
2CCP*AOV171	3	B	3	Globe	O	15-2	E-7	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
2CCP*AOV172	3	B	3	Globe	O	15-2	D-7	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
2CCP*AOV173	3	B	3	Globe	O	15-2	B-7	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
2CCP*AOV174	3	B	3	Globe	O	15-2	B-7	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
2CCP*MOV175-1	2	B	10	Butterfly	O	15-5	B-5	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
2CCP*MOV175-2	3	B	10	Butterfly	O	15-5	B-5	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)
2CCP*MOV176-1	3	B	10	Butterfly	O	15-5	A-5	QST		2OST-47 3A(3B)-Stroke & Time Closed (Q) (RPV)

BVPS 2 IST VALVE TESTING OUTLINE												SYSTEM NUMBER: 15
SYSTEM NAME: Primary Component Cooling Water												
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments		
						OM No.	Coord.					
2CCP-MOV176-2	3	B	10	Butterfly	O	15-5	A-5	QST		ZOST-47-3A(3B)-Stroke & Time Closed (Q)(RPV)		
2CCP-MOV177-1	3	B	10	Butterfly	O	15-5	G-5	QST		ZOST-47-3A(3B)-Stroke & Time Closed (Q)(RPV)		
2CCP-MOV177-2	3	B	10	Butterfly	O	15-5	G-5	QST		ZOST-47-3A(3B)-Stroke & Time Closed (Q)(RPV)		
2CCP-MOV178-1	3	B	10	Butterfly	O	15-5	G-5	QST		ZOST-47-3A(3B)-Stroke & Time Closed (Q)(RPV)		
2CCP-MOV177-2	3	B	10	Butterfly	O	15-5	G-5	QST		ZOST-47-3A(3B)-Stroke & Time Closed (Q)(RPV)		
2CCP-289	3	C	2	Check		15-3	C-1	QS	RR14	ZBVT-1-60-6-FS RD By Leak Test (R)		
2CCP-290	3	C	2	Check		15-3	F-1	QS	RR14	ZBVT-1-60-6-FS RD By Leak Test (R)		
2CCP-291	3	C	2	Check		15-3	F-6	QS	RR14	ZBVT-1-60-6-FS RD By Leak Test (R)		
2CCP-321	3	B	2	Butterfly	O	15-1	B-3	QS		ZOST-15-1-Stroke Only Closed (Q)		
2CCP-322	3	B	2	Butterfly	O	15-1	F-3	QS		ZOST-15-2-Stroke Only Closed (Q)		
2CCP-323	3	B	2	Gate	O	15-1	C-3	QS		ZOST-15-1-Stroke Only Closed (Q)		
2CCP-324	3	B	20	Butterfly	O	15-1	E-3	QS		ZOST-15-2-Stroke Only Closed (Q)		
2CCP-325	3	B	20	Butterfly	O	15-1	C-3	QS		ZOST-15-1-Stroke Only Closed (Q)		
2CCP-326	3	B	2	Butterfly	O	15-1	E-3	QS		ZOST-15-2-Stroke Only Closed (Q)		
2CCP-332	3	C	2	Check		15-2	A-2	QS	RR15	ZBVT-1-60-6-FS RD By Leak Test (R)		
2CCP-334	3	B	20	Butterfly	O	15-1	F-8	QS	CS/54	ZOST-1-10-Stroke Only Closed (CSD)		
2CCP-335	3	B	20	Butterfly	O	15-1	D-3	QS	CS/54	ZOST-1-10-Stroke Only Closed (CSD)		

BVPS 2 IST VALVE TESTING OUTLINE												SYSTEM NUMBER: 20	
SYSTEM NAME: Fuel Pool Cooling & Purification													
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments			
						OM No.	Coord						
2FNC-9	2	A/P	6	Ball	LS	20-1	E-2	LT	RR1,RR2	2BVT 1 47.5-Leak Test (R)			
2FNC-3B	2	A/P	6	Ball	LS	20-1	E-2	LT	RR1,RR2	2BVT 1 47.5-Leak Test (R)			
2FNC-121	2	A/P	6	Ball	LS	20-1	D-2	LT	RR1,RR2	2BVT 1 47.5-Leak Test (R)			
2FNC-122	2	A/P	6	Ball	LS	20-1	F-2	LT	RR1,RR2	2BVT 1 47.5-Leak Test (R)			

SYSTEM NAME: Main Steam										SYSTEM NUMBER: 21	
SVPS 2 IST										VALVE TESTING OUTLINE	
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						OM No.	Coord.				
2MSS-18	3	C	3	Check		21-2	A-3	QS	RR16	2BVT 1 80 6 FS RD By Leak Test (R) 2OST 24 4 FS FD (Q)	
2MSS-19	3	C	3	Check		21-2	C-2	QS	RR16	2BVT 1 80 6 FS RD By Leak Test (R) 2OST 24 4 FS FD (Q)	
2MSS-20	3	C	3	Check		21-2	D-2	QS	RR16	2BVT 1 80 6 FS RD By Leak Test (R) 2OST 24 4 FS FD (Q)	
2MSS-ADV101A	2	B	32	Globe	O	21-1	G-8	Q*		2OST 21 1 Partial Stroked Closed Only (Q)	
2MSS-ADV101B	2	B	32	Globe	G	21-1	D-8	QST	CSJ35	2OST 21 7 Stroke & Time Closed (CSD) (RPV) 2OST 21 5 Partial Stroked Closed Only (Q)	
2MSS-ADV101C	2	B	32	Globe	O	21-1	B-8	QS	CSJ35	2OST 21 7 Stroke & Time Closed (CSD) (RPV) 2OST 21 2 Partial Stroked Closed Only (Q)	
2MSS-SV101A	2	C	6x10	Relief		21-1	F-5	SPT		2BVT 1 21 1(2)-(R)	
2MSS-SV101B	2	C	6x10	Relief		21-1	C-5	SPT		2BVT 1 21 1(2)-(R)	
2MSS-SV101C	2	C	6x10	Relief		21-1	A-5	SPT		2BVT 1 21 1(2)-(R)	
2MSS-ACH102A	2	B	3	Globe	S	21-1	G-7	QST		2OST 47 3A(3B) Stroke & Time Closed (Q) (RPV) 2OST 47 3A(3B) Stroke & Time Closed (Q) (RPV)	
2MSS-ACH102B	2	B	3	Globe	S	21-1	E-7	QST		2OST 47 3A(3B) Stroke & Time Closed (Q) (RPV) 2OST 47 3A(3B) Stroke & Time Closed (Q) (RPV)	



BVPS 2 IST VALVE TESTING OUTLINE													SYSTEM NUMBER: 21
SYSTEM NAME: Main Steam													
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments			
						OM No.	Coord.						
2MSS-SOV102C	2	B	2	Globe	S	21-1	C-7	QST		20ST-47 3A(3B) Stroke & Time Closed (Q) (RPV)			
2MSS-SV102A	2	C	6x10	Relief		21-1	F-5	SPT		2BVT 1 21 1(2)-(R)			
2MSS-SV102B	2	C	6x10	Relief		21-1	C-4	SPT		2BVT 1 21 1(2)-(R)			
2MSS-SV102C	2	C	6x10	Relief		21-1	A-5	SPT		2BVT 1 21 1(2)-(R)			
2MSS-SV103A	2	C	6x10	Relief		21-1	F-4	SPT		2BVT 1 21 1(2)-(R)			
2MSS-SV103B	2	C	6x10	Relief		21-1	C-4	SPT		2BVT 1 21 1(2)-(R)			
2MSS-SV103C	2	C	6x10	Relief		21-1	A-4	SPT		2BVT 1 21 1(2)-(R)			
2MSS-SV104A	2	C	6x10	Relief		21-1	F-4	SPT		2BVT 1 21 1(2)-(R)			
2MSS-SV104B	2	C	6x10	Relief		21-1	C-4	SPT		2BVT 1 21 1(2)-(R)			
2MSS-SV104C	2	C	6x10	Relief		21-1	A-4	SPT		2BVT 1 21 1(2)-(R)			
2MSS-SOV105A	2	B	3	Globe	S	21-2	D-1	QST		20ST 24.4 Stroke & Time Open (Q) (RPV)			
2MSS-SOV105B	2	B	3	Globe	S	21-2	C-2	QST		20ST 24.4 Stroke & Time Open (Q) (RPV)			
2MSS-SOV105C	2	B	3	Globe	S	21-2	A-1	QST		20ST 24.4 Stroke & Time Open (Q) (RPV)			
2MSS-SOV105D	2	B	3	Globe	S	21-2	D-2	QST		20ST 24.4 Stroke & Time Open (Q) (RPV)			
2MSS-SOV105E	2	B	3	Globe	S	21-2	C-2	QST		20ST 24.4 Stroke & Time Open (Q) (RPV)			
2MSS-SOV105F	2	B	3	Globe	S	21-2	A-2	QST		20ST 24.4 Stroke & Time Open (Q) (RPV)			
2MSS-SV105A	2	C	6x10	Relief		21-1	F-3	SPT		2BVT 1 21 1(2)-(R)			



INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

SYSTEM NAME: Main Steam										SYSTEM NUMBER: 21	
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						OM No.	Coord.				
2MSS-SV105B	2	C	6x10	Relief		21-1	C-3	SFT		2BVT 1.21 1(2)-(R)	
2MSS-SV105C	2	C	6x10	Relief		21-1	A-3	SPT		2BVT 1.21 1(2)-(R)	
2MSS-196	3	C	3	Check		21-2	D-3	OS	RR16	2BVT 1.60 6-FS RD By Leak Test (R)	
								OS		2OST-24 4-FS FD (O)	
2MSS-189	3	C	3	Check		21-2	C-3	OS	RR16	2BVT 1.60 6-FS RD By Leak Test (R)	
								OS		2OST-24 4-FS FD (O)	
2MSS-262	3	C	3	Check		21-2	A-2	OS	RR16	2BVT 1.60 6-FS RD By Leak Test (R)	
								OS		2OST-24 4-FS FD (O)	

BVP5 2 (ST) VALVE TESTING OUTLINE											
SYSTEM NAME: Main Steam (Drains)											SYSTEM NUMBER: 21
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						OM No.	Coord.				
2SDS-AOV111A1	2	B	1 1/2	Globe	O	21-3	B-4	QST		20ST-47 3A(3B)-Stroke & Time Closed (Q), (RPV)	
2SDS-AOV111A2	2	B	1 1/2	Globe	O	21-3	B-4	QST		20ST-47 3A(3B)-Stroke & Time Closed (Q), (RPV)	
2SDS-AOV111B1	2	B	1 1/2	Globe	O	21-3	B-6	QST		20ST-47 3A(3B)-Stroke & Time Closed (Q), (RPV)	
2SDS-AOV111B2	2	B	1 1/2	Globe	O	21-3	B-6	QST		20ST-47 3A(3B)-Stroke & Time Closed (Q), (RPV)	
2SDS-AOV111C1	2	B	1 1/2	Globe	O	21-3	B-8	QST		20ST-47 3A(3B)-Stroke & Time Closed (Q), (RPV)	
2SDS-AOV111C2	2	B	1 1/2	Globe	O	21-3	B-8	QST		20ST-47 3A(3B)-Stroke & Time Closed (Q), (RPV)	
2SDS-AOV129A	2	B	1	Globe	O	21-3	C-1	QST		20ST-47 3A(3B)-Stroke & Time Closed (Q), (RPV)	
2SDS-AOV129B	2	B	1	Globe	O	21-3	B-1	QST		20ST-47 3A(3B)-Stroke & Time Closed (Q), (RPV)	

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BVPS 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 21
SYSTEM NAME: Main Steam (Vents)										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2SVS-90	2	C	6	Check		21-2	F-8	QS	RR17	2BVT 1 60 6 FS RD By Leak Test (R)
2SVS-91	2	C	6	Check		21-2	F-9	QS	CSJ36	2OM-51 4C-FS-FD (CSD)
2SVS-92	2	C	6	Check		21-2	F-10	QS	RR17	2BVT 1 60 6 FS RD By Leak Test (R)
2SVS-PCV101A	2	B	10	Globe	5	21-1	F-4	QST	CSJ37	2OST-1 10-Stroke & Time Open & Fail Closed (CSD), (RPV)
2SVS-PCV101B	2	B	10	Globe	5	21-1	D-4	QST	CSJ37	2OST-1 10-Stroke & Time Open & Fail Closed (CSD), (RPV)
2SVS-PCV101C	2	B	10	Globe	5	21-1	B-4	QST	CSJ37	2OST-1 10-Stroke & Time Open & Fail Closed (CSD), (RPV)
2SVS-HCV104	2	B	10	Globe	5	21-1	F-7	QST	CSJ38	2OST-1 10-Stroke & Time Open & Fail Closed (CSD), (RPV)

BVPS 2 IST  
VALVE TESTING OUTLINE

SYSTEM NAME: Main Feedwater

SYSTEM NUMBER: 24

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2FWS-28	2	C	16	Check		24-2A	F-7	QS	RR18	20ST-24-B-FS-RD By Leak Test (R)
2FWS-29	2	C	16	Check		24-2A	D-7	QS	RR18	20ST-24-B-FS-RD By Leak Test (R)
2FWS-30	2	C	16	Check		24-2A	B-7	QS	RR18	20ST-24-B-FS-RD By Leak Test (R)
2FWS-HYV157A	2	B	16	Gate	O	24-2A	F-6	QST	CSJ39	20ST-1-10-Stroke & Time Closed (CSD) (RPV)
2FWS-HYV157B	2	B	16	Gate	O	24-2A	D-6	QST	CSJ39	20ST-1-10-Stroke & Time Closed (CSD) (RPV)
2FWS-HYV157C	2	B	16	Gate	O	24-2A	B-6	QST	CSJ39	20ST-1-10-Stroke & Time Closed (CSD) (RPV)
2FWS-FCV478	2	B	16	Globe	T	24-2A	F-3	QST	CSJ55	20ST-1-10-Stroke & Time Closed (CSD) (RPV)
2FWS-FCV479	2	B	6	Globe	T	24-2A	E-3	QST	CSJ56	20ST-1-10-Stroke & Time Closed (CSD) (RPV)
2FWS-FCV488	2	B	16	Globe	T	24-2A	D-3	QST	CSJ55	20ST-1-10-Stroke & Time Closed (CSD) (RPV)
2FWS-FCV489	2	B	6	Globe	T	24-2A	C-3	QST	CSJ56	20ST-1-10-Stroke & Time Closed (CSD) (RPV)
2FWS-FCV498	2	B	16	Globe	T	24-2A	B-3	QST	CSJ55	20ST-1-10-Stroke & Time Closed (CSD) (RPV)
2FWS-FCV499	2	B	6	Globe	T	24-2A	A-3	QST	CSJ56	20ST-1-10-Stroke & Time Closed (CSD) (RPV)

BVPS-2 IST  
VALVE TESTING OUTLINE

SYSTEM NAME: Auxiliary Feedwater

SYSTEM NUMBER: 24

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2FWE*42A	2	C	4	Check		24-3	A-8	QS	CSJ40	20ST-24-6-FS,FD,RD (CSD)
2FWE*42B	2	C	4	Check		24-3	B-8	QS	CSJ40	20ST-24-6-FS,FD,RD (CSD)
2FWE*43A	2	C	4	Check		24-3	C-8	QS	CSJ40	20ST-24-6-FS,FD,RD (CSD)
2FWE*43B	2	C	4	Check		24-3	C-8	QS	CSJ40	20ST-24-6-FS,FD,RD (CSD)
2FWE*44A	2	C	4	Check		24-3	D-8	QS	CSJ40	20ST-24-6-FS,FD,RD (CSD)
2FWE*44B	2	C	4	Check		24-3	E-8	QS	CSJ40	20ST-24-6-FS,FD,RD (CSD)
2FWE*90	3	B	6	Butterfly	LS	24-3	D-2	QS		20ST-24-1-Stroke Only Open (M)
2FWE*91	3	B	4	Butterfly	LS	24-3	E-2	QS		20ST-24-1-Stroke Only Open (M)
2FWE*92	3	B	4	Butterfly	LS	24-3	F-2	QS		20ST-24-1-Stroke Only Open (M)
2FWE*99	2	C	4	Check		24-3	B-10	QS	RR19	20ST-24-6A-FS,FD By Leak Test (R) and 20ST-24-1 upstream pipe temperatures monitored to verify check valve closed (M)
								CS	CSJ41	20ST-24-6-FS,FD (CSD)
2FWE*100	2	C	4	Check		24-3	C-10	QS	RR18	20ST-24-6A-FS,FD By Leak Test (R) and 20ST-24-1 upstream pipe temperatures monitored to verify check valve closed (M)
								QS	CSJ41	20ST-24-6-FS,FD (CSD)
2FWE*HCV100A	2	B	3	Globe	O	24-3	D-7	QST		20ST-24-1-Stroke & Time Open (O) (RPV)
2FWE*HCV100B	2	B	3	Globe	O	24-3	E-7	QST		20ST-24-1-Stroke & Time Open (O) (RPV)
2FWE*HCV100C	2	B	3	Globe	O	24-3	C-7	QST		20ST-24-1-Stroke & Time Open (O) (RPV)
2FWE*HCV100D	2	B	3	Globe	O	24-3	C-7	QST		20ST-24-1-Stroke & Time Open (O) (RPV)



BUFS 2 IST VALVE TESTING OUTLINE											
SYSTEM NAME: Auxiliary Feedwater											
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	SYSTEM NUMBER: 24
						DM No.	Coord.				
2FWE-HCV100E	2	B	3	Globe	O	24-3	A-7	QST		20ST-24-1-Stroke & Time Open (O) (RPV)	
2FWE-HCV100F	2	B	3	Globe	O	24-3	B-7	QST		20ST-24-1-Stroke & Time Open (O) (RPV)	
2FWE-SOV100A	3	B/P	2	Globe	S	24-3	D-2	POS		20ST-47-3B (RPV)	
2FWE-SOV100B	3	B/P	2	Globe	S	24-3	D-2	POS		20ST-47-3B (RPV)	
2FWE*101	2	C	4	Check		24-3	E-10	QS	RR19	20ST-24-6-FS RD By Leak Test (R) and 20ST-24-1 upstream pipe temperatures monitored to verify check valve closed (M)	
2FWE-RV101	3	C	3/4	Relief		24-3	D-5	SPT		2BVT-1-60-5 (R)	
2FWE-FCV122	3	B	6	(NOTE 1)		24-3	E-5	QS		20ST-24-4-Stroke Only Open (M)	
	3	C	6	Check		24-3	E-5	QS	CSJ42	20ST-24-2-Stroke Only Closed (CSD)	
	3	C	6	Check		24-3	E-5	QS	CSJ42	20ST-24-4-FG, FD (CSD)	
	3	C	6	Check		24-3	E-5	QS	CSJ42	20ST-24-6-FS, RD (CSD)	
2FWE-FCV123A	3	B	4	(NOTE 1)		24-3	F-6	QS		20ST-24-2-Stroke Only Open (M)	
	3	C	4	Check		24-3	F-6	QS	CSJ42	20ST-24-6-Stroke Only Closed (CSD)	
	3	C	4	Check		24-3	F-6	QS	CSJ42	20ST-24-6-FS, FD (CSD)	
	3	C	4	Check		24-3	F-6	QS	CSJ42	20ST-24-6-FS RD (CSD)	

NOTE 1: Yawway automatic recirculation control valve acts as both a flow control valve and check valve



BVP5 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 24
SYSTEM NAME: Auxiliary Feedwater										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2FWE-FCV123B	3	B	4	(NOTE 1)		24-3	G-8	QS		20ST 24 3 Stroke Only Open (M)
								QS	CSJ42	20ST 24 6 Stroke Only Closed (LSD)
	3	C	4	Check		24-3	G-8	QS	CSJ42	20ST 24 6 FS RD (FSD)
								QS	CSJ42	20ST 24 6 FS RD (CSD)

NOTE 1: Yairway automatic recirculation control valve acts as both a flow control valve and check valve

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BVPS 2 IST VALVE TESTING OUTLINE												SYSTEM NUMBER: 25
SYSTEM NAME: Steam Generator Blowdown												
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments		
						OM No.	C ord.					
2BDG-AOV100A1	2	B	3	Globe	0	25-1	G-4	QST		20ST-47 3A(2B)-Stroke & Time Closed (Q)(RPV)		
2BDG-AOV100B1	2	B	3	Globe	0	25-1	E-4	QST		20ST-47 3A(2B)-Stroke & Time Closed (Q)(RPV)		
2BDG-AOV100C1	2	B	3	Globe	0	25-1	B-4	QST		20ST-47 3A(2B)-Stroke & Time Closed (Q)(RPV)		
2BDG-AOV101A1	2	B	3	Globe	0	25-1	G-2	QST		20ST-47 3A(2B)-Stroke & Time Closed (Q)(RPV)		
2BDG-AOV101A2	2	B	3	Globe	0	25-1	G-3	QST		20ST-47 3A(2B)-Stroke & Time Closed (Q)(RPV)		
2BDG-AOV101B1	2	B	3	Globe	0	25-1	E-3	QST		20ST-47 3A(2B)-Stroke & Time Closed (Q)(RPV)		
2BDG-AOV101B2	2	B	3	Globe	0	25-1	E-3	QST		20ST-47 3A(2B)-Stroke & Time Closed (Q)(RPV)		
2BDG-AOV101C1	2	B	3	Globe	0	25-1	B-2	QST		20ST-47 3A(2B)-Stroke & Time Closed (Q)(RPV)		
2BDG-AOV101C2	2	B	3	Globe	0	25-1	C-3	QST		20ST-47 3A(2B)-Stroke & Time Closed (Q)(RPV)		
2BDG-AOV103A	3	B	1 1/2	Globe	0	25-1	F-5	QST		20ST-47 3A(2B)-Stroke & Time Closed (Q)(RPV)		
2BDG-AOV103B	3	B	1 1/2	Globe	0	25-1	F-6	QST		20ST-47 3A(2B)-Stroke & Time Closed (Q)(RPV)		

BUPS 2 IST VALVE TESTING OUTLINE										
SYSTEM NAME: Auxiliary Steam										
Value Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2A55-AQV130A	3	B	8	Globe	0	27A.1	F-4	QST		2011-47 3A(LB) Stroke & Time Closed (Q) (RPV)
2A55-AQV130B	3	B	8	Globe	0	27A.1	F-4			2011-47 3A(LB) Stroke & Time Closed (Q) (RPV)

SYSTEM NUMBER: 2P

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

SYSTEM NAME: Service Water										SYSTEM NUMBER: 30	
CWPS-2 IST VALVE TESTING OUTLINE											
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						OM No.	Coord.				
25WS-57	3	C	30	Check		30-1	C-3	QS	CSJ43	20ST-30-2-FS-FD (Q or CSO)	
25WS-58	3	C	30	Check		30-1	D-4	QS	CSJ43	20ST-30-6-FS-RD (Q or CSO)	
25WS-59	1	C	30	Check		30-1	G-3	QS	CSJ43	20ST-30-6-FS-FD (Q or CSO)	
25WS-MOV-102A	3	B	30	Butterfly	O	30-1	C-4	QST	CSJ44	20ST-30-4-Stroke & Time Open (Q or CSO) (RPV)	
25WS-MOV-102B	3	B	30	Butterfly	O	30-1	D-4	QST	CSJ44	20ST-30-6-Stroke & Time Open (Q or CSO) (RPV)	
25WS-MOV-102C	3	B	30	Butterfly	S	30-1	G-4	QST	CSJ44	20ST-30-6-Stroke & Time Open (Q or CSO) (RPV)	
25WS-MOV-102C2	3	B	30	Butterfly	S	30-1	G-4	QST	CSJ44	20ST-30-6-Stroke & Time Open (Q or CSO) (RPV)	
25WS-MOV-103A	3	B	24	Butterfly	S	30-1	C-7	QST	RR20	20ST-30-13-Stroke & Time Open (R) (RPV)	
25WS-MOV-103B	3	B	24	Butterfly	S	30-1	C-6	QST	RR20	20ST-30-13-Stroke & Time Open (R) (RPV)	
25WS-MOV-104A	3	B	16	Gate	O	30-3	A-1	QST		20ST-47-34(B) Stroke & Time Closed (Q) (RPV)	
25WS-MOV-104B	3	B	16	Gate	O	30-3	E-1	QST		20ST-47-34(B) Stroke & Time Closed (Q) (RPV)	
25WS-MOV-104C	3	B	16	Gate	O	30-3	C-1	QST		20ST-47-34(B) Stroke & Time Closed (Q) (RPV)	
25WS-MOV-104D	3	B	16	Gate	O	30-3	D-1	QST		20ST-47-34(B) Stroke & Time Closed (Q) (RPV)	
25WS-MOV-105A	3	B	16	Gate	O	30-3	A-2	QST		20ST-47-34(B) Stroke & Time Closed (Q) (RPV)	
25WS-MOV-105B	3	B	16	Gate	O	30-3	E-2	QST		20ST-47-34(B) Stroke & Time Closed (Q) (RPV)	

SYSTEM NAME: Service Water										SYSTEM NUMBER: 30	
BVPS 2 IST VALVE TESTING OUTLINE											
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						OM No.	Coord.				
Z5WS-MOV105C	3	B	16	Gate	O	30-1	C-2	QST		ZOST-47 1A,1B) Stroke & Time Closed (Q) (RPV)	
Z5WS-MOV105D	3	B	16	Gate	O	30-1	D-2	QST		ZOST-47 1A,1B) Stroke & Time Closed (Q) (RPV)	
Z5WS-106	3	C	30	Check		30-1	A-6	QS		ZOST-30 2(B) PS FD (Q)	
								QS	RR29	ZOST-30 13 FS FD (R)	
								QS	CSJ45	ZOST-30 8 FS RD (CSD)	
Z5WS-MOV106A	3	B	30	Butterfly	O	30-1	C-7	QST	CSJ46	*ZOST-10 Stroke & Time Closed (CSD) (RPV) ZOST-30 13 Stroke & Time Closed (R) (RPV)	
Z5WS-MOV106B	3	B	30	Butterfly	O	30-1	C-6	QST	CSJ46	ZOST-10 Stroke & Time Closed (CSD) (RPV) ZOST-30 13 Stroke & Time Closed (R) (RPV)	
Z5WS-107	3	C	30	Check		30-1	A-7	QS		ZOST-30 2(B) PS FD (Q)	
								QS	RR29	ZOST-30 13 FS FD (R)	
Z5WS-MOV107A	3	B	24	Butterfly	O	30-1	F-7	QST	CSJ47	ZOST-10 Stroke & Time Closed (CSD) (RPV)	
Z5WS-MOV107B	3	B	24	Butterfly	O	30-1	F-7	QST	CSJ47	ZOST-10 Stroke & Time Closed (CSD) (RPV)	
Z5WS-MOV107C	3	B	24	Butterfly	O	30-1	F-6	QST	CSJ47	ZOST-10 Stroke & Time Closed (CSD) (RPV)	
Z5WS-MOV107D	3	B	24	Butterfly	O	30-1	F-6	QST	CSJ47	ZOST-10 Stroke & Time Closed (CSD) (RPV)	
Z5WS-110	3	C,RP	6	Check		30-2	C-B	NA		*Internal Inspection per CMP (5 years)	
Z5WS-111	3	C	6	Check		30-2	C-B	QS		ZOST-36 1 FS FD (M) *Internal Inspection per CMP (5 years)	

\*Not required by ASME Performed by 1/2CMP 75 WATER CHECK IM to verify valve integrity per IE Bulletin 5103



SYSTEM NAME: Service Water										SYSTEM NUMBER: 30		
BVPS 2 IST VALVE TESTING OUTLINE												
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments		
						OM No.	Coord.					
2SWS-112	3	C	6	Check		30-2	E-8	QS		20ST-36 2 FSFD (M) *(Internal inspection per CMP (5 years))		
2SWS-113	3	C/P	6	Check		30-2	E-8	NA		*(Internal inspection per CMP (5 years))		
2SWS-MOV113A	3	B	6	Gate	5	30-2	C-8	QST		20ST-47 3A(B) Stroke & Time Open (Q) (RPV)		
2SWS-MOV113B	3	B/P	6	Gate	5	30-2	E-8	POS		20ST-47 3A(B) (RPV)		
2SWS-MOV113C	3	B/P	6	Gate	5	30-2	C-8	POS		20ST-47 3A(B) (RPV)		
2SWS-MOV113D	3	B	6	Gate	5	30-2	E-8	QST		20ST-47 3A(B) Stroke & Time Open (Q) (RPV)		
2SWS-AOV118A	3	B	2	Globe	0	30-1	B-1	QST		20ST-30 17A Stroke & Time Closed (Q) (RPV)		
2SWS-AOV118B	3	B	2	Globe	0	30-1	E-1	QST		20ST-30 17B Stroke & Time Closed (Q) (RPV)		
2SWS-FCV120A	3	B/P	3	Globe	0	30-2	A-6	POS		20ST-30 4 (M)		
2SWS-FCV120B	3	B/P	3	Globe	0	30-2	G-6	POS		20ST-30 5 (M)		
2SWS-SOV130A	3	B	2	Globe	A	30-1	A-4	QST		20ST-30 17A Stroke & Time Open (Q)		
2SWS-SOV130B	3	B	2	Globe	A	30-1	E-4	QST		20ST-30 17B Stroke & Time Open (Q)		
2SWS-142	3	B	3	Gate	S	30-2	A-1	QS		20ST-30 4 Stroke Only Open (Q)		
2SWS-143	3	B	3	Gate	S	30-2	F-1	QS		20ST-30 5 Stroke Only Open (Q)		
2SWS-RV152	2	A/C	Next	Relief		28-4	A-2	SPT		28VT-140 S (R)		
								LT		28VT-147 S Leak Test (R)		

\*Not required by ASME Performed by 1/2CMP-75 WATER CHECK TM to verify valve integrity per JE Bulletin 83-03



BUPS 2 IST VALVE TESTING OUTLINE												SYSTEM NUMBER: 30
SYSTEM NAME: Service Water												
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments		
						OM No.	Coord.					
25WS-RV152-1	2	A	8	Butterfly	O	29-4	A-2	QST		20ST-47-3A(3B)-Stroke & Time Closed (Q) (RPV)		
25WS-MOV152-2	2	A	8	Butterfly	O	29-4	A-2	QST	RR1-RR2-RR2B	2BVT-1-47-5-Leak Test (R)		
25WS-RV153	2	A/C	1/2x1	Relief		29-4	C-2	SPT				
25WS-MOV153-1	2	A	8	Butterfly	O	29-4	C-2	QST	RR1-RR2-RR2B	20ST-47-3A(3B)-Stroke & Time Closed (Q) (RPV)		
25WS-MOV153-2	2	A	8	Butterfly	O	29-4	C-2	QST		2BVT-1-47-5-Leak Test (R)		
25WS-RV154	2	A/C	1/2x1	Relief		29-4	D-2	SPT		2dVT-1-80-5-(R)		
25WS-MOV154-1	2	A	8	Butterfly	O	29-4	D-2	QST	RR1-RR2-RR2B	2BVT-1-47-5-Leak Test (R)		
25WS-MOV154-2	2	A	8	Butterfly	O	29-4	D-2	QST		20ST-47-3A(3B)-Stroke & Time Closed (Q) (RPV)		
								LT	RR1-RR2-RR2B	2BVT-1-47-5-Leak Test (R)		
								QST		20ST-47-3A(3B)-Stroke & Time Closed (Q) (RPV)		
								LT	RR1-RR2-RR2B	2BVT-1-47-5-Leak Test (R)		

SYSTEM NAME: Service Water										SYSTEM NUMBER: 30	
BVPS 2 IST VALVE TESTING OUTLINE											
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						Dim No.	Coord.				
2SWS-RV155	2	A/C	1/2	Relief		29-4	G-2	SPT		2BVT 1 40 5 (R)	
2SWS-MOV155-1	2	A	8	Butterfly	O	29-5	G-2	QST	RR1, RR2, RR2B	2BVT 1 47 5 Leak Test (R)	
2SWS-MOV155-2	2	A	8	Butterfly	O	29-4	G-2	QST	RR1, RR2, RR2B	2OST 47 34(2B) Stroke & Time Closed (Q) (RPV)	
2SWS-486	3	C	3	Check		30-1	C-3	QS		2BVT 1 47 5 Leak Test (R)	
2SWS-487	3	C	3	Check		30-1	D-3	QS	CS, J48	2OST 30 2 FS RD (Q or CSO)	
2SWS-488	3	C	3	Check		30-1	G-3	QS	CS, J48	2OST 30 6 FS FD (Q or CSO)	
2SWS-697	3	C	2	Check		30-1	A-2	QS	CS, J48	2OST 30 6 FS FD (Q or CSO)	
2SWS-696	3	C	2	Check		30-1	E-2	QS	CS, J48	2OST 30 3 FS RD (Q or CSO)	
2SWS-1103	3	C	4	Check		30-2	A-4	QS		2OST 30 17A FS FD (Q)	
2SWS-1104	3	C	4	Check		30-2	G-4	QS	RR21	2OST 30 17B FS FD (Q)	
								QS		2OST 54 Log L 3 39 Discharge air temp in Main Steam Valve Area maintained verifying check valve open (100% 3414)	
								QS	RR21	2BVT 1 40 6 FS RD By Leak Test (R)	
								QS		2OST 54 Log L 4 39 Discharge air temp in Main Steam Valve Area maintained verifying check valve open (100% 3414)	
								QS	RR21	2BVT 1 40 6 FS RD By Leak Test (R)	

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BVPS 2 IST VALVE TESTING OUTLINE										
SYSTEM NAME: Service Water (Chlorine Injection)										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirements	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2SWM-MOV562	3	B	3	Plug	O	30-1	B-7	QST		20ST-47 3A(3B) Stroke & Time Closed (Q) (RPV)
2SWM-MOV563	3	B	3	Plug	O	30-1	B-6	QST		20ST-47 3A(3B) Stroke & Time Closed (Q) (RPV)
2SWM-MOV564	3	B	3	Plug	O	30-1	A-6	QST		20ST-47 3A(3B) Stroke & Time Closed (Q) (RPV)
2SWM-MOV565	3	B	3	Plug	O	30-1	B-7	QST		20ST-47 3A(3B) Stroke & Time Closed (Q) (RPV)

SYSTEM NUMBER: 30

BVPS 2 IST VALVE TESTING OUTLINE										
SYSTEM NAME: Standby Service Water					SYSTEM NUMBER: 30					
Valve Mark Number	Valve Class	Valve Category	Valve Size (In.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2SWE-MOV116A	3	B	30	Butterfly	S	20-1	A-7	QST		20ST-30 1A Stroke & Time Open (Q) (RPV)
2SWE-MOV116B	3	B	30	Butterfly	S	20-1	A-6	QST		20ST-30 1B Stroke & Time Open (Q) (RPV)

SYSTEM NAME: Fire Protection										SYSTEM NUMBER: 23	
Value Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						OM No.	Coord.				
2FPW-AOV204	2	A	2	Globe	S	33-10	C-4	QST		ZOST-47 3A(2B) Stroke & Time Closed (Q1)(RPV)	
2FPW-AOV205	2	A	6	Globe	S	33-10	F-4	QST	RR1	ZBVT-1-47 5-Leak Test (R)	
2FPW-AOV206	2	A	6	Globe	S	33-10	D-4	QST	RR1	ZOST-47 3A(2B) Stroke & Time Closed (Q1)(RPV)	
2FPW-AOV221	2	A	2	Globe	S	33-10	A-4	QST	RR1,RR2	ZBVT-1-47 5-Leak Test (R)	
2FPW-362	2	A/C	2"	Check		33-10	C-4	QS	CSJ48	ZOST-1-10 FS FO RD by Mechanical Exerciser (CSJ)	
2FPW-368	2	A/C	2"	Check		33-10	A-4	QS	RR1	ZBVT-1-47 5-Leak Test (R)	
2FPW-753	2	A/C	4	Check		33-10	F-4	QS	RR1	ZOST-1-10 FS FO RD by Mechanical Exerciser (CSJ)	
2FPW-761	2	A/C	6	Check		33-10	D-5	QS	RR1	ZOST-1-10 FS FO RD by Mechanical Exerciser (CSJ)	
								LT	RR1,RR2	ZBVT-1-47 5-Leak Test (R)	

BUPS 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 34
SYSTEM NAME: Compressed Air (Containment Instrument Air)										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						DM No.	Coord.			
21AC-22	2	A/C	3	Check		34-3	C-10	QS	CS/RR	20ST 1 40 FS RD by Mechanical Exercise (CSJ)
21AC-MOV130	2	A	3	Plug	O	34-3	C-10	QS	RR1	2BVT 1 47 5-Leak Test (R)
21AC-MOV133	2	A	4	Plug	O	34-3	C-1	QS	RR1	20ST 47 3A,3B) Stroke & Time Closed (Q) (RPV)
21AC-MOV134	2	A	4	Plug	O	34-3	C-1	QS	RR1	20ST 47 3A,3B) Stroke & Time Closed (Q) (RPV)



BVP5 2 IST VALVE TESTING OUTLINE										
SYSTEM NAME: Compressed Air (Station Air)										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
25AS*14	2	A/P	2	Globe	S	34-1B	C-6	LT	RR1	25VT 1.47 S-Leak Test (R)
25AS*15	2	A/P	2	Globe	LS	34-1B	C-6	LT	RR1	25VT 1.47 S-Leak Test (R)

SYSTEM NUMBER: 30

BVPS 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 36
SYSTEM NAME: 4KV Station Service (Diesel Air Start)										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						DM No.	Coord.			
2EGA-100	3	C	1/2	Check		36-3	E-4	QS		20M-54 Log L4-29 DIG start air header pressure maintained verifying check valve open (00V-3414)
2EGA-101	3	C	1/2	Check		36-3	F-4	QS		20M-54 Log L4-29 DIG start air header pressure maintained verifying check valve open (00V-3414)
2EGA-120	3	C	1/2	Check		36-3	E-9	QS		20M-54 Log L4-31 DIG start air header pressure maintained verifying check valve open (00V-3414)
2EGA-131	3	C	1/2	Check		36-3	F-9	QS		20M-54 Log L4-31 DIG start air header pressure maintained verifying check valve open (00V-3414)
2EGA-SOV202-1	3	B	2	Three-way		36-3	A-5	QST	RR22	20ST-36 1 Stroke & Time Open (Q)
2EGA-SOV202-2	3	B	2	Three-way		36-3	B-5	QST	RR22	20ST-36 1 Stroke & Time Open (Q)
2EGA-SOV203-1	3	B	2	Three-way		36-3	A-10	QST	RR22	20ST-36 2 Stroke & Time Open (Q)
2EGA-SOV203-2	3	B	2	Three-way		36-3	B-10	QST	RR22	20ST-36 2 Stroke & Time Open (Q)
2EGA-RV205	3	C	1/2	Relief		36-3	E-4	SPT		2BVT-1-60.5-(R)
2EGA-RV206	3	C	1/2	Relief		36-3	E-9	SPT		2BVT-1-60.5-(R)
2EGA-RV207	3	C	1/2	Relief		36-3	F-4	SPT		2BVT-1-60.5-(R)
2EGA-RV208	3	C	1/2	Relief		36-3	F-9	SPT		2BVT-1-60.5-(R)

INSERVICE TESTING (IST) PROGRAM FOR PUMPS AND VALVES

BVP5 2-IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 36
SYSTEM NAME: 4KV Station Service (Diesel Fuel Oil)										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						DM No.	Coord.			
2EGF-7	3	C	3	Check		36-1	F-3	QS		20ST-36-1-FS-FD-RD (B-monthly)
2EGF-8	3	C	3	Check		36-1	E-6	QS		20ST-36-2-FS-FD-RD (B-monthly)
2EGF-9	3	C	3	Check		36-1	E-1	QS		20ST-36-1-FS-FD-RD (B-monthly)
2EGF-10	3	C	3	Check		36-1	E-7	QS		20ST-36-2-FS-FD-RD (B-monthly)

BVPS 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 36
SYSTEM NAME: 4KV Station Service (Diesel Lube Oil)										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2EGO-114	3	B	4	Gate	S	36-5B	F-7	QS		205T-47 3A(3B) Stroke Only Open (Q)
2EGS-115	3	B	4	Gate	S	36-5A	K-7	QS		205T-47 3A(3B) Stroke Only Open (Q)
2EGO-116	3	B	4	Gate	S	36-5B	E-7	QS		205T-47 3A(3B) Stroke Only Open (Q)
2EGO-117	3	B	4	Gate	S	36-5A	E-7	QS		205T-47 3A(3B) Stroke Only Open (Q)

BVP5 2 IST VALVE TESTING OUTLINE											
SYSTEM NAME: Control Area Ventilation											
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	SYSTEM NUMBER: 444
						OM No.	Coord.				
2HVC-MOV/201A	3	B	36	Butterfly	O	444-2	D-2	QST		205T-47 3A(3B) Stroke & Time Closed (Q) (RPV)	
2HVC-MOV/201B	3	B	36	Butterfly	O	444-2	J-2	QST		205T-47 3A(3B) Stroke & Time Closed (Q) (RPV)	
2HVC-MOV/201C	3	B	36	Butterfly	S	444-2	C-2	Q5*		205T-47 3A(3B) Stroke & Time Closed (Q) (RPV)	
2HVC-MOV/201D	3	B	36	Butterfly	S	444-2	C-2	QST		205T-47 3A(3B) Stroke & Time Closed (Q) (RPV)	
2HVC-MOV/204A	3	B	6	Butterfly	S	444-2	F-2	QST		205T-47 3A(3B) Stroke & Time Open (Q) (RPV)	
2HVC-MOV/204B	3	B	6	Butterfly	S	444-2	G-2	QST		205T-47 3A(3B) Stroke & Time Open (Q) (RPV)	

BVPS 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 44C
SYSTEM NAME: Containment Area Ventilation										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2HVR-M0023A	2	A	42	Butterfly	LS	44C-2	B-5	QST	CS-J51	20ST-1 10-Stroke & Time Closed (CSD) (RPV)
2HVR-M0023B	2	A	42	Butterfly	LS	44C-2	B-7	QST	RR1-RR2 RR25	2BVT-1 47.5-Leak Test (R)
2HVR-M0025A	2	A	42	Butterfly	LS	44C-2	C-5	QST	CS-J51	20ST-1 10-Stroke & Time Closed (CSD) (RPV)
2HVR-M0025B	2	A	42	Butterfly	LS	44C-2	C-7	QST	RR1-RR2 RR26	2BVT-1 47.5-Leak Test (R)
2HVR-DAMP206	2	A/P	6	Butterfly	LS	44C-2	D-4	LT	RR1-RR2 RR26	20ST-1 10-Stroke & Time Closed (CSD) (RPV)



BVP5 2 IST VALVE TESTING OUTLINE											
SYSTEM NAME: Post DBA Hydrogen Control											
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NS&I	Drawing		Test Requirement	CSJ or Relief Requests	Comments	SYSTEM NUMBER: 46
						OM No.	Coord.				
2HCS110	2	A	2	Ball	LS	46-1	D-2	QS		20ST 47 3A(3B) Stroke Only Oper (Q) (RPV)	
								LT	RR1	2BVT 1 47 5-Leak Test (R)	
2HCS111	2	A	2	Ball	LS	46-1	G-2	QS		20ST 47 3A(3B) Stroke Only Oper (Q) (RPV)	
								LT	RR1	2BVT 1 47 5-Leak Test (R)	
2HCS*MOV112A	2	B	2	Ball	S	46-1	C-6	QST		20ST 47 3A(3B) Stroke & Time Oper (Q) (RPV)	
2HCS*MOV112B	2	B	2	Ball	S	46-1	F-6	QST		20ST 47 3A(3B) Stroke & Time Oper (Q) (RPV)	
2HCS*SOV114A	2	A	2	Globe	S	46-1	B-2	QST		20ST 47 3A(3B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 1 47 5-Leak Test (R) (RPV)	
2HCS*SOV114B	2	A	2	Globe	S	46-1	F-2	QST		20ST 47 3A(3B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 1 47 5-Leak Test (R) (RPV)	
2HCS*SOV115A	2	A	2	Globe	S	46-1	G-2	QST		20ST 47 3A(3B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 1 47 5-Leak Test (R) (RPV)	
2HCS*SOV115B	2	A	2	Globe	S	46-1	F-2	QST		20ST 47 3A(3B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 1 47 5-Leak Test (R) (RPV)	
2HCS*MOV116	2	A	2	Ball	S	46-1	D-1	QST		20ST 47 3A(3B) Stroke & Time Closed (Q) (RPV)	
								LT	RR1	2BVT 1 47 5-Leak Test (R)	

BVP5 2 IST VALVE TESTING OUTLINE										SYSTEM NUMBER: 46
SYSTEM NAME: Post DBA Hydrogen Control										Comments
Value Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	DM No.	Coord.	Test Requirement	CSJ or Relief Requests	
2HCS-110	2	A	2	Ball	LS	46-1	D-2	QS		20ST 47 3A(B); Stroke Only Open (O) (RPV)
2HCS-111	2	A	2	Ball	LS	46-1	G-2	LT	RR1	2BVT 1 47 5 Leak Test (R)
2HCS-MOV112A	2	B	2	Ball	S	46-1	C-6	QST		20ST 47 3A(B); Stroke Only Open (O) (RPV)
2HCS-MOV112B	2	B	2	Ball	S	46-1	F-6	QST		20ST 47 3A(B); Stroke & Time Open (Q) (RPV)
2HCS-SOV114A	2	A	2	Globe	S	46-1	B-2	QST		20ST 47 3A(B); Stroke & Time Closed (Q)
2HCS-SOV114B	2	A	2	Globe	S	46-1	F-2	LT	RR1	2BVT 1 47 5 Leak Test (R) (RPV)
2HCS-SOV115A	2	A	2	Globe	S	46-1	G-2	QST		20ST 47 3A(B); Stroke & Time Closed (Q)
2HCS-SOV115B	2	A	2	Globe	S	46-1	F-2	LT	RR1	2BVT 1 47 5 Leak Test (R) (RPV)
2HCS-MOV115	2	A	2	Ball	S	46-1	D-1	QST		20ST 47 3A(B); Stroke & Time Closed (Q) (RPV)
								LT	RR1	2BVT 1 47 5 Leak Test (R)

SYSTEM NAME: Post DBA Hydrogen Control										SYSTEM NUMBER: 46	
BVP5 2 IST VALVE TESTING OUTLINE											
Valve Mark Number	Valve Class	Valve Category	Valve Size (In.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments	
						OM No.	Coord.				
2HCS-MOV117	2	A	1	Ball	S	46-1	G-1	QST		20ST 47 3A(3B) Stroke & Time Closed (Q) (RPV)	
								LT	RR1	2BVT 1 47 5-Leak Test (R)	
2HCS-MOV120A	2	B	2	Plug	S	46-1	D-7	QST		20ST 47 3A(3B) Stroke & Time Open (Q) (RPV)	
2HCS-MOV120B	2	B	2	Plug	S	46-1	G-6	QST		20ST 47 3A(3B) Stroke & Time Open (Q) (RPV)	
2HCS-SOV133A	2	A	1/4	Globe	S	46-1	A-1	QST		20ST 47 3A(3B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 1 47 5-Leak Test (R) (RPV)	
2HCS-SOV133B	2	A	1/4	Globe	S	46-1	E-1	QST		20ST 47 3A(3B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 1 47 5-Leak Test (R) (RPV)	
2HCS-SOV134A	2	A	1/4	Globe	S	46-1	A-3	QST		20ST 47 3A(3B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 1 47 5-Leak Test (R) (RPV)	
2HCS-SOV134B	2	A	1/4	Globe	S	46-1	D-3	QST		20ST 47 3A(3B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 1 47 5-Leak Test (R) (RPV)	
2HCS-SOV135A	2	A	1/4	Globe	S	46-1	E-1	QST		20ST 47 3A(3B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 1 47 5-Leak Test (R) (RPV)	
2HCS-SOV135B	2	A	1/4	Globe	S	46-1	F-2	QST		20ST 47 3A(3B) Stroke & Time Closed (Q)	
								LT	RR1	2BVT 1 47 5-Leak Test (R) (RPV)	

BVPS 2 IST VALVE TESTING OUTLINE										
SYSTEM NUMBER: 46										
Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	MSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
						OM No.	Coord.			
2HCS-SOV136A	2	A	1/2	Globe	S	46-1	B-1	QST		POST-47 3A,3B; Stroke & Time Closed (G)
								LT	RR1	2BVT 1 4" 5-Leak Test (R) (RPV)
2HCS-SOV136B	2	A	1/2	Globe	S	46-1	B-3	QST		POST-47 3A,3B; Stroke & Time Closed (G)
								LT	RR1	2BVT 1 4" 5-Leak Test (R) (RPV)

BVPS-2 IST VALVE TESTING OUTLINE											SYSTEM NUMBER: 47
SYSTEM NAME: Containment	Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	CSJ or Relief Requests	Comments
							OM No.	Coord.			

**SECTION VI: VALVE TESTING COLD SHUTDOWN JUSTIFICATIONS**



**COLD SHUTDOWN JUSTIFICATION** 1

Valve No.:

2RCS\*68

Category A/CClass 2

Function:

Inside containment isolation check valve on the nitrogen supply to the Pressurizer Relief Tank [2RCS-TK22].

Test Requirement:

Quarterly full stroke

Basis for CSJ:

Valve is normally closed and is opened during nitrogen makeup to the Pressurizer Relief Tank. Safety position is closed for containment isolation. Full stroking can only be verified by cycling the weight loaded arm or by leak testing. Because this valve is located inside containment, it is not accessible during normal operation.

Alternate Test:

Full stroke exercised closed by mechanical exerciser during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 2

Valve No.:

2RCS\*72

Category A/CClass 2

Function:

Inside containment isolation check valve on the primary grade water supply to the Pressurizer Relief Tank [2RCS-TK22].

Test Requirement:

Quarterly full stroke

Basis for CSJ:

Valve is normally closed and is opened during primary grade water makeup to the Pressurizer Relief Tank. Safety position is closed for containment isolation. Full stroking can only be verified by cycling the weight loaded arm or by leak testing. Because this valve is located inside containment, it is not accessible during normal operation.

Alternate Test:

Full stroke exercised closed by mechanical exerciser during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION**   3  **Valve No.:**

2RCS\*SOV200A  
 2RCS\*SOV200B  
 2RCS\*SOV201A  
 2RCS\*SOV201B  
 2RCS\*HCV250A  
 2RCS\*HCV250B

**Category**   B  **Class**   1,2  **Function:**

Reactor Vessel Head Vent Valves

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valves are normally closed and are only required to be opened during accident conditions. Westinghouse does not recommend these valves be tested at design temperature and pressure conditions. (Reference WIN 262-6024 February 8, 1985 "Reactor Head Vent/Cold Shutdown System Testing".) Valve damage can result from repeated strokes at design temperature/pressure.

**Alternate Test:**

Full stroke exercised and timed open at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION**   4  **Valve No.:**

2RCS\*PCV455C  
 2RCS\*PCV455D  
 2RCS\*PCV456

**Category**   B  **Class**   1  **Function:**

Pressurizer Power Operated Relief Valves

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valves are normally closed. The safety function is to provide overpressure protection for the Reactor Coolant System. Since these valves have shown a high probability of failing open, cycling during normal operation is not practical. In addition, safety grade over pressure protection at power is provided by the pressurizer code safety valves.

**Alternate Test:**

Full stroke exercised and timed open at cold shutdown per 2OST-6.8.

**COLD SHUTDOWN JUSTIFICATION** 5

Valve No.:

2CHS\*31

Category A/CClass 2

Function:

Charging header inside containment isolation check valve

Test Requirement:

Quarterly full stroke

Basis for CSJ:

This valve is normally open, but is required to be closed for containment isolation. Full stroking can only be verified by cycling the weight loaded arm. Since the valve is located inside containment, it is not accessible during normal operation.

Alternate Test:

Full stroke exercised closed by mechanical exerciser during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 6

Valve No.:

2CHS\*LCV115C

2CHS\*LCV115E

Category BClass 2

Function:

Volume Control Tank [2CHS\*TK22] outlet isolation valves

Test Requirement:

Quarterly full stroke and time

Basis for CSJ:

These valves are normally open during power operation. Safety function is to isolate the VCT from the High Head Safety Injection System. Closing this valve during normal operation would isolate the suction of the charging pumps, causing pump damage and loss of pressurizer level control.

Alternate Test:

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 7**Valve No.:**

2CHS'84  
2CHS'136  
2CHS'141

**Category** C**Class** 2,3**Function:**

Emergency and alternate boration line check valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

These valves are normally closed during power operation, and are required to open for emergency and alternate emergency boration. Exercising these valves during normal operation would result in concentrated Boric Acid being injected into the RCS, causing an undesired negative reactivity addition resulting in a reduction in plant power.

**Alternate Test:**

Full stroke exercised open during cold shutdown per 2OST-7.13.

**COLD SHUTDOWN JUSTIFICATION** 8**Valve No.:**

2CHS'AOV204

**Category** A**Class** 2**Function:**

Letdown isolation outside containment isolation valve

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valve is normally open. Safety function is to close for containment isolation on a receipt of a CIA signal. Stroking this valve at power will result in a thermal shock to the Regenerative Heat Exchanger and associated component piping resulting in an increased probability of system and component failure. In addition, failure of this valve in the closed position will cause loss of pressurizer level control which will result in plant shutdown.

**Alternate Test:**

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 9**Valve No.:**

2CHS\*MOV289

**Category** A**Class** 2**Function:**

Normal charging system makeup outside containment isolation valve

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valve is normally open. Safety function is to close on receipt of an SI signal. Stroking this valve at power will result in a thermal shock to the Regenerative Heat Exchanger and associated component piping resulting in an increased probability of system and component failure. In addition, failure of this valve in the closed position will cause loss of pressurizer level control which will result in plant shutdown.

**Alternate Test:**

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 10**Valve No.:**

2CHS\*MOV308A

2CHS\*MOV308B

2CHS\*MOV308C

**Category** A**Class** 2**Function:**

Reactor Coolant Pumps seal water supply outside containment isolation valves

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

These valves are open during normal plant operation, but are required to be closed for containment penetration isolation. Exercising these valves at power would secure RCP seal injection and cause seal damage. Failure in the closed position during testing will result in plant shutdown.

**Alternate Test:**

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 11

Valve No.:

2CHS\*MOV310

Category BClass 2

Function:

Regenerative Heat Exchanger outlet isolation valve

Test Requirement:

Quarterly full stroke and time

Basis for CSJ:

Valve is normally open. Safety function is to close on receipt of an SI signal. Stroking this valve during normal operation will result in a thermal shock to the Regenerative Heat Exchanger and associated piping resulting in an increased probability of system and component failure. In addition, failure of this valve in the closed position will cause loss of pressurizer level control which will result in plant shutdown.

Alternate Test:

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 12

Valve No.:

2CHS\*MOV373

Category BClass 2

Function:

Charging Pump recirculation isolation valve

Test Requirement:

Quarterly full stroke and time

Basis for CSJ:

Valve is normally open. Safety function is to close on a safety injection signal. This valve cannot be full stroked during normal operation because failure in the closed position would isolate charging pump minimum flow to the VCT, which could result in damage to the charging pump.

Alternate Test:

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.



**COLD SHUTDOWN JUSTIFICATION** 13**Valve No.:**2CHS\*MOV378  
2CHS\*MOV381**Category** A**Class** 2**Function:**

Reactor Coolant Pumps seal water return inside and outside containment isolation valves

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valves are normally open. Safety function is to close for containment isolation on receipt of a CIA signal. Exercising these valves at power would secure RCP seal return which could cause seal damage. Failure of these valves in the closed position will result in plant shutdown.

**Alternate Test:**

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 14**Valve No.:**2CHS\*LCV460A  
2CHS\*LCV460B**Category** B**Class** 1**Function:**

Letdown inside containment isolation valves

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valves are normally open. Stroking these valves during normal operation will result in a thermal shock to the Regenerative Heat Exchanger and associated piping resulting in an increased probability of system and component failure. In addition, failure of these valves in the closed position will cause loss of pressurizer level control which will result in plant shutdown.

**Alternate Test:**

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 15**Valve No.:**

2CHS\*473

**Category** A/C**Class** 2**Function:**

Seal water return containment penetration X-19 thermal relief check valve (Bypasses 2CHS\*MOV378)

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

This valve is closed during normal plant operation and is to remain closed for containment isolation. However, it will momentarily open if required to relieve pressure due to thermal expansion. Full stroke testing can only be performed by manually cycling the weight loaded arm. Since this valve is located inside containment, it is not accessible during normal operation.

**Alternate Test:**

Full stroke exercised in both directions by mechanical exerciser during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 16**Valve No.:**

2CHS\*474

2CHS\*475

2CHS\*476

**Category** A/C**Class** 2**Function:**

Reactor Coolant Pumps seal water supply inside containment isolation check valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

These valves are open during normal plant operation, but are required to be closed for containment isolation. Exercising these weight loaded arm check valves in the closed direction at power would secure RCP seal injection which would result in seal damage.

**Alternate Test:**

Full stroke exercised closed by mechanical exerciser during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 17**Valve No.:**

2CHS\*MOV8130A  
2CHS\*MOV8130B  
2CHS\*MOV8131A  
2CHS\*MOV8131B  
2CHS\*MOV8132A  
2CHS\*MOV8132B  
2CHS\*MOV8133A  
2CHS\*MOV8133B

**Category** B**Class** 2**Function:**

Charging pumps suction and discharge cross connect valves

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

The function of these valves is for Safety Injection train separation during cold leg recirculation. One valve in suction and discharge is required to close for train separation. Full stroking of the discharge cross connects cannot be performed during normal operation because these valves are required to be open and de-energized by technical specifications. Failure in the closed position under certain pump operating configurations would render the HHSI system inoperable. In addition, BV-2 has committed to de-energizing the power supply to the charging pump suction cross connects to prevent loss of charging pump suction in certain fire scenarios. The potential risk in damage to a HHSI pump does not justify the gain in cycling these valves during normal operation.

**Alternate Test:**

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 18**Valve No.:**

2RHS'3

2RHS'4

**Category** C**Class** 2**Function:**

Residual Heat Removal Pumps check valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

Valves open for Residual Heat Removal system operation and close to prevent reverse flow through the standby pump. During normal power operation, RHS is isolated from the RCS and Residual Heat Removal pumps are not required for operation. Verification of forward and reverse stroking requires pump operation and non-rotation of the idle pump respectively. Checking reverse stroke requires local observation. Since these valves are in containment they are inaccessible during normal operation.

**Alternate Test:**

Full stroke exercised open during cold shutdown per 2OST-10.1(2)  
Full stroke exercised closed during cold shutdown per 2OST-10.3(4)

**COLD SHUTDOWN JUSTIFICATION** 19**Valve No.:**

2RHS\*FCV605A

2RHS\*FCV605B

**Category** B**Class** 2**Function:**

Residual Heat Removal Heat Exchangers bypass flow control valves.

**Test Requirement:**

Quarterly full stroke, time, and fail safe

**Basis for CSJ:**

The safety related function of these valves is to fail closed on loss of power. Local observation is required to determine valve stroking. Valves are located inside reactor containment and are inaccessible during power operation

**Alternate Test:**

Full stroke exercised, timed and failed closed at cold shutdown per 2OST-10.3(4)

**COLD SHUTDOWN JUSTIFICATION** 20**Valve No.:**

2RHS\*MOV701A  
 2RHS\*MOV701B  
 2RHS\*MOV702A  
 2RHS\*MOV702B  
 2RHS\*MOV720A  
 2RHS\*MOV720B

**Category** A**Class** 1**Function:**

Reactor Coolant System to Residual Heat Removal system  
 isolation valves

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

These valves are normally closed. The safety function is to open for initiation of the RHR system to attain cold shutdown and closed to isolate the RCS from the RHR system during normal operation. Full stroking these valves during normal operation cannot be performed because they are interlocked closed during normal operation to prevent overpressurization of RHR system piping.

**Alternate Test:**

Full stroke exercised and timed closed at cold shutdown per 2OST-10.3(4).

**COLD SHUTDOWN JUSTIFICATION** 21**Valve No.:**

2RHS\*HCV758A  
 2RHS\*HCV758B

**Category** B**Class** 2**Function:**

Residual Heat Removal Heat Exchangers flow control valves.

**Test Requirement:**

Quarterly full stroke, time, and fail safe

**Basis for CSJ:**

The safety related function of these valves is to fail open on loss of power. Local observation is required to determine valve stroking. Valves are located inside reactor containment and are inaccessible during power operation.

**Alternate Test:**

Full stroke exercised, timed and failed open at cold shutdown per 2OST-10.3(4).



**COLD SHUTDOWN JUSTIFICATION** 22**Valve No.:**

2SIS\*42

**Category** A/C**Class** 2**Function:**

Safety Injection Accumulator fill inside containment isolation check valve

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

Valve is normally closed during power operation. Safety function is to be closed for containment isolation. Valve is opened during accumulator fill operation. Full stroke testing is verified by observing weight loaded arm movement. Since this valve is located inside containment, it is not accessible during normal operation.

**Alternate Test:**

Full stroke exercised closed by mechanical exerciser during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 23**Valve No.:**

2SIS\*83

2SIS\*84

2SIS\*94

2SIS\*95

**Category** A/C**Class** 2**Function:**

HHSI to hot and cold legs inside containment isolation check valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

Normal position for these valves is closed. These valves are to remain closed for containment isolation and are opened for hot leg recirculation. Full stroking requires use of the weighted arm on the valves. Since these valves are located inside the containment they are not accessible during normal operation.

**Alternate Test:**

Full stroke exercised in both directions by mechanical exerciser during cold shutdown per 2OST-1.10.



**COLD SHUTDOWN JUSTIFICATION** 24**Valve No.:**

2SIS\*130

2SIS\*132

2SIS\*133

**Category** A/C**Class** 2**Function:**

LHSI to hot and cold legs inside containment isolation valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

Normal position is closed. These valves are to remain closed for containment isolation and reactor coolant pressure boundary isolation, and open for LHSI. Valves cannot be cycled during power operation because the LHSI pump can not develop enough head to overcome reactor coolant system pressure. In addition, cycling using the weighted arms is not possible since these valves are located inside containment and are not accessible during normal operation.

**Alternate Test:**

Full stroke exercised in both directions by mechanical exerciser during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 25**Valve No.:**

2SIS\*MOV836

**Category** A**Class** 2**Function:**

HHSI to cold leg header isolation valve

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valve is normally closed and is opened by the operator to achieve a redundant flowpath to the cold legs during the recirculation mode. Full stroking during normal operation would inject relatively cold water into the RCS cold leg resulting in thermal shock to system piping and components which can lead to their premature failure.

**Alternate Test:**

Full stroke exercised and timed open at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 26**Valve No.:**

2SIS\*MOV869A

2SIS\*MOV869B

**Category** A**Class** 2**Function:**

HHSI to hot leg header isolation valves

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valves are normally closed and are opened by the operator for hot leg recirculation. Full stroking these valves during normal operation would inject relatively cold water into the RCS hot legs resulting in thermal shock to system piping and components which can lead to their premature failure.

**Alternate Test:**

Full stroke exercised and timed open at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 27**Valve No.:**

2SIS\*MOV8889

**Category** A**Class** 2**Function:**

LHSI to RCS hot leg outside containment isolation valve

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valve is normally closed. Valve is required to be opened during hot leg recirculation mode. This valve is required to be closed and deenergized during normal operation in accordance with technical specifications. Full stroking during normal operation could result in overpressurization of the low pressure portion of LHSI piping if simultaneous check valve failure occurred.

**Alternate Test:**

Full stroke exercised and timed open at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 28**Valve No.:**

2QSS\*3

2QSS\*4

**Category** A/C**Class** 2**Function:**

Quench spray header inside containment isolation check valves.

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

Valves are normally closed. Safety position is open for QSS flow and closed for containment isolation. Exercising can only be performed by manually cycling the weight loaded arm on the check valve. Since these valves are located inside reactor containment, they are not accessible during normal operation.

**Alternate Test:**

Full stroke exercised in both directions by mechanical exerciser during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 29**Valve No.:**

2QSS\*SOV100A

2QSS\*SOV100B

**Category** A**Class** 2**Function:**

Chemical injection to containment sump outside containment isolation valves.

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Failure of these valves in the open position would cause loss of NaOH injection for the Quench Spray System. Also since these valves are located at the containment penetration, failure in the open position would require closing both chemical injection pump discharge valves to comply with technical specifications rendering chemical injection inoperable. This would require plant shutdown.

**Alternate Test:**

Full stroke exercised and timed open and closed at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 30**Valve No.:**

2QSS\*267

**Category** A/C**Class** 2**Function:**

QSS chemical injection inside containment isolation check valve.

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

Valve is normally closed. Safety function is open during chemical injection to containment sump and closed for containment isolation. Exercising can only be performed by cycling weight loaded arm. Since the valve is located inside the reactor containment, exercising cannot be performed during normal operation.

**Alternate Test:**

Full stroke exercised in both directions by mechanical exerciser during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 31**Valve No.:**

2RSS\*29

2RSS\*30

2RSS\*31

2RSS\*32

**Category** C**Class** 2**Function:**

RSS discharge headers to spray nozzle inside containment isolation valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

Valves are normally closed. Safety function is open for RSS operation. Because RSS is normally maintained dry, cycling can only be done using the weighted arm on the valve. These valves are located in the containment and are inaccessible during normal operation.

**Alternate Test:**

Full stroke exercised open by mechanical exerciser during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 32**Valve No.:**

2CCP\*AOV107A

2CCP\*AOV107B

2CCP\*AOV107C

**Category** B**Class** 3**Function:**Reactor Coolant Pump Thermal Barrier Heat Exchanger  
CCP outlet isolation valves.**Test Requirement:**

Quarterly full stroke, time, and fail safe.

**Basis for CSJ:**

Valves are normally open, and are required to close in the event of a primary loop to CCP leak in the reactor coolant pump seal thermal barrier. Closing the valves during normal operation would interrupt flow of cooling water to the reactor coolant pump seals. This could result in damage to the reactor coolant pump seals. Failure in the closed position would result in plant shutdown.

**Alternate Test:**

Full stroke exercised, timed and failed closed at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 33**Valve No.:**

2CCP\*MOV150-1  
2CCP\*MOV150-2  
2CCP\*MOV151-1  
2CCP\*MOV151-2  
2CCP\*MOV156-1  
2CCP\*MOV156-2  
2CCP\*MOV157-1  
2CCP\*MOV157-2

**Category** A**Class** 2**Function:**

CCP supply and return headers to reactor containment outside and inside isolation valves

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valves are normally open; Safety position is closed for containment isolation. Closing the valves during normal operation would interrupt flow of cooling water to the reactor coolant pump seals. This could result in damage to the reactor coolant pump seals. Failure in the closed position would result in plant shutdown.

**Alternate Test:**

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

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**COLD SHUTDOWN JUSTIFICATION** 34

DELETED



**COLD SHUTDOWN JUSTIFICATION** 35**Valve No.:**

2MSS\*AOV101A  
2MSS\*AOV101B  
2MSS\*AOV101C

**Category** B**Class** 2**Function:**

Main Steam isolation valves for Steam Generators

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valves are normally open; safety position is closed for High Energy Line Break isolation. Closure of these valves during normal operation would result in plant shutdown.

**Alternate Test:**

Partial stroke exercised closed quarterly per 2OST-21.1(2)(3).  
Full stroke exercised and timed closed per 2OST-21.7 at shutdown with TAVG  $\geq$ 515F.

**COLD SHUTDOWN JUSTIFICATION** 36**Valve No.:**

2SVS\*80  
2SVS\*81  
2SVS\*82

**Category** C**Class** 2**Function:**

Steam Generators residual heat release check valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

Full stroking open these valves during normal operation cannot be performed because a reduction in plant power would be required in order to prevent exceeding full power limitations.

**Alternate Test:**

Full stroke exercised open during unit shutdown per 2OM-51.4.C.

**COLD SHUTDOWN JUSTIFICATION** 37**Valve No.:**

2SVS\*PCV101A  
 2SVS\*PCV101B  
 2SVS\*PCV101C

**Category** B**Class** 2**Function:**

Steam Generators atmospheric dump valves

**Test Requirement:**

Quarterly full stroke, time, and fail safe

**Basis for CSJ:**

These valves are normally closed. The safety function is to open to control S/G pressure after a reactor trip. Full or partial stroking open these valves during normal operation cannot be performed because a reduction in plant power would be required in order to prevent exceeding full power limitations. Closing the manual isolation valves so that these valves can be cycled presents an unacceptable risk to plant personnel due to their location in the plant.

**Alternate Test:**

Full stroke exercised and timed open and failed closed per 2OST-1.10 at cold shutdown.

**COLD SHUTDOWN JUSTIFICATION** 38**Valve No.:**

2SVS\*HCV104

**Category** B**Class** 2**Function:**

Combined Main Steam atmospheric dump valve

**Test Requirement:**

Quarterly full stroke, time, and fail safe

**Basis for CSJ:**

Valve is normally closed. Opened as necessary by operator during cooldown from the control room or Emergency Shutdown Panel. Full or partial stroking open this valve during normal operation cannot be performed because a reduction in plant power would be required in order to prevent exceeding full power limitations. Closing the manual isolation valve so that this valve can be cycled presents an unacceptable risk to plant personnel due to its location in plant.

**Alternate Test:**

Full stroke exercised and timed open and failed closed per 2OST-1.10 at cold shutdown.

**COLD SHUTDOWN JUSTIFICATION** 39**Valve No.:**

2FWS\*HYV157A

2FWS\*HYV157B

2FWS\*HYV157C

**Category** B**Class** 2**Function:**

Main Feedwater Headers Isolation Valves to Steam Generators

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valves are normally open. Safety position is closed for Feedwater isolation in the event of a high energy line break or Safety Injection System actuation. Full stroking closed during normal operation cannot be performed since this would stop feedwater flow to the steam generators resulting in plant shutdown.

**Alternate Test:**

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 40**Valve No.:**

2FWE\*42A

2FWE\*42B

2FWE\*43A

2FWE\*43B

2FWE\*44A

2FWE\*44B

**Category** C**Class** 2**Function:**

Auxiliary Feedwater headers check valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

Valves are normally closed. Safety position is opened for Auxiliary Feed System injection and closed to provide header separation in the event of a line break. Full stroking these valves during normal operation cannot be performed because the test method requires design flow to the steam generator for both forward and reverse stroking. Injection of relatively cold auxiliary feedwater would result in a thermal shock to the auxiliary feedwater piping which could lead to premature failure.

**Alternate Test:**

Full stroke exercised in both directions during cold shutdown per 2OST-24.6.

**COLD SHUTDOWN JUSTIFICATION** 41**Valve No.:**

2FWE\*99  
2FWE\*100  
2FWE\*101

**Category** C**Class** 2**Function:**

Auxiliary Feedwater header check valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

Full stroking these valves open during normal operation cannot be performed because the test method requires design flow to the steam generator. Injection of relatively cold auxiliary feedwater would result in a thermal shock to the auxiliary feedwater piping which could lead to premature failure.

**Alternate Test:**

Full stroke exercised open during cold shutdown per 2OST-24.6.

**COLD SHUTDOWN JUSTIFICATION** 42**Valve No.:**

2FWE\*FCV122  
2FWE\*FCV123A  
2FWE\*FCV123B

**Category** B/C**Class** 3**Function:**

Auxiliary Feed Pumps discharge flow control/check valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

These valves function as a pump discharge check valve (normally closed) and as an Auxiliary feed pump mini-flow control valve (normally open). Exercising of the check valves in the open position (and the mini-flow control valve closed) requires design flow to the steam generators, that would result in a thermal shock to the auxiliary feedwater piping which could lead to premature failure.

**Alternate Test:**

Full stroke exercised open and closed at cold shutdown per 2OST-24.4 and 24.6.



**COLD SHUTDOWN JUSTIFICATION** 43**Valve No.:**

2SWS\*57

2SWS\*58

2SWS\*59

**Category** C**Class** 3**Function:**

Service water pumps discharge check valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

Due to system design flow requirements at power, exercising of these valves requires use of the idle SWS pump. Relief is requested in the event the idle SWS pump is out of service for maintenance. Exercising can be accomplished upon return of the idle SWS pump to service.

**Alternate Test:**

Full stroke exercised open per 2CST-30.2(3)(6) and full stroke exercised closed per 2OST-30.6 quarterly or when the idle SWS pump is returned to service or at least at cold shutdown.

**COLD SHUTDOWN JUSTIFICATION** 44**Valve No.:**

2SWS\*MOV102A

2SWS\*MOV102B

2SWS\*MOV102C1

2SWS\*MOV102C2

**Category** B**Class** 3**Function:**

Service water pumps discharge valves

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Due to system design flow requirements at power, exercising of these valves requires use of the idle SWS pump. Relief is requested in the event the idle SWS pump is out of service for maintenance. Exercising can be accomplished upon return of the idle SWS pump to service.

**Alternate Test:**

Full stroke exercised and timed open per 2OST-30.6 quarterly or when the idle SWS pump is returned to service or at least at cold shutdown.



**COLD SHUTDOWN JUSTIFICATION NO. 45****Valve No.:**

2SWS\*106

2SWS\*107

**Category C****Class 3****Function:**

Service water header check valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

Full stroking these valves in the reverse direction is accomplished using a standby service water pump and cannot be performed during normal operation. Testing requires all SW pumps to be shutdown and the headers cross connected at the pumps in order to provide an upstream vent path of sufficient capacity to identify valve deterioration.

**Alternate Test:**

Full stroke exercised closed during cold shutdown per 2OST-30.8.

**COLD SHUTDOWN JUSTIFICATION 46****Valve No.:**

2SWS\*MOV106A

2SWS\*MOV106B

**Category B****Class 3****Function:**

Service Water headers isolation valves

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

These valves are normally open. The safety function is to close to ensure sufficient SWS supply to the RSS Heat exchangers. Closing these valves during normal operation would reduce service water supply to Turbine Building and CCP heat exchangers below acceptable limits for full power operation. Failure of the valves to reopen after closure could lead to equipment damage and plant shutdown.

**Alternate Test:**

Full stroke exercised and timed closed per 2OST-1.10 at cold shutdown and per 2OST-30.13 at refueling.

**COLD SHUTDOWN JUSTIFICATION** 47**Valve No.:**

2SWS\*MOV107A  
2SWS\*MOV107B  
2SWS\*MOV107C  
2SWS\*MOV107D

**Category** B**Class** 3**Function:** CCS HX from service water headers isolation valves**Test Requirement:** Quarterly full stroke and time

**Basis for CSJ:** These valves are normally open. The safety function is to close to isolate the NNS portion of the service water system. Full stroking during normal operation cannot be performed because testing requires cross connection of the service water system in order to maintain the required SW flow for support of full power operation. Failure of the valve to reopen would require operation of the SW system cross connected resulting in loss of SW train separation.

**Alternate Test:** Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 48**Valve No.:**

2SWS\*486  
2SWS\*487  
2SWS\*488

**Category** C**Class** 3**Function:** Service water pumps vacuum breaker check valves**Test Requirement:** Quarterly full stroke

**Basis for CSJ:** Due to system design flow requirements at power, exercising of these valves requires use of the idle SWS pump. Relief is requested in the event the idle SWS pump is out of service for maintenance. Exercising can be accomplished upon return of the idle SWS pump to service.

**Alternate Test:** Full stroke exercised closed per 2OST-30.2(3)(6) and full stroke exercised open per 2OST-30.6 quarterly or when the idle SWS pump is returned to service or at least cold shutdown.

**COLD SHUTDOWN JUSTIFICATION** 49**Valve No.:**

2FPW\*382

2FPW\*388

2FPW\*753

2FPW\*761

**Category** A/C**Class** 2**Function:**

Fire protection headers inside containment isolation check valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

These valves are normally closed. They would be opened in the event of a fire in containment. The safety position is closed for containment isolation. Full stroke testing can only be performed by cycling the weight loaded arm or leak testing. Since these valves are located inside containment, they are not accessible during normal operation.

**Alternate Test:**

Full stroke exercised in both directions by mechanical exerciser during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 50**Valve No.:**

2IAC\*22

**Category** A/C**Class** 2**Function:**

Instrument Air header inside containment isolation check valve

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

This valve is normally closed and is opened as required to supply instrument air to the containment. The safety position is closed for containment isolation. Full stroke testing can only be performed by cycling the weight loaded arm or leak testing. Since this valve is located inside containment, it is not accessible during normal operation.

**Alternate Test:**

Full stroke exercised closed by mechanical exerciser during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 51**Valve No.:**

2HVR\*MOD23A  
2HVR\*MOD23B  
2HVR\*MOD25A  
2HVR\*MOD25B

**Category** A**Class** 2**Function:**

Containment purge discharge and supply outside and inside isolation dampers

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

These dampers are closed during power operation and opened for refueling operation. Safety functions are during power operation to remain closed for containment isolation and during refueling to close in the event of a refueling accident. These dampers cannot be cycled during normal operation because Technical Specifications require the dampers to be locked shut during normal operations.

**Alternate Test:**

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

COLD SHUTDOWN JUSTIFICATION 52

## Valve No:

2CVF SOV102  
2CVS SOV153A  
2CVS SOV153B

Category AClass 2

## Function:

Containment Airborne Activity Radiation Monitor [2RMR\*RQ303]  
containment isolation valves

## Test Requirement:

Quarterly full stroke and time

## Basis for CSJ:

In order to stroke and time these valves, the Containment Airborne Activity Radiation Monitor [2RMR\*RQ303] must be shutdown. When this occurs, both the containment gaseous and particulate airborne activity monitors are temporarily inoperable and places the plant in a twelve hour action per Tech. Spec. 3.4.6.1 with additional requirements to verify the containment sump discharge flow measurement system operable and to perform a RCS water inventory balance in four hours. Without these additional provisions a forced shutdown is required in six hours.

## Alternate Test:

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.



**COLD SHUTDOWN JUSTIFICATION** 53**Valve No.:**

2SIS\*46

2SIS\*47

**Category** C**Class** 2**Function:**

Recirculation Spray Pump discharge to LHSI Pump discharge weighted arm check valves

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

These check valves are normally closed. Their safety function is to open during the Recirculation Phase. Full stroke testing can only be done by cycling the weight loaded arm of each check valve. Exercising these weighted arm check valves in the open direction during normal operation requires excessive forces due to the head of water from the Refueling Water Storage Tank (RWST) against the check valve disk. Engineering does not recommend applying the excessive forces required to cycle the check valves open. The pressure created by the head of water from the RWST could be bled off by isolating one LHSI System train at a time and draining radioactive water from a drain valve into a sump. However, isolating one train of an Emergency Core Cooling System during plant operation would place the plant into a Technical Specification Action Statement. If tested quarterly, the amount of radioactive water drained from the system to bleed off pressure would create additional liquid waste for disposal.

**Alternate Test:**

Full stroke exercised in both directions by mechanical exerciser during cold shutdown per 2OST-1.10.



**COLD SHUTDOWN JUSTIFICATION** 54**Valve No.:**

2CCP\*27A  
2CCP\*27B  
2CCP\*354  
2CCP\*355

**Category** B**Class** 3**Function:**

Component Cooling discharge header cross-connect manual isolation valves.

**Test Requirement:**

Quarterly full stroke

**Basis for CSJ:**

The Component Cooling System operates in a cross-connected condition with all the above manual valves open and any two of three Component Cooling Pumps supplying any two of three Component Cooling Heat Exchangers through a Train A or Train B flow path. With one of the heat exchangers out of service for cleaning, closure of these manual valves during normal operation would interrupt flow of cooling water to Train A or Train B cooling loads resulting in a thermal transient and potential plant trip. In addition, the idle heat exchanger is normally held in reserve following cleaning to improve plant reliability until one of the inservice heat exchangers becomes fouled. Exercising of these valves in conjunction with the quarterly pump tests with the "C" Heat Exchanger in service would require placing the clean heat exchanger into service prematurely in order to prevent isolation of the Train A or Train B cooling loads.

**Alternate Test:**

Full stroke exercised closed during cold shutdown per 2OST-1.10.

**COLD SHUTDOWN JUSTIFICATION** 55**Valve No.:**

2FWS\*FCV478

2FWS\*FCV488

2FWS\*FCV498

**Category** B**Class** 2**Function:**

Steam generator main feedwater regulating valves.

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valves are normally open during power operation. Their safety position is closed for feedwater isolation in the event of a high energy line break or Safety Injection System actuation. Full stroking closed during normal operation cannot be performed since this would isolate feedwater flow to the steam generators resulting in a plant trip and shutdown.

**Alternate Test:**

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

---

**COLD SHUTDOWN JUSTIFICATION** 56**Valve No.:**

2FWS\*FCV479

2FWS\*FCV489

2FWS\*FCV499

**Category** B**Class** 2**Function:**

Steam generator bypass feedwater control valves

**Test Requirement:**

Quarterly full stroke and time

**Basis for CSJ:**

Valves are normally set at approximately 10% open during power operation. Their safety position is closed for feedwater isolation in the event of a high energy line break or Safety Injection System actuation. Full stroking closed may cause an unnecessary challenge to the plant during normal operation since this will cause the main feed regulating valves to reposition to compensate for the loss of flow. The resulting transient on the steam generators may result in a plant trip and shutdown.

**Alternate Test:**

Full stroke exercised and timed closed at cold shutdown per 2OST-1.10.

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COLD SHUTDOWN JUSTIFICATION 57

## Valve No.:

2QSS\*MOV102A

2QSS\*MOV102B

Category BClass 2

## Function:

Quench Spray Chemical Addition Tank discharge isolation valves to Chemical Injection Pumps

## Test Requirement:

Quarterly full stroke and time

## Basis for CSJ:

Stroking these valves introduces 23% NaOH from the Chemical Addition Tank into the piping downstream of these valves. Attempts to purge the downstream piping using a backflush of RWST water to the Safeguards sump after valve stroking has proven ineffective. Subsequent testing of the Chemical Injection Pumps on recirculation with the RWST results in sodium contamination of the RWST. During refueling outages the RCS, fuel pool and RWST are all in direct communication, therefore any sodium intrusion into the RWST will eventually spread to the RCS, a highly undesirable situation.

Removal of sodium from the RWST is a difficult process which involves recirculation of the RWST through the Fuel Pool Ion Exchangers. This process can degrade RWST cooling (RWST temperature is limited by Technical Specifications), and can take months to reduce the concentration to the desired level. In order to prevent any sodium introduction into the RWST, a more effective flush after valve stroking could be performed, but it involves a much longer period of system inoperability. Performance at Cold Shutdown would allow a more thorough backflush while in a Mode where the system is not required by Technical Specifications.

## Alternate Test:

Full stroke exercised and timed open at cold shutdown per 2OST-1.10.

**SECTION VII: VALVE TESTING RELIEF REQUESTS**

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**RELIEF REQUEST**   1  

Valve No.:

See next page

Category   A and A/C  Class   2  

Function:

Containment Isolation

Test Requirement:

Leak tested per IWV-3420 at least once every 2 years.

Basis for Relief:

These containment isolation valves are leak tested in accordance with 10CFR50, Appendix J, Type C. Since the acceptance criteria for Appendix J, Type C testing is more limiting than ASME Section XI, additional leak testing in accordance with ASME Section XI would be redundant.

Alternate Test:

Leak test at refueling in accordance with 10CFR50, Appendix J, IWV-3426, and IWV-3427(a) per 2BVT 1.47.5. As a special test, after maintenance has been performed on any Type C relief valves, 2BVT 2.47.2 may be performed to leak test the applicable relief valves in lieu of 2BVT 1.47.5.

## RELIEF REQUEST \_\_\_\_\_

CONTAINMENT ISOLATION VALVES

2RCS'68	2CVS'151-1	2SSR'SOV129A2	2FPW'AOV205
2RCS'7"	2CVS'SOV151A	2SSR'SOV130A1	2FPW'AOV206
2RCS'RV100	2CVS'SOV151B	2SSR'SOV130A2	2FPW'AOV221
2RCS'AOV101	2CVS'SOV152A	2PAS'SOV105A1	2FPW'382
2RCS'AOV519	2CVS'SOV152B	2PAS'SOV105A2	2FPW'388
2CHS'HCV142	2CVS'SOV153A	2CCP'RV102	2FPW'753
2CHS'AOV'30A	2CVS'SOV153B	2CCP'RV103	2FPW'761
2CHS'AOV200B	2LMS'51	2CCP'RV104	2SAS'14
2CHS'AOV200C	2LMS'52	2CCP'RV105	2SAS'15
2CHS'RV203	2QSS'3	2CCP'MOV150-1	2IAC'22
2CHS'AOV204	2QSS'4	2CCP'MOV150-2	2IAC'MOV130
2CHS'MOV378	2QSS'SOV100A	2CCP'MOV151-1	2IAC'MOV133
2CHS'MOV381	2QSS'SOV100B	2CCP'MOV151-2	2IAC'MOV134
2CHS'473	2QSS'MOV101A	2CCP'MOV156-1	2HVR'MOD23A
2DAS'AOV100A	2QSS'MOV101B	2CCP'MOV156-2	2HVR'MOD23B
2DAS'AOV100B	2QSS'RV101A	2CCP'MOV157-1	2HVR'MOD25A
2DAS'RV110	2QSS'RV101B	2CCP'MOV157-2	2HVR'MOD25B
2DGS'AOV108A	2QSS'267	2FNC'9	2HVR'DMP206
2DGS'AOV108B	2SSR'AOV100A1	2FNC'38	2HCS'110
2DGS'RV115	2SSR'AOV100A2	2FNC'121	2HCS'111
2VRS'AOV109A1	2SSR'AOV102A1	2FNC'122	2HCS'SOV114A
2VRS'AOV109A2	2SSR'AOV102A2	2SWS'RV152	2HCS'SOV114B
2RHS'15	2SSR'AOV109A1	2SWS'MOV152-1	2HCS'SOV115A
2RHS'RV100	2SSR'AOV109A2	2SWS'MOV152-2	2HCS'SOV115B
2RHS'107	2SSR'AOV112A1	2SWS'RV153	2HCS'MOV116
2SIS'41	2SSR'AOV112A2	2SWS'MOV153-1	2HCS'MOV117
2SIS'42	2SSR'RV117	2SWS'MOV153-2	2HCS'SOV133A
2SIS'RV130	2SSR'RV118	2SWS'RV154	2HCS'SOV133B
2SIS'RV175	2SSR'RV119	2SWS'MOV154-1	2HCS'SOV134A
2SIS'MOV842	2SSR'RV120	2SWS'MOV154-2	2HCS'SOV134B
2SIS'AOV889	2SSR'RV121	2SWS'RV155	2HCS'SOV135A
2GNS'AOV'01-1	2SSR'RV122	2SWS'MOV155-1	2HCS'SOV135B
2GNS'AOV101-2	2SSR'SOV128A1	2SWS'MOV155-2	2HCS'SOV136A
2CVS'83	2SSR'SOV128A2	2FPW'AOV204	2HCS'SOV136B
2CVS'SOV102	2SSR'SOV129A1		
2CVS'151			



**RELIEF REQUEST**   2  

Valve No.:

See below

Category   A and A/C  Class   2  

Function:

Containment Isolation

Test Requirement:

Corrective action following leak testing per IWV-3427(b)

Basis for Relief:

IWV-3427(b) specifies additional requirements on increased test frequencies for valve sizes of six inches and larger and repairs or replacement over the requirements of IWV-3427(a). The usefulness of IWV-3427(b) does not justify the burden of complying with this requirement. Unnecessary repair or replacement of a valve or additional leak testing, if attempted at cold shutdown, could delay plant startup. Per 10CFR50.55a(a)(3)(ii), compliance with the specified requirements of IWV-3427(b) would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety.

Alternate Test:

For valves (6 inch diameter or larger) in 2BVT 1.47.5, if the measured leak rate exceeds the rate determined, the valve shall be replaced or repaired.

CONTAINMENT ISOLATION VALVES

2CHS*AOV200A	2QSS*MOV101A	2CCP*MOV151-1	2FNC*122	2SWS*MOV154-2
2CHS*AOV200B	2QSS*MOV101B	2CCP*MOV151-2	2SWS*RV152	2SWS*RV155
2CHS*AOV200C	2QSS*RV101A	2CCP*MOV156-1	2SWS*MOV152-1	2SWS*MOV155-1
2RHS*15	2QSS*RV101B	2CCP*MOV156-2	2SWS*MOV152-2	2SWS*MOV155-2
2RHS*RV100	2CCP*RV102	2CCP*MOV157-1	2SWS*RV153	2FPW*AOV206
2RHS*107	2CCP*RV103	2CCP*MOV157-2	2SWS*MOV153-1	2FPW*761
2CVS*151	2CCP*RV104	2FNC*9	2SWS*MOV153-2	2HVR*MOD23A
2CVS*151-1	2CCP*RV105	2FNC*38	2SWS*RV154	2HVR*MOD23B
2QSS*3	2CCP*MOV150-1	2FNC*121	2SWS*MOV154-1	2HVR*MOD25A
2QSS*4	2CCP*MOV150-2			2HVR*MOD25B
				2HVR*DMP206

**RELIEF REQUEST** 3**Valve No.:**

2CHS\*22

2CHS\*23

2CHS\*24

**Category** C**Class** 2**Function:**

Charging pumps discharge check valves

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

When the RCS is at normal operating pressure, full stroking the discharge check valves cannot be performed because the charging pump will not develop the required flow. In addition, injection of relatively cold water will cause a thermal cycle or shock resulting in an increased probability of system failure. At cold shutdown full stroking cannot be performed because full flow testing could result in low-temperature overpressurization of the RCS.

**Alternate Test:**

Partial stroke exercised open quarterly per 2OST-7.4(5)(6)  
Full stroke exercised open at refueling per 2OST-11.14

**RELIEF REQUEST** 4**Valve No.:**

2SIS\*6

2SIS\*7

**Category** C**Class** 2**Function:**

LHSI pumps discharge check valves

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

Normal position is closed. Safety function is to open for LHSI. When the RCS is at normal operating pressure, full stroking the discharge check valves cannot be performed because the LHSI pump will not develop the required flow to open the valve. At cold shutdown full stroking cannot be performed because testing would require full flow injection to the RCS where there is not sufficient volume to receive the additional inventory.

**Alternate Test:**

Full stroke exercised open at refueling per 2OST-11.14.

RELIEF REQUEST 5

Valve No.:

2SIS\*27

Category CClass 2

Function:

RWST to HHSI pump suction check valve

Test Requirement:

Quarterly full stroke

Basis for Relief:

When the RCS is at normal operating pressure full stroking the suction check valve cannot be performed because the charging pump will not develop the required flow. In addition, injection of relatively cold water will cause a thermal cycle or shock resulting in an increased probability of system failure. At cold shutdown full stroking cannot be performed because full flow testing could result in low-temperature overpressurization of the RCS.

Alternate Test:

Full stroke exercised open at refueling 2OST-11.14.

RELIEF REQUEST 6

Valve No.:

2SIS\*107

2SIS\*108

2SIS\*109

Category A/CClass 1

Function:

LHSI header check valves to RCS cold legs

Test Requirement:

Quarterly full stroke

Basis for Relief:

Normal position is closed. Safety function is to open for LHSI and closed to isolate the LHSI system piping from the RCS during normal operation. When the RCS is at normal operating pressure, full stroking the header check valves cannot be performed because the LHSI pump will not develop the required flow to open the valve. At cold shutdown full stroking cannot be performed because testing would require full flow injection to the RCS where there is not sufficient volume to receive the additional inventory.

Alternate Test:

Full stroke exercised open at refueling per 2OST-11.14.

**RELIEF REQUEST** 7**Valve No.:**

2SIS\*122

2SIS\*123

2SIS\*124

2SIS\*125

2SIS\*126

2SIS\*127

**Category** C**Class** 1**Function:**

HHSI header check valves to RCS hot legs

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

Normal position is closed. Safety function is to open for HHSI. When the RCS is at normal operating pressure, full stroking the header check valves cannot be performed because the charging pump will not develop the required flow. In addition, injection of relatively cold water will cause a thermal cycle or shock resulting in an increased probability of system failure. At cold shutdown full stroking cannot be performed because full flow testing could result in low-temperature overpressurization of the RCS.

**Alternate Test:**

Full stroke exercised open at refueling per 2OST-11.14. |

**RELIEF REQUEST** 8**Valve No.:**

2SIS\*128

2SIS\*129

**Category** A/C**Class** 1**Function:**

LHSI header check valves to RCS hot legs

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

Normal position is closed. Safety function is to open for LHSI and closed to isolate the LHSI system piping from the RCS during normal operation. When the RCS is at normal operating pressure, full stroking the header check valves cannot be performed because the LHSI pump will not develop the required flow to open the valve. At cold shutdown full stroking cannot be performed because testing would require full flow injection to the RCS where there is not sufficient volume to receive the additional inventory.

**Alternate Test:**

Full stroke exercised open at refueling per 2OST-11.14.

**RELIEF REQUEST**   9  **Valve No.:**

2SIS\*134

2SIS\*135

2SIS\*136

2SIS\*137

2SIS\*138

2SIS\*139

**Category**   C  **Class**   1  **Function:**

HHSI header check valves to RCS cold legs

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

When the RCS is at normal operating pressure, full stroking the header check valves cannot be performed because the charging pump will not develop the required flow. In addition injection of relatively cold water will cause a thermal cycle or shock resulting in an increased probability of system failure. At cold shutdown full stroking cannot be performed because full flow testing could result in low-temperature overpressurization of the RCS.

**Alternate Test:**

Full stroke exercised open at refueling per 2OST-11.14.



**RELIEF REQUEST** 10**Valve No.:**

2SIS\*141

2SIS\*142

2SIS\*145

2SIS\*147

2SIS\*148

2SIS\*151

**Category** A/C**Class** 1**Function:**

Safety Injection Accumulators discharge check valves

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

Normal position is closed. Safety function is to open for passive low pressure injection to the RCS. When the RCS is at normal operating pressure, full stroking accumulator discharge check valves cannot be performed because the RCS is at a higher pressure than the accumulators. Full stroking may not be performed during cold shutdown because the reduced pressure which is required to perform this test may not be obtainable. In addition, stroke testing if attempted at cold shutdown, could extend the length of a plant shutdown due to extensive preparatory work in establishing the proper reactor coolant system conditions.

**Alternate Test:**

Full stroke exercised open at refueling per 2BVT 1.11.3. As a special test, after maintenance has been performed on any of these valves, 2OST-11.15 may be performed to partial stroke exercise the applicable check valve.

**RELIEF REQUEST** 11**Valve No.:**

2SIS\*545

2SIS\*546

2SIS\*547

**Category** C**Class** 1**Function:**

HHSI/LHSI header to RCS hot legs check valves

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

When the RCS is at normal operating pressure, full stroking the header check valves cannot be performed because the charging pump will not develop the required flow. In addition, injection of relatively cold water will cause a thermal cycle or shock resulting in an increased probability of system failure. At cold shutdown full stroking cannot be performed for [2SIS\*547] because full flow testing could result in low-temperature overpressurization of the RCS. Additionally, full stroking of [2SIS\*545 and 546] cannot be performed because testing would require full flow injection from LHSI to the RCS where there is not sufficient volume to receive the additional inventory.

**Alternate Test:**

Full stroke exercised open at refueling per 2OST-11.14.

**RELIEF REQUEST** 12**Valve No.:**

2SIS\*548

2SIS\*550

2SIS\*552

**Category** C**Class** 1**Function:**

HHSI/LHSI header to RCS cold legs check valves

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

Normal position is closed. Safety function is to open for HHSI/LHSI. When the RCS is at normal operating pressure, full stroking the header check valves cannot be performed because the LHSI pumps will not develop the required flow. At cold shutdown full stroking cannot be performed because testing would require full flow injection to the RCS where there is not sufficient volume to receive the additional inventory.

**Alternate Test:**

Full stroke exercised open at refueling per 2OST-11.14.

**RELIEF REQUEST** 13

Valve No.:

2CVS\*93

Category A/CClass 2

Function:

Containment Vacuum Radiation Monitor Pump discharge header inside containment isolation check valve

Test Requirement:

Quarterly full stroke

Basis for Relief:

Valve is normally open. Safety function is closed for containment isolation. Full stroking closed cannot be performed during normal operation because this valve is located inside containment and is inaccessible. In addition, leak testing is required to verify closure of this valve, and if attempted at cold shutdown could delay plant startup.

Alternate Test:

Valve closure is verified by a leak test at refueling per 2BVT 1.47.5.

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**RELIEF REQUEST** 14

Valve No.:

2CCP\*289

2CCP\*290

2CCP\*291

Category CClass 3

Function:

CCP to Reactor Coolant Pump Thermal Barrier Heat Exchanger supply check valves.

Test Requirement:

Quarterly full stroke

Basis for Relief:

Valves are normally open. Safety function is to close to isolate CCP from reactor coolant if a leak develops in the RCP thermal barrier heat exchanger. Valves cannot be full stroked during normal operation because the valves are located inside the containment and leak testing is required to verify closure. In addition, leak testing if attempted at cold shutdown could result in a delayed plant startup.

Alternate Test:

Valve closure is verified by a leak test at refueling per 2BVT 1.60.6.

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**RELIEF REQUEST** 15**Valve No.:**

2CCP\*352

**Category** C**Class** 3**Function:**

SC-3 to NNS boundary isolation valve

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

Valve is normally open. Safety function is closed to isolate NNS from SC-3 component cooling piping. Testing during normal operation cannot be performed because leak testing is required to verify valve closure, which would cause extended interruption of cooling water to the instrument air compressors. In addition, leak testing if attempted at cold shutdown could result in a delayed plant startup.

**Alternate Test:**

Valve closure is verified by a leak test at refueling per 2BVT 1.60.6.

**RELIEF REQUEST** 16**Valve No.:**

2MSS\*18

2MSS\*19

2MSS\*20

2MSS\*196

2MSS\*199

2MSS\*352

**Category** C**Class** 3**Function:**

Main Steam to Auxiliary Feed Pumps check valves

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

Valves are normally closed. Safety function is to open for operation of the steam driven auxiliary feed pump and closed to prevent steam generator cross-connection during a high energy line break. Full stroking closed for these valves cannot be performed during normal operation because leak testing is required to verify full closure. In addition, leak testing if attempted at cold shutdown could result in a delayed plant startup.

**Alternate Test:**

Valve closure is verified by a leak test at refueling per 2BVT 1.60.6.

**RELIEF REQUEST** 17**Valve No.:**

2SVS\*80

2SVS\*81

2SVS\*82

**Category** C**Class** 2**Function:**

Steam Generators residual heat release reverse flow check valves

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

Valves are normally closed. Safety position is closed to prevent cross-connection of steam generators during a high energy line break. Full stroking closed for these valves cannot be performed during normal operation because leak testing is required to verify full closure. In addition, leak testing if attempted at cold shutdown could result in a delayed plant startup.

**Alternate Test:**

Valve closure is verified by a leak test at refueling per 2BVT 1.60.6.



**RELIEF REQUEST** 18**Valve No.:**

2FWS\*28

2FWS\*29

2FWS\*30

**Category** C**Class** 2**Function:**

Main Feedwater header isolation check valves

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

Valves are normally open. Safety position is closed for Feedwater isolation in the event of a high energy line break. Exercising during power operation is not possible since this would require stopping feedwater flow to the Steam Generators, resulting in a plant shutdown. Leak testing to be performed with steam generator level  $\geq 85\%$  is required to verify the valves are full closed because they have no position indication or weighted arms. Leak testing if attempted at cold shutdown could result in delayed plant startup.

**Alternate Test:**

Valve closure is verified by a leak test at refueling per 2OST-24.8.

**RELIEF REQUEST** 19**Valve No.:**

2FWE'99

2FWE'100

2FWE'101

**Category** C**Class** 2**Function:**

Auxiliary Feedwater header to Steam Generators check valves

**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

Valves are normally closed. Safety function is to open during Auxiliary Feed System operation. Verification of full stroke closed is not possible during power operation because this involves a leak test to be performed with steam generator level  $\geq 85\%$ . Leak testing if attempted at cold shutdown could result in a delayed plant startup.

**Alternate Test:**

Valve closure is verified by a leak test at refueling per 2OST-24.8A. In addition, reverse direction testing will be performed by monitoring upstream pipe temperatures at least monthly by 2OST-24.1.

**RELIEF REQUEST** 20**Valve No.:**

2SWS'MOV103A

2SWS'MOV103B

**Category** B**Class** 3**Function:**

RSS heat exchangers service water supply isolation valves.

**Test Requirement:**

Quarterly full stroke and time

**Basis for Relief:**

Valves are normally closed. Safety function is to open to supply cooling water to the RSS heat exchangers. Valve is not cycled during plant operation as failure of the valve in the open position would require plant shutdown. Failure of the valve in the open position at cold shutdown would delay plant startup. (The Service Water System cannot simultaneously support normal plant operation and the RSS heat exchangers)

**Alternate Test:**

Full stroke exercised and timed open at refueling per 2OST-30.13.

**RELIEF REQUEST** 21**Valve No.:**

2SWS\*1103

2SWS\*1104

**Category** C**Class** 3**Function:**Service water to main steam valve house cooling headers  
check valves**Test Requirement:**

Quarterly full stroke

**Basis for Relief:**

Valves are normally open. Safety position is open to supply cooling water to main steam valve house cooling coils, and closed to prevent draining the jet lines to the MSVH cooling coils during a service water pump trip on a loss of power. Full stroking in the closed position cannot be performed during normal operation because isolation of the service water supply header in conjunction with a leak test is required to verify full closure. Isolation of the header is not acceptable because both SW headers are normally in service. In addition, leak testing if attempted at cold shutdown could result in a delayed plant startup.

**Alternate Test:**

Valve closure is verified by a leak test at refueling per 2BVT 1.60.6.

**RELIEF REQUEST** 22**Valve No.:**

2EGF\*SOV202-1  
2EGF\*SCV202-2  
2EGF\*SOV203-1  
2EGF\*SOV203-2

**Category** B**Class** 3**Function:**

Emergency Diesel Generator Air Starting Solenoid Valves

**Test Requirement:**

Quarterly stroke and time/verify remote position indication bi-annually.

**Basis for Relief:**

These valves are quick acting and do not have position indication. Operation of these valves will be monitored by timing the starting time to rated speed for each EDG. Individual valves will be tested by isolating one bank of air prior to starting on an alternating frequency. This will insure each bank is capable of starting the EDG in the required time and that the air starting solenoids are not degrading.

**Alternate Test:**

Stroked and indirectly timed on an alternating frequency in conjunction with monthly diesel generator 2OST-36.1 and 36.2 to ensure compliance with ASME XI requirement for stroke testing on a quarterly frequency. Assign a limiting stroke time based on EDG starting requirements for ESF response time. (EDG ready to accept load  $\leq$  10 sec.).

**RELIEF REQUEST** 23**Valve No.:**

2CHS\*MOV378

2CHS\*473

**Category** A and A/C**Class** 2**Function:**

RCP seal water return line inside containment isolation valves

**Test Requirement:**

IWV-3426 and 3427(a) require Owner specified maximum permissible leakage rates for specific valves as a function of valve size and type and provide the corrective action to be followed when these limits are exceeded.

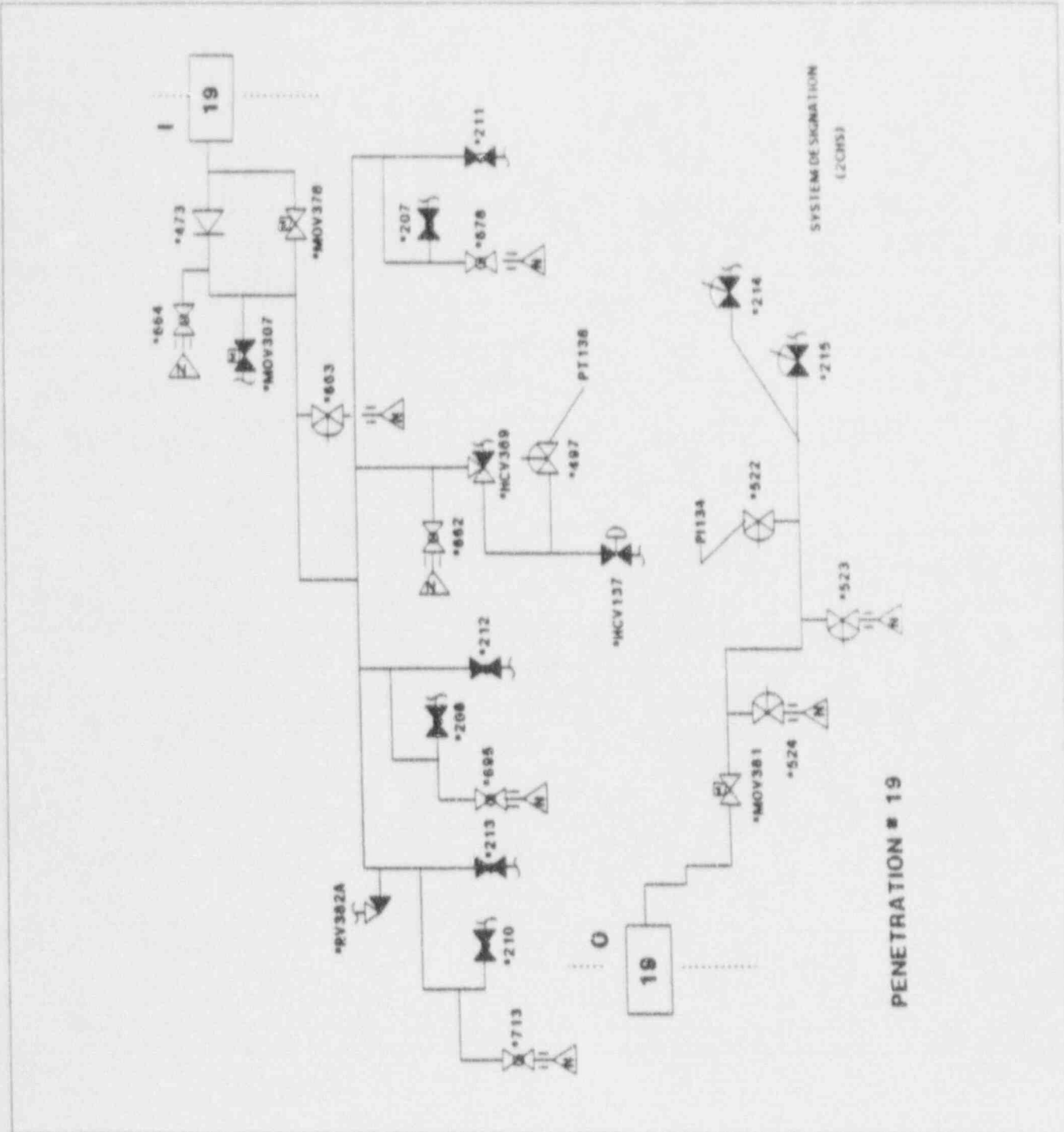
**Basis for Relief:**

As shown on the attached figure for Penetration #19, the configuration of this containment penetration (i.e., two inside containment isolation valves in parallel) is such that individual leakage rates for each specific valve cannot be determined using the test method of 10CFR50, Appendix J. In this case, assigning maximum permissible leakage rates for each valve would not be practical.

**Alternate Test:**

Assign a maximum permissible leakage rate for the entire barrier to then be used as the criteria for initiating corrective action in accordance with IWV-3427(a).

RELIEF REQUEST 23





**RELIEF REQUEST** 24**Valve No.:**

2CHS\*AOV200A

2CHS\*AOV200B

2CHS\*AOV200C

**Category** A**Class** 2**Function:**

Reactor coolant letdown orifice inside containment isolation valves

**Test Requirement:**

IWV-3426 and 3427(a) require Owner specified maximum permissible leakage rates for specific valves as a function of valve size and type and provide the corrective action to be followed when these limits are exceeded.

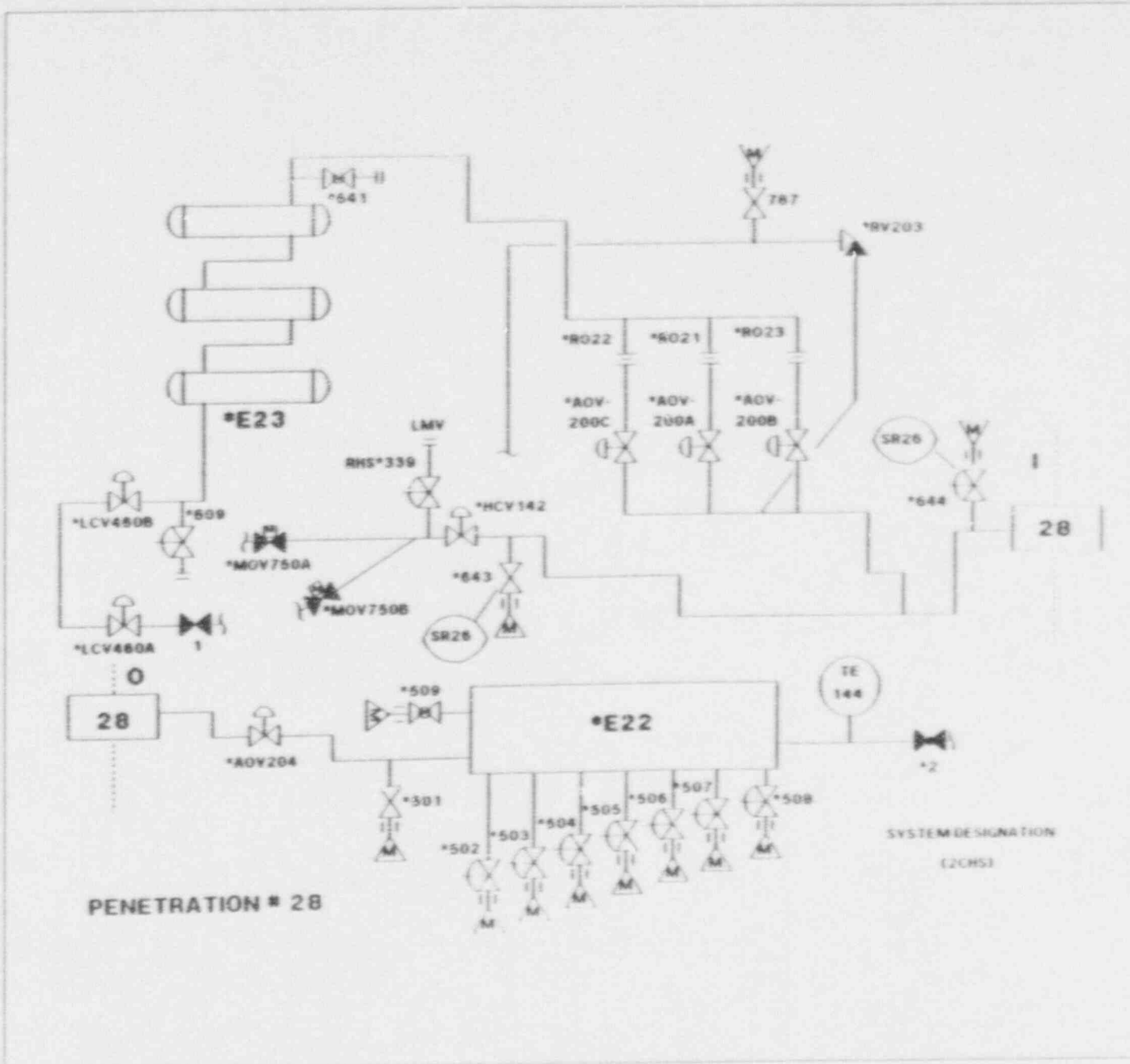
**Basis for Relief:**

As shown on the attached figure for Penetration #28, the configuration of this containment penetration (i.e., three inside containment isolation valves in parallel) is such that individual leakage rates for each specific valve cannot be determined using the test method of 10CFR50, Appendix J. In this case, assigning maximum permissible leakage rates for each valve would not be practical.

**Alternate Test:**

Assign a maximum permissible leakage rate for the entire barrier to then be used as the criteria for initiating corrective action in accordance with IWV-3427(a).

RELIEF REQUEST 24



PENETRATION # 28

SYSTEM DESIGNATION  
(2CH5)

**RELIEF REQUEST** 25**Valve No.:**

2HVR\*MOD23A

2HVR\*MOD23B

**Category** A**Class** 2**Function:**

Containment purge exhaust fan containment isolation dampers

**Test Requirement:**

IWV-3426 and 3427(a) require Owner specified maximum permissible leakage rates for specific valves as a function of valve size and type and provide the corrective action to be followed when these limits are exceeded.

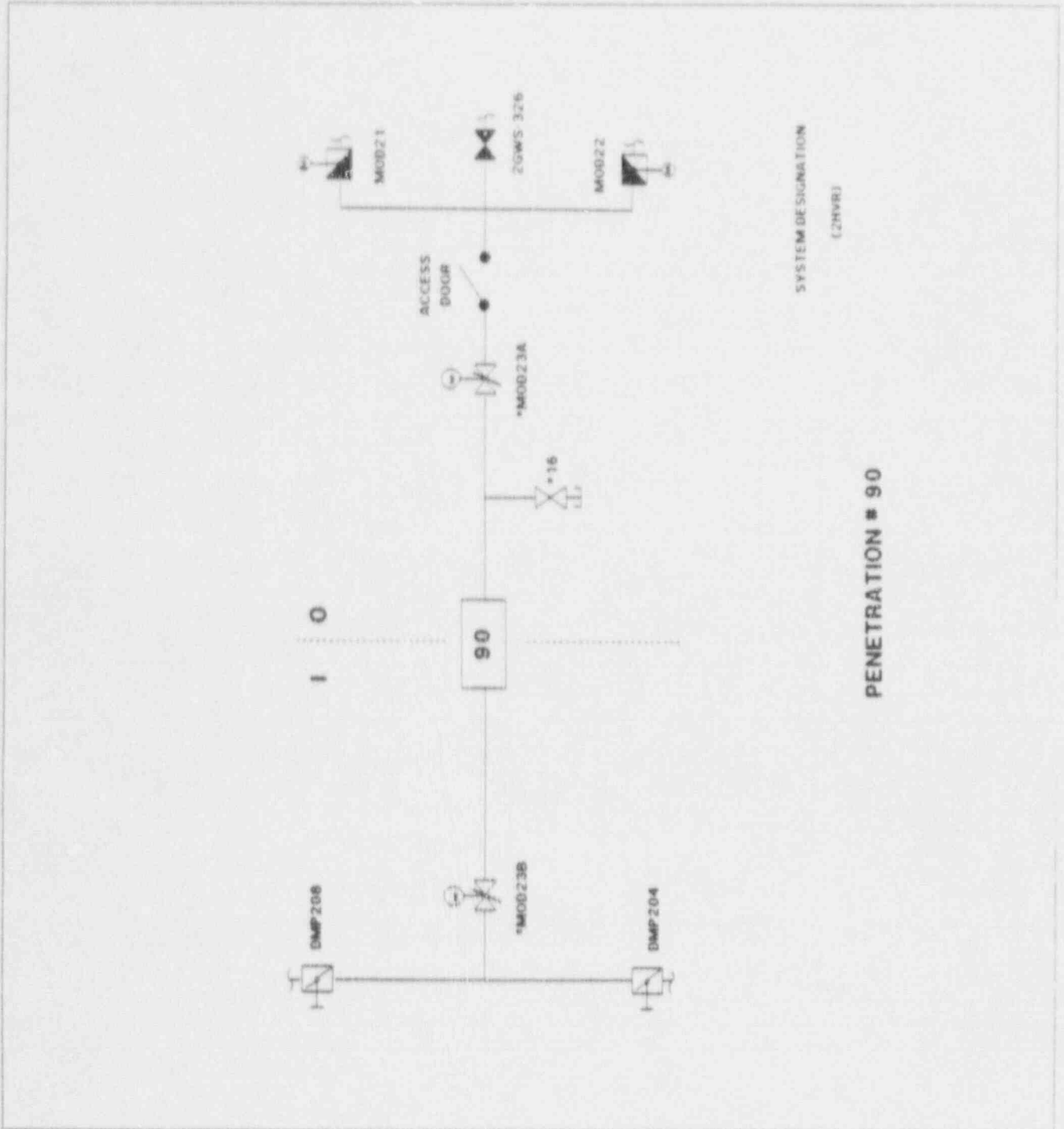
**Basis for Relief:**

As shown on the attached figure for Penetration #90, the configuration of this containment penetration (i.e., a single test connection located between two containment isolation dampers in series) is such that individual leakage rates for each specific damper cannot be determined using the test method of 10CFR50, Appendix J. In this case, assigning maximum permissible leakage rates for each damper would not be practical.

**Alternate Test:**

Assign a maximum permissible leakage rate for the entire barrier to then be used as the criteria for initiating corrective action in accordance with IWV-3427(a).

RELIEF REQUEST 25



**RELIEF REQUEST** 26**Valve No.:**

2HVR\*MOD25A  
2HVR\*MOD25B  
2HVR\*DMP206

**Category** A**Class** 2**Function:**

Containment purge supply fan containment isolation dampers

**Test Requirement:**

IWV-3426 and 3427(a) require Owner specified maximum permissible leakage rates for specific valves as a function of valve size and type and provide the corrective action to be followed when these limits are exceeded.

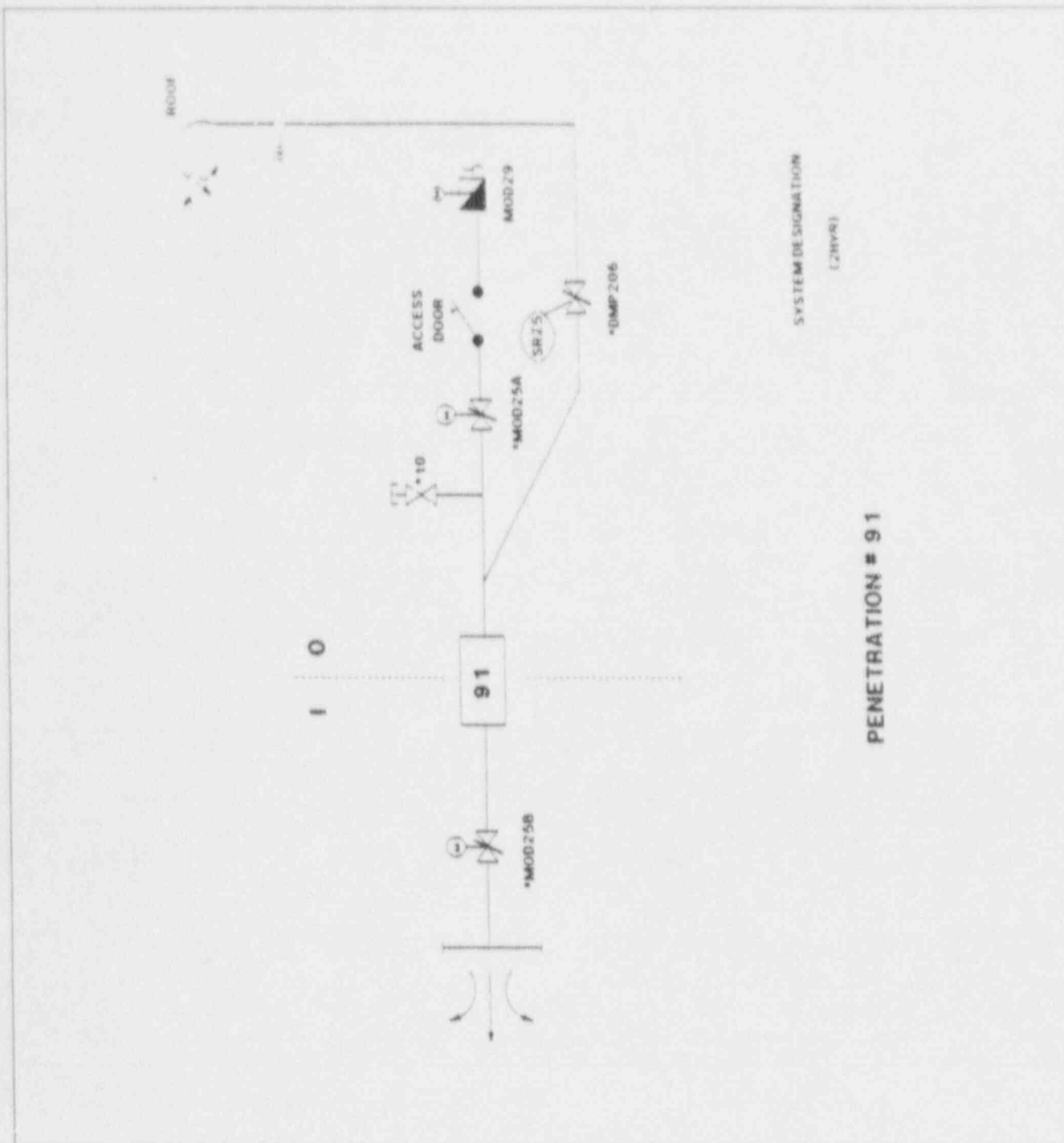
**Basis for Relief:**

As shown on the attached figure for Penetration #91, the configuration of this containment penetration (i.e., a single test connection located between the three penetration isolation dampers) is such that individual leakage rates for each specific damper cannot be determined using the test method of 10CFR50, Appendix J. In this case, assigning maximum permissible leakage rates for each damper would not be practical.

**Alternate Test:**

Assign a maximum permissible leakage rate for the entire barrier to then be used as the criteria for initiating corrective action in accordance with IWV-3427(a).

RELIEF REQUEST 26





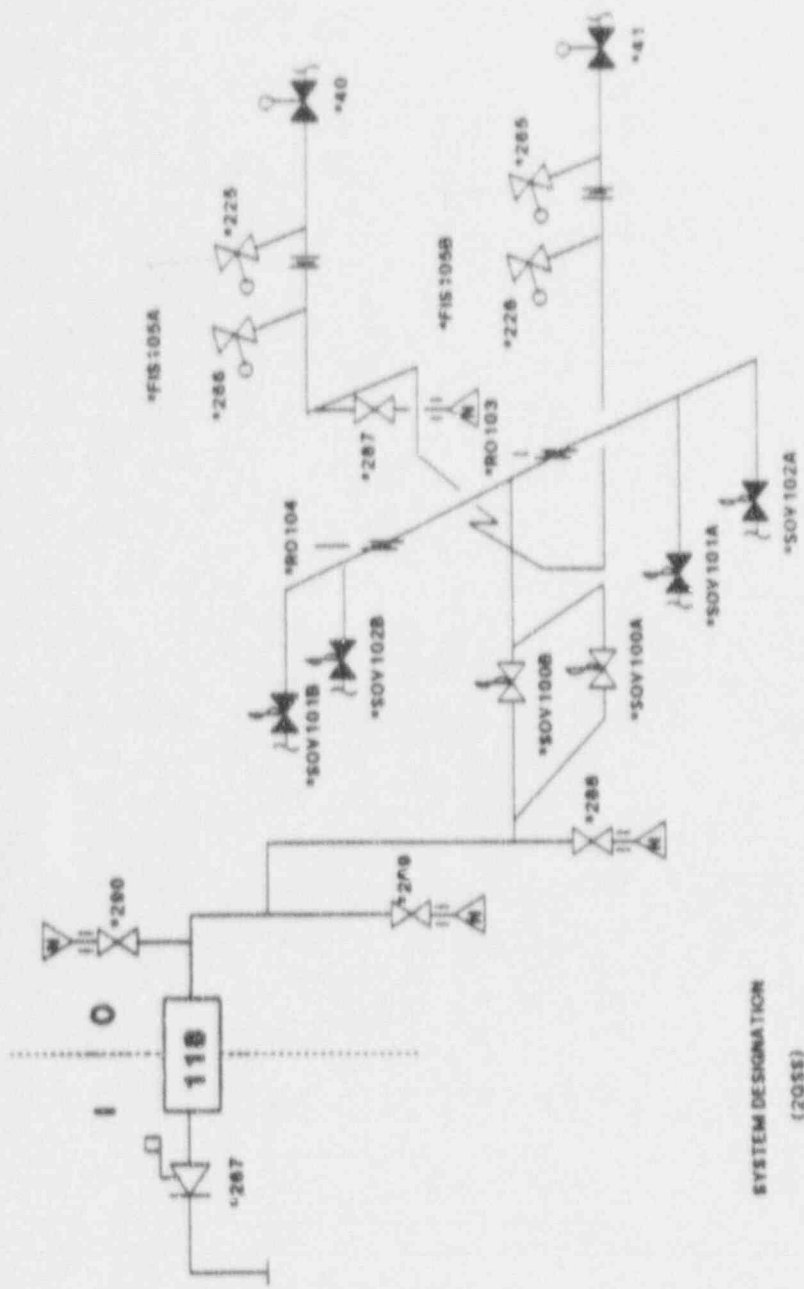
**RELIEF REQUEST** 27**Valve No.:**

2QSS\*SOV100A

2QSS\*SOV100B

**Category** A**Class** 2**Function:**Chemical Injection Pump discharge to containment sump  
isolation valves**Test Requirement:**IWV-3426 and 3427(a) require Owner specified maximum  
permissible leakage rates for specific valves as a function of  
valve size and type and provide the corrective action to be  
followed when these limits are exceeded.**Basis for Relief:**As shown on the attached figure for Penetration #118, the  
configuration of this containment penetration (i.e., two  
outside containment isolation valves in parallel) is such that  
individual leakage rates for each specific valve cannot be  
determined using the test method of 10CFR50, Appendix J.  
In this case, assigning maximum permissible leakage rates  
for each valve would not be practical.**Alternate Test:**Assign a maximum permissible leakage rate for the entire  
barrier to then be used as the criteria for initiating corrective  
action in accordance with IWV-3427(a).

RELIEF REQUEST 27



SYSTEM DESIGNATION  
(2058)

PENETRATION # 118

**RELIEF REQUEST** 28**Valve No.:**

See next page

**Category** A and A/C**Class** 2**Function:**

Containment Isolation

**Test Requirement:**

IWV-3426 and 3427(a) require Owner specified maximum permissible leakage rates for specific valves as a function of valve size and type and provide the corrective action to be followed when these limits are exceeded.

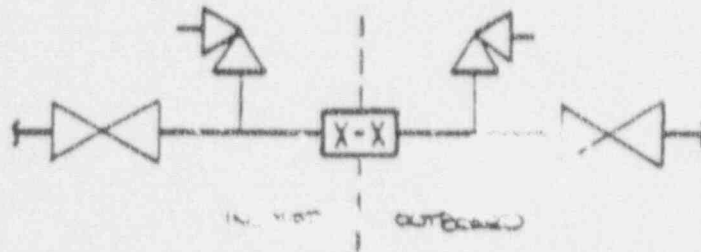
**Basis for Relief:**

As shown on the attached figure for the penetrations listed on the next page, the configuration of these containment penetrations (i.e. two outside or two inside containment isolation valves in parallel, one valve being a relief valve) is such that individual leakage rates for each specific valve cannot be determined using the test method of 10CFR50, Appendix J. In this case, assigning maximum permissible leakage rates for each valve would not be practical.

**Alternate Test:**

Assign a maximum permissible leakage rate for the entire barrier to then be used as the criteria for initiating corrective action in accordance with IWV-3427(a).

RELIEF REQUEST 28



Penetration No. 1	Valves 2CCP*MOV157-1	& 2CCP*RV105
Penetration No. 2	Valves 2CCP*MOV150-1	& 2CCP*RV102
Penetration No. 4	Valves 2CCP*MOV151-1	& 2CCP*RV103
Penetration No. 5	Valves 2CCP*MOV156-1	& 2CCP*RV104
Penetration No. 14	Valves 2SWS*MOV153-1	& 2SWS*RV153
Penetration No. 20	Valves 2SIS*41	& 2SIS*RV130
Penetration No. 21	Valves 2SWS*MOV155-1	& 2SWS*RV155
Penetration No. 24	Valves 2RHS*15	& 2RHS*RV100
Penetration No. 25	Valves 2SWS*MOV154-1	& 2SWS*RV154
Penetration No. 27	Valves 2SWS*MOV152-1	& 2SWS*RV152
Penetration No. 29	Valves 2DGS*AOV108B	& 2DGS*RV115
Penetration No. 38	Valves 2DAS*AOV100B	& 2DAS*RV110
Penetration No. 45	Valves 2RCS*AOV519	& 2RCS*RV100
Penetration No. 55-1	Valves 2SSR*AOV109A2	& 2SSR*RV117
Penetration No. 56-1	Valves 2SSR*AOV102A2	& 2SSR*RV118
Penetration No. 56-2	Valves 2SSR*AOV128A2	& 2SSR*RV120
Penetration No. 56-3	Valves 2SSR*AOV100A2	& 2SSR*RV119
Penetration No. 57-1	Valves 2SSR*AOV112A2	& 2SSR*RV121
Penetration No. 63	Valves 2QSS*MOV101A	& 2QSS*RV101A
Penetration No. 64	Valves 2QSS*MOV101B	& 2QSS*RV101B
Penetration No. 97-1	Valves 2SSR*SOV129A2	& 2SSR*RV122
Penetration No. 106	Valves 2SIS*AOV889	& 2SIS*RV175

**RELIEF REQUEST** 29

Valve No.:

2SWS'106

2SWS'107

Category CClass 3

Function:

Service water header check valves

Test Requirement:

Quarterly full stroke

Basis for Relief:

These valves are open during normal plant operation, but full stroking of the check valves in the forward direction cannot be performed because normal plant operation of the service water system will not develop the required flow. Full stroking of these valves is accomplished by aligning the service water system through the recirc spray heat exchangers. This can only be done during refueling outages because the service water system cannot simultaneously support normal plant operation and the recirc spray heat exchangers.

Alternate Test:

Partial stroke exercised open quarterly per 2OST-30.2(3)(6).  
Full stroke exercised open at refueling per 2OST-30.13.

**RELIEF REQUEST** 30

Valve No.:

See next page

Category A,BClass 1,2,3

Function:

Various

Test Requirement:

Stroke time trending. IWV-3417(a)

Basis for Relief:

Stroke times for rapid acting valves are affected by variations in the response time of personnel performing the test. Therefore, trending stroke times for rapid acting valves is not practical and relief from trending these valves is requested.

Alternate Test:

Assign a limiting stroke time of 2 seconds to these valves and delete trending requirements.

RELIEF REQUEST 30RAPID ACTING VALVES

2RCS*SOV200A	2CVS*SOV151B	2PAS*SOV105A1
2RCS*SOV200B	2CVS*SOV152A	2PAS*SOV105A2
2RCS*SOV201A	2CVS*SOV152B	2MSS*SOV105E
2RCS*SOV201B	2CVS*SOV153A	2MSS*SOV105F
2RCS*PCV455C	2CVS*SOV153B	2HCS*SOV114A
2RCS*PCV455D	<input type="checkbox"/> 2QSS*SOV100A	2HCS*SOV114B
2RCS*PCV456	<input type="checkbox"/> 2QSS*SOV100B	2HCS*SOV115A
2CHS*SOV206	<input type="checkbox"/> 2QSS*SOV101A	2HCS*SOV115B
2GNS*SOV853A	<input type="checkbox"/> 2QSS*SOV101B	2HCS*SOV133A
2GNS*SOV853B	<input type="checkbox"/> 2QSS*SOV102A	2HCS*SOV133B
2GNS*SOV853C	<input type="checkbox"/> 2QSS*SOV102B	2HCS*SOV134A
2GNS*SOV853D	2SSR*AOV112A2	2HCS*SOV134B
2GNS*SOV853E	2SSR*SOV128A1	2HCS*SOV135A
2GNS*SOV853F	2SSR*SOV128A2	2HCS*SOV135B
2GNS*SOV854A	2SSR*SOV129A1	2HCS*SOV136A
2GNS*SOV854B	2SSR*SOV129A2	2HCS*SOV136B
2CVS*SOV102	2SSR*SOV130A1	
2CVS*SOV151A	2SSR*SOV130A2	

Stroked in both directions, but rapid-acting in open direction only.



ENCLOSURE 2